

OIL SPILL PUBLIC INFO. CENTER



3 6653 00006393 7

EVOS
GC
1552
.P75
S42
1991
v.7

[Shoreline evaluations, 1991].

Kenai RB-04 to US-03

Title supplied by cataloger. This title page is supplied by Alaska Resources Library and Information Services (ARLIS).

ARLIS

Alaska Resources Library & Information Services
Library Building, Suite 111
3211 Providence Drive
Anchorage, AK 99508-4614

REGION: KENAI

SEGMENT: ST/RB-04

SUBDIVISIONS: A (1 OF 1)

SHORELINE EVALUATION

SEGMENT ST/ RB-04 SUBDIVISION A (1 OF 1) DATE 4/10/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
2M Herring spawning (4/1 to 6/15)
8AA Sensitive Estuary

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 60 m: No Oil 215 m
Subsurface Oil Observed: Yes _____ No X Maximum Depth _____

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☒ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☐ Bioremediation	☐ Spot Washing: _____ Wands
☐ Tarmat: _____ Breakup	☐ Beach Cleaner
☐ Removal	☐ Other (see comments)

COMMENTS: Recommend manual pick up of oiled debris. Work should be
conducted after 6/30 due to herring spawning constraints and will re-
quire permission of ADF&G due to salmon spawning constraints.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

KODIAK ECOLOGICAL CONSTRAINTS

- 1A Salmon stream mouth - fry outmigration (4/15 to 7/31)
 1B Salmon stream mouth - spawning (7/15 to 9/10; PEAK 8/15)
 No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.
- 1C Salmon fry nursery area (4/31 to 7/31)
- 1D Kotoi Bay Hatchery release
 Pink salmon - late May, early June; Chum salmon - June; Sockeye salmon - early July.
- 1H Remote release site
- 1I Gill net area
- 1J Purse seine area
 Mainland, West side Kodiak, Shuyak & Moser/Olga Bay - 6/9 to 10/1.
 East side Kodiak, East side Afognak - 7/4 to 10/1.
- 1K Purse seine hook-off
- 1L Set net sites
 USFWS setnet uplands permit 5/15 to 9/15.
- For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.
- 2M Herring spawning (4/15 to 6/30)
 Restrict boat traffic to essential minimum. Avoid damage to unopened intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.
- 3N, 3P Harbor seal and sea lion pupping (5/10 to 6/30)
 Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.
- 3O, 3Q Harbor seal and sea lion molting (8/15 to 9/15)
 Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.
- 5R Seabird colony (5/1 to 8/31)
 Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.
- 5S Shorebird/waterfowl concentration (4/1 to 5/15)
 Restrict all activity to essential minimum, especially air traffic.
- 5T All Bald Eagle nests (3/1 to 6/1)
 Active Bald Eagle nests (3/1 to 9/1)
 Restrict air traffic to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
- 6U Recreation: Tent sites (6/1 to 9/15)
- 6V Anchorages (6/1 to 9/15)
- 6W Forest Service cabins (6/1 to 9/15)
- 6X Lodge (6/1 to 9/15)
- 6Y Special use destination
- 7Z Subsistence area: Salmon harvesting (6/1 to 9/30)
- 7HH Finfish harvesting
- 7II Deer harvesting (8/1 to 1/7)
- 7JJ Invertebrate harvesting
- 7KK Bear harvesting (4/1 to 5/15 and 10/25 to 11/30)
 For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.

FIELD SHORELINE COMMENT SHEET

SEGMENT ST / RB-4 SUBDIVISION: A DATE 4/10/90

USCG
NAME R. Bryan Harte SIGNATURE R. Bryan Harte

☒ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED
COMMENTS

I agree with the Shoreline Oiling report

ADEC
NAME Russell Kumbie SIGNATURE Russell Kumbie

☒ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED
COMMENTS *There was oil ^{on} coat on the rock face on the east of the stream, and some stain and coat on the cobbles below.*

LAND MANAGER
NAME _____ SIGNATURE _____

☐ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED
COMMENTS

See next page

SHORELINE OILING SUMMARY

REVISION NO. 03/22/98

OG Randy Siegel USCG Bryan Hirtle SEGMENT ST/ RB-4 (1 subdivision)
 BIO Mike Sawcett LAND REP Pat Norman (PGR) SUBDIVISION A
 EXXON John Dean ADEC Russell Kunibe TIME 09:30 to 11:00
 TEAM NO.: 17 TIDE LEVEL: +0.2 to +3.9 DATE 4/10/90
 EST. SUBDIVISION LENGTH: 6241 m 150m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☒ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: NE to SE
 SURFACE SEDIMENTS: R 15 % B 10 % C 10 % P 15 % G 25 % S 25 % M 0 % V 0 %
 SLOPE: Lang 10 % Hang 90 % Vert 0 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High
 OIL CATEGORY LENGTH: W N/A m M N/A m N N/A m VL 16 m NO 134 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR						IMPACTED ZONES			
	IC	IB	IF	IS	SBL BR	DBL RW	OL SL	OSL TL	LR	SU	UI	M	U	
ASPHALT PAVEMENT														
POOLED														
COVER														
COAT		X		✓	X						X			
STAIN		X		✓	X						X			
MOUSSE				X					X		X			
PATTIES														
TARBALLS														
FILM														
NO OIL										X		X	X	

PAVEMENT: H F S 0 sq. m by 0 cmPATTIES / TARBALLS 1 BAGSNEAR SHORE SHEEN? NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash	X		
Debris			

DEBRIS COLLECTED
☐ YES ☒ NOTYPE —#BAGS 0Photographs: —Roll No. ST-17-6Frames 32-34SUBSURFACE OIL No pits dug - no indication of significant oiling

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CM)	BELOW	OIL / FILM COLOR								PIT ZONE				A N A	SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO			UO	UC	SBL BR	DBL RW	OL SL	OSL	TL	LR	SU	UI	M	U		
0							.															
							.															
							.															
							.															
							.															
							.															
							.															

COMMENTS

This segment is listed in the Exxon ~~tabulation~~ along the tabulation as 6241 meters. Most of the segment was not surveyed by ADEC in 1989 or as part of the current survey, due to inaccessibility. Only 150 meters were surveyed as part of the current program. Very light oiling was observed.

00 Randy Siegel

SEGMENT B-4

SUBDIVISION A

DATE 4 / 10 / 90

CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Bndry
- ☐ Oil Dist
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWL/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pit Location(s)
- ☐ Photo Location(s)

LEGEND

1 Δ
Pit: No Subsurface Oil

2 Δ
Pit: Subsurface Oil

CT/C
Continuous Distribution

CT/B
Broken Distribution

CT/P
Patchy Distribution

CT/S
Splashed Distribution

Oiled Vegetation

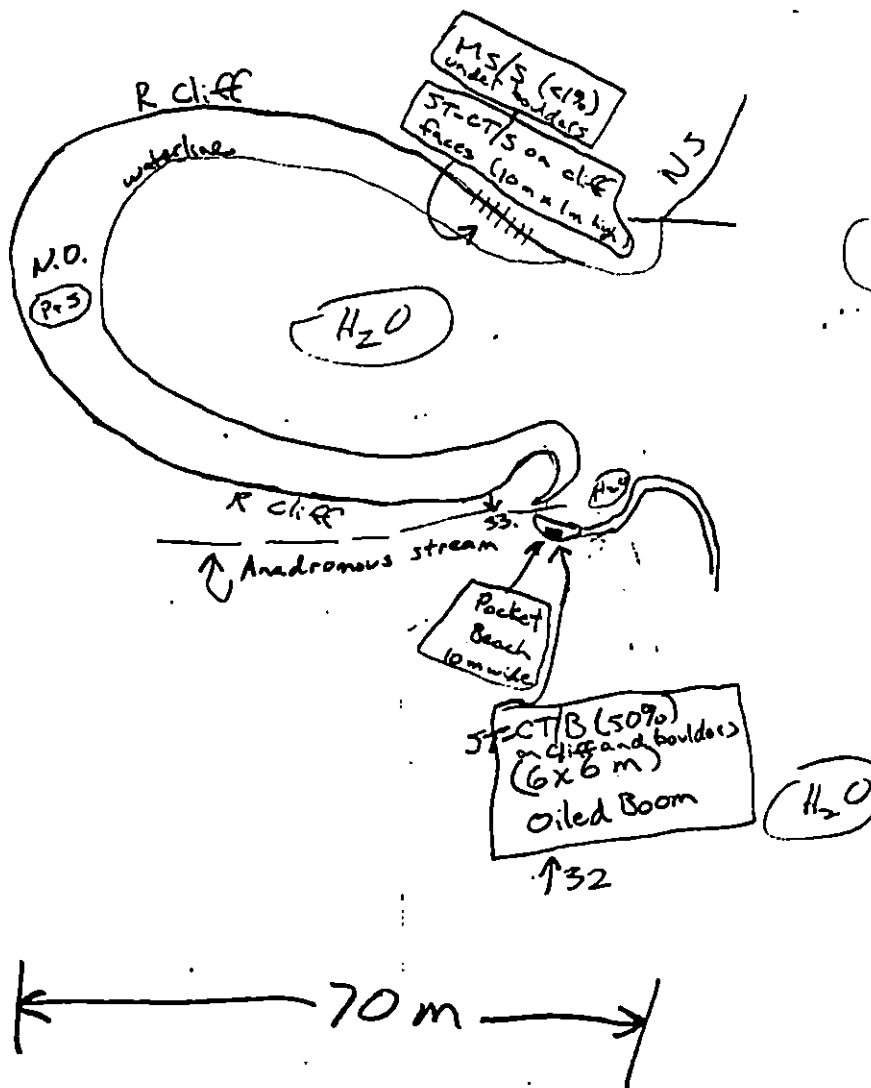
1 →
Photo location, direction,
and number

SKETCH MAP



40 m

Photos ST-17-6



34 (Aerial)

Oil Character Length (m): AP N/A PO N/A CV N/A CT 16 ST 16 MS 2 PT N/A TB N/A FL N/A NO 134

REVISION: 03/24/90

SHORELINE ECOLOGICAL SUMMARY

REVISION: 02

Segment ST RB 4 Subdivision A Date (mo / day / yr) 4/10/90Time (24 hr) 0930-1030 Biologist M. H. Fawcett

- (A) Substrate type and % of segments:
 (1) Bedrock 15 (2) Boulder 10 (3) Cobble 10 (4) Pebble 15 (5) Sand 50 (6) St 0 (incl. gravel)
- (B) Overall % cover of biota (% of segment): Dense _____ Moderate _____ Low ✓
- (C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs:
Roll No. ST-17-6Frames 31-34

BARNACLES

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESEN

MYTILUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESEN

GASTROPODS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESEN

FUCUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

Wildlife Observations/ General Comments:

See attached sheet

1 water ouzel in creek
2 belted kingfishers
several magpiesCoyote tracks
near creek

Ecological Considerations:

1A

1B

8AA

2M

RB4A

4/10/90

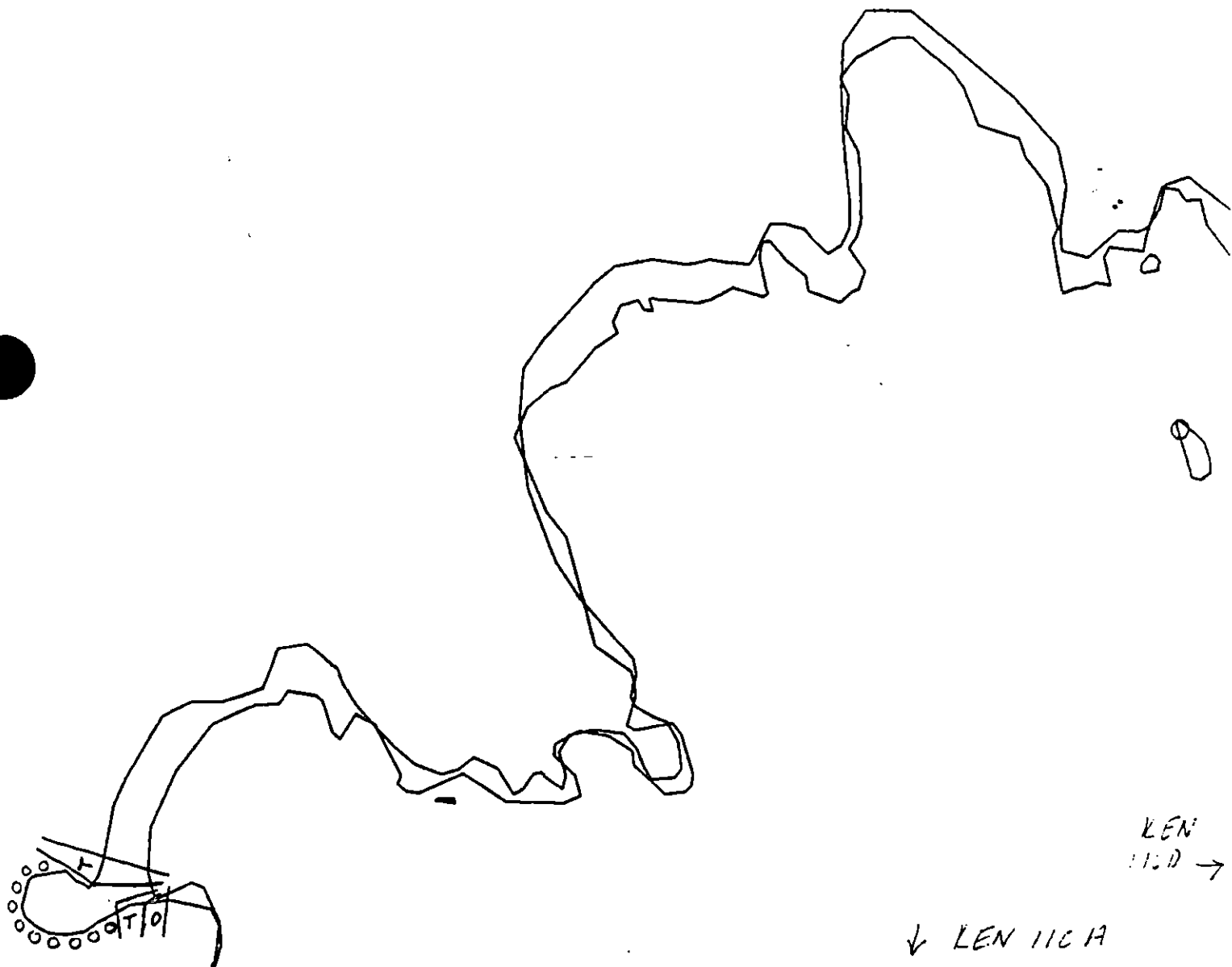
Rocky Bay

M. Fawcett

Wildlife Observations/General Comments

Most of this subsection consists of a biologically barren sand beach. The mouth of an anadromous fish stream (scurvy Creek) lies on the southern end of the beach.

No fry or other fish were observed in the intertidal portion of the creek. Dense Fucus occurs on cobbles along the banks and around the stream mouth. On the bedrock cliffs and outcrops barnacles dominate the UTZ and MTZ, and algae (Fucus, Ulva, Cladomorpha?, Halosaccion, Rhodomenia, Petrocelis, Laminaria) dominate the LTZ. Mussels are sparse overall, but there are dense patches in crevices, including recent (1-2mm) recruits. Recently recruited littorines and limpets also seen. In general, the intertidal community appears normal and healthy.



KEN
110D →

↓ KEN 110A

XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

RB-4

ADEC Segment Length: 1543m

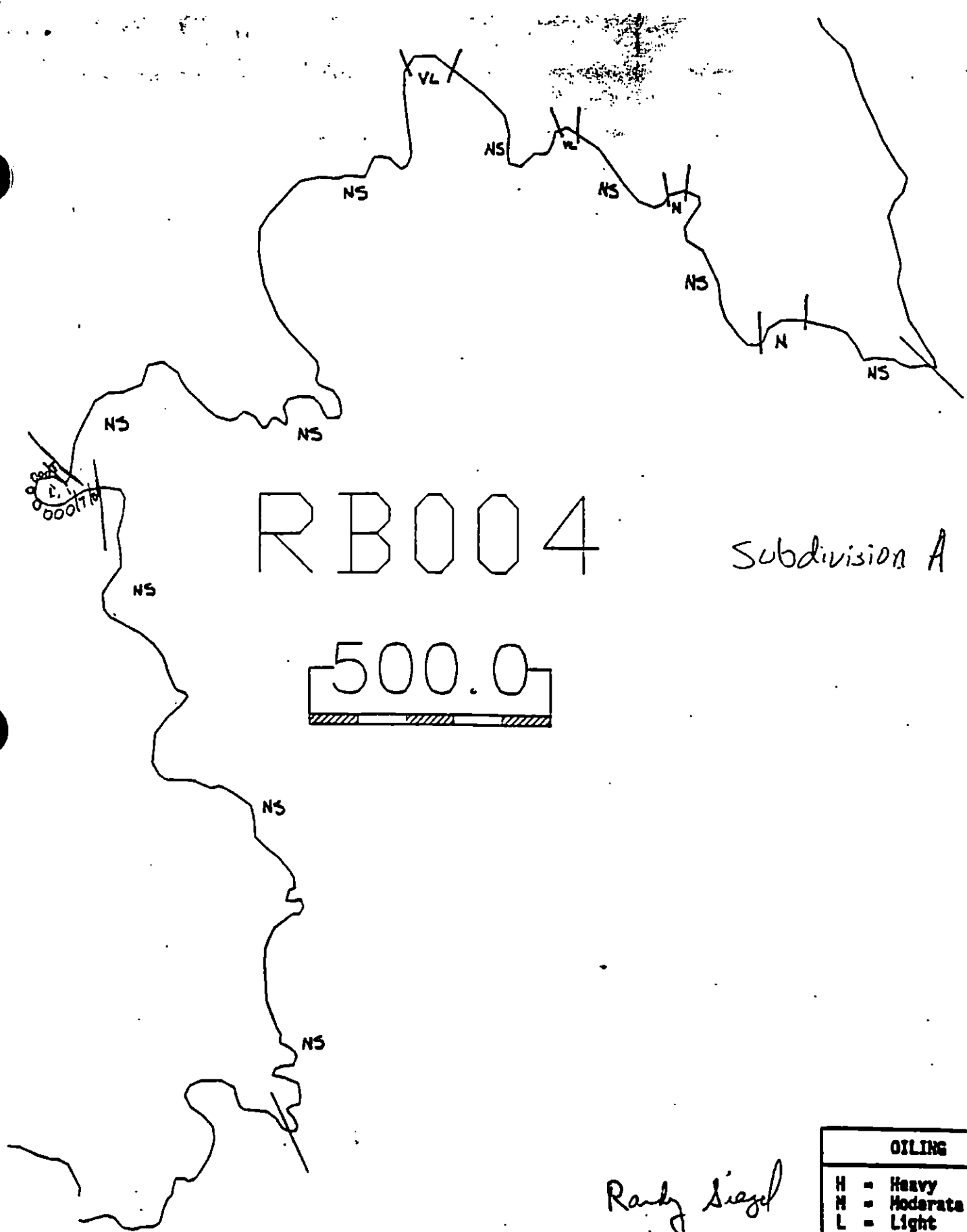


Map Key: KEN-110c

Name: Randy Seidel ^{BY} ~~BA~~ T

Date: 10 Apr 90

Data Entered:



Randy Siegel
4/10/90

OILING	
H	Heavy
M	Moderate
L	Light
VL	Very Light
N	None
NS	Not Surveyed
Distance In Meters	

ADEC Sep/Oct 1988 Survey

SHORELINE EVALUATION

SEGMENT ST/ RB-04 SUBDIVISION A (1 OF 1) DATE 4/10/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

- 1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
- 1B Salmon stream mouth - spawning (7/10 to 8/31)
- 2M Herring spawning (4/1 to 6/15)
- 8AA Sensitive Estuary

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: Charles E. Adams DATE: 4/20/90

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 60 m: No Oil 215 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

- | | |
|---|---|
| <u> </u> No Treatment Recommended | <u> </u> Snare/Absorbent Booms |
| <u>X</u> Treatment Recommended | <u> </u> Oil Snares (pom poms) |
| <u>X</u> Manual Pickup | <u> </u> Absorbents (pads, rolls, etc) |
| <u> </u> Bioremediation | <u> </u> Spot Washing: <u> </u> Wands |
| <u> </u> Tarmat: <u> </u> Breakup | <u> </u> Beach Cleaner |
| <u> </u> Removal | <u> </u> Other (see comments) |

COMMENTS: Recommend manual pick up of oiled debris. Work should be
conducted after 6/30 due to herring spawning constraints and will re-
quire permission of ADF&G due to salmon spawning constraints.

TAG COMMENTS:

TAG APPROVAL DATE: 4/20/90

ADEC Art Weiner
EXXON ANDY TATZ
NOAA Burt Wescott
USCG KENNETH REARD

FOSC: DATE: 5-12-90

DATE 4 / 10 90

CHECKLIST

- N Arrow
- Approx. Scale
- Seg/Sub Bndry
- Oil Dist.
- Width
- Length
- % Cover
- Substrate Character
- Est. HWL/LWL
- SSL
- Profile Location(s)
- Profile(s)
- PR Location(s)
- Photo Location(s)

LEGEND

- 1 ▲
Plt: No Subsurface Oil
- 2 ▲
Plt: Subsurface Oil

CT/C
Continuous Distribution

CT/B
Broken Distribution

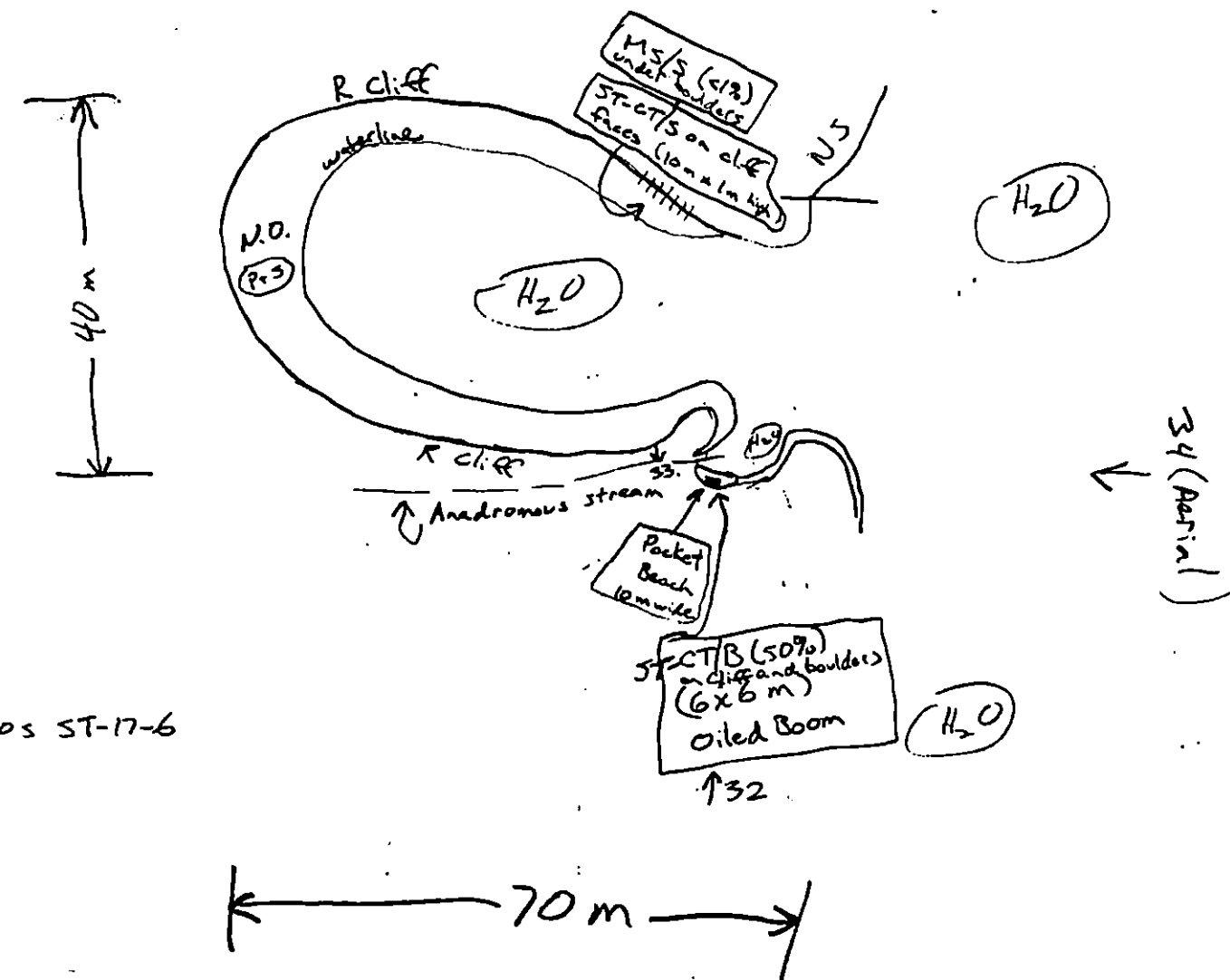
CT/P
Patchy Distribution

CT/S
Spotted Distribution

Oiled Vegetation

1.  Photo location, direction, and number

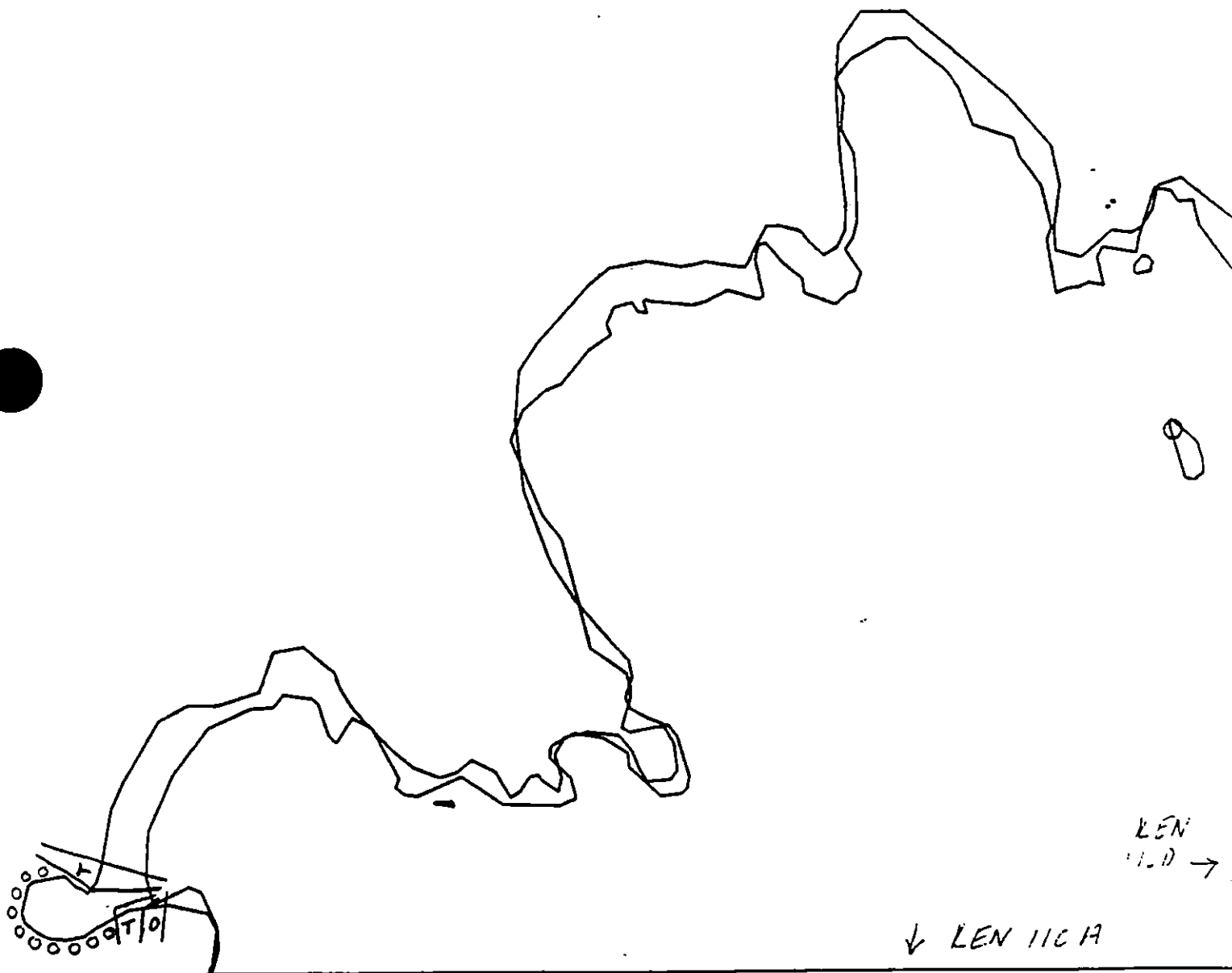
SKETCH MAP



PLotos ST-17-6

Oil Character Length (m): AP N/A PO N/A CV N/A CT 16 ST 16 MS 2 PT N/A TB N/A FL N/A NO 134

REVISION: 02/24/98



XXXX Wide

RB-4

Map Key: KEN-110c

Name: Randy C. Green 87

Date: 10 Apr 90

Data Entered:

/// Medium

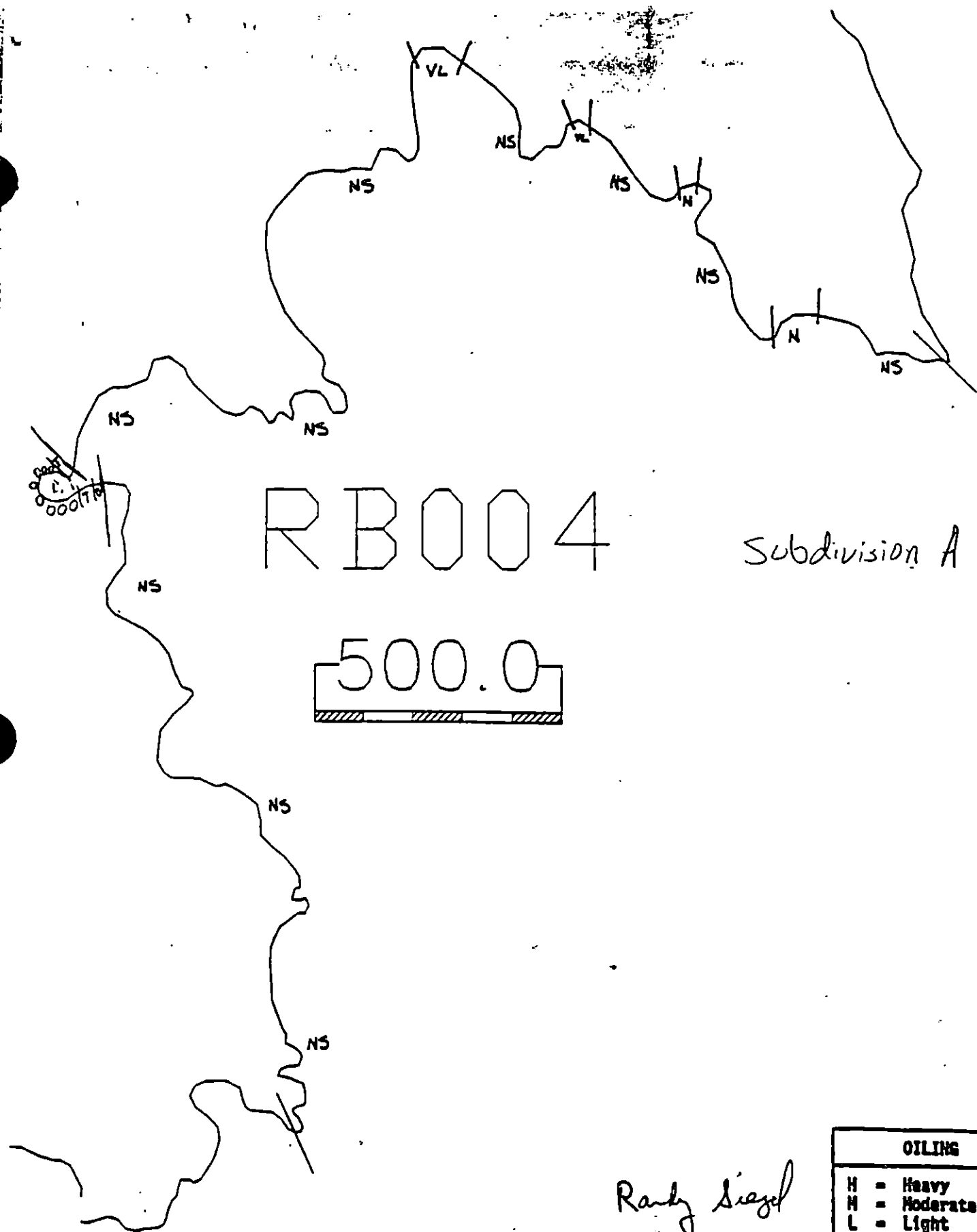
--- Narrow

TTTT Very Light

OOOO No Oil

ADEC Segment Length: 1543m





Subdivision A

Randy Siegel
4/10/90

OILING	
H	Heavy
M	Moderate
L	Light
VL	Very Light
N	None
NS	Not Surveyed
Distance In Meters	
ADEC Sep/Oct 1988 Survey	

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT RB-4 SUBDIVISION A (1 of 1)

WORK WINDOW	
Manual Pickup	OPEN

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B	Salmon Stream	ADF&G catalogued anadromous stream (242-32-10140) is in Subdivision A. No constraint to manual pickup.
1J	Purse Seine Area	No constraint to manual pickup.
2M	Herring Spawning	No constraint to manual pickup.
5T	Bald Eagle Nest	NO CONSTRAINT. USFWS 6/1/90 map indicates no active nest within 400m of Subdivision A work site.

OTHER ECOLOGICAL CONSIDERATIONS

No disturbance to stream bed or banks. Restrict boat traffic to essential minimum after 7/1. Avoid any unnecessary disturbance or damage to unrolled substrate and biota especially intertidal and subtidal algae and seagrass. Sensitive estuary.

FOSC

[Signature]

Date

6/15/90

Prepared by

[Signature]

Date

6/14/90

RB-04

WORK AREA

242-32-10140

Active Nest

RB-04

Active Nest

Seabird Colony

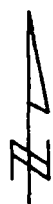
Active Nest



Exxon Company, USA

Map Keys KEN-RB-4

June 10 1990



ECOLOGY MAP
SEGMENT RB-4
SUBDIVISION A (1 of 1)
METERS

0 573 1147

- ★ Seabird Colony
- ▲ Active Eagle Nest
- △ Inactive Eagle Nest

1 inch = 1881 feet

SHORELINE EVALUATION

SEGMENT ST/ RB-04 SUBDIVISION A (1 OF 1) DATE 4/10/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

- 1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
- 1B Salmon stream mouth - spawning (7/10 to 8/31)
- 2M Herring spawning (4/1 to 6/15)
- 8AA Sensitive Estuary

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: Charles E. H. Jones DATE: 4/20/90

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V. Light 60 m: No Oil 215 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat: <u> </u> Breakup	<u> </u> Beach Cleaner
<u> </u> Removal	<u> </u> Other (see comments)

COMMENTS: Recommend manual pick up of oiled debris. Work should be
conducted after 6/30 due to herring spawning constraints and will re-
quire permission of ADF&G due to salmon spawning constraints.

SEE CONSTRAINTS ADDENDUM dated 6/14/90 JEP

TAG COMMENTS:

TAG APPROVAL DATE: 4/20/90
ADEC Art Weiner
EXXON Andy Tate
NOAA Bruce Wessett
USCG Kenneth K. R. [Signature]

FOSC: DATE: 5-12-90

REGION: KENAI

SEGMENT: ST/RB-005

SUBDIVISIONS: A (1 OF 2)

SHORELINE EVALUATION

SEGMENT ST/ RB-005 SUBDIVISION A (1 OF 2) DATE 4/26/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5T All Bald Eagle nests (3/1 to 6/1)
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1J Purse seine area (7/1 to 8/31)
ADF&G Stream # 242-32-10150 (Ps, 2/90)
7JJ Subsistence area: Invertebrate harvesting
8AA Sensitive estuary
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Anadromous stream and eagle nest are in adjacent subdivision and further then 1000m from work area.

ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time.

>>>PHONE 564-3274 (Anchorage) OR 229-1508 (24hrs.)<<<

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 158 m: No Oil 107 m
Subsurface Oil Observed: Yes _____ No X Maximum Depth _____

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☒ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☒ Bioremediation	☐ Spot Washing: _____ Wands
☒ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS: Recommended treatment includes: 1) removal of tarmat, 2) bioremediation of areas as indicated on sketch map. Work to be conducted from 6/15 to 7/1 or after 8/31 due to purse seine constraints.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____
ADEC _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

Salmon stream mouth - fry outmigration (3/1 to 5/15)

Salmon stream mouth - spawning (7/10 to 8/31)

No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream without authorization from ADF&G. No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore oil or toxicity levels, such as manual removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.

AGENCY CONTACT PERSON: ADF&G John Morison 287-2324

Salmon fry nursery area (4/31 to 7/31)

No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.

AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214

Esther Hatchery release (4/15 to 6/15)

Main Bay Hatchery release (4/20 to 6/15)

Sawmill Bay Hatchery release (4/15 to 6/1)

Cannery Creek Hatchery release (4/21 to 6/1)

Remote release site

No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G or PWS Aquaculture Association for confirmation and authorization.

AGENCY CONTACT PERSON: 1E ADF&G Larry Peltz 424-3214

1D 1F 1G PWS Aquaculture Association John McMillan or Bruce Suzumoto 424-7511

Gill net area (6/7 to 8/31)

Purse seine area (7/20 to 9/30)

Purse seine hook-off (7/20 to 9/30)

Set net sites (6/11 to 7/25)

Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.

AGENCY CONTACT PERSON: ADF&G James Brady 424-3212

Herring spawning (4/1 to 6/15)

Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to unrolled intertidal and subtidal algae and eelgrass. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.

AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235

Harbor seal and sea lion pupping (5/15 to 7/1)

Harbor seal and sea lion molting (8/15 to 9/15)

Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of Inipol within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.

AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235

ADF&G Don Calkins 267-2403

Seabird colony (5/1 to 9/1)

Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

Shorebird/waterfowl concentration (4/1 to 5/15)

Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

ADF&G Tom Roth 267-2206

All Bald Eagle nests (3/1 to 6/1)

Active Bald Eagle nests (3/1 to 9/1)

Restrict air traffic and all disturbance to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

Recreation:

Tent sites (5/1 to 9/15)

Anchorage (5/1 to 9/15)

Forest Service cabins (5/1 to 9/15)

Lodge (5/1 to 9/15)

Special use destination

Subsistence area: Salmon harvesting (5/1 to 9/30)

Finfish harvesting

Deer harvesting (8/15 to 2/28)

Invertebrate harvesting

Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic and beach disturbance to essential minimum. If plans for treatment include methods such as hot water wash or application of Inipol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.

AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2359

FIELD SHORELINE COMMENT SHEET

(2)

SEGMENT ST/ RB-005 SUBDIVISION: A. DATE 4/27/20

USCG

NAME

SIGNATURE

☐ NO TREATMENT RECOMMENDED
COMMENTS☐ TREATMENT SUGGESTED

ADEC

NAME

Russell Kunibe

SIGNATURE

Russell Kunibe☐ NO TREATMENT RECOMMENDED
COMMENTS☒ TREATMENT SUGGESTED

The area of CT/P was a soft "asphalt like" rock. There was a lot of ...
 on the rock face of ... on some of the rock face.
 Recommended treatment: Manual pick up of the pattern and mat. This is a ...
 low wave area. Spot washing of the rock face as suggested by Pat
 Norman.

LAND MANAGER

NAME

Pat Norman

SIGNATURE

Pat Norman☐ NO TREATMENT RECOMMENDED
COMMENTS☒ TREATMENT SUGGESTED

manual pick up of remaining surface and sub surface
 Asphalt and mousse patterns will work in this area, also
 spot washing of the stained rock faces will improve
 the overall appearance of this area.

(1)

FIELD SHORELINE COMMENT SHEET

SEGMENT - RB-5

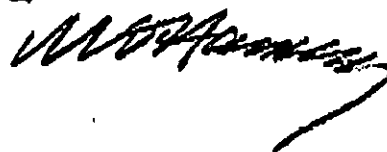
SUBDIVISION - A

DATE - 30 April 90

NOAA

Miles D. Hayes

SIGNATURE

☐ -☒ - TREATMENT SUGGESTED

This area is relatively clean, despite the Raven oiling last year. An example of a good job of cleanup. The remaining thin tar mats should be treated by one of two methods:

- 1) Manual removal
- 2) Breakup and bioremediation.

I favor no. 1 because of low wave energy at site.

The scattered tar mats should be removed manually.

SHORELINE OILING-SUMMARY

REVISION NO: 04/13/90

OG NORMA BIGGAR NOA USCG MILES HAYES SEGMENT ST/ RB-005 3
 BIO DAVID RAIDER LAND REP PAT NORMAN SUBDIVISION A (1 OF 2)
 EXXON JOHN DEAN ADEC RUSSELL KUNIB TIME 7:00 to 8:15
 TEAM NO. 17 TIDE LEVEL 0 to -3 ft DATE 4/26/90
 EST. SUBDIVISION LENGTH: 750 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: NW to NE
 SURFACE SEDIMENTS: R 15 % B — % C 25 % P 30 % G 20 % S 10 % M — % V — %
 SLOPE: Lang 85 % Hang 10 % Vert 5 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High
 OIL CATEGORY LENGTH: W 0 m M 0 m N 0 m VL 465 m NC 285 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR								IMPACTED ZONES			
	IC	IB	IP	IS	SL	BL	GR	OR	BR	TR	LR	BR	SU	U	M	U
ASPHALT PAVEMENT																
POOLED																
COVER																
COAT	W	X	X	A												
STAIN																
MOUSSE																
PATTIES																
TARBALLS																
FILM																
NO OIL																

PAVEMENT H F S — sq. m by — cmMATTES/TARBALLS 150 ? BAGSNEAR SHORE SHEEN? NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

DID YOU COLLECT DEBRIS?

YES ☐ NO ☒TYPE —#BAGS —

Photographs:

Roll No. 4Frames 33, 34

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CL)	BELOW		OIL / FILM COLOR								PIT ZONE				A N A	SHEEN (Y/N)	↓	SURFACE-SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UC	SL	BL	GR	OR	BR	TR	LR	BR	SU	U	M	U				
1	10					X	—		X										X				N	5	g-p
2	15					X	—		X										X				N	10	g-p
3	28					X	—		X											X			↓	26	g-p
4	25					X	—		X									X					↓		
5	8					X	—		X										X				↓	6	
6	22					X	—		X										X				↓		↓

COMMENTS

This is a very protected cove with a very low angle beach. The primary evidence of oil is a "mat" on the S side of the cove - the "mat" extends over a distance of about 45 m. Although it forms a recognizable surface, it contains very little oil (i.e., not DBR, SBL, or mouse inside) - Mat is 2 to 3 cm thick; it contributes a silver sheen to H₂O, and if ponded, a brown sheen develops. There's another 3x5m area on a wave cut rock surface (even with beach sediments), near the HWL.

REVIEWED — DATE —

1 OF 2

SUBSURFACE OIL (CONTINUED)

[illegible]

COMMENTS

small pieces of $CaCO_3$ (the material which composes the mat) can be seen in the lagoon zone across the lagoon. These pieces are generally 2.5 cm in diameter, and are most easily recognized by an aureole of silver. Sheen. Grades of up to 1000 about a central point. A total of 10 to 20 of these were seen in the lagoon.

1. large rocks (caldes) at the NW entrance to the lagoon have a 1 to 2 m. ... 1 m. deep band covered with pine needles on their lee side.

Surface materials are primarily p, g & c; become coarser (p, c) near shore
and finer (g, s) in middle to low tidal zones.

REVIEWED _____ DATE _____

SEGMENT 5 B-5

SUBDIVISION A

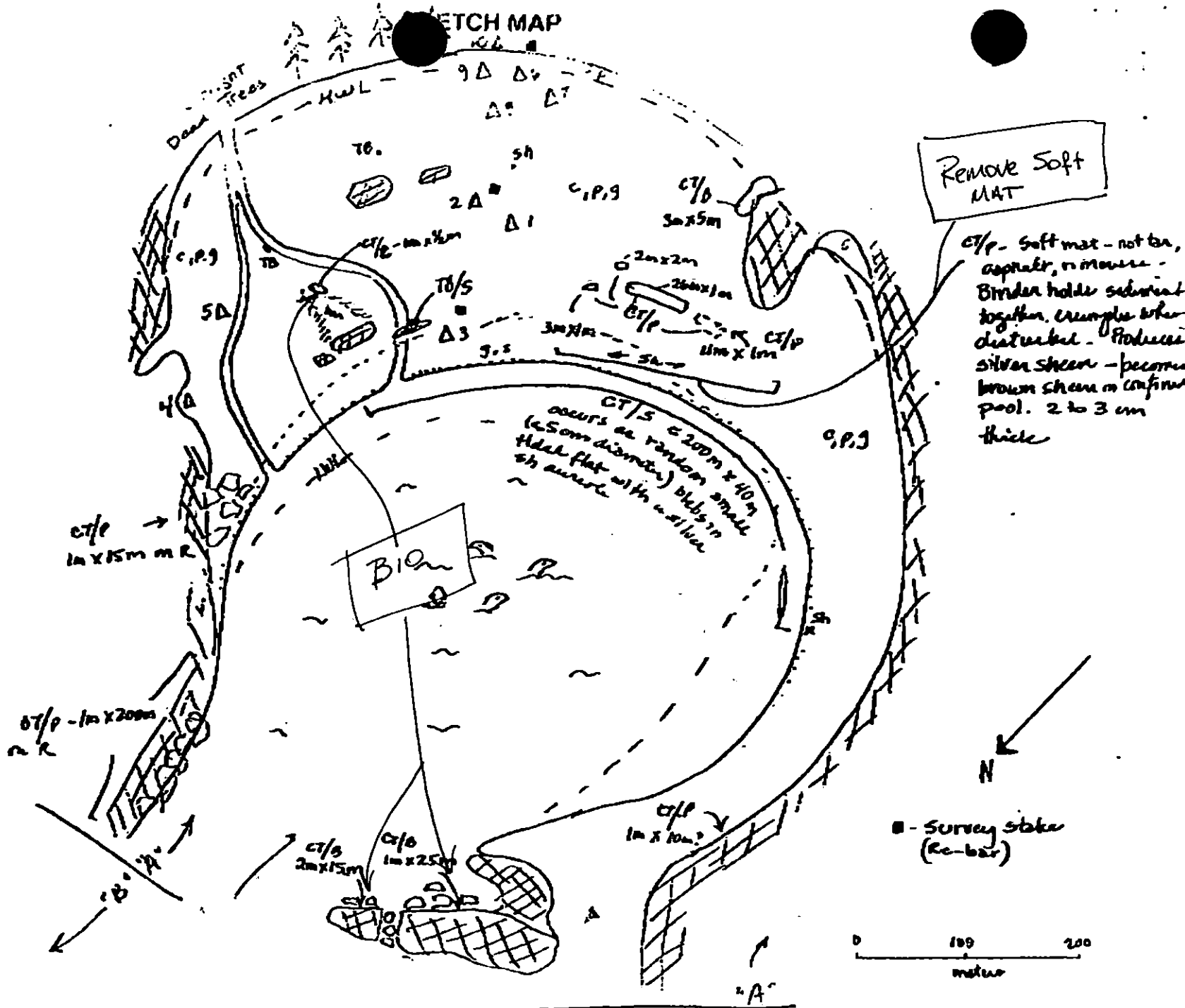
DATE 4 126 90

CHECKLIST

- ☒ N Arrow
- ☒ Approx. Scale
- ☒ Seg/Sub Entry
- ☒ Off Dist
- ☒ Width
- ☒ Length
- ☒ % Cover
- ☒ Substrate Character
- ☒ Est. HRT/LWL
- ☒ SSL
- ☒ Profile Location(s)
- ☒ Profile(s)
- ☒ Pit Location(s)
- ☒ Photo Location(s)

LEGEND

- 1 Δ
- Pt - No Substrate Or
- 2 Δ
- Pt - Substrate Or
- CT/C
- Continuous Distribution
- CT/B
- Broken Distribution
- CT/P
- Patchy Distribution
- CT/S
- Splashed Distribution
- eee
- Dead Vegetation
- 1 ●
- Photo location, direction, and number



Character Length (m): AP — PO — CV — CT 765 ST — MS — PT — TB 1 FL — NO 285

SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/27/10

Segment ST/ R8005 Subdivision A Date (mo / day / yr) 7/21/20Time (24 hr) 8:00 Biologist DANIEL RAIDER

(7)

(A) Substrate type and % of segments:

(1) Bedrock (2) Boulder (3) Cobble (4) Pebble (5) Sand (6) Silt

(B) Overall % cover of biota (% of segment): Dense 5 Moderate 5 Low 90

→ to none

(C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs: Roll No. 4Frames 33, 34

BARNACLES

X Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

MYTILUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	X	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

GASTROPODS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	X	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

FUCUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	X	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

Wildlife Observations/ General Comments:

- Rich of biota on bedrock and isthmus connecting larger island, as well as inter ...
southwestern edge of subdivision

See Rio Comments Sheet and wildlife identification sheets following

Ecological Considerations:

1. 1 (one bald Eagle observed, but did not identify nest location)

WB-1

71J

XAA

MOTH - 27 April 1990

(12)

Birds seen at RB-5

<u>name</u>	<u>#</u>	<u>comment</u>
1. Red-Breasted Merganser	- 12 ¹⁶ -	
2. Belted Kingfisher	- 1	
3. Mew Gull	- 2	
4. Bald Eagle	- 1	
5. Owl (Western Screech-?)	- 1	- sound only
6. Black Oxpecker	- 4	
7. Steller's Jay	- 1	
8. American Wigeon	- 2	- male & female
9. Three-Toed Woodpecker	- 2	- drumming
10. Common Raven	- 2	
11. Winter Wren	- dozens (?)	- by sound only
12. Glaucous-Winged Gull	- 2	
13. Harlequin Duck	- 3	
14. Red-Necked Grebe	- 2	
15. Song Sparrow	- 1	- sound only

Mammals Sited

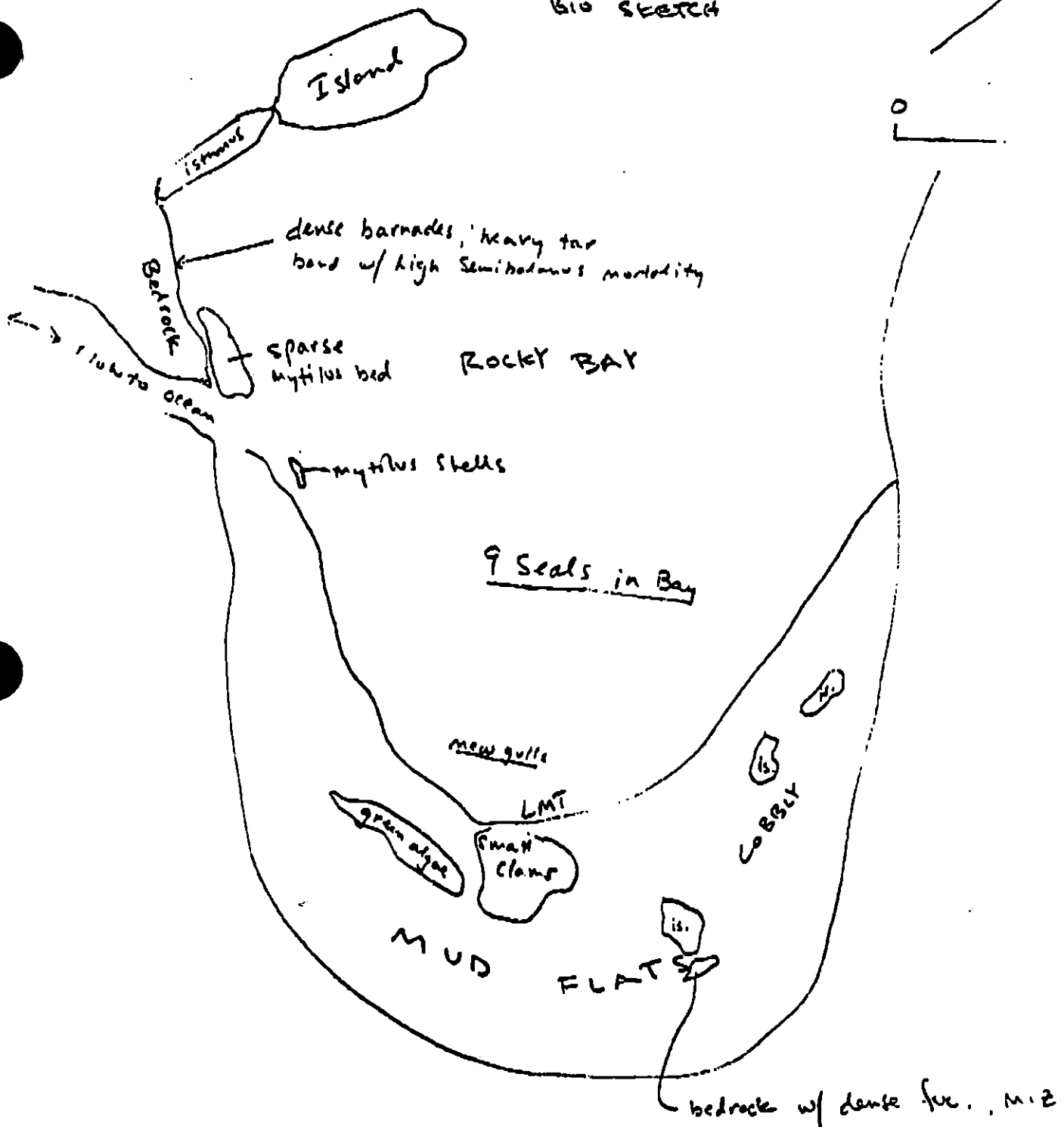
1. Seals	- 9	- Wading in Bay, catching food off of bottom of muddy substrate
2. River Otter	- 1	- made way to bay from cove out of tidal zone

RB-005 A

TEAM 17 27 APRIL 1990

DANIEL PAIOER
BIO SKETCH

(10)



TEAM 17 29 APRIL 1990

DANIEL ZANDER

The majority of the bivalves contained in this small segment are located on the southwestern portion, near the island and inlet.

On the bedrock face in that southwestern portion has a dense population of barnacles, with a high proportion of mortality due to the build of thick ^{oil} coating from the mid-intertidal zone mark to that of the high intertidal zone line. I would attribute the death of the barnacles to suffocation by oil. There are present, however, a few amount of oiled barnacles which are still alive. They were not coated with oil nearly as much as those that are dead.

On the mytilus (muscle bed) just east of the bedrock face is present a loose mat of sparse muscles. None appear to be dead; however, there is present, just to the east of there, an abundance of muscle shells from dead, adult muscles.

There are present in the mud flat area a small number of relatively small clams (razor - approximately 2.5 centimeters across). Just west

is on ore covered with green filamentous algae
In addition, those islands indicated in the
mud flat area have dense barnacle populations,
also with a ring of dead barnacles where oil
was present and coated the bedrock.

There is a sparse amount of ulva and
filamentous green algae throughout the rest
of the subdivision.

ECOLOGICAL MAP

RB-05-A

(SUBDIVISION 1 of 3)

* 3 SUBDIVISIONS, A, B & C

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

1A 1B 1J+

2013

10/10

(SELDOVIA B-5)

151°30'
59°15'

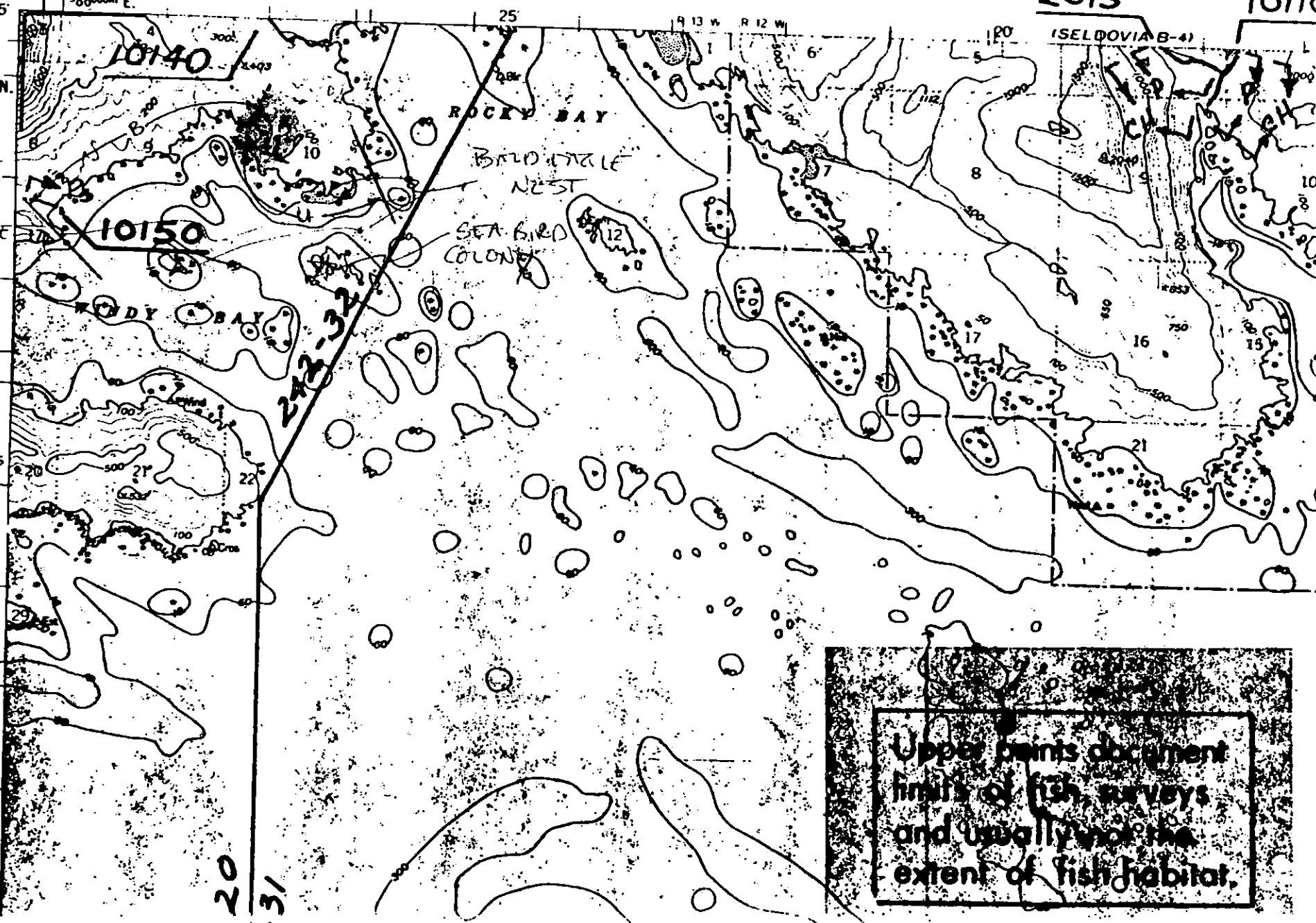
586000m E.

586000m N.

EMENT DIVIDE

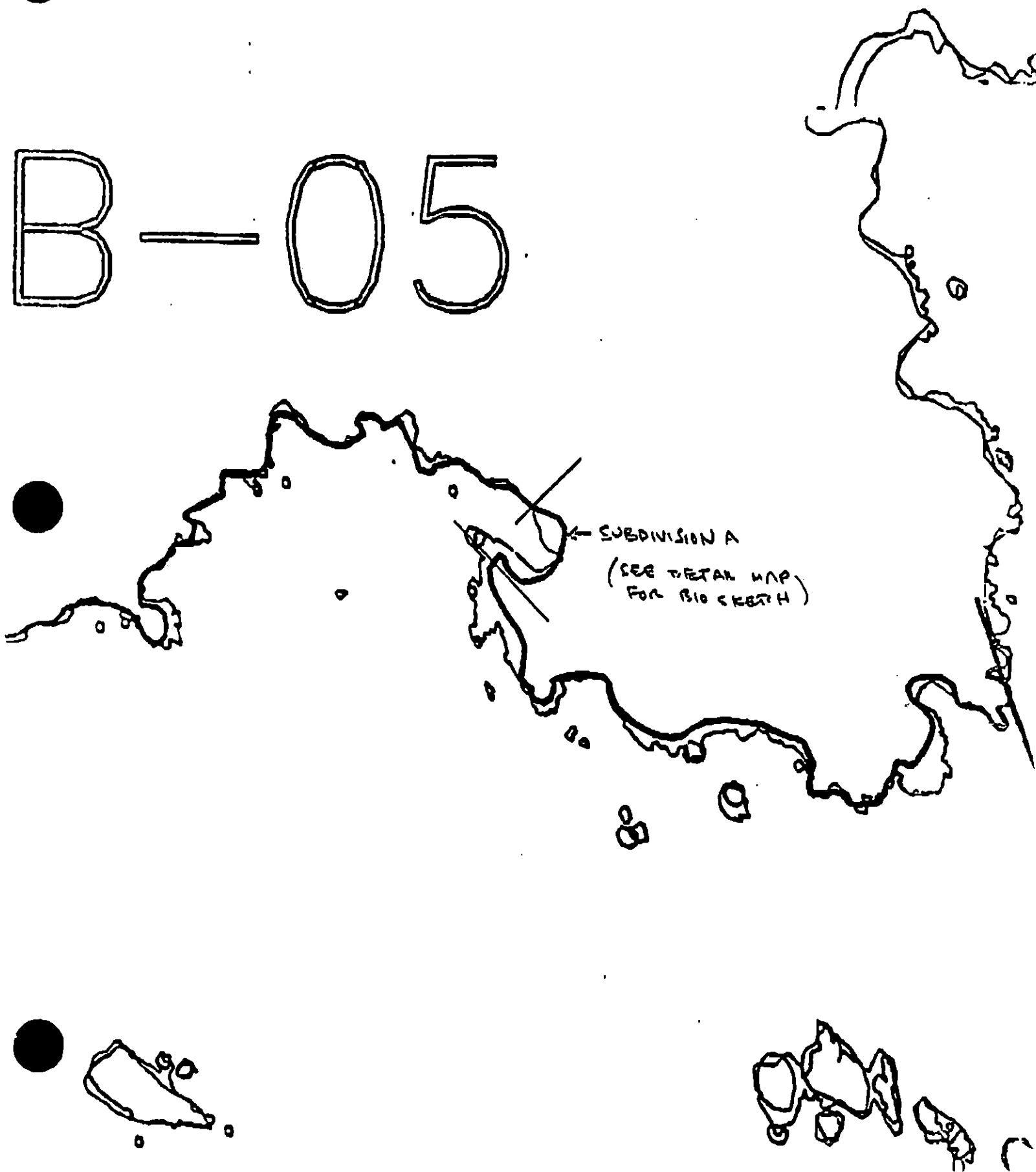
BOINSON DIVIDE

T 11 S



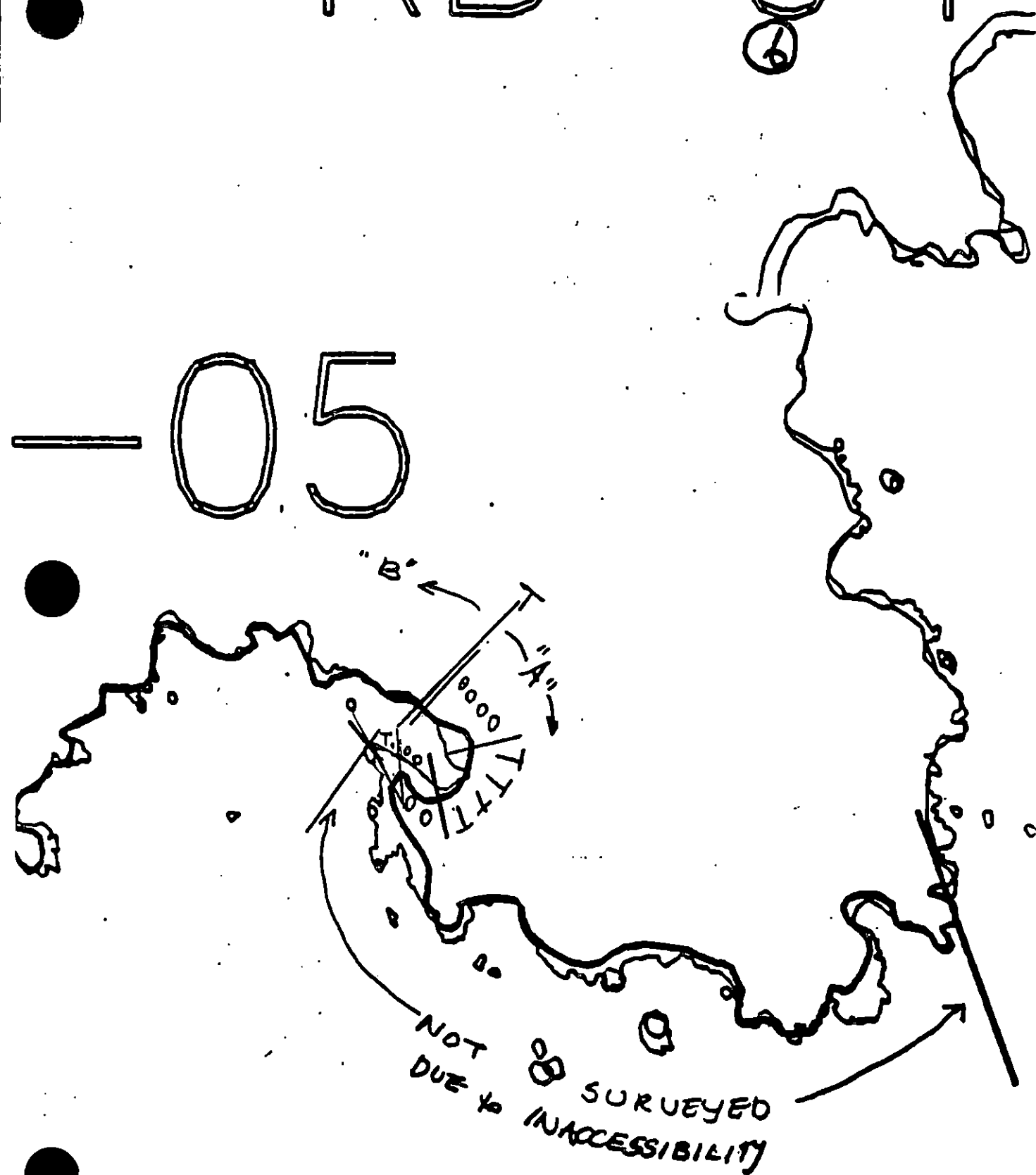
Upper points document
limits of fish surveys
and usually not the
extent of fish habitat.

B-05



110-4
⑥

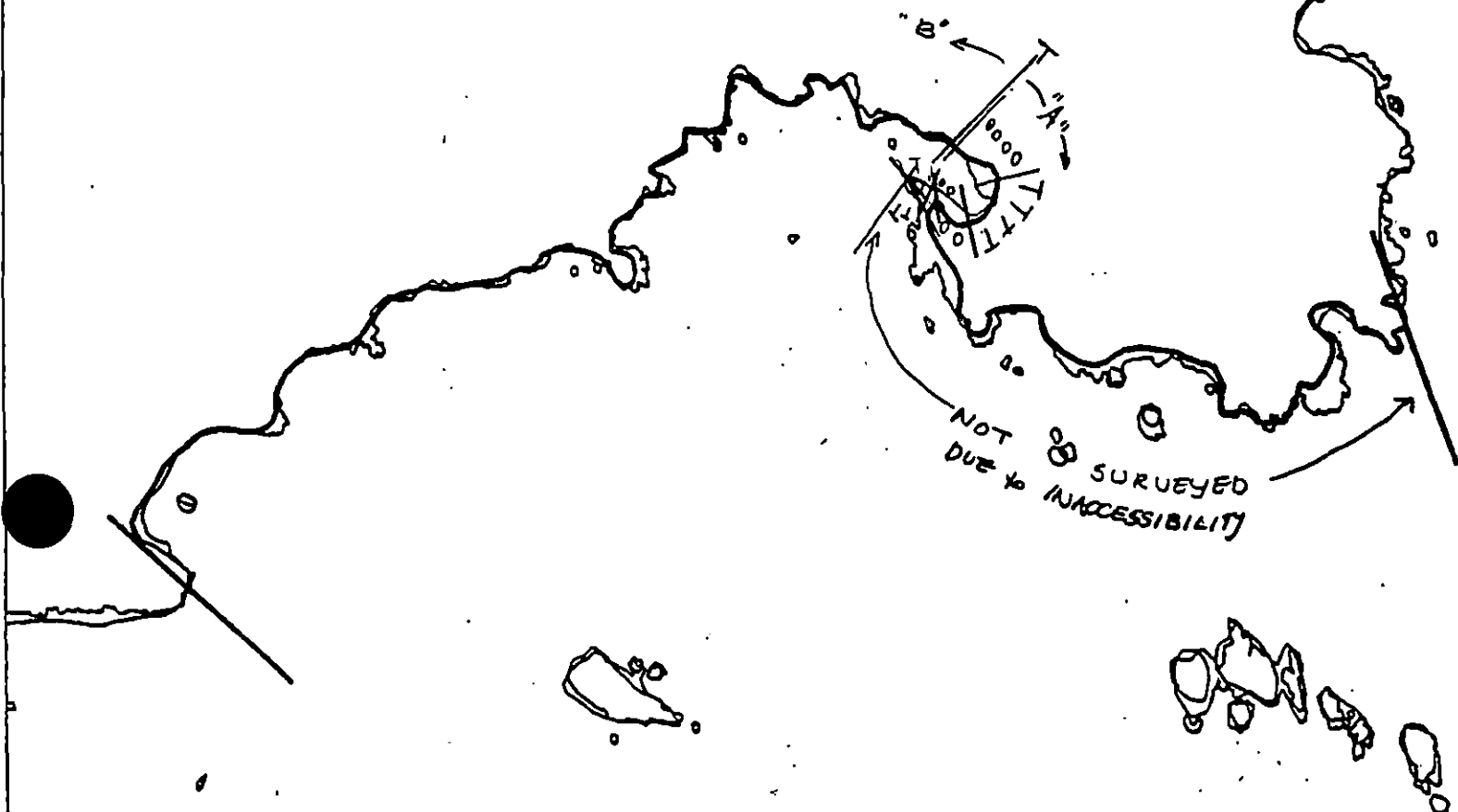
-05



DATA

RD - 04

RB-05



WR-05

XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

RB-5

ADEC Segment Length: 5785m



Map Key: KEN-105a

Name: N. BIGGAR

Date: 4/26/90

Data Entered:

REGION: KENAI

SEGMENT: ST/RB-005

SUBDIVISIONS: B (2 OF 2)

SHORELINE EVALUATION

SEGMENT ST/ RB-005 SUBDIVISION B (2 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5T All Bald Eagle nests (3/1 to 6/1)
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1J Purse seine area (7/1 to 8/31)
ADF&G Stream # 242-32-10150
7JJ Subsistence area: Invertebrate harvesting
8AA Sensitive estuary
2M Herring spawning (4/1 to 6/15)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Eagle nest further than 400m from work area - Anadromous stream further than 1000m from work area.

ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time.

>>>PHONE 564-3274 (Anchorage) OR 229-1508 (24hrs.)<<<

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 67 m: V.Light 358 m: No Oil 2883 m
Subsurface Oil Observed: Yes _____ No X Maximum Depth _____

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☒ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☐ Bioremediation	☐ Spot Washing: _____ Wands
☐ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS: Recommended treatment includes: 1) manual pick up of patchy mousse if accessible. Work to be conducted from 6/15 to 7/1 or after 8/31 due to Purse Seine and Herring constraints.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____

EXXON _____

FOSC: _____ DATE: _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

1A
1B

Salmon stream mouth - fry outmigration (3/1 to 5/15)

Salmon stream mouth - spawning (7/10 to 8/31)

No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream without authorization from ADF&G. No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore oil or toxicity levels, such as manual removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.

AGENCY CONTACT PERSON: ADF&G John Morison 267-2324

Salmon fry nursery area (4/31 to 7/31)

No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.

AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214

- 1D Esther Hatchery release (4/15 to 6/15)
- 1E Main Bay Hatchery release (4/20 to 6/15)
- 1F Sawmill Bay Hatchery release (4/15 to 6/1)
- 1G Cannery Creek Hatchery release (4/21 to 6/1)
- 1H Remote release site

No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G or PWS Aquaculture Association for confirmation and authorization.

AGENCY CONTACT PERSON: 1E ADF&G Larry Peltz 424-3214

1D 1F 1G PWS Aquaculture Association John McMillan or Bruce Suzumoto 424-7511

- 1I
- 1J
- 1K
- 1L

Gill net area (6/7 to 8/31)

Purse seine area (7/20 to 9/30)

Purse seine hook-off (7/20 to 9/30)

Set net sites (8/11 to 7/25)

Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.

AGENCY CONTACT PERSON: ADF&G James Brady 424-3212

2M

Herring spawning (4/1 to 6/15)

Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to uncoiled intertidal and subtidal algae and seagrass. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.

AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235

30, 32

Harbor seal and sea lion pupping (5/15 to 7/1)

Harbor seal and sea lion molting (8/15 to 9/15)

Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of Inipol within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.

AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235

ADF&G Don Calkins 267-2403

5R

Seabird colony (5/1 to 9/1)

Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

5S

Shorebird/waterfowl concentration (4/1 to 5/15)

Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

ADF&G Tom Roth 267-2206

5T

All Bald Eagle nests (3/1 to 6/1)

Active Bald Eagle nests (3/1 to 9/1)

Restrict air traffic and all disturbance to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

- 6U
- 6V
- 6W
- 6X
- 6Y

Recreation:

Tent sites (5/1 to 9/15)

Anchorage (6/1 to 9/15)

Forest Service cabins (6/1 to 9/15)

Lodge (6/1 to 9/15)

Special use destination

- 7Z
- 7HH
- 7I

Subsistence area: Salmon harvesting (5/1 to 9/30)

Finfish harvesting

Deer harvesting (8/15 to 2/28)

Invertebrate harvesting

Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic and beach disturbance to essential minimum. If plans for treatment include methods such as hot water wash or application of Inipol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.

AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2350

SEGMENT ST/ RB-005 SUBDIVISION: B DATE 4/22/90NOAA

Miles D. Hughes

SIGNATURE*[Signature]*☒ - NO TREATMENT
RECOMMENDED☐

No treatment is recommended for
this segment.

ADECNAME Russell Kumbie

SIGNATURE

[Signature]☐ NO TREATMENT RECOMMENDED
COMMENTS☒ TREATMENT SUGGESTED

Manual pick up of the seaweed between boulders and rubble.
Spot washing of crab on rock faces.
[initials]

LAND MANAGERNAME Pat Norman

SIGNATURE

[Signature]☐ NO TREATMENT RECOMMENDED
COMMENTS☒ TREATMENT SUGGESTED

manual pick up and spot washing well work well
thru out subdivision B of RB-5

SHORELINE OILING SUMMARY

REVISION NO. 04/13/80

(3)

OG NORMA BIGGAR USCG(NOMA) MILES HAYES SEGMENT ST/ RB-005
 BIO DAN RAIDER LAND REP PAT NORMAN (PA) SUBDIVISION B (2 OF 2)
 EXXON JOHN DEAN ADEC RUSSELL KUNIBE TIME 8:15 to 13:30
 TEAM NO. 17 TIDE LEVEL -5 to +5 DATE 4 / 27 / 90
 EST. SUBDIVISION LENGTH: 3500 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: E to W
 SURFACE SEDIMENTS: R 50 % B 15 % C 20 % P 15 % G — % S — % M — % V — %
 SLOPE: Long 25 % Hang 20 % Vert 55 % WAVE EXPOSURE: ☐ Low ☐ Med ☒ High
 OIL CATEGORY LENGTH: W — m M 0 m N 31 m VL 257 m NO 3212 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR								IMPACTED ZONES			
	C	S	P	B	1	2	3	4	5	6	7	8	SU	U	M	U
ASPHALT PAVEMENT																
POOLED																
COVER																
COAT		0	Y	X		X ¹							X ¹	0		
STAIN				X		X							X			
MOUSSE			X	Z				X ²					X ²	Z		
PATTIES																
TARBALLS																
FILM																
NO OIL													0			0

PAVEMENT H F S — sq. m by — cmPATTIES / TARBALLS — BAGSNEAR SHORE SHEEN? NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs	X		
Vegetation			
Trash	X		
Debris			

DID YOU COLLECT DEBRIS?

YES ☐ NO ☒TYPE —#BAGS —

Photographs:

Roll No. 4Frames 35-36

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM)	BELOW		OIL / FILM COLOR								PIT ZONE				A N A	SHEEN (Y/N)	▼	SURFACE - SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		VO	UC	1	2	3	4	5	6	7	8	SU	U	M	U				
1	40					X	·		X										X				N	32	p, c, g, b
2	37					X	·		X										X				1	22	s, c, p, b (8")
3	46					X	·		X										X					44	p-g, c, s
4	23					X	·		X									X						10	b, g, p, c
5	45					X	·		X										X				↓	36	g, p
6	26				X		φ · φ		X				X							X			Y	21	g, p, c

COMMENTS The most concentrated oil seen in this segment was in the area of the detailed map. There, mousse was collected underneath large (1/2 to 3 m diameter) boulders, in between them. In the same area, boulders were piled from last yr's clean-up, and the area under the boulders had not been cleaned and had a brown coating. No subsurface oil found. Very light spatter was common throughout the segment. Drip lines covered with pine needles.

REVIEWED BAT DATE 1 MAY 90

SHORELINE OILING SUMMARY (PAGE 2)

REVISION 04.12.90

SEGMENT ST/ RB-025 SUBDIVISION B (2 OF 2)

(4)

SUBSURFACE OIL (CONTINUED)

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CM)	BELOW		OIL / FILM COLOR						PIT ZONE				A	N	A	SHEEN (Y/N)	↓	SURFACE SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UG	SP	DP	BP	BY	BL	TL	LU	SU	UI	MI	U					
7	20					X	.		X																
8	56						.										X					N			S.G.P./S.E
9	30						.										X								" "
10	30						.										X								P.S.V
11	23						.										X								S.G.P./C/O
12	40						.										X								O/P/pear
13	30						.										X								S.G.P./pear
14	53						.											X							O.P
15	25						.										X								O/P/pear
16	28						.										X								S.G.P/pear
17	40						.											X							O.P
18	46						.										X								O.P
19	46					✓	.		✓								X						↓		O.P/S.G
							.																		

COMMENTS

are also seen on the lee side of some boulders & rock islands.

Coastline is very rugged, and can be walked only at a very low tide.

There are two broad beaches at the W. end, and several smaller pebbly beaches along the length.

Wave exposure is moderate to high.

REVIEWED BAT DATE 1 MAY 90

OG N. 12

SEGMENT ST/ RB-005

SUBDIVISION B

DATE 4/27/90

CHECKLIST

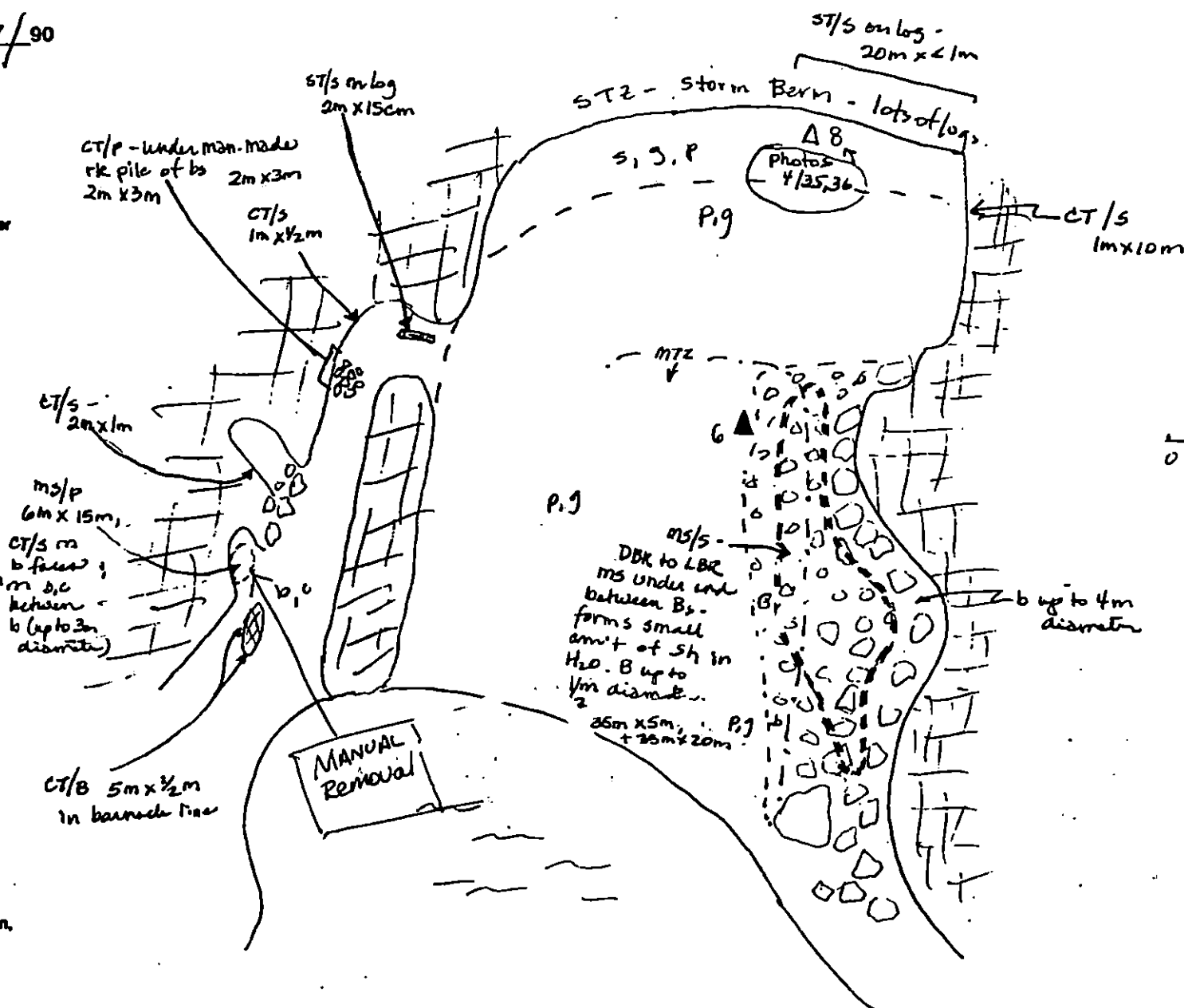
- ☒ N Arrow
- ☒ Approx. Scale
- ☒ Seg/Sub Bndry
- ☒ Oil Dist.
- ☒ Width
- ☒ Length
- ☒ % Cover
- ☒ Substrate Character
- ☒ Est. HWL/LWL
- ☒ SSL
- ☒ Profile Location(s)
- ☒ Profile(s)
- ☒ Ph Location(s)
- ☒ Photo Location(s)

LEGEND

- 1 Δ
P11 - No Subsurface Oil
- 2 Δ
P11 - Subsurface Oil
- CT/C
Continuous Distribution
- CT/B
Broken Distribution
- CT/P
Patchy Distribution
- CT/S
Splashed Distribution
- eee
Oiled Vegetation
- 1 $\Rightarrow$
Photo location, direction, and number

ETCH MAP

Enlarged map
of SEGMENT
RB-005B -



Oil Character Length (m): AP _____ PO _____ CV _____ CT _____ ST _____ MS _____ PT _____ TB _____ FL _____ NO _____

REVISION: 2/24/98

OG N. BISCAR

SEGMENT RB-005

SUBDIVISION B

DATE 4/27/90

CHECKLIST

- ☒ N Arrow
- ☒ Approx. Scale
- ☒ Seg/Sub Bndry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWL/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pit Location(s)
- ☐ Photo Location(s)

LEGEND

1 Δ

Pit - No Subsurface Oil

2 Δ

Pit - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

Splashed Distribution

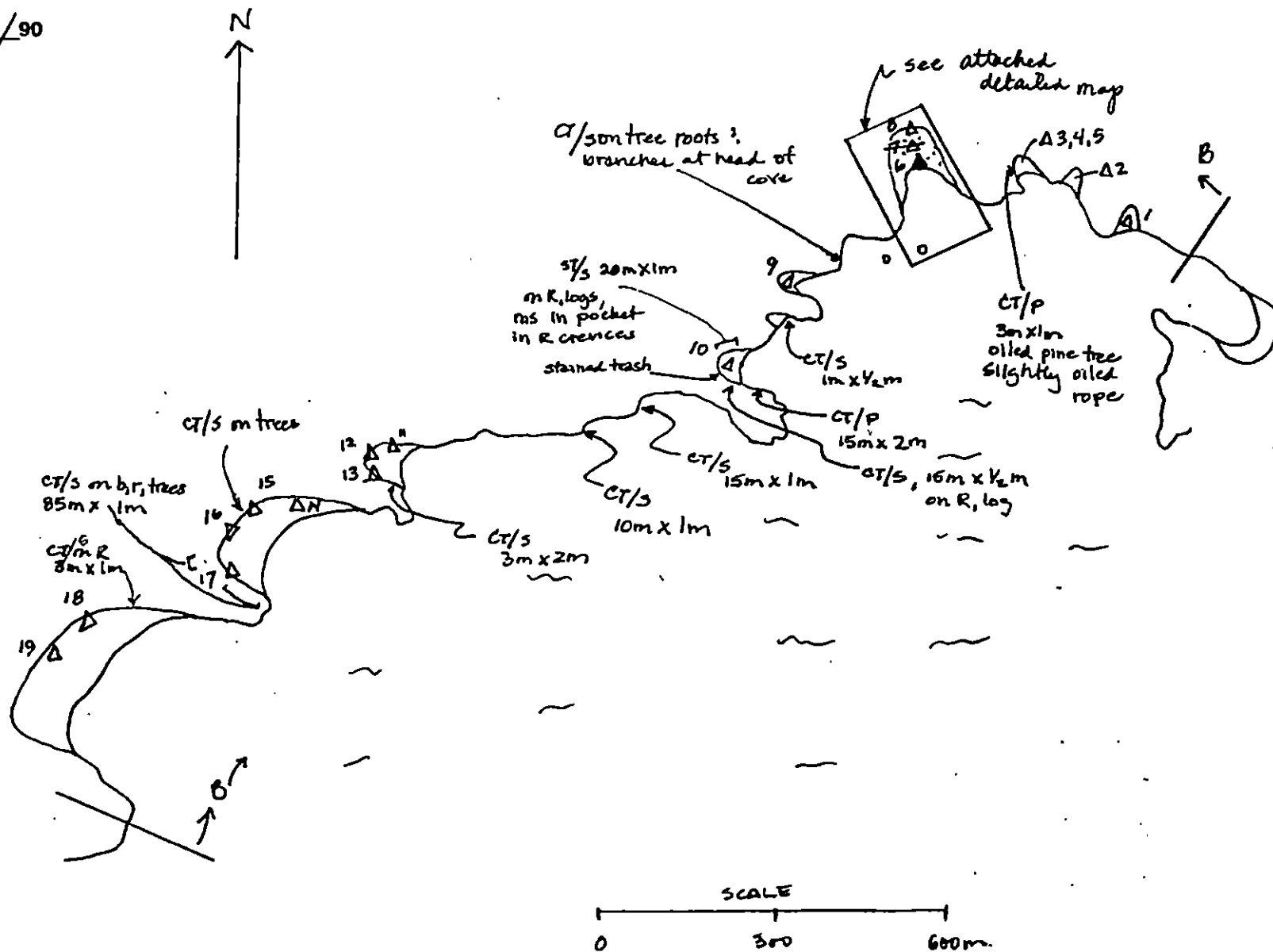
eee

Oiled Vegetation

1 $\Rightarrow$

Photo location, direction, and number

ETCH MAP



Oil Character Length (m): AP 0 PO 0 CV 0 CT 170 ST 42 MS 76 PT 0 TB 0 FL 0 NO 3212

REVISION: 03/24/90

SHORELINE ECOLOGICAL SUMMARY

REVISION: 0172.10

Segment ST/ RA 005 Subdivision B Date (mo / day / yr) 4/27/90Time (24 hr) 7:00 Biologist DANIEL RAIDER(A) Substrate type and % of segments:
(1) Bedrock (2) Boulder (3) Cobble (4) Pebble (5) Sand (6) Silt(B) Overall % cover of biota (% of segment): Dense 65 Moderate 10 Low 25

(C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (O)

Photographs: to noneRoll No. 4Frames 35 + 36

BARNACLES

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

MYTILUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

GASTROPODS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	<u>(1M)</u>	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

FUCUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	<u>(1M)</u>	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

Wildlife Observations/ General Comments:

SEE WILDLIFE IDENTIFICATION SHEET

VERY ABUNDANT BIOTA, TIDAL POOLS; FAUNA DIVERSITY IS HIGH; SEE

CONTINUED.

Ecological Considerations:

A-1

W3-1

J A, B - 242-32-10150

+ J, J

E A, A

MOH - 27 April 1990

(12)

Birds Seen at RB-5

<u>Species</u>	<u>#</u>	<u>Comments</u>
1. Red-Breasted Merganser	- ¹⁶ / ₁₂ -	
2. Belted Kingfisher	- 1	
3. M. Gull	- 2	
4. Bald Eagle	- 1	
5. W. (Western Gull - ?)	- 1	- sound only
6. Black Oyster Catcher	- 4	
7. Steller's Jay	- 1	
8. American Wigeon	- 2	- male & female
9. Tree-Toed Woodpecker	- 2	- drumming
10. Common Raven	- 2	
11. Winter Wren	- dozens (?)	- by sound only
12. Glaucous-Winged Gull	- 2	
13. Herring Gull	- 3	
14. Red-Necked Grebe	- 2	
15. Song Sparrow	- 1	- sound only

Mammals

- | | | |
|-----------------|-----|---|
| 1. Harbor Seals | - 9 | } These were also sighted for RB005A but occurred in a common zone for both RB005B + A. |
| 2. River Otter | - 1 | |

This entire subdivision has a relatively dense mat of flora and fauna throughout the lower- and mid- intertidal zones. At points along the subdivision the surface of rocks could not be seen for stretches of 50 meters in the mid intertidal and (especially) lower intertidal zone. Because of the low tide, I was able to get a good view of both zones throughout the entire survey.

Some of the species seen are listed on the accompanying "Species List". Barnacles were by far the most profuse organism within the MITZ and brown algae/kelp (*Laminaria* spp. and *Alaria marginata*) dominated the LIZ. *Ar* form a dense mat. *Fucus*, also present in the lower- and mid- ITZones was in dense colonies ranging from 50 to 300 meters long.

Interspersed throughout this coast line is a series of tidal pools in the bedrock within the mid- and Upper- mid intertidal zone. These pools contain a rich and diverse abundance of flora and fauna, including: sea anemones, sculpins, algae and crustaceans.

Observations

2 of 4

- abundant insects throughout segment, on detritus and in soil
- Mytilus was very abundant throughout most of the segment in a 1st to 2nd year stage. Note that I classified muscles as "Moderate" even though it was truly abundant in some areas. The reasoning is thus: there were many "pockets" of dense muscles, but they did not appear to cover all potential habitat substrate; secondly, the last fifth of the subdivision had a great deal fewer, although pockets did still persist. While Mytilus was very abundant in some areas, on average of the total subdivision would most likely prove it to be moderate in population.
- Pisaster ochraceus appeared in dense clumps (10-15) on bedrock on crevices, in the shady cooler portions of the beach.
- Three immature Pygospio heliothoe observed.
- While there were dense mats of barnacles, ranging from 2 cm across and 5 cm high to less than 5 mm in diameter, there were areas where mortality (in a local "pocket" would reach 100%) it was especially true on bedrock and for smaller extremely dense groups, and for what appeared to be 1-2 year olds.

(SELDovia B-5)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ECOLOGICAL

RB-05-6
(Subdivision 2 of 3)

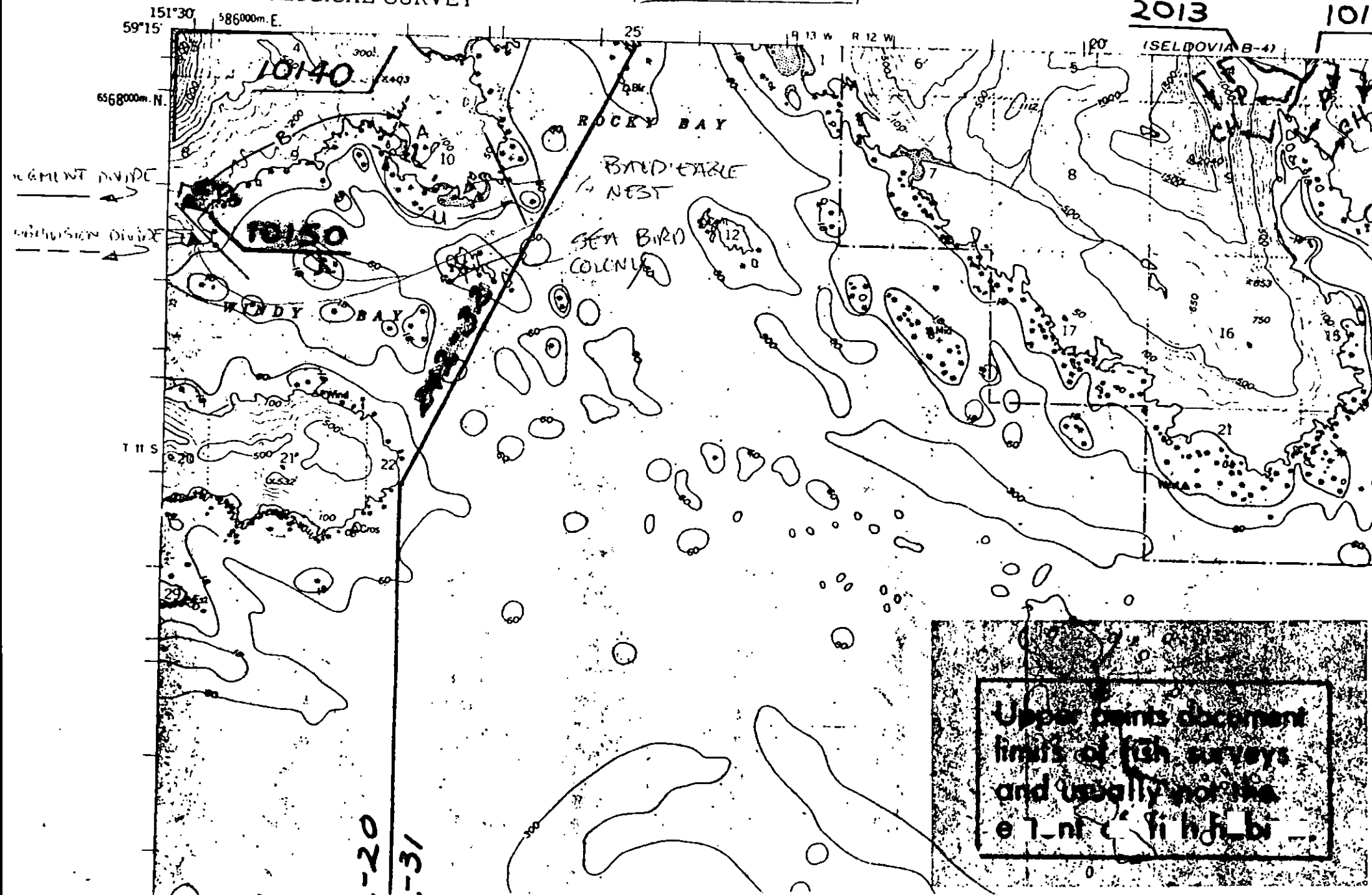
1A, 1B, 1C+
ST 13
755 8AA

3 SUBDIVISIONS A, B, C

2013

101

(SELDovia B-4)



RB-005 B

BIO SKETCH

TEAM 17, 27 APRIL 1990

DANIEL RAIDER

RB-05

RB-005 B

Dense Fucus (adult)
Laminaria spp., Alaria
marginata, Ulva spp.

Zostera
Marina

Pit 35

Dense
Mytilus mod
and Dense Fucus

Dense Semibalanus
and Fucus (adult)

profuse starfish

Tidal
pool w/
profuse
anemone
and fish

Photo 35

dense
Laminaria spp.

Dense Barnacles throughout
on bedrock & boulders in
MT2 & UT2; many
dense mats of Mytilus
edulis on boulder/bedrock
in UT2 & MT2

moderate
mytilus
- dense
barnacles

dense fucus
on boulder
in MT2

RB-005 A

SURVEYED

WR-05

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

RB-5

ADEC Segment Length: 5785m



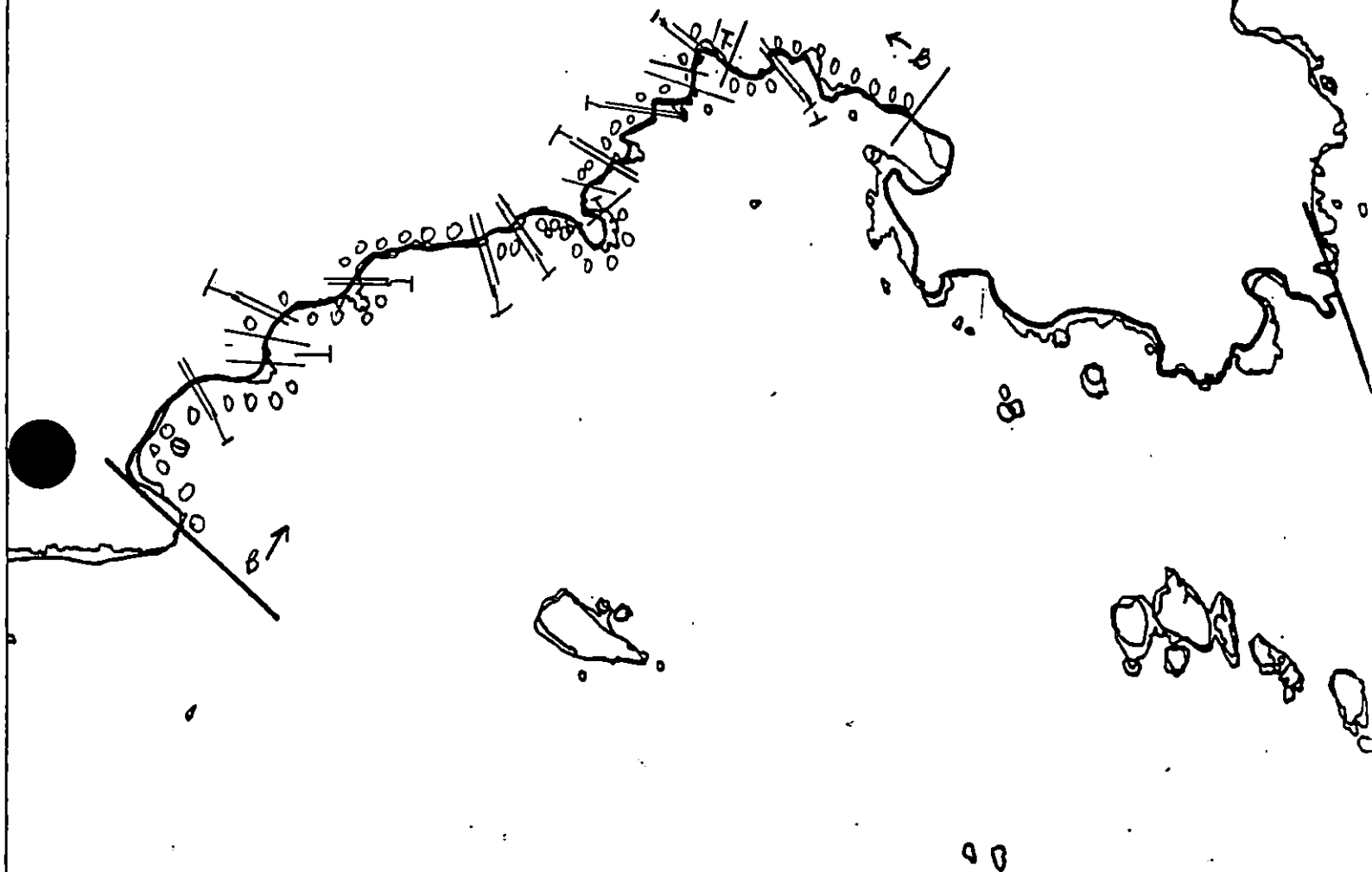
Map Key: KEN-105a

Name: _____

Date: _____

Date Entered: _____

RB-05



XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

RB-5

ADEC Segment Length: 5785m



Map Key: KEN-105a

Name: N. BIGGAR

Date: 4/27/90

Data Entered:

1991 MAYSAP EVALUATION

SEGMENT: RB 005 SUB: A REGION: KEN SURVEY DATE: 5/27/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest,
Fish harvest area, Subsistence - Invertebrate harvesting

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: Timothy O. Smith

Date: 6/07/91

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

N

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: JUNE 7 1991

FOSC APPROVAL DATE: 6/14/91

ADEC

FOSC

EXXON

E. E. PAGE, CDR, USCG
CHIEF OF STAFF, FOSC

USCG

NOAA

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

Subsistence, Invertebrate Harvesting: Unlimited treatment except avoid disturbance of clam/mussel beds unless specifically directed by TAG Work Order.

MAYSAP FIELD SHORELINE COMMENT SHEET

50

TEAM NO. 4 SEGMENT RB-005A SUBDIVISION A DATE 5/27/91

ADEC

NAME Steve Ferguson SIGNATURE _____

☐ NTR

(SEE ATTACHED COMMENT SHEET)

EXXON

NAME George P. Stiles SIGNATURE George P. Stiles 5/27/91

☒ NTR

No appreciable oil ~~found~~ ^{remaining}. The area of weathered AP/MSOC was picked up during the survey (13 bags).

LANDMANAGER

NAME Pat Noeman OF Port Beahm SIGNATURE Pat Noeman 3-27-91

☐ NTR

The exposed AP was picked up, more of this AP ^{will continue} ~~to~~ become exposed over the summer/fall, recommend that it be checked while work is performed in windy day.

USCG/NOAA

NAME Mr. [illegible] SIGNATURE [illegible]

☒ NTR

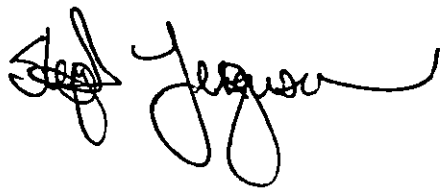
There was a low % mix of COR/AP which was picked up at site.

[Signature]

TEAM #4 SEGMENT RB-005 SUBDIVISION A

☒ NTR ☐ TREATMENT RECOMMENDED

ON THE SOUTHWEST CORNER OF THE COVE A PATCHY DISTRIBUTION OF ASPHALT WAS OBSERVED DEPOSITED ATOP A GRANULAR-SAND-MUD SEDIMENT TYPE INTERTWINED BETWEEN COBBLES IN THE MID-INTERTIDAL ZONE. SOME EROSION OF THE GRANULAR-SAND-MUD SEDIMENT TYPE HAD TAKEN PLACE EXPOSING THIS COBBLE AREA WHERE THE ASPHALTING WAS OBSERVED. PITS (NOT ON OG MAP, CHECK DEC TICK MAP) WERE DUG ABOVE THE EXPOSED ASPHALTING IN AN AREA WHERE COBBLES WERE NOT EXPOSED TO THE SURFACE AND THE SURFACE GRANULAR-SAND-MUD MIXTURE WAS PRESENT → NO OILING (SUB-SURFACE ASPHALT) WAS OBSERVED. CONTINUED UPWARD EROSION IN THIS AREA MAY PRESENT NEW ASPHALTING.

ADEC REP

TEAM NO. 41 MAYSAP SHORELINE OILING SUMMARY PAGE 1 OF 1
 OG J. M. Sempels BIO J. Roth SEGMENT RB-005
 ADEC S. Ferguson LANDMANAGER P. Nelson for Port Graham SUBDIVISION A
 EXXON Q. Stiles USCG/NOAA J. Malon/D. McDonald DATE MAY 126 191
 TIME 06:26 to 07:00 TIDE LEVEL 0 ft. to -1 ft. ENERGY LEVEL: ☐ H ☐ M ☒ L

SURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELO WEATHER: ☐ SUN ☒ CLOUDS ☐ FOG ☐ RAIN ☐ SNOW
 TOTAL LENGTH SHORELINE SURVEYED: 559 m NEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONE
 EST. OIL CATEGORY LENGTH: W — m M — m N — m VI 224 m NO 335 m US — m

L O C	SURFACE OIL CHARACTER										SURFACE SEDIMENT TYPE	SHORE SLOPE VHML	AREA		ZONE				NOTES
	AP	MS	TB	BO	CV	CT	ST	FL	DB	NO			WIDTH m	LENGTH m	S	UI	MI	LI	
A1						S	S				Bedrock	V	0.5	2		X			} on bedrock sides of cove
A2						S	S				"	"	0.5	2		X			
A3						S	S				"	"	1	15		X			
A4						S	S				"	"	1	5		X			
A5					T						pb/g	L	200	200		X	X		Very small & abundance < 1% a few pebbles only.

DISTRIBUTION: C = 91-100%; B = 81-90%; P = 11-80%; S = 1-10%; T = <1%
 SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE PHOTO ROLL # MAYSAP-4(III)-10 FRAMES 3-10

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER							OILED ZONE cm-cm	CLEAN BELOW Y/N	H2O LEVEL (cm)	SHEEN COLOR B R S N	PIT ZONE				SURFACE- SUBSURFACE SEDIMENTS	NOTES
		OP	HOR	MOR	LOR	OF	TR	NO					S	UI	MI	LI		
1	30									Y				X			g/pb/lb	
2	20			X					25-4	Y				X			fine sand	
3	20			X					4-6	Y				X			medium surface cb	
4	25								4-6	Y				X			fine	

SHEEN: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

OG COMMENTS: Low energy cove, appears to have undergone erosion of the central H/TZ zone where a patch of cobbles is now exposed. Location where pots were dug was known to have a good cover of intertidal Ap/MSOR last summer. This cover appears to have been eroded and buried subsequently by a few cm of fine sediments.

Reviewed: MC 5/31/91
 Reviewed 5.30 94

OG SKETCH MAP

R3-005 A

J. M. SEMPELS

MAY 20/91

626-0715

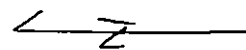
Legend

-  Bedrock cliffs/bluffs
-  Intertidal ramp/outcrop
-  Boulder/cobble
-  Cobble/pebble
-  Pebble/granule

A2
st, ct, 0.5x2
< 5% WITZ
Bedrock

Logs and dead
trees in
drift zone

3 pebbles Ap, 20 cm dia
3 cm thick
Picked up



A1
st, ct, 0.5x2
< 5% WITZ
Bedrock wall

A3
st, ct, 1x15
< 5% WITZ
bedrock

A4
st, ct, 1x5m
WITZ bedrock
bluffs < 5%

MAYSAP 4 (III) 10-3-10
A5
Few LSOR pebbles
< 20 cm dia over WITZ
no green, very weathered
Broke up, too weathered to
pick up



Meters
0 40 80 120

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 4 DATE 26 MAY 91
SEGMENT # R8005 TIDAL HEIGHT(Range) 0.0 TO -1.15
SUBDIVISION A BIOLOGIST Jim Roth
SEA STATE FLAT WIND SPEED/DIRECTION
PHOTOGRAPHS: ROLL # FRAME #

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

A1 - BEDROCK WALL - MITEZ - NO INTERTIDAL BIOTA

A2 - BEDROCK IN MITEZ - NO INTERTIDAL BIOTA

A3 - BEDROCK WALL IN MITEZ - NO INTERTIDAL BIOTA

A4 - BEDROCK BLUFF - NO INTERTIDAL BIOTA

GENERAL COMMENTS: THIS SUBDIVISION HAS A HEALTHY AND THRIVING
INTERTIDAL BIOTA. BEDROCK OUTCROPPINGS IN THE MITEZ TYPICALLY
CONTAIN DENSE FUCUS, BARNACLES, LITTORINES (INCL. JUVENILES) DENSE
MUSSELS, AND ABUNDANT LIMPETS. INCLUDED IN THE SUBDIVISION IS
A LITE/MITEZ MUDFLAT WHICH CONTAINS FUCUS, ULVA, ENTEROMORPHA,
AND PELGRASS. ANIMALS ASSOCIATED HERE INCLUDE EDIBLE BIVALVES
SUCH AS HEART COCKLES AND LITTLENECK CLAMS. BETWEEN MUDFLAT
AND BEDROCK AN EXTENSIVE GRAVEL/COBBLE BANK OCCURS WHICH
CONTAINS DENSE LITTORINES, LIMPETS, MODERATELY DENSE BARNACLES
(INCL. SPAT), MUSSELS. OIL CHARACTERS NOTED ALL OCCUR AT THE
HIGH INTERTIDAL, ABOVE MOST BIOTA.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			
Seabirds			
Waterfowl	1	24	
Gulls/kittiwakes	1	200	
Shorebirds			
Corvids			
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	5		
Pinnipeds(specify)			
ales(specify)			

Shoreline subdivision map showing important biological features attached.

Reviewer M.B. 5/31/91

OG SKETCH MAP

RS-005 A

M/SEMPLELS

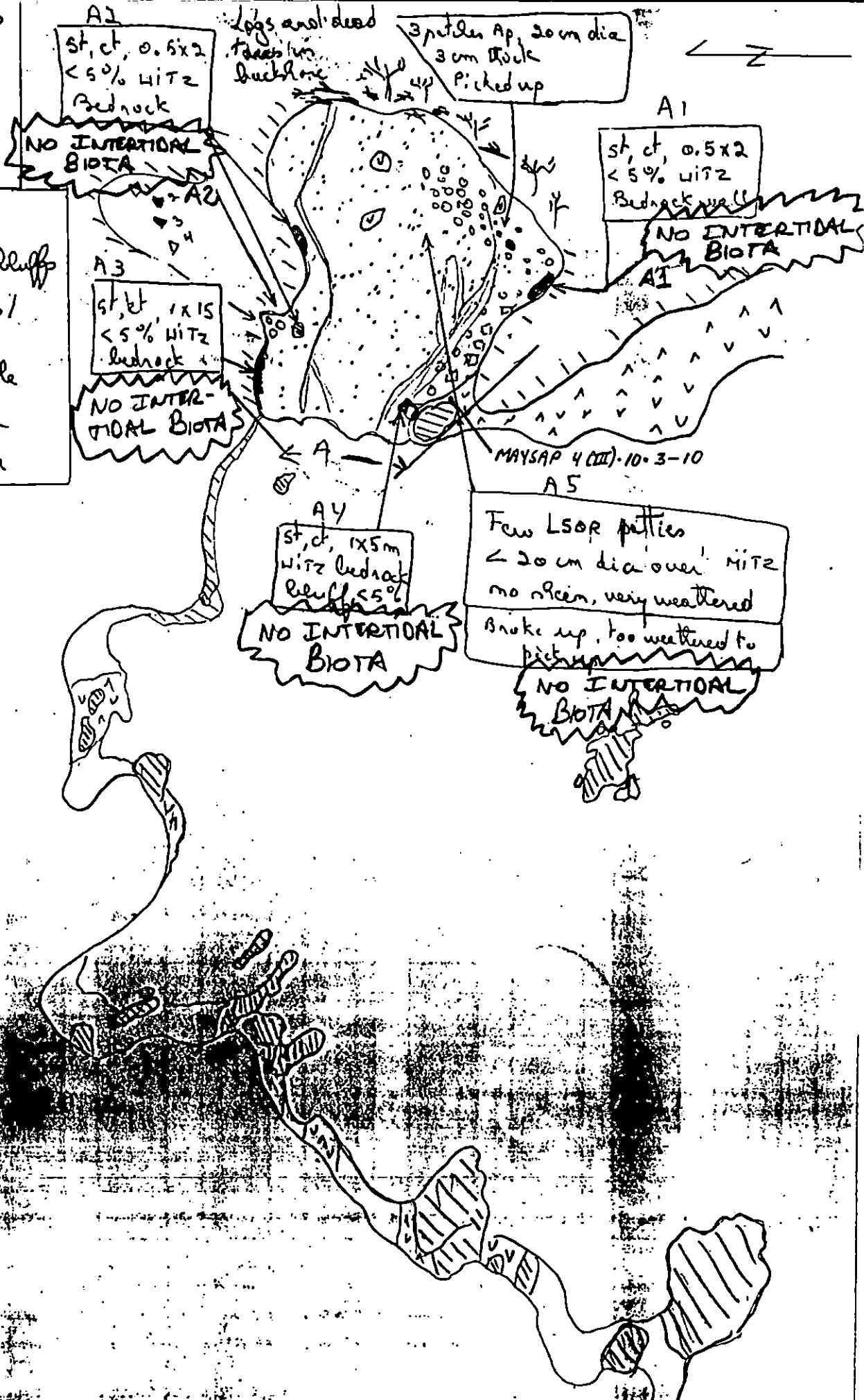
MAY 26/91

626-0715

Legend

- Bedrock cliff/bluff
- Intertidal ramp/outcrop
- Boulder/cobble
- Cobble/pebble
- Pebble/granule

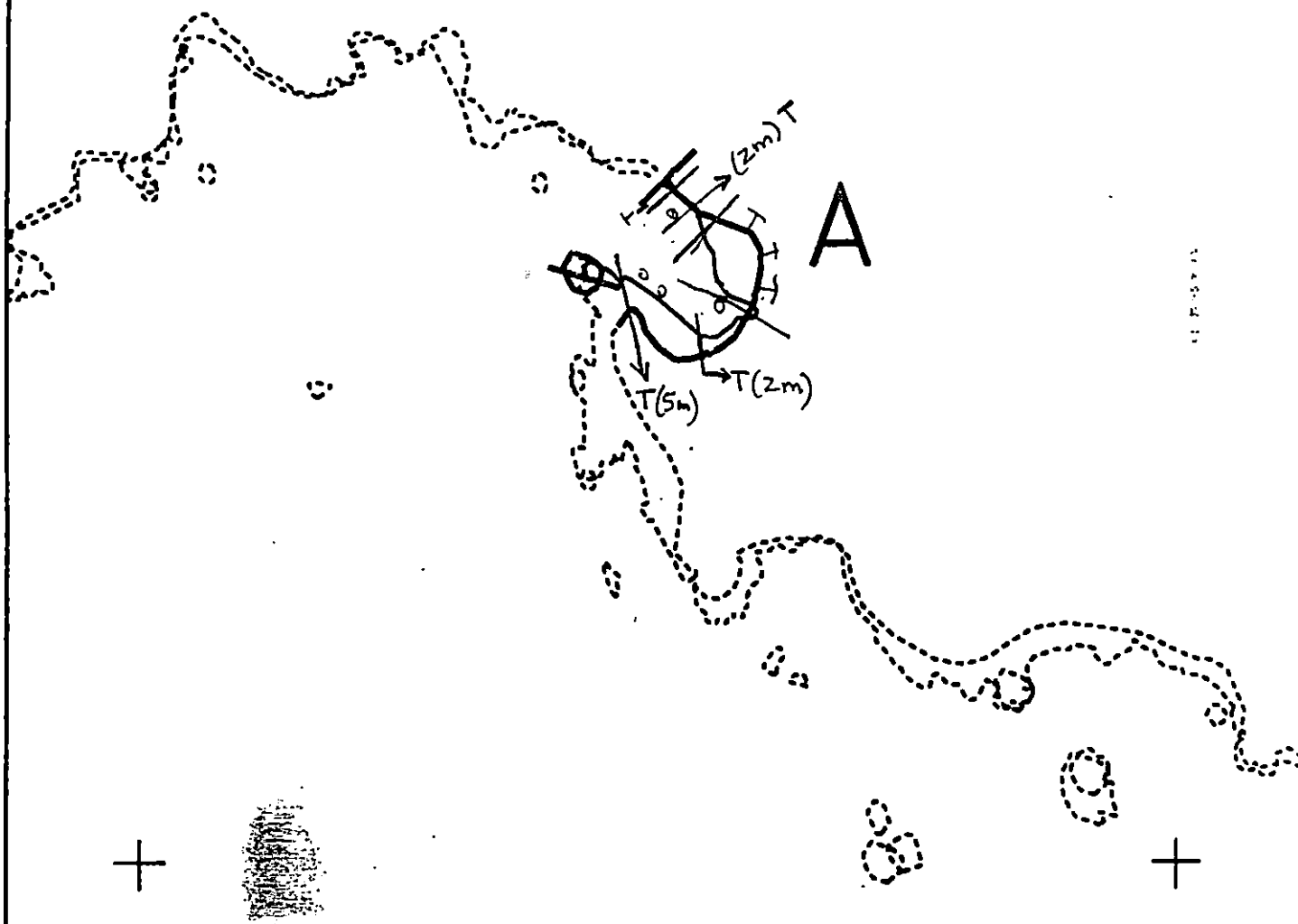
BIO MAP ROTH



Reviewed MRS

5/31/91

05



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

RB005 A
 ADEC Subsegment Length: 559m
 METERS
 0 200 400
 AK State Plane Zone 4
 arb005a

Subdivision Field Map
 Map Key: KENRB005A
 Name: J. J. Sample
 Date: May 26/91
 Date Entered:



Reviewed: MC 5/31/91
 revised 5:30 9/91

1991 MAYSAP EVALUATION

SEGMENT: RB 005 SUB: B REGION: KEN SURVEY DATE: 5/27/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/15

Ecological/Constraints (see page two for details) Eagle nest, Fish harvest area, Anadromous stream, Subsistence - Invertebrate harvesting

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: Timothy A. Smith Date: 6/07/91

RECOMMENDATIONS:

	INITIAL	TAG	FOSC
TREATMENT REQUIRED (Y or N)	<u>N</u>	<u>N</u>	<u>2</u>
Manual Pickup (Check as Req.)	<u> </u>	<u> </u>	<u> </u>
Spot Washing	<u> </u>	<u> </u>	<u> </u>
Bio-Customblen Only	<u> </u>	<u> </u>	<u> </u>
Bio-Inipol/Customblen	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: June 7 1991

FOSC APPROVAL DATE: 6/14/91

ADEC John Bauer

FOSC E. E. Page

EXXON Edmond

E. E. PAGE, CDR USCG
CHIEF OF STAFF, FOSC

USCG Edmond

NOAA John Bauer

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.

Subsistence, Invertebrate Harvesting: Unlimited treatment except avoid disturbance of clam/mussel beds unless specifically directed by TAG Work Order.

MAYSAP FIELD SHORELINE COMMENT SHEET

51

TEAM NO. 4 SEGMENT RB-005 SUBDIVISION B DATE 5/27/91

ADEC

NAME

Steve Ferguson

SIGNATURE

Steve Ferguson☒ NTR ☐ TREATMENT RECOMMENDED

BEDROCK IS LIGHTLY OILED WITH COATS AND STAINS ON THE LEeward SIDES AND PROTECTED CREVICES AND SEAMS. THE VISIBLE SOR AT "A5" WAS PICKED UP.

EXXON

NAME

George P. Stiles

SIGNATURE

George P. Stiles 5/27/91☒ NTR

No appreciable oil remaining.

LANDMANAGER

NAME

Pat Norman OF Port Graham

SIGNATURE

Pat Norman☒ NTR

The Amounts of ^{exposed} oil we were able to find was picked up as we surveyed.

USCG/NOAA

NAME

CWO2 J. Mc KATHEN

SIGNATURE

J. Mc KATHEN☒ NTR

No Oil on this segment.

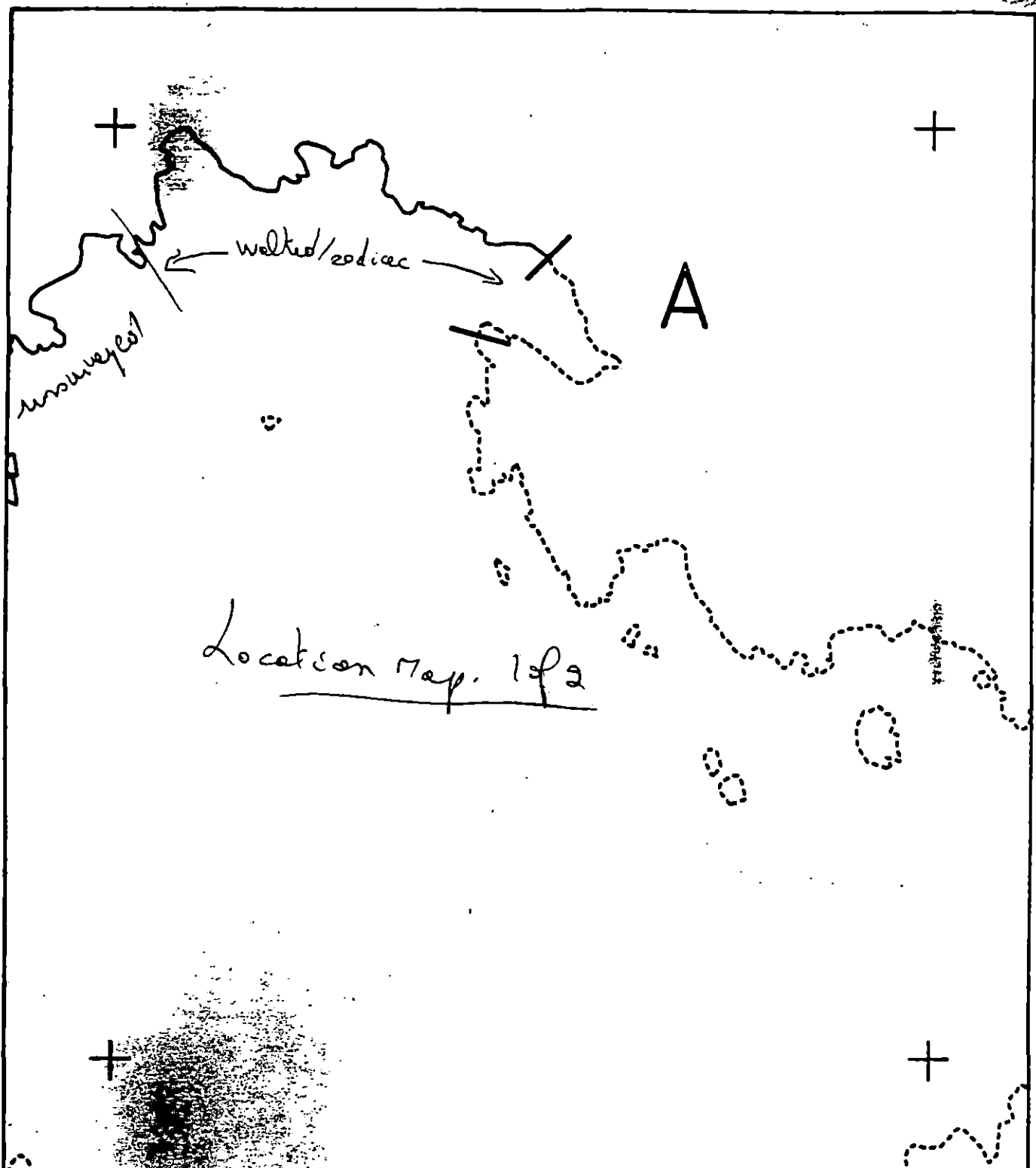
Little oil was found and the majority of it was picked up

James H. McKathen

FRAMES

GREEN: G - BROWN: B - RAINBOW: R - SILVER: N - NONE:

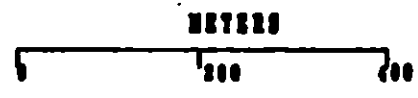
Revised 5.30.94



Location Map. 1 of 2

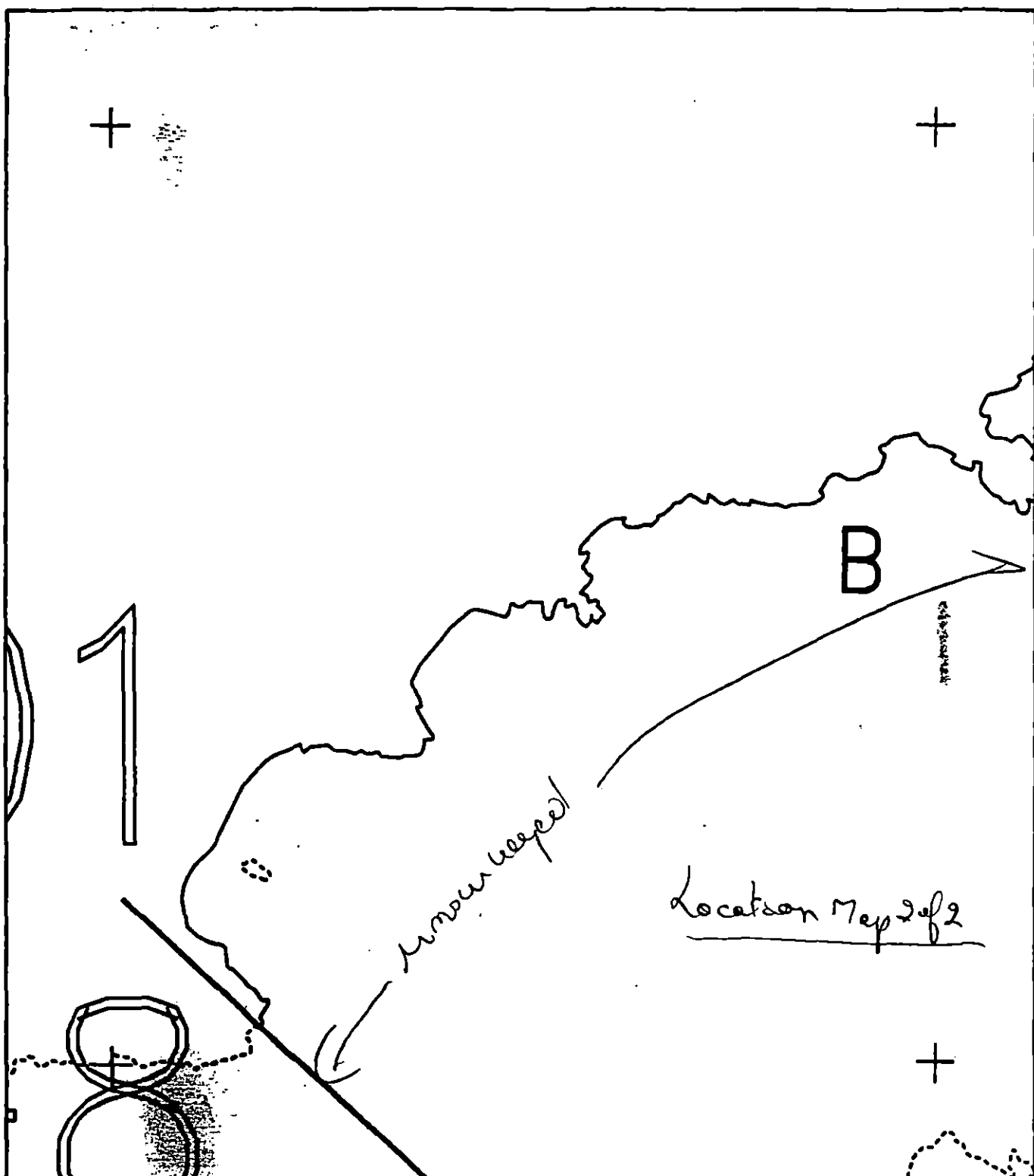


RB005 B



AS State Plans, Zone 4
07500000

Subdivision Field Map
Map Key: KENR000506
Name: John F. Foyles
Date: May 26/91



RB005 B

METERS



AS State Plane Zone 4
NAD83

Subdivision Field Map

Map Key: KENRB005Ba

Name: San Felipe

Date: May 26/91

OG SKETCH MAP

RB-005-B

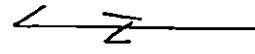
J. M. SEMPELS

MAY 25/91

715-0815

Legend

-  Bedrock cliffs/bluffs
-  Intertidal ramp/outcrop
-  Boulder/cobble
-  Cobble/pebble
-  Pebble/granule



Subdivision B

well developed
storm berm, clean
logs

A1

0.5 x 1 m st, ct
very weathered <5%
on LITZ bedrock
walls

A3

MSOR 2 x 3, <5%
around bld
<2 cm
[worked on]

A2

st, ct, 0.5 x 2
<5%
on LITZ
walls

A4

very small pocket of p/b/g/sd/cb
Traces of st on boulders
and wall
2 x 10 <10%

A5

MSOR 1 Ap run around Bld/cb
2 areas of 2 x 3, <5%
[worked on] LITZ
<5 cm thick.

unsurveyed

Notes

0 40 80 120

REVIEWED: MC 5/31/91
Reviewed 5:30 QJ

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 4 DATE 26 MAY '91
 SEGMENT # R8005 TIDAL HEIGHT (Range) -1.15 to -0.6
 SUBDIVISION B BIOLOGIST JIM ROTH
 SEA STATE FLAT WIND SPEED/DIRECTION
 PHOTOGRAPHS: ROLL # FRAME #

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

A1 - SPARSE BARNACLES, LITTORINES
 A2 - SPARSE BARNACLES, LITTORINES
 A3 - MODERATE MUSSELS, BARNACLES
 A4 - MODERATE MUSSELS, BARNACLES, LITTORINES, INC. JUVENILES.
 A5 - SPARSE BARNACLES, LITTORINES.

GENERAL COMMENTS: THIS SUBDIVISION IS FAIRLY EXPOSED TO STORM ENERGY. IT HAS A HEALTHY AND DIVERSE INTERTIDAL BIOTA, AND SINCE IT WAS SURVEYED DURING A MINUS TIDE, OBSERVATIONS MADE IN THE LITE SHOWED A VARIETY OF PLANT AND ANIMAL SPECIES. BEDROCK AND BOULDER/COBBLE SHORES SHOW THE TYPICAL INTERTIDAL ZONATION, WITH DENSE FOCUS IN THE MIDDLE ZONE, ALONG WITH BARNACLES, MUSSELS, LIMPETS, AND LITTORINES. EVIDENCE OF RECENT RECRUITMENT WAS NOTED FOR MUSSELS, BARNACLES, AND LITTORINES. AMONG THE SPECIES NOTED IN THE LOWER INTERTIDAL ZONE WERE CHTONIDS (KATHARINA, TONICELLA LINEATA), WHELKS (NUCELLA), ANOMURAN CRABS (HAPALOGASTER), SEA STARS (PISTATEIR, PYCNOPODIA, HENRICIA), GLENNY EELS, BUTTER CLAMS, LITTLENECK CLAMS. OIL CHARACTERS NOTED OCCUR ABOVE MOST OF THE INTERTIDAL BIOTA

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			SALMON FRY
Seabirds			
Waterfowl			
Gulls/kittiwakes			
Shorebirds			
Corvids			
Other Birds			

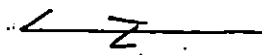
MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds (specify)			
HARBOR SEAL	1		
les (specify)			

Shoreline subdivision map showing important biological features attached.

Reviewed M.B. 5/31/91

OG SKETCH MAP
RIS-005-B
J. N. SEMPELS
MAY 26/91
15-0815

BIO MAP ROTH



Legend

- [hatched box] Bedrock cliff/bluff
- [wavy line] Intertidal ramp/outcrop
- [square with dots] Boulder/cobble
- [circle with dots] Cobble/pibble
- [dots] Pebble/granule

● All developed warm beach, clean

SPARSE BARNACLES, LITTORINES

A3
St, ct, 0.5x2
very weathered <5%
on LITZ bedrock walls

SPARSE BARNACLES, LITTORINES

A4
very small rocks of g/sd/cb
Traces of st and boulders and shells

SPARSE BARNACLES, LITTORINES

A5
Moderate mussels, barnacles

SPARSE BARNACLES, LITTORINES

Notes

Reviewed MFB
5/31/91



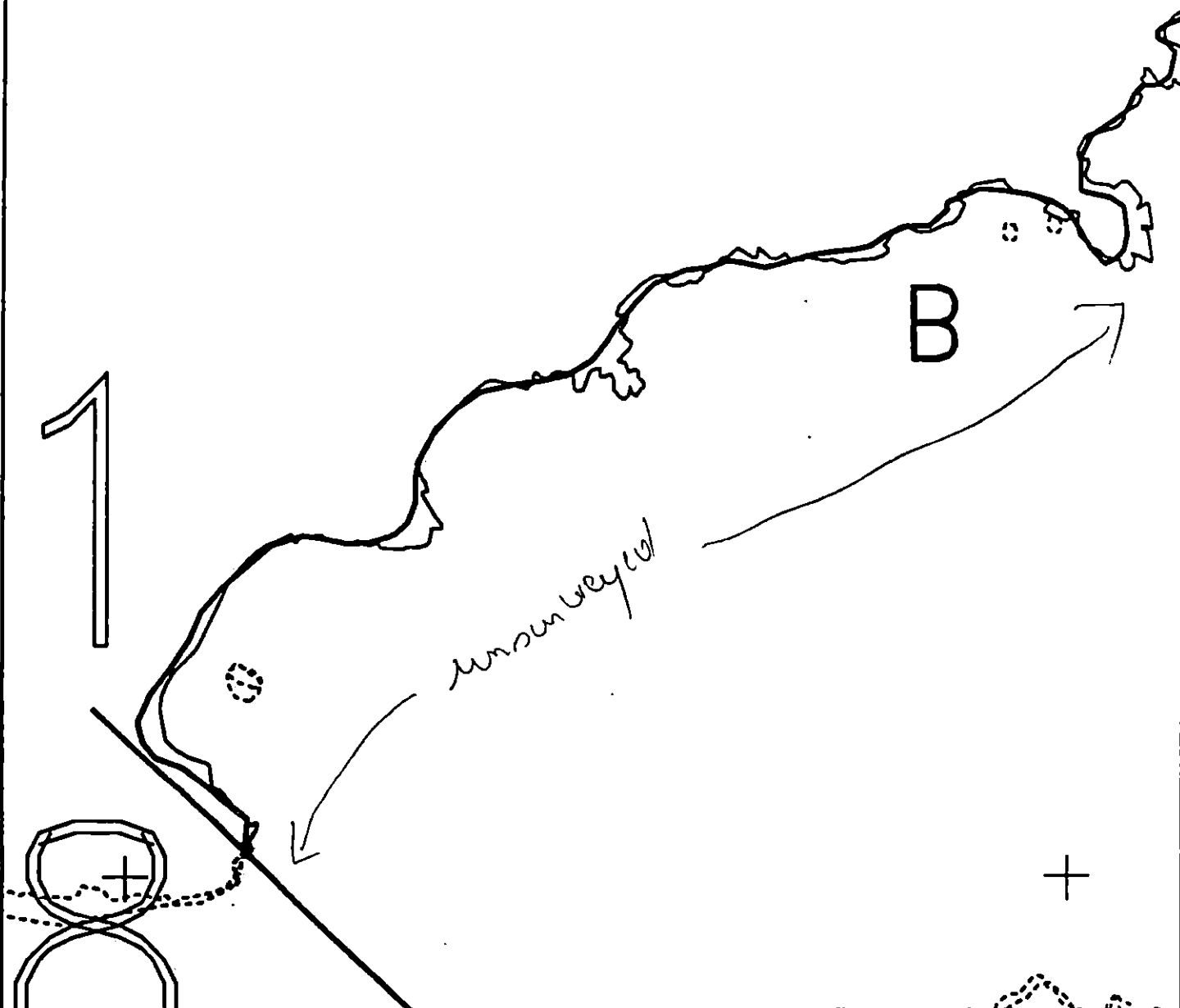
0.5x1m st, ct
very weathered <5%
on LITZ bedrock walls

SPARSE BARNACLES, LITTORINES

MODERATE MUSSELS, BARNACLES, LITTORINES, INCL. JUVENILES

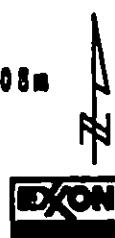
very small rocks of g/sd/cb
Traces of st and boulders and shells

SPARSE BARNACLES, LITTORINES



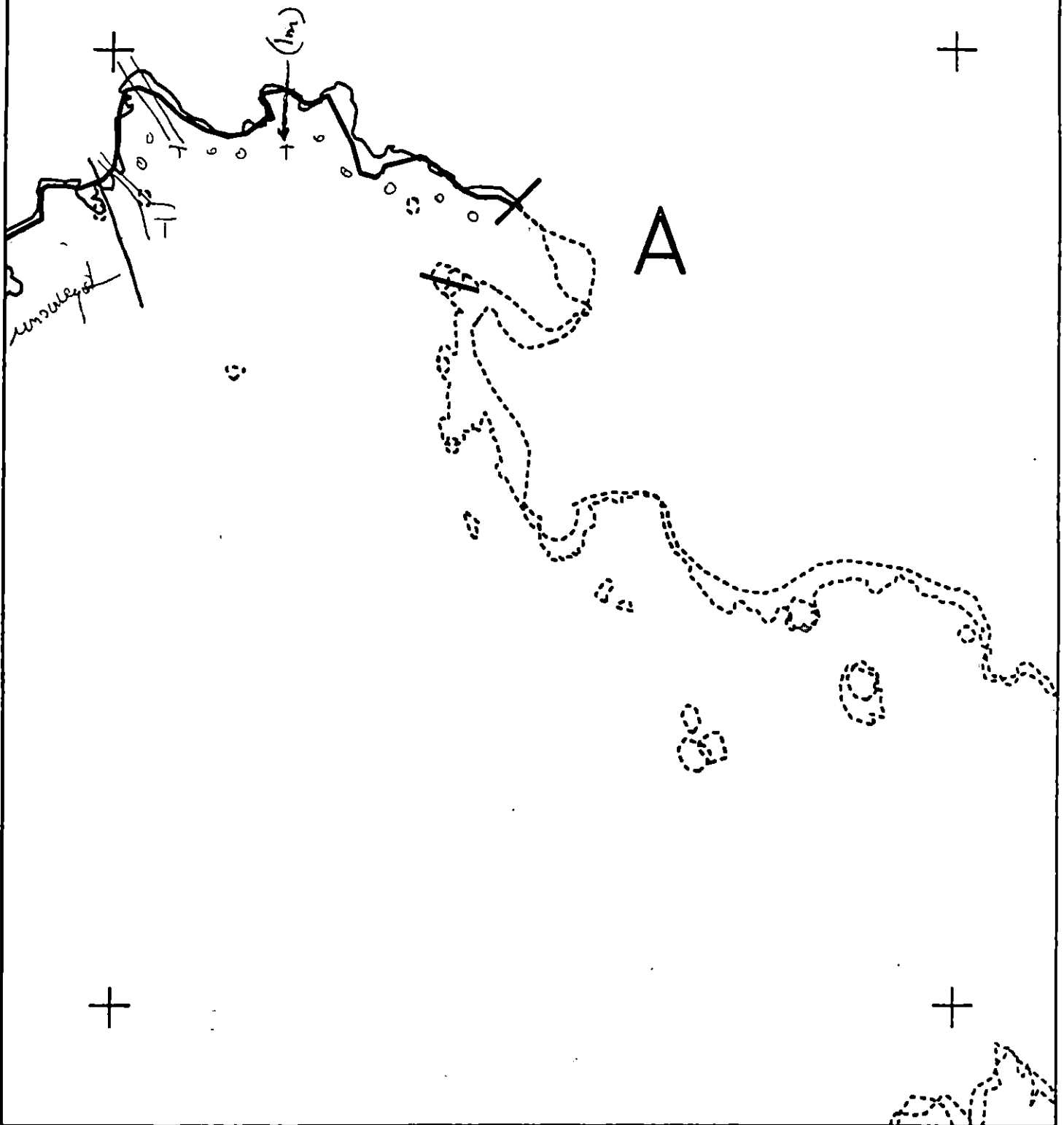
XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil.

RB005 B
 ADEC Subsegment Length: 3308m
 METERS
 0 1200 2400
 AK State Plane Zone 4
 nrb005ba



Subdivision Field Map
 Map Key: KENRB005Ba
 Name: J M Sempels
 Date: May 26/91
 Date Entered:

Reviewed: MC 5/31/91
 reviewed 5:30 AM



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

RB005 B
 ADEC Subsegment Length: 3308m
 METERS
 0 200 400
 AK State Plane Zone 4
 arb005bb



Subdivision Field Map
 Map Key: KENRB005Bb
 Name: for Samples
 Date: May 26/91
 Date Entered:

Revised: MC 5131/91
 Revised 5.30 94

1991 MAYSAP EVALUATION

SEGMENT: RB 005 SUB: A REGION: KEN SURVEY DATE: 5/27/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest,
Fish harvest area, Subsistence - Invertebrate harvesting

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____

FOSC APPROVAL DATE: _____

ADEC _____

FOSC _____

EXXON _____

USCG _____

NOAA _____

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

Subsistence, Invertebrate Harvesting: Unlimited treatment except avoid disturbance of clam/mussel beds unless specifically directed by TAG Work Order.

MAYSAP FIELD SHORELINE COMMENT SHEET

20

TEAM NO. 4 SEGMENT RB-005A SUBDIVISION A DATE 5/27/91

ADEC

NAME Steve Ferguson SIGNATURE _____☐ NTR

(SEE ATTACHED COMMENT SHEET)

EXXON

NAME George P. Stiles SIGNATURE George P. Stiles 5/27/91☒ NTR

No appreciable oil ~~found~~ ^{remaining}. The area of weathered AP/MSOC was picked up during the survey (13 bags).

LANDMANAGER

NAME Pat Neenan OF Port Graham SIGNATURE Pat Neenan 3-27-91☐ NTR

The exposed AP was picked up, more of this AP ^{will continue} to ~~become~~ become exposed over the summer/fall, recommend that it be checked while work is performed in windy days.

USCG/NOAA

NAME Pat Neenan SIGNATURE Pat Neenan☒ NTR

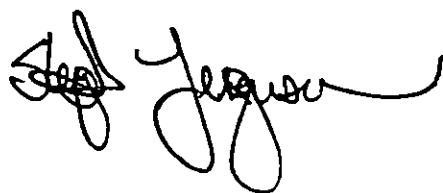
There was a low % mix of LOR/AP which was picked up at site.

Donald McNeill

TEAM #4 | SEGMENT RB-005 SUBDIVISION A

☒ NTR | ☐ TREATMENT RECOMMENDED

ON THE SOUTHWEST CORNER OF THE COVE A PATCHY DISTRIBUTION OF ASPHALT WAS OBSERVED DEPOSITED ATOP A GRANULAR-SAND-MUD SEDIMENT TYPE INTERTWINED BETWEEN COBBLES IN THE MID-INTERTIDAL ZONE. SOME EROSION OF THE GRANULAR-SAND-MUD SEDIMENT TYPE HAD TAKEN PLACE EXPOSING THIS COBBLE AREA WHERE THE ASPHALTING WAS OBSERVED PITS (NOT ON OG MAP, CHECK DEC TICK MAP) WERE DUG ABOVE THE EXPOSED ASPHALTING IN AN AREA WHERE COBBLES WERE NOT EXPOSED TO THE SURFACE AND THE SURFACE GRANULAR-SAND-MUD MIXTURE WAS PRESENT → NO OILING (SUB-SURFACE ASPHALT) WAS OBSERVED. CONTINUED UPWARD EROSION IN THIS AREA MAY PRESENT NEW ASPHALTING.

ADEC REP 

TEAM NO. 1OG J. SempelsADEC S. FergusonEXON Q. St. LouisTIME 06:36 to 07:00BIO J. RothLANDMANAGER P. Nolan for Port GrahamUSCG/NOAA J. Maron / D. McDonaldSEGMENT RB-005SUBDIVISION ADATE MAY 126 191TIDE LEVEL 0 ft. to -1 ft.ENERGY LEVEL: ☐ H ☐ M ☒ LSURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELOWEATHER: ☐ SUN ☒ CLOUDS ☐ FOG ☐ RAIN ☐ SNOWTOTAL LENGTH SHORELINE SURVEYED: 559 mNEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONEEST. OIL CATEGORY LENGTH: W — m M — m N — m VL 224 m NO 335 m US — m

L O C	SURFACE OIL CHARACTER										SURFACE SEDIMENT TYPE	SHORE SLOPE VHML	AREA		ZONE				NOTES
	AP	MS	TB	BO	CV	CT	ST	FL	DB	NO			WIDTH m	LENGTH m	S	UI	MI	LI	
A1						S	S				Reduct	V	0.5	2		X			} on bedrock undergrowth
A2						S	S				"	"	0.5	2		X			
A3						S	S				"	"	1	15		X			
A4						S	S				"	"	1	5		X			
A5				T							pb/g	L	200	200		X	X		Very small & dense sediment a few pebbles only

DISTRIBUTION: C = 91-100%; B = 81-90%; P = 71-80%; S = 61-70%; T = <61%

SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE

PHOTO ROLL # MAYRAP-4(III)-10 FRAMES 3-10

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER								OILED ZONE	CLEAN BELOW	H2O LEVEL	SHEEN COLOR	PIT ZONE				SURFACE- SUBSURFACE SEDIMENTS	NOTES
		OP	HOR	MOR	LOF	TR	NO	cm-cm	Y/N					S	UI	MI	LI		
1	30													X				g/pb/cb	
2	30			X										X				g/pb/cb	around
3	30			X										X				g/pb/cb	subsurface ch
4	25													X				g/pb/cb	

PIT: R = RAINBOW; S = SILVER; N = NONE

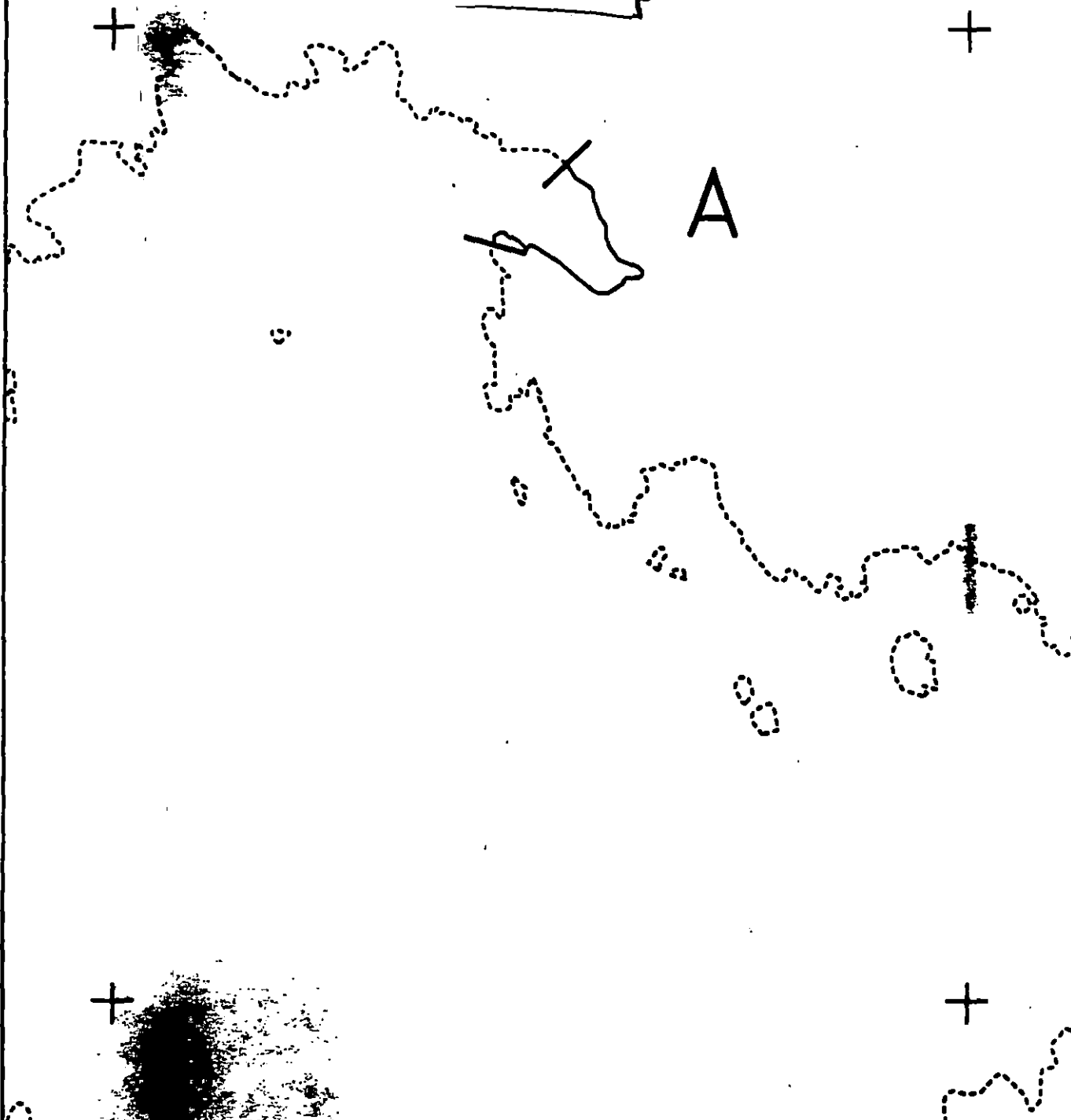
OG COMMENTS:

Low energy core, appears to have undergone erosion of the central HITE zone where a patch of cobbles is now exposed. Location where pots were dug was known to have a good cover of intertidal Ap/MSOR last summer. This cover appears to have been eroded and buried subsequently by a fine cm of fine sediments.

Reviewed: MC 5/31/04

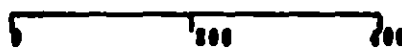
Reviewed 5:30 94

Location Map



RB005 A

METERS



AK State Plane Zone 4
87000000

Subdivision Field Map

Map Key: ZENR000000

Name: for Sample

Date: May 26/91



OG SKETCH MAP

R3-005 A

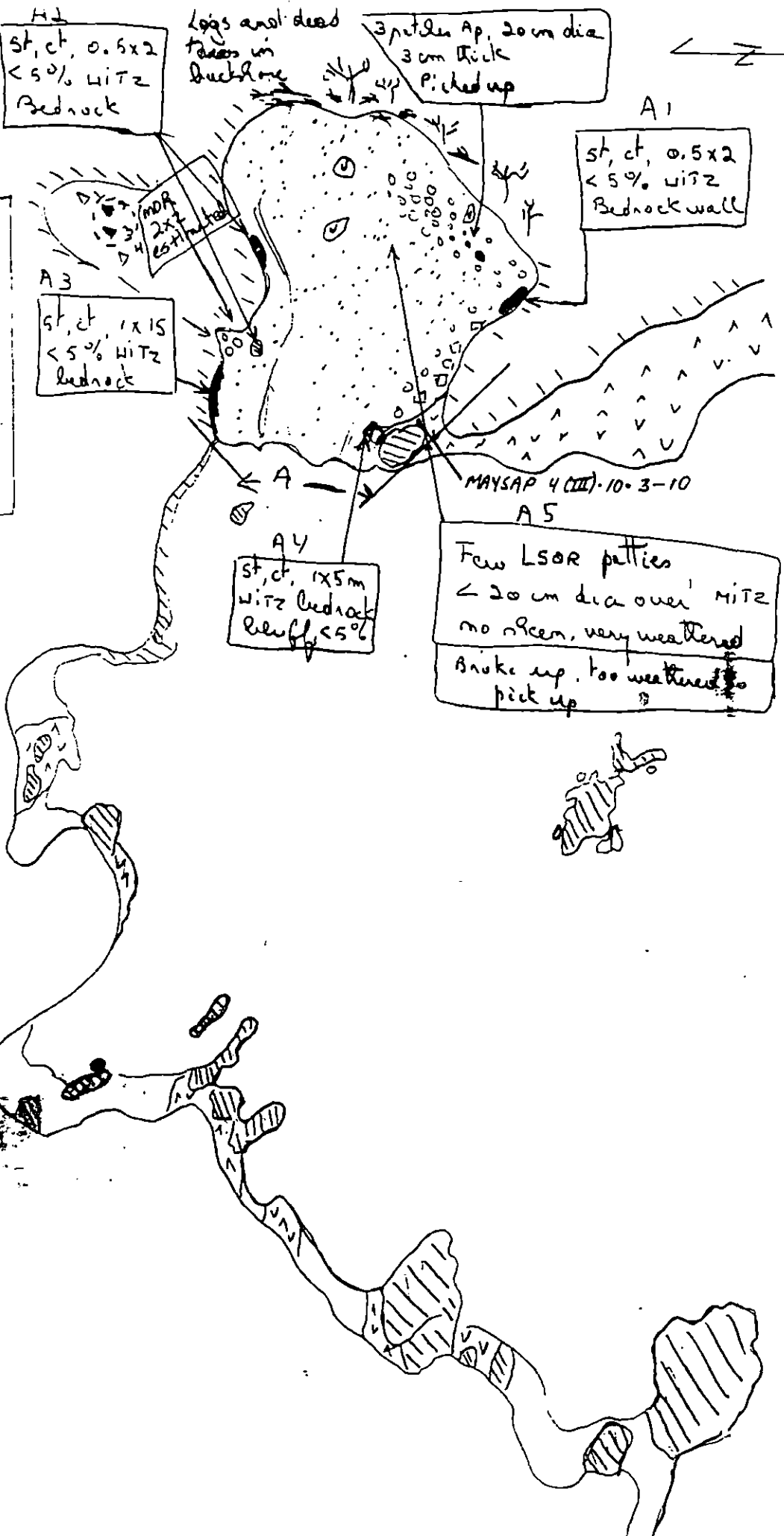
J. M. SEMPELS

MAY 26/91

0626-0715

Legend

-  Bedrock cliffs/bluffs
-  Intertidal ramp/outcrop
-  Boulder/cobble
-  Cobble/pebble
-  Pebble/granule



Meters

0 40 80 120

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 4 DATE 26 MAY 91
 SEGMENT # R8005 TIDAL HEIGHT(Range) 0.0 TO -1.15
 SUBDIVISION A BIOLOGIST Jim Roth
 SEA STATE FLAT WIND SPEED/DIRECTION
 PHOTOGRAPHS: ROLL # FRAME #

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

A1 - BEDROCK WALL - MITEZ - NO INTERTIDAL BIOTA

A2 - BEDROCK IN MITEZ - NO INTERTIDAL BIOTA

A3 - BEDROCK WALL IN MITEZ - NO INTERTIDAL BIOTA

A4 - BEDROCK BLUFF - NO INTERTIDAL BIOTA

GENERAL COMMENTS: THIS SUBDIVISION HAS A HEALTHY AND THRIVING INTERTIDAL BIOTA. BEDROCK OUTCROPPINGS IN THE MITEZ TYPICALLY CONTAIN DENSE FUCUS, BARNACLES, LITTORINES (INCL. JUVENILES) DENSE MUSSELS, AND ABUNDANT LIMPETS. INCLUDED IN THE SUBDIVISION IS A LITE/MITEZ MUDFLAT WHICH CONTAINS FUCUS, ULVA, ENTEROMORPHA, AND PELGRASS. ANIMALS ASSOCIATED HERE INCLUDE EDIBLE BIVALVES SUCH AS HEART COCKLES AND LITTLENECK CLAMS. BETWEEN MUDFLAT AND BEDROCK AN EXTENSIVE GRAVEL/COBBLE BANK OCCURS WHICH CONTAINS DENSE LITTORINES, LIMPETS, MODERATELY DENSE BARNACLES (INCL. SPAT), MUSSELS. OIL CHARACTERS NOTED ALL OCCUR AT THE HIGH INTERTIDAL, ABOVE MOST BIOTA.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			
Seabirds			
Waterfowl	1	24	
Gulls/Kittiwakes	1	200	
Shorebirds			
Corvids			
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	5		
Pinnipeds(specify)			
Whales(specify)			

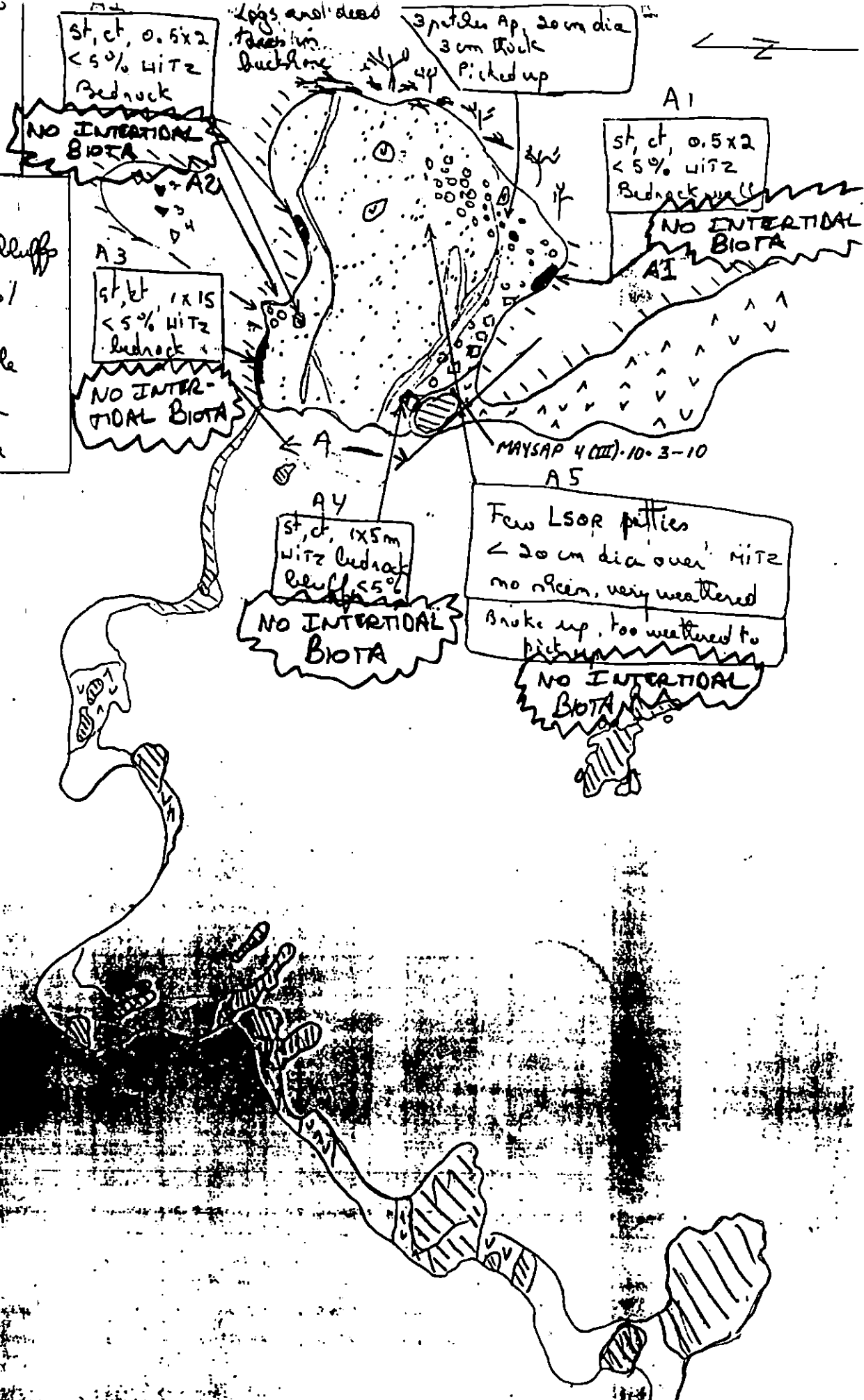
Shoreline subdivision map showing important biological features attached.

Reviewed MB. 5/31/91

Day sketch map
 RB-005 A
 J. MISENER
 MAY 26/91
 0626-0715

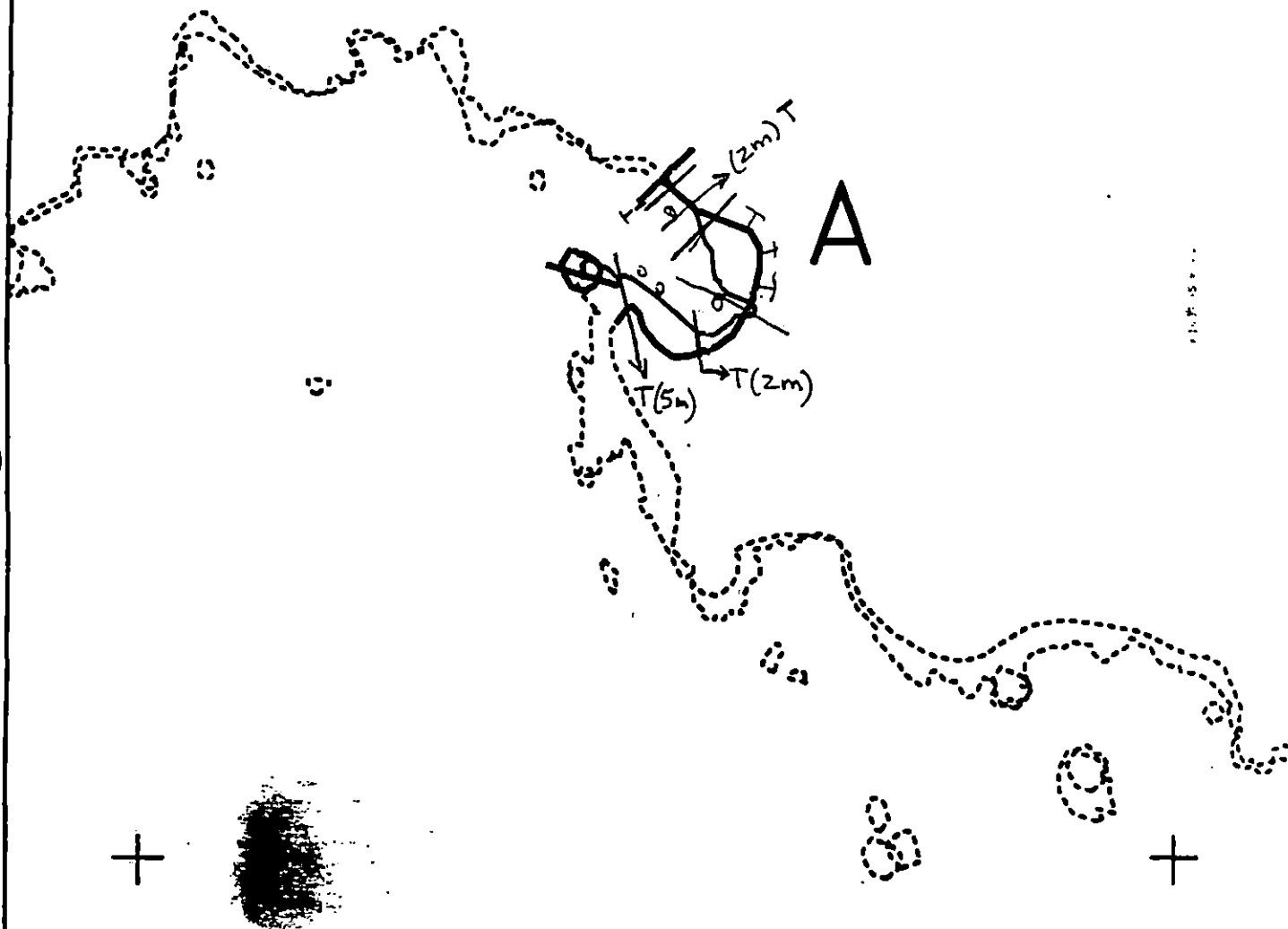
- Legend
- Bedrock cliff / bluff
 - Intertidal ramp / outcrop
 - Boulder / cobble
 - Cobble / pebble
 - Pebble / granule

BIO MAP ROTH



Reviewed MRS
 5/31/91

05



XXXX	Wide	RB005 A ADEC Subsegment Length: 550m METERS AZ State Plane Zone 4 870005a	Subdivision Field Map Map Key: KENRB005A Name: <u>for Sample</u> Date: <u>May 26/91</u> Date Entered:
////	Medium		
----	Narrow		
TTTT	Very Light		
0000	No Oil		

Reviewed: MC 5/31/91
 revised 5:30 9/1

1991 MAYSAP EVALUATION

SEGMENT: RB 005 **SUB:** B **REGION:** KEN **SURVEY DATE:** 5/27/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/15

Ecological/Constraints (see page two for details) Eagle nest,
Fish harvest area, Anadromous stream, Subsistence - Invertebrate
harvesting

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: _____ **Date:** _____

<u>RECOMMENDATIONS:</u>	<u>INITIAL</u>	<u>TAG</u>	<u>FOSC</u>
TREATMENT REQUIRED (Y or N)	<u>N</u>	_____	_____
Manual Pickup (Check as Req.)	_____	_____	_____
Spot Washing	_____	_____	_____
Bio-Customblen Only	_____	_____	_____
Bio-Inipol/Customblen	_____	_____	_____
Other _____	_____	_____	_____
Other _____	_____	_____	_____

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____ **FOSC APPROVAL DATE:** _____

ADEC _____ **FOSC** _____

EXXON _____

USCG _____

NOAA _____

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.

Subsistence, Invertebrate Harvesting: Unlimited treatment except avoid disturbance of clam/mussel beds unless specifically directed by TAG Work Order.

TEAM NO. 4 SEGMENT RB-005 SUBDIVISION B DATE 5/27/91

ADEC

NAME

Steve Ferguson

SIGNATURE

Steve Ferguson☒ NTR ☐ TREATMENT RECOMMENDED

BEDROCK IS LIGHTLY OILED WITH COATS AND STAINS ON THE LEEWARD SIDES AND PROTECTED CREVICES AND SEAMS. THE VISIBLE SOR AT "A5" WAS PICKED UP.

EXXON

NAME

George P. Stiles

SIGNATURE

George P. Stiles 5/27/91☒ NTR

No appreciable oil remaining.

LANDMANAGER

NAME

Pat Norman OF Port Graham

SIGNATURE

Pat Norman☒ NTR

The Amounts of oil we were able to find was picked up as we surveyed.

USCG/NOAA

NAME

CWO2J. MC KATHEN

SIGNATURE

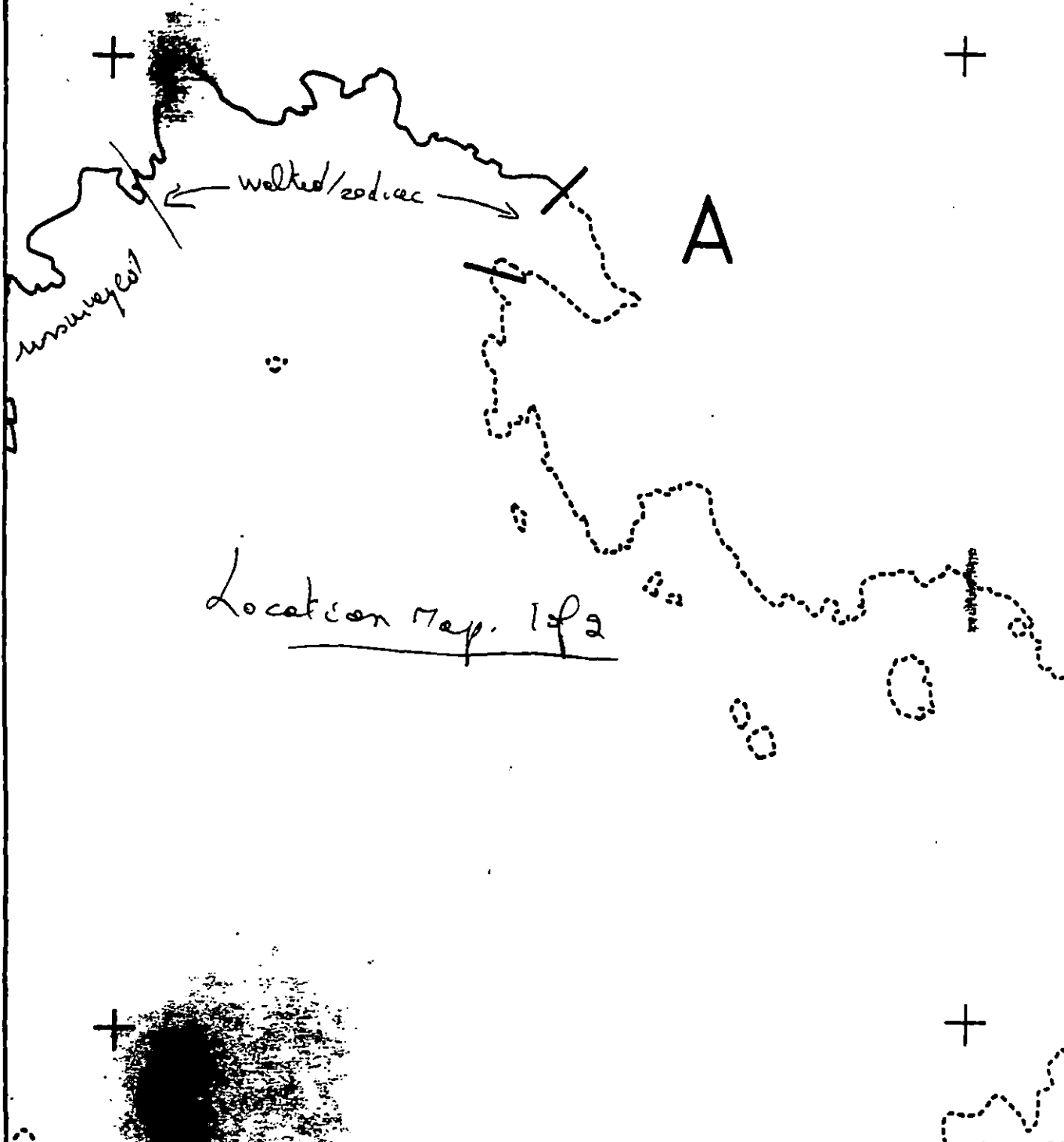
J. Mc Kathon☒ NTR

No Oil on this segment

Little oil was found and the majority of it was picked up

David H. MacKathon

Revised 5.30 G y



RB005 B

METERS



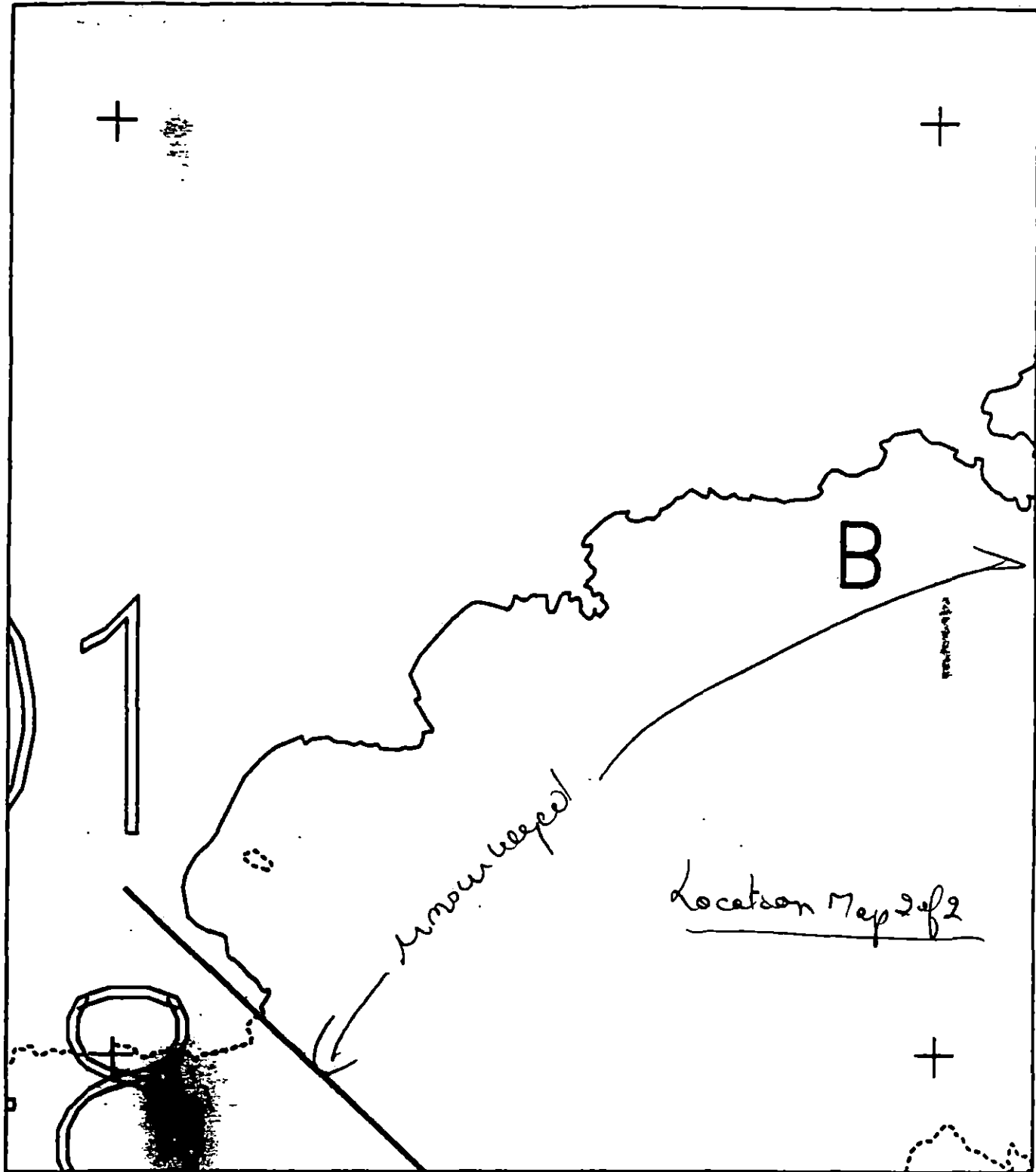
AK State Plane Zone 4
87000000

Subdivision Field Map

Map Key: KENR000000

Name: for Karpis

Date: May 26/91



AK State Plane Zone 4
ARB005Ba

LOG SKETCH MAP

R3-005-B

SEMPELS

MAY 25/91

715-0815

Legend

-  Bedrock cliffs/bluffs
-  Intertidal ramp/outcrop
-  Boulder/cobble
-  Cobble/pebble
-  Pebble/granule

Subdivision B

Well developed
form beam, clean
logs

A1

0.5x1m st, ct
very weathered <5%
on LITZ bedrock
wall

A2

st, ct 0.5x2
<5%
on LITZ
wall

A3

MSOR 2x3 <5%
around Bl/Ad
<2cm
worked on

A4

very small pocket of pB/g/sd/cb
Traces of st on boulders
and wall
2x10 <10%

MSOR 1Ap run around Bl/ch
2 areas of 2x3, <5%
worked on LITZ
<5cm thick

unmineralized

Notes

0 40 80 120

REVIEWED: MC 5/31/91
Reviewed 5:30 AM

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 4 DATE 26 MAY '91
 SEGMENT # RBOOS TIDAL HEIGHT(Range) -1.15 TO -0.6
 SUBDIVISION B BIOLOGIST JIM ROTH
 SEA STATE FLAT WIND SPEED/DIRECTION _____
 PHOTOGRAPHS: ROLL # _____ FRAME # _____

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

A1 - SPARSE BARNACLES, LITTORINES
 A2 - SPARSE BARNACLES, LITTORINES
 A3 - MODERATE MUSSELS, BARNACLES
 A4 - MODERATE MUSSELS, BARNACLES, LITTORINES, INC. JUVENILES.
 A5 - SPARSE BARNACLES, LITTORINES.

GENERAL COMMENTS: THIS SUBDIVISION IS FAIRLY EXPOSED TO STORM ENERGY. IT HAS A HEALTHY AND DIVERSE INTERTIDAL BIOTA, AND SINCE IT WAS SURVEYED DURING A MINUS TIDE, OBSERVATIONS MADE IN THE LITZ SHOWED A VARIETY OF PLANT AND ANIMAL SPECIES. BEDROCK AND BOULDER/COBBLE SHORES SHOW THE TYPICAL INTERTIDAL ZONATION, WITH DENSE FOCUS IN THE MIDDLE ZONE, ALONG WITH BARNACLES, MUSSELS, LIMPETS, AND LITTORINES. EVIDENCE OF RECENT RECRUITMENT WAS NOTED FOR MUSSELS, BARNACLES, AND LITTORINES. AMONG THE SPECIES NOTED IN THE LOWER INTERTIDAL ZONE WERE CHITONS (KATHARINA, TONICELLA LINEATA), WHELKS (NUCEA), ANOMURAN CRABS (HAPALOGASTER), SEA STARS (PIASTER, PYENOPODIA, HENRICIA), GLENNY EELS, BUTTER CLAMS, LITTLENCK CLAMS. OIL CHARACTERS NOTED OCCUR ABOVE MOST OF THE INTERTIDAL BIOTA.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			SALMON FRY
Seabirds			
Waterfowl			
Gulls/kittiwakes			
Shorebirds			
Corvids			
Other Birds			

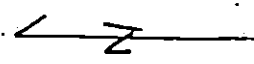
MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds(specify)			
HARBOR SEAL	1		
ales(specify)			

Shoreline subdivision map showing important biological features attached.

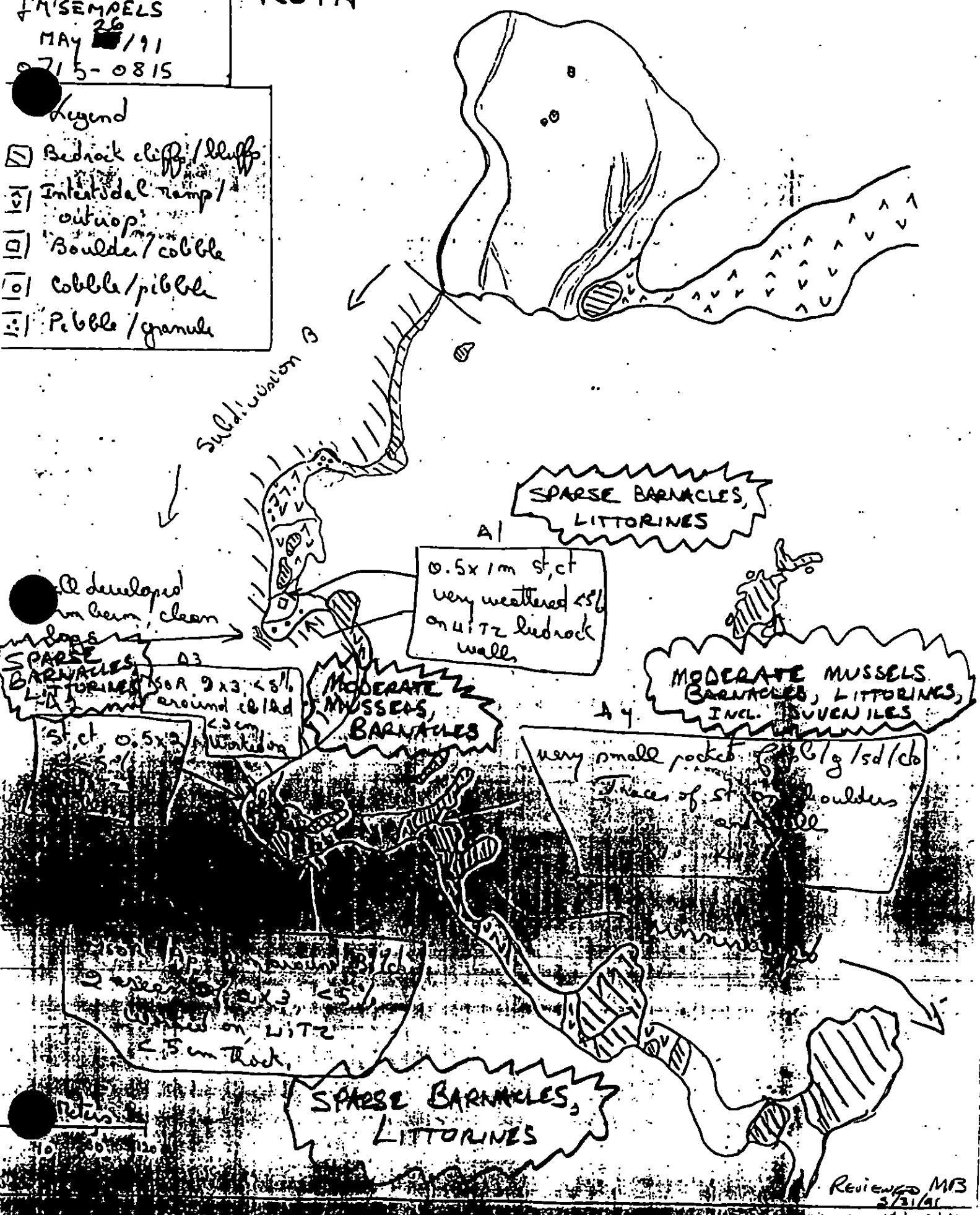
Reviewed M.B. 5/31/91

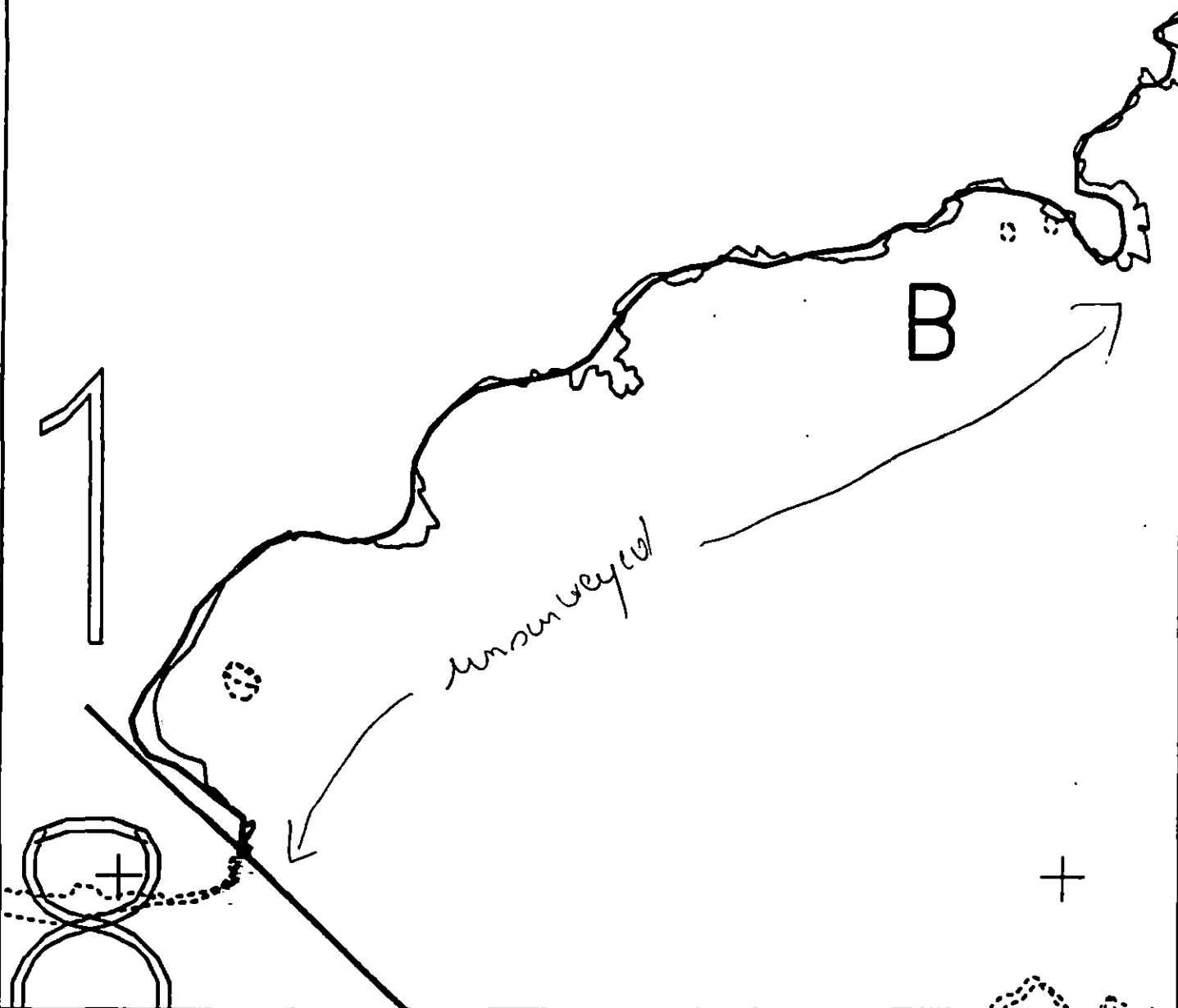
08 SKETCH MAP
 RIS - 005-B
 J. N. SEMPELS
 MAY 26 / 91
 0715-0815

BIO MAP ROTH



- Legend**
- [hatched box] Bedrock cliffs/bluffs
 - [wavy line] Intertidal ramp/outcrop
 - [square with dots] Boulder/cobble
 - [square with circles] Cobble/pibble
 - [square with small dots] Pibble/granule





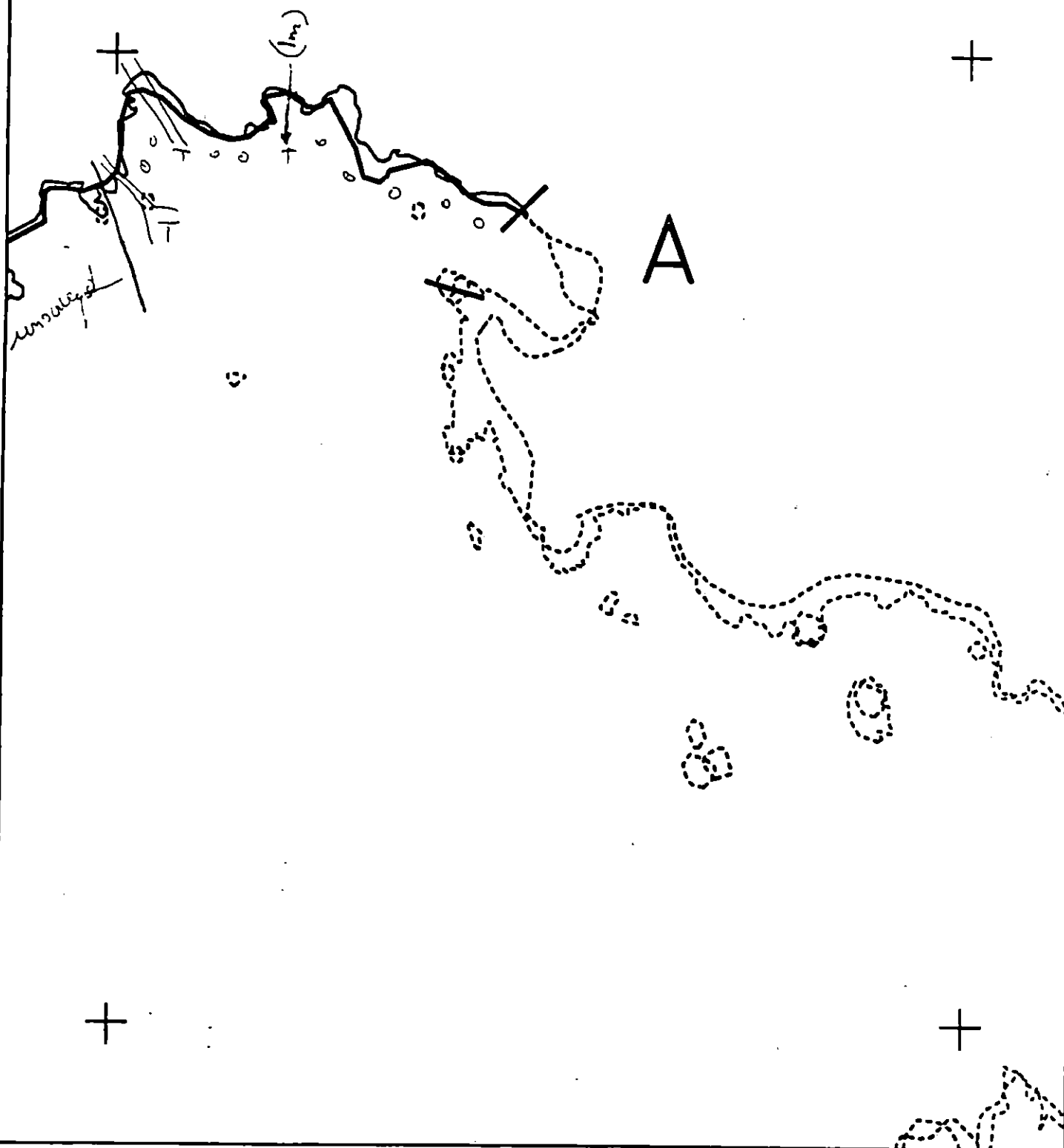
XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

RB005 B
 ADEC Subsegment Length: 3308m
 METERS
 0 200 400
 AK State Plane Zone 4
 arb005ba



Subdivision Field Map
 Map Key: KENRB005Ba
 Name: J. M. Semple
 Date: May 26/91
 Date Entered:

Reviewed: MC 5/31/91
 reviewed 5:30 AM



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

RB005 B
 ADEC Subsegment Length: 3300m

METERS
 0 200 400
 AK State Plane Zone 4
 arb005bb



Subdivision Field Map

Map Key: KENRB005Bb

Name: for Samples

Date: May 26/91

Date Entered:

Revised: MC 513191
 Revised 5.30 94

SHORELINE EVALUATION

SEGMENT ST/ RB-005 SUBDIVISION A (1 OF 2) DATE 4/26/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5T All Bald Eagle nests (3/1 to 6/1)
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1J Purse seine area (7/1 to 8/31)
ADF&G Stream # 242-32-10150 (Ps, 2/90)
7JJ Subsistence area: Invertebrate harvesting
8AA Sensitive estuary
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Anadromous stream and eagle nest are in adjacent subdivision and further then 1000m from work area.

ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time.

>>>PHONE 564-3274 (Anchorage) OR 229-1508 (24hrs.)<<<

SHPO SIGNATURE: Paula Dan O ne DATE: 5/18/90

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 158 m: No Oil 107 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u>X</u> Spot Washing: <u>X</u> Wands
<u>X</u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes: 1) removal of tarmat, 2)
bioremediation of areas as indicated on sketch map. Work to be conducted
from 6/15 to 7/1 or after 8/31 due to purse seine constraints.

TAG COMMENTS:

TAG APPROVAL DATE: 5-17-90

ADEC ART WENZEL Art Wenzel

Exxon AMORGEN

USCG G.A. REITER G.A. Reiter NOAA Gary Petrac Gary Petrac

FOSC W L DATE 5 June 90

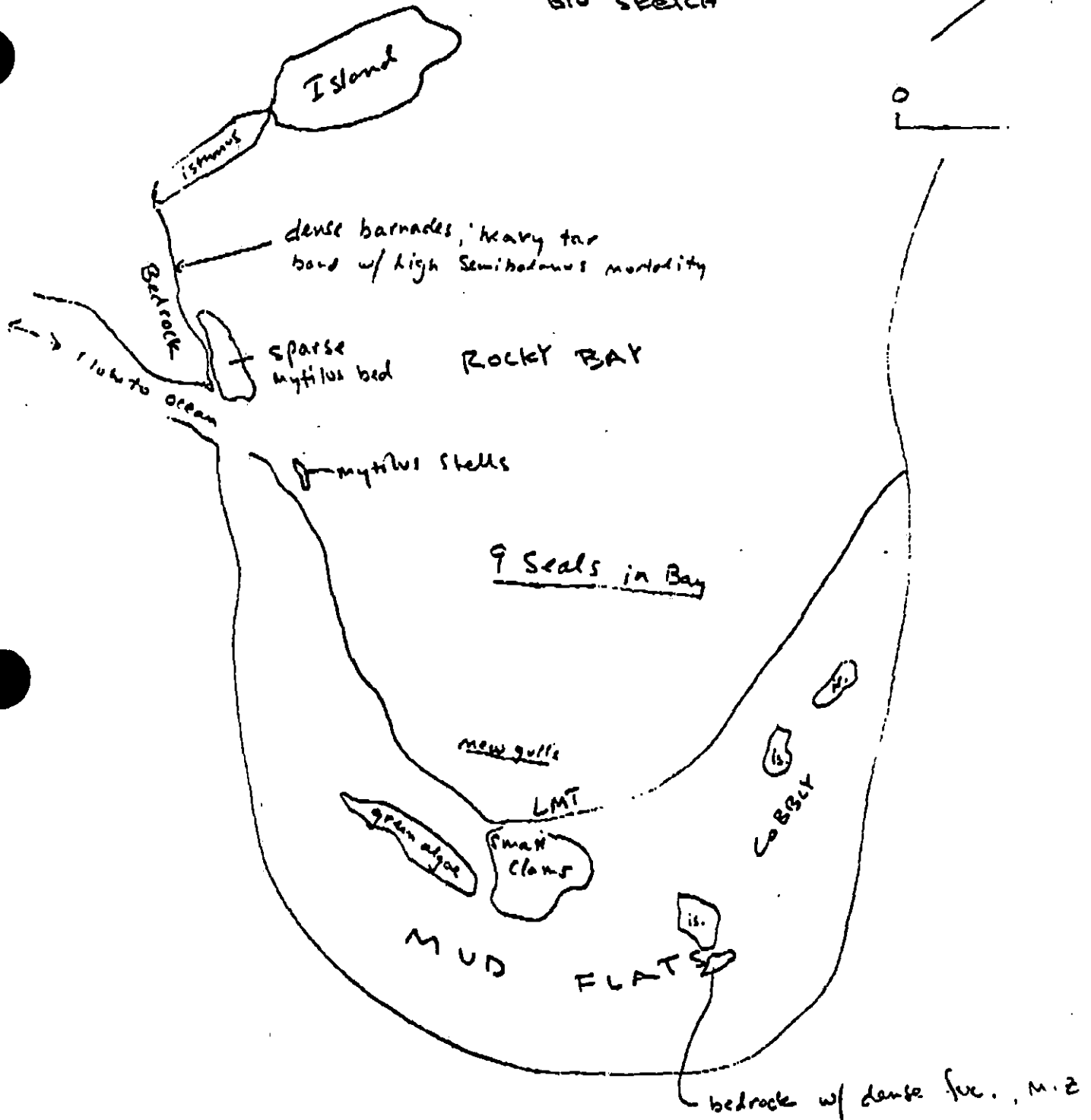
RB-005 A

TEAM 17 27 APRIL 1990

DANIEL RAIOR

BIO SKETCH

(10)



ECOLOGICAL MAP

RB-051

(SUBDIVISION 1 & 2)

* 3 subdivisions, A, B & C

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

TA 1B 1J+

2013

10/11

ISELDOVIA B-51

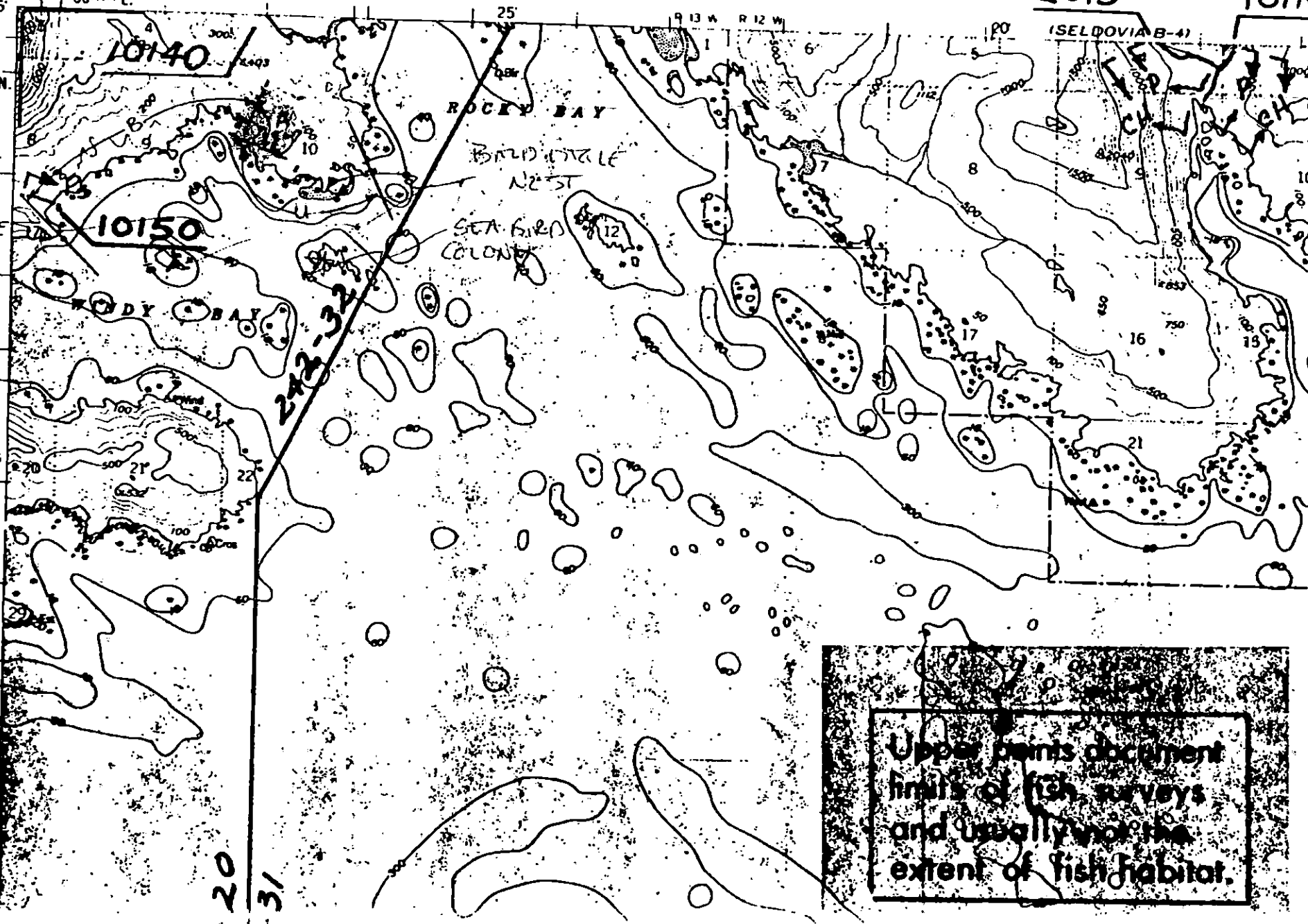
151°30' 59°15' 586000m E.

586000m N.

MENT DIVIDE

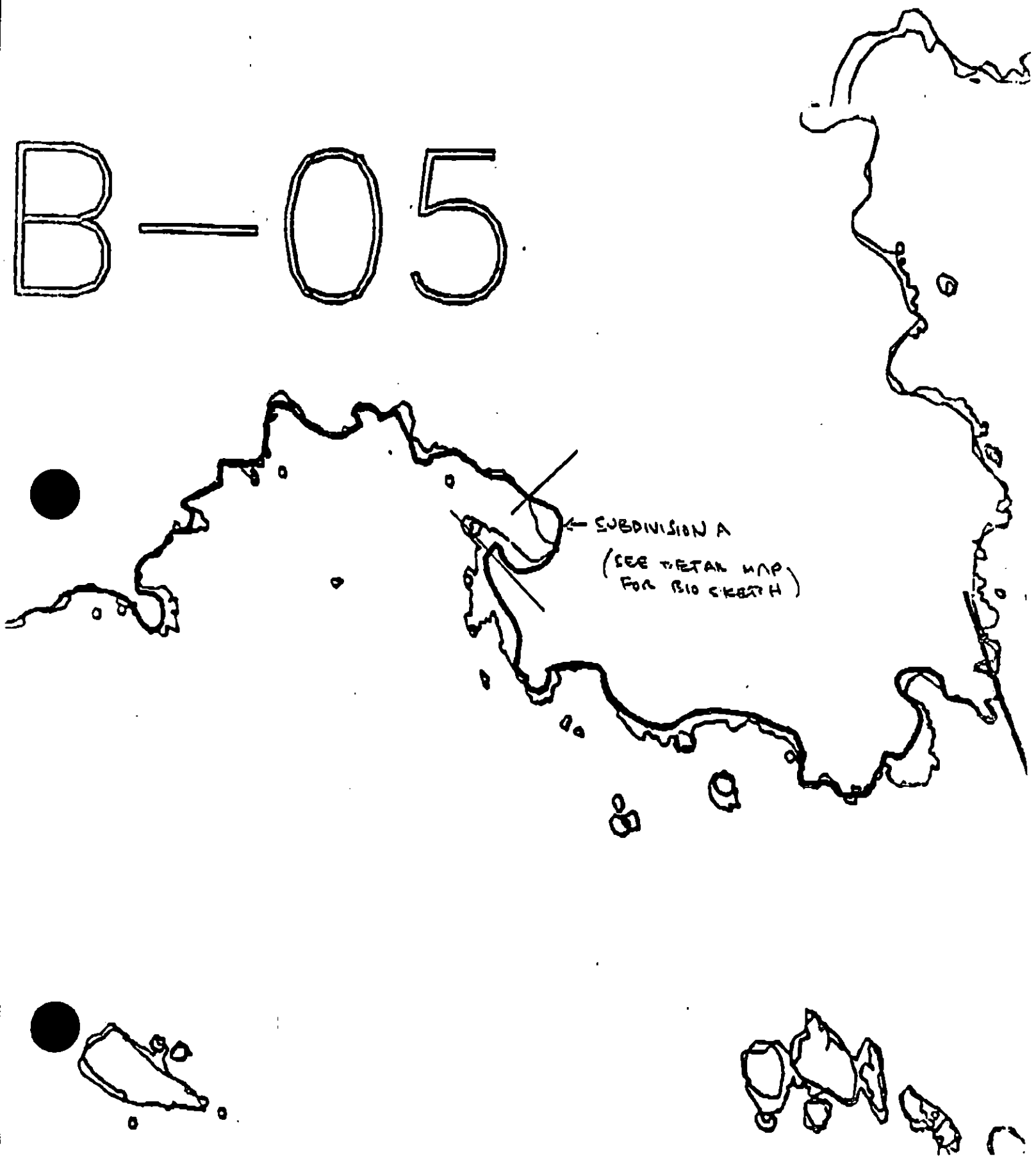
BOUNDS DIVIDE

T 11 S



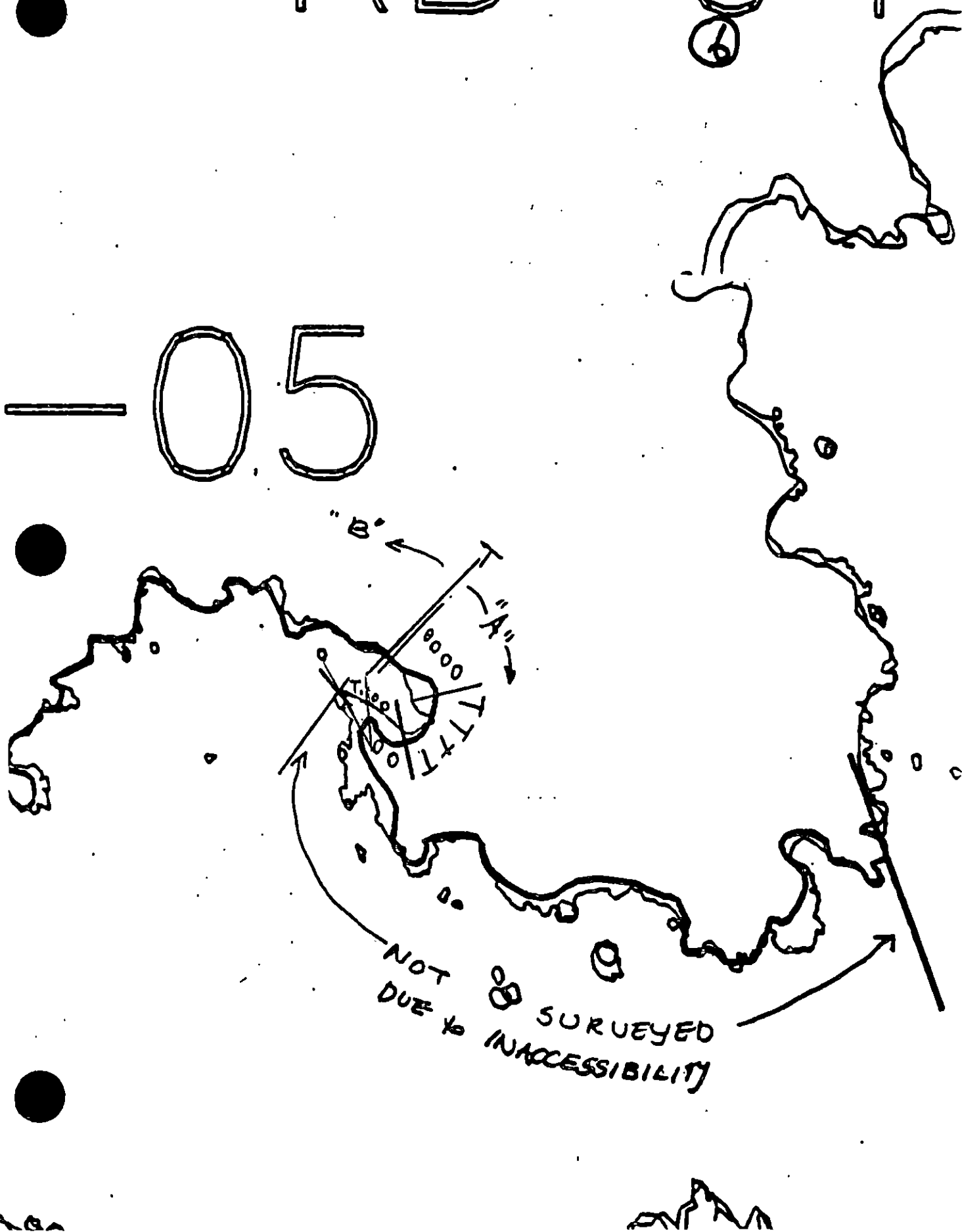
Upper points document
limits of fish surveys
and usually not the
extent of fish habitat.

B-05

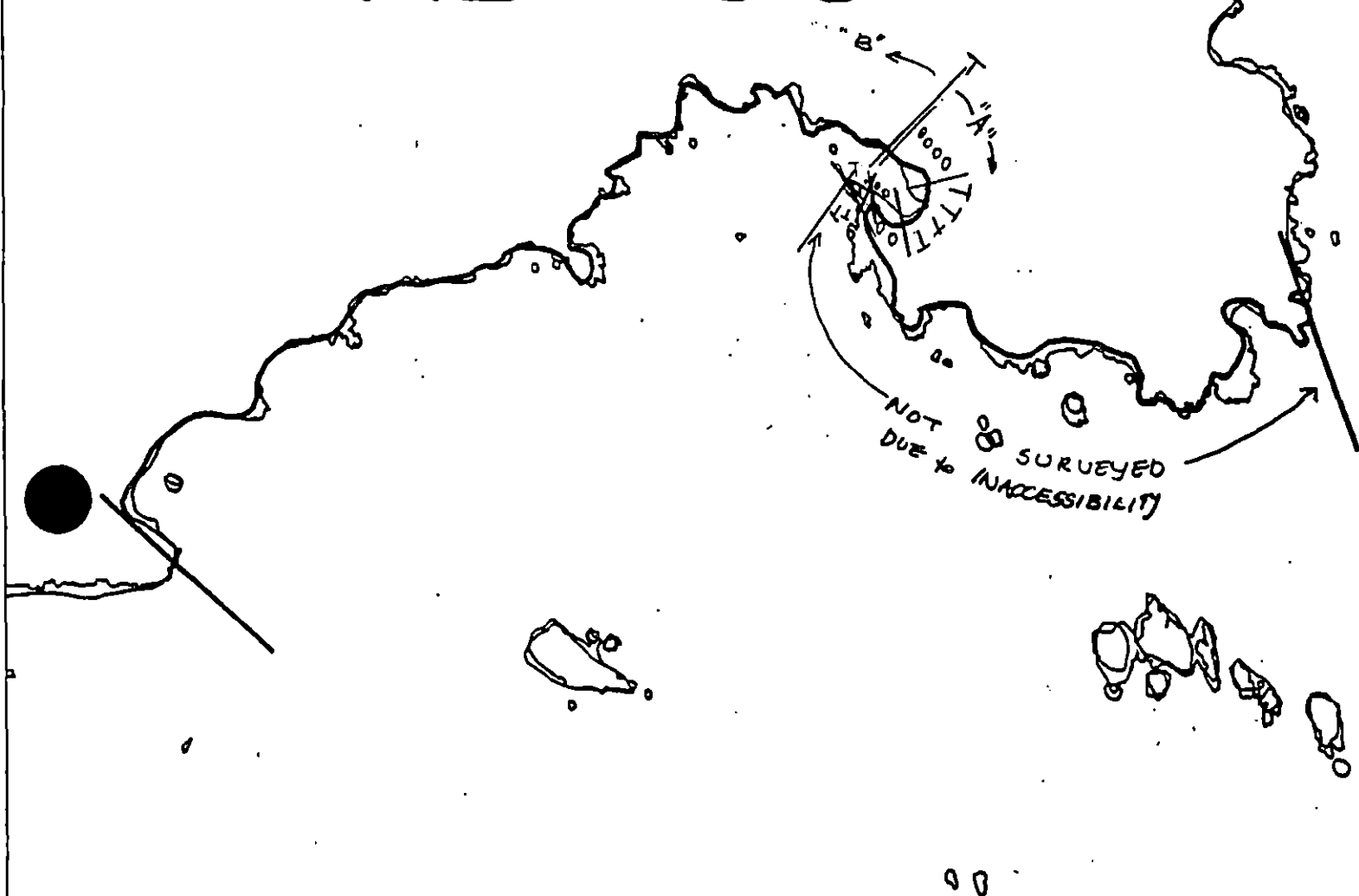


110-4
⑥

-05



RD 04
RB-05



WR-05

XXXX Wide

RB-5

//// Medium

ADEC Segment Length: 5785m

-- Narrow

TTTT Very Light

0000 No Oil



Map Key: KEN-105a

Name: N. BIGGAR

Date: 4/26/90

Data Entered:

SHORELINE EVALUATION

SEGMENT ST/ RB-005 SUBDIVISION B (2 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5T All Bald Eagle nests (3/1 to 6/1)
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1J Purse seine area (7/1 to 8/31)
ADF&G Stream # 242-32-10150
7JJ Subsistence area: Invertebrate harvesting
8AA Sensitive estuary
2M Herring spawning (4/1 to 6/15)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Eagle nest further than 400m from work area - Anadromous stream further than 1000m from work area.

ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time.

>>>PHONE 564-3274 (Anchorage) OR 229-1508 (24hrs.)<<<

SHPO SIGNATURE: Rachel Jean Orr DATE: 5/18/90

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 67 m: V.Light 358 m: No Oil 2883 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes: 1) manual pick up of patchy
mousse if accessible. Work to be conducted from 6/15 to 7/1 or after
8/31 due to Purse Seine and Herring constraints.

TAG COMMENTS:

TAG APPROVAL DATE: 5/17/90
ADEC Art Weiner Art Weiner
EXXON Andy Etn FOSC: WJL DATE: 6 June 90
USCG G.A. Reiter G.A. Reiter use spot wash as necessary.
NOAA Gary Petrac Amy Petrac

OG N. 1000

SEGMENT ST/ RB-005

SUBDIVISION B

DATE 4/27/90

SKETCH MAP

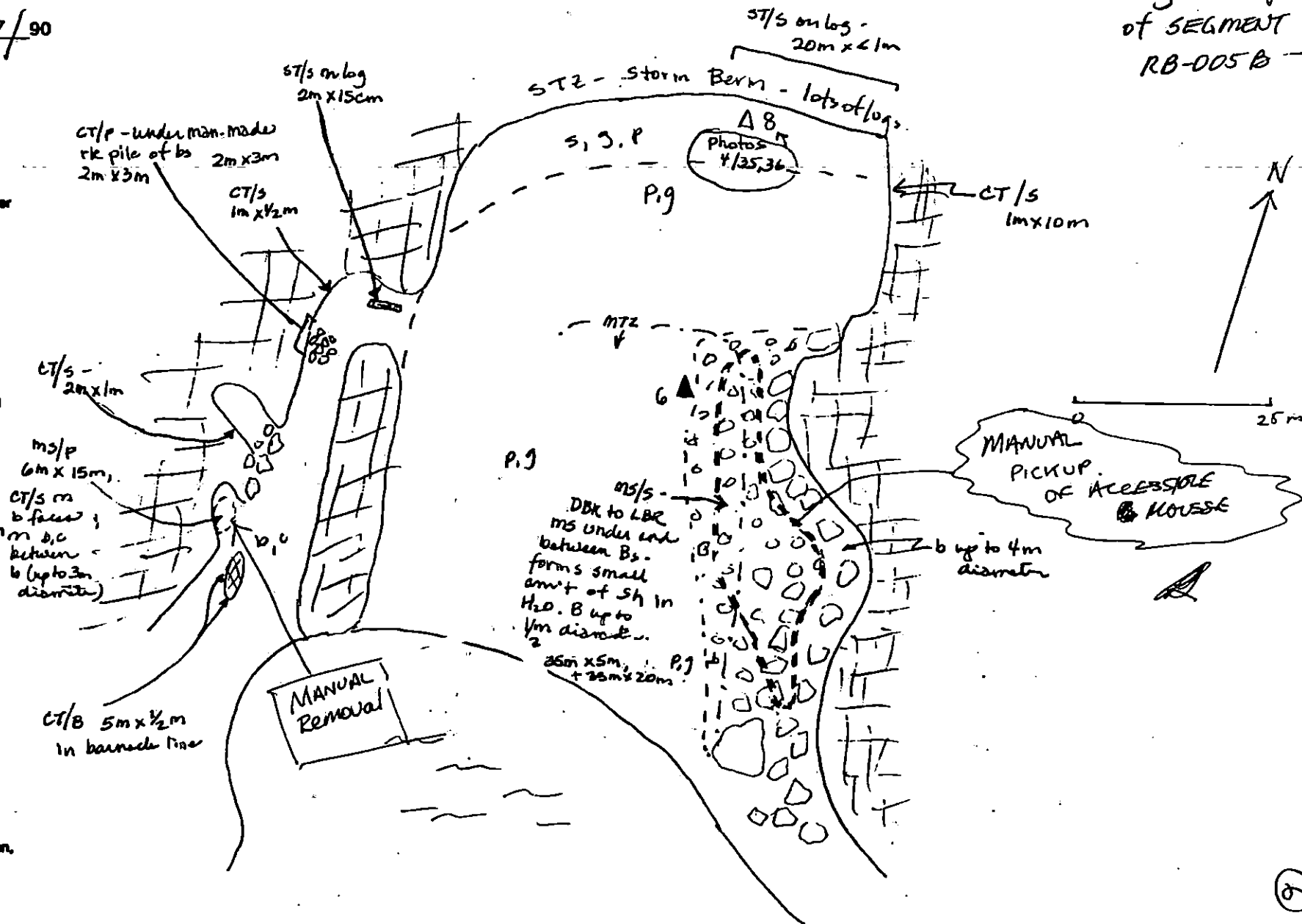
Enlarged map
of SEGMENT
RB-005 B

CHECKLIST

- ☒ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Bndry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HML/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pit Location(s)
- ☐ Photo Location(s)

LEGEND

- 1 Δ
Pit - No Subsurface Oil
- 2 Δ
Pit - Subsurface Oil
- $\square$ CT/C
Continuous Distribution
- $\square$ CT/B
Broken Distribution
- $\square$ CT/P
Patchy Distribution
- $\square$ CT/S
Spissed Distribution
- $\lll$
Oiled Vegetation
- 1 $\rightarrow$
Photo location, direction,
and number



Oil Character Length (m): AP _____ PO _____ CV _____ CT _____ ST _____ MS _____ PT _____ TB _____ FL _____ NO _____

REVISION: 2/24/90

Upper points document limits of fish surveys and usually not the extent of fish habitat.

RB-005 B

BIO SKETCH

TEAM 17, 27 APRIL 1990

DANIEL RAIDER

RB-05

RB-005 B

Dense Fucus (adult)
Laminaria spp., Alaria
marginata, Ulva spp.

Zostera
Marina

Pit #8
35

Dense
Mytilus mod
and Dense Fucus

Dense Semibalanus
and Fucus (adult)

profuse starfish

Tidal
pool w/
profuse
anemone
and fish

Photo 36
dense
Laminaria spp.

Dense Barnacles throughout
on bedrock & boulders in
MT2 & UT2; Many
dense mats of Mytilus
edulis on boulder/bedrock
in UT2 & MT2

moderate
mytilus
- dense
barnacles

dense fucus
on boulder
in LT2

RB-005 A

SURVEY

WR-05

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

RB-5

ADEC Segment Length: 5785m



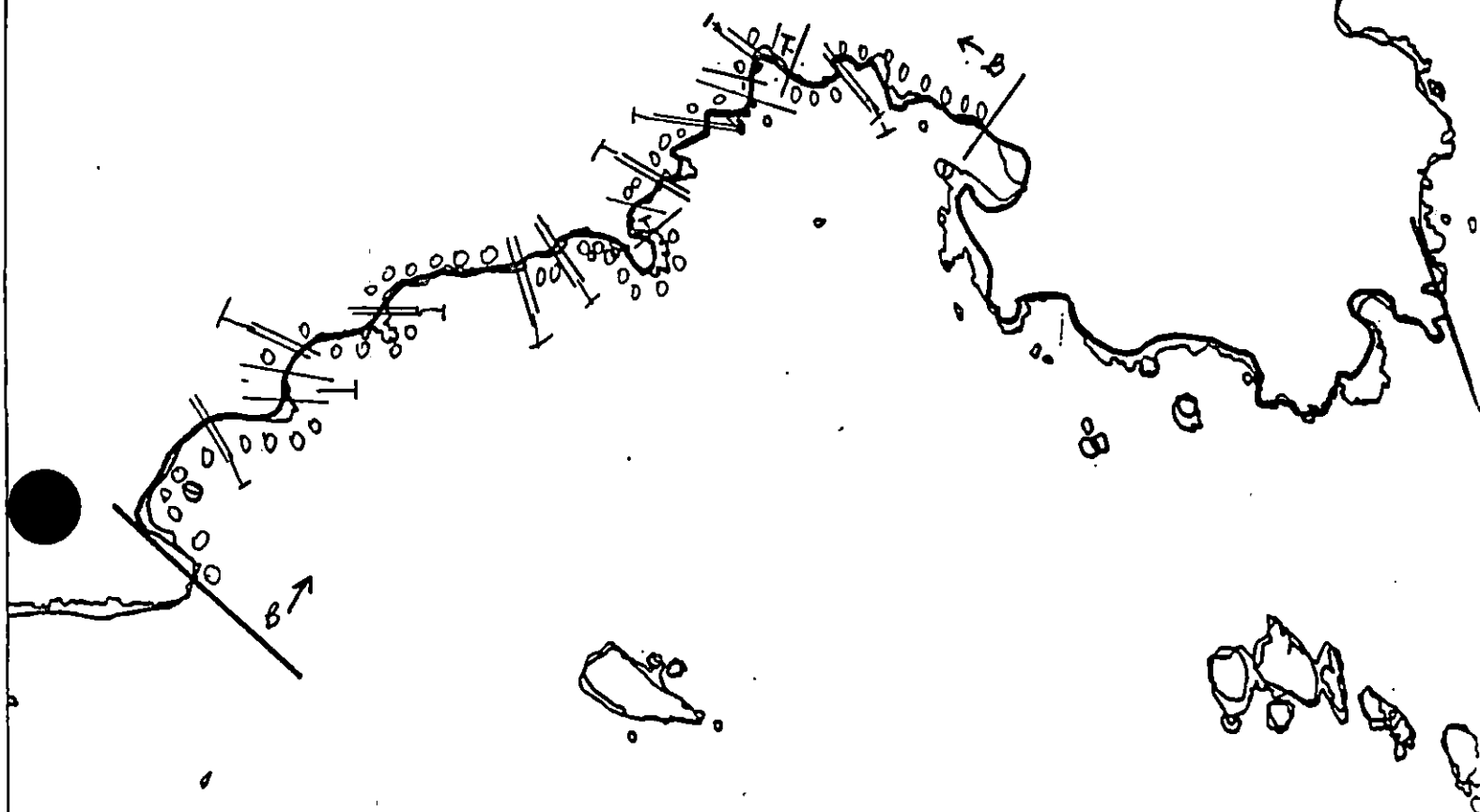
Map Key: KEN-105a

Name: _____

Date: _____

Data Entered: _____

RD 04
⑦
RB-05



WR-05

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

RB-5

ADEC Segment Length: 5785m

0 300 600 900
METERS

Map Key: KEN-105a

Name: N. BIGGAR

Date: 4/27/90

Data Entered:

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT RB-005 SUBDIVISION A (1 of 1)

WORK WINDOW	
Tarmat Removal *Manual Pickup	OPEN
Spot Washing Bioremediation	WORK PRIOR TO 7/1

*Exxon Study Site #AH-1 - Do Not Remove Backshoe Stakes

ARCHAEOLOGICAL INSPECTION/CONSULTATION REQUIRED.

>>> PHONE 564-3274 (Anchorage) OR 229-1508 (24 hrs.) <<<

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B	Salmon Stream	NO CONSTRAINT. ADF&G catalogued anadromous streams (242-32-10140 and 10150) are in this segment but are more than 100m from the work areas.
1J	Purse Seine Area	No constraint to manual pickup and tarmat removal. Closed to bioremediation after 7/1.
5T	Bald Eagle Nest	NO CONSTRAINT. USFWS bald eagle impact assessment completed on 5/19/90 by Mary Portner indicates no active nests within 400m of the work area.
7JJ	Subsistence: Invertebrate Harvesting	No constraint to bioremediation, spot washing, manual pickup and tarmat removal per 6/11/90 conversation between Pat Norman/Port Graham Village Corp. and Rex Coulter/Exxon.

OTHER ECOLOGICAL CONSIDERATIONS

Restrict boat and air traffic and beach disturbance to essential minimum after 7/1. This subdivision contains a sensitive estuary. Avoid any unnecessary disturbance or damage to uncolled biota and substrate, especially mud flats.

FOSC

Date

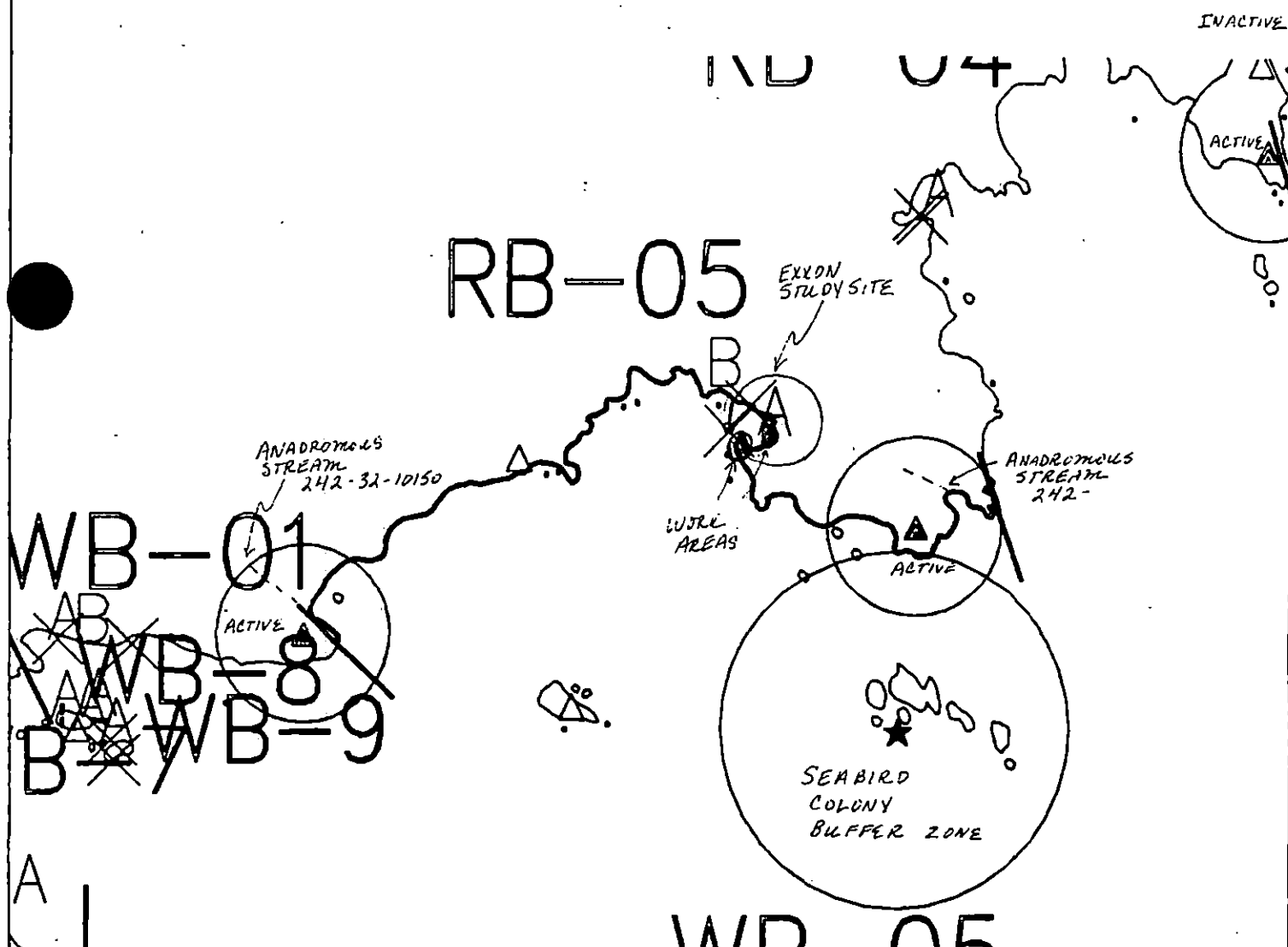
6-19-90

Prepared by

Date

6/16/90

INCORPORATES INFORMATION
FROM B420 TABLE SURVEY 5/19/90



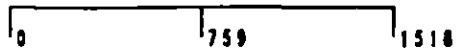
Exxon Company, USA

Map Key: KEN-RB-5

June 10, 1990



ECOLOGY MAP
SEGMENT RB-5
SUBDIVISION A (1 of 2)
METERS



- ★ Seabird Colony
- ▲ Active Eagle Nest
- △ Inactive Eagle Nest

1 inch = 2490 feet

SHORELINE EVALUATION

SEGMENT ST/ RB-005 SUBDIVISION A (1 OF 2) DATE 4/26/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5T All Bald Eagle nests (3/1 to 6/1)
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1J Purse seine area (7/1 to 8/31)
ADF&G Stream # 242-32-10150 (Ps, 2/90)
7JJ Subsistence area: Invertebrate harvesting
8AA Sensitive estuary
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Anadromous stream and eagle nest are in adjacent subdivision and further then 1000m from work area.

ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time.

>>>PHONE 564-3274 (Anchorage) OR 229-1508 (24hrs.)<<<

SHPO SIGNATURE: Paula Dan O'Neil DATE: 5/18/90

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 158 m: No Oil 107 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u>X</u> Spot Washing: <u>X</u> Wands
<u>X</u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes: 1) removal of tarmat, 2) bioremediation of areas as indicated on sketch map. Work to be conducted from 6/15 to 7/1 or after 8/31 due to purse seine constraints.

 SEE CONSTRAINTS ADDENDUM DATED 6/16/90. JP

TAG COMMENTS:

TAG APPROVAL DATE: 5-17-90
ADEC ART WILSON
Exxon AMY GIL

FOSC W L DATE 6 June 90

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT RB-005 SUBDIVISION B (2 of 2)

WORK WINDOW	
Manual Pickup	OPEN
Spot Washing	WORK PRIOR TO 7/1

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B	Salmon Stream	ADF&G catalogued anadromous stream (242-32-10150) is in Subdivision B. No constraint to manual pickup and spot washing.
1J	Purse Seine Area	Closed to spot washing after 7/1. No constraint to manual pickup.
2M	Herring Spawning	No constraint to manual pickup and spot washing.
5T	Bald Eagle Nest	NO CONSTRAINT. USFWS 6/1/90 map indicates no active nest within 400m of Subdivision A work site.
7JJ	Subsistence: Invertebrate Harvesting	No constraint to manual pickup and spot washing as per conversation between Pat Norman/Port Graham Village Corp. and Rex Coulter/Exxon.

OTHER ECOLOGICAL CONSIDERATIONS

Restrict boat and air traffic and beach disturbance to essential minimum. Restrict boat traffic to essential minimum. Avoid any unnecessary disturbance or damage to unrolled substrate and biota especially intertidal and subtidal algae and seagrass. Sensitive estuary.

FOSC

Date

6-14-90

Prepared by

Date

6/16/90

RB-05

ANADROMOUS STREAM
(242-32-10150)

WORK
AREA

Active
Nest

Active
Nest

Seabird
Colony

W/D 05



Exxon Company, USA

ECOLOGY MAP
SEGMENT RB-5

SUBDIVISION B (2 of 2)

METERS



Seabird Colony



Eagle Nest

SHORELINE EVALUATION

SEGMENT ST/ RB-005 SUBDIVISION B (2 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5T All Bald Eagle nests (3/1 to 6/1)
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1J Purse seine area (7/1 to 8/31)
ADF&G Stream # 242-32-10150
7JJ Subsistence area: Invertebrate harvesting
8AA Sensitive estuary
2M Herring spawning (4/1 to 6/15)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to uncoiled biota and substrate. Eagle nest further than 400m from work area - Anadromous stream further than 1000m from work area.

ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time.

>>>PHONE 564-3274 (Anchorage) OR 229-1508 (24hrs.)<<<

SHPO SIGNATURE: Rachel Jean Oiler DATE: 5/10/90

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 67 m: V.Light 358 m: No Oil 2883 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes: 1) manual pick up of patchy mousse if accessible. Work to be conducted from 6/15 to 7/1 or after 8/31 due to Purse Seine and Herring constraints.

SEE CONSTRAINTS ADDENDUM DATED 6/16/90. JP

TAG COMMENTS:

TAG APPROVAL DATE: 5/17/90

ADEC Art Wenger Art Wenger

EXXON Amor Amor FOSC: My L DATE: 6 June 90

USCG G.A. Reiter G.A. Reiter Use Salt Marsh as necessary.

REVISION 1
6/23/90

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT RB-005 SUBDIVISION B (2 of 2)

WORK WINDOW	
Manual Pickup	OPEN
Spot Washing	WORK PRIOR TO 7/1

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

ARCHAEOLOGICAL INSPECTION/
CONSULTATION REQUIRED
PHONE: 564-3274
JP
6/23

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B	Salmon Stream	ADF&G catalogued anadromous stream (242-32-10150) is in Subdivision B. No constraint to manual pickup and spot washing.
1J	Purse Seine Area	Closed to spot washing after 7/1. No constraint to manual pickup.
2M	Herring Spawning	No constraint to manual pickup and spot washing.
5T	Bald Eagle Nest	NO CONSTRAINT. USFWS 6/1/90 map indicates no active nest within 400m of Subdivision A work site.
7JJ	Subsistence:	No constraint to manual pickup and spot washing as per conversation between Pat Norman/Port Graham Village Corp. and Rex Coulter/Exxon.
	Invertebrate Harvesting	

OTHER ECOLOGICAL CONSIDERATIONS

Restrict boat and air traffic and beach disturbance to essential minimum. Restrict boat traffic to essential minimum. Avoid any unnecessary disturbance or damage to unloiled substrate and biota especially intertidal and subtidal algae and seagrass. Sensitive estuary.

FOSC

Date

6-19-90

Prepared by

Date

6/16/90

RD 04

RB-05

ANADROMOUS STREAM
(242-32-10150)

WORK
AREA

Active
Nest

Active
Nest

Seabird
Colony

WB-01
WB-08
WB-09

WD 05



Exxon Company, USA



ECOLOGY MAP
SEGMENT RB-5
SUBDIVISION B (2.01.2)
METERS

- | | |
|---|----------------|
| ★ | Seabird Colony |
| ▲ | Eagle Nest |

SHORELINE EVALUATION

SEGMENT ST/ RB-005 SUBDIVISION B (2 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5T All Bald Eagle nests (3/1 to 6/1)
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1J Purse seine area (7/1 to 8/31)
ADF&G Stream # 242-32-10150

7JJ Subsistence area: Invertebrate harvesting

8AA Sensitive estuary

2M Herring spawning (4/1 to 6/15)

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to uncoiled biota and substrate. Eagle nest further than 400m from work area - Anadromous stream further than 1000m from work area.

ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time.

>>>PHONE 564-3274 (Anchorage) OR 229-1508 (24hrs.)<<<

SHPO SIGNATURE: Rebecca Jean Orr DATE: 5/18/90

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 67 m: V.Light 358 m: No Oil 2883 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes: 1) manual pick up of patchy
mousse if accessible. Work to be conducted from 6/15 to 7/1 or after
8/31 due to Purse Seine and Herring constraints.

SEE CONSTRAINTS ADDENDUM DATED 6/16/90. JP

TAG COMMENTS:

TAG APPROVAL DATE: 5/17/90

ADEC Art Wagner Art Wagner

EXXON Amor Gtz

USCG G.A. Reiter G.A. Reiter

NOAA

FOSC:

DATE: 6 June 90

use spot wash as necessary.

REGION: KENAI

SEGMENT: ST/TB-01

SUBDIVISIONS: A (1 OF 1)

SHORELINE EVALUATION

SEGMENT ST/ TB-01 SUBDIVISION A (1 OF 1) DATE 4/29/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Parks
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 0 m: Medium 102 m: Narrow 17 m: V.Light 0 m: No Oil 2291 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 40 cm

RECOMMENDATIONS:

☒ No Treatment Recommended	_____ Snare/Absorbent Booms
_____ Treatment Recommended	_____ Oil Snares (pom poms)
_____ Manual Pickup	_____ Absorbents (pads, rolls, etc)
_____ Bioremediation	_____ Spot Washing: _____ Wands
_____ Tarmat Removal	_____ Beach Cleaner
	_____ Other (see comments)

COMMENTS: _____

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

- 1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
 1B Salmon stream mouth - spawning (7/10 to 8/31)
 No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream without authorization from ADF&G. No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore oil or toxicity levels, such as manual removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.
 AGENCY CONTACT PERSON: ADF&G John Morison 267-2324
- 1C Salmon fry nursery area (4/31 to 7/31)
 No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.
 AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214
- 1D Esther Hatchery release (4/15 to 6/15)
 1E Main Bay Hatchery release (4/20 to 6/15)
 1F Sawmill Bay Hatchery release (4/15 to 6/1)
 1G Cannery Creek Hatchery release (4/21 to 6/1)
 1H Remote release site
 No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G or PWS Aquaculture Association for confirmation and authorization.
 AGENCY CONTACT PERSON: 1E ADF&G Larry Peltz 424-3214
 1D 1F 1G PWS Aquaculture Association John McMillan or Bruce Suzumoto 424-7511
- 1I Gill net area (6/7 to 8/31)
 1J Purse seine area (7/20 to 9/30)
 1K Purse seine hook-off (7/20 to 9/30)
 1L Set net sites (6/11 to 7/25)
 Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
 AGENCY CONTACT PERSON: ADF&G James Brady 424-3212
- 2M Herring spawning (4/1 to 6/15)
 Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to unilled intertidal and subtidal algae and seagrass. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
 AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235
- 3N Harbor seal and sea lion pupping (5/15 to 7/1)
 3O, 3Q Harbor seal and sea lion molting (8/15 to 9/15)
 Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of Inipol within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.
 AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235
 ADF&G Don Calkins 267-2403
- 5R Seabird colony (5/1 to 9/1)
 Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
- 5S Shorebird/waterfowl concentration (4/1 to 5/15)
 Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
 ADF&G Tom Roth 267-2206
- 5T All Bald Eagle nests (3/1 to 6/1)
 Active Bald Eagle nests (3/1 to 9/1)
 Restrict air traffic and all disturbance to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
- 6U Recreation: Tent sites (6/1 to 9/15)
 6V Anchorages (6/1 to 9/15)
 6W Forest Service cabins (6/1 to 9/15)
 6X Lodge (6/1 to 9/15)
 6Y Special use destination
SPORT FISHING
 7Z Subsistence area: Salmon harvesting (5/1 to 9/30)
 7HH Finfish harvesting
 Deer harvesting (8/15 to 2/28)
 Invertebrate harvesting
 Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic and beach disturbance to essential minimum. If plans for treatment include methods such as hot water wash or application of Inipol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.
 AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2359

FIELD SHORELINE COMMENT SHEET

SEGMENT ST / TB-1 SUBDIVISION: A DATE 4-29-90NAME STEPHEN SWAN SIGNATURE Stephen Swan☒ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

LOCATION #1 - CRINULATE BAY FORMED ON WINDWARD SIDE OF TOMELLO; SHELTERED IN PART BY LONG ISLAND. VERY WEATHERED. OIL FILM WAS PRESENT ON SURFACES OF SUB-ROUNDED SUB-ANGULAR PEBBLES, 15 TO 40 CM BELOW SURFACE ABOVE THE UPPERMOST BEACH SCARP IN THE UITE, AT THE SW END OF THE BEACH. THIS OIL FILM HAS NO COHESIVE ABILITY AND WILL NOT FORM ANY IMPERMEABLE BARRIER (I.E. TAR MAT). NO TREATMENT IS NECESSARY - NORMAL BEACH PROCESSES SHOULD EFFECTIVELY REMOVE REMAINING FILM.

OIL COAT/COVER ON VERT. BEDROCK AT NE END OF LOCATION IS EXTREMELY WEATHERED AND NEW BARNACLE RECRUITMENT IS TAKING PLACE IN UITE (SEE BIG REPORT - ECOLOGICAL CONSIDERATIONS). EXPOSURE TO PHYSICAL PROCESSES SHOULD EFFECTIVELY REMOVE MOST OF THE COAT/COVER IN THE NEXT 1-5 YEARS.

ADEC

NAME Wesley Ghermley SIGNATURE Wesley Ghermley☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

Location #1 - ADEC has transects on this location & oil film was found 6 m below farthest stake to the west in the uite. Subsurface oil consists of only a film which is very hard to notice & can be much easily detected by odor. I recommend getting data from transect reports to see what type of oil was present & comparing it to current info. on this O.G. sheet.

Eastern end of location consists of coat & cover mixed w/ ^{with} ~~the~~ ^{some} needles. I scraped a portion of this area w/ a shovel & large amounts of oil w/ needles fell off leaving a semi-clean surface. Treatment here should consist of scraping coat/cover & wiping w/ sorbent pads, evaluate & then possibly Hot H₂O. This area does not consist of barnacles but is in the uite. oiled barnacles are present in the uite.

LAND MANAGER

NAME J. David McMahon (ADLR) SIGNATURE J. David McMahon☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

Segment TB-1 is in Kachemak State Wilderness Park, ~~any~~ ^{any} area of scenic & recreational value, & subject to public use. It is characterized by a gravel beach at the western end, and vertical rock faces interspersed with a few pocket beaches to the east. Oiling was noted only at the western beach. It is manifested as a film and odor within subsurface fasts, and as a coat on ~~the~~ barnacle-encrusted vertical rock faces at the eastern end of the beach. I concur with ADEC cleanup

SHORELINE OILING SUMMARY

REVISION NO. 04.13.90

OG K. DEBUSSCHERE NORA STEPHEN STUM SEGMENT ST/ TB-1
 BIO D. REED LAND REP J. David McMahon SUBDIVISION H (1 OF 1)
 EXXON T. DIT-2 ADEC Wesley Ghormley TIME 12:35 to 14:45
 TEAM NO. 9 TIDE LEVEL -0.5 to 5 FT DATE 4/29/90
 EST. SUBDIVISION LENGTH: 2689 m ☐ Sun ☒ Clouds ☒ Fog ☒ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☒ Rock
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: W to E
 SURFACE SEDIMENTS: R 65 % B 19 % C 5 % P 10 % G 0 % S 1 % M 0 % V 0 %
 SLOPE: Long 30 % Hang 40 % Vert 30 % WAVE EXPOSURE: ☐ Low ☐ Med ☒ High
 OIL CATEGORY LENGTH: W 0 m M 110 m N 20 m VL 0 m NO 2559 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR				IMPACTED ZONES			
	C	B	P	R	W	Y	OR	BL	SU	U	M	L
ASPHALT PAVEMENT												
POOLED												
COVER				X	X					X		
COAT		X			X					X		
STAIN												
MOUSSE												
PATTIES												
TARBALLS												
FILM												
NO OIL									X	X	X	

PAVEMENT H F S 0 sq. m by 0 cm

PATTIES / TARBALLS 0 BAGS

NEAR SHORE SHEEN? NO BR RW SL TL

OILED DEBRIS	AMOUNT			DID YOU COLLECT DEBRIS?
	SM	MD	LG	
Logs				YES ☐ NO ☒
Vegetation				TYPE <u>0</u>
Trash				#BAGS <u>0</u>
Debris				

Photographs:

Roll No. ST-9-4

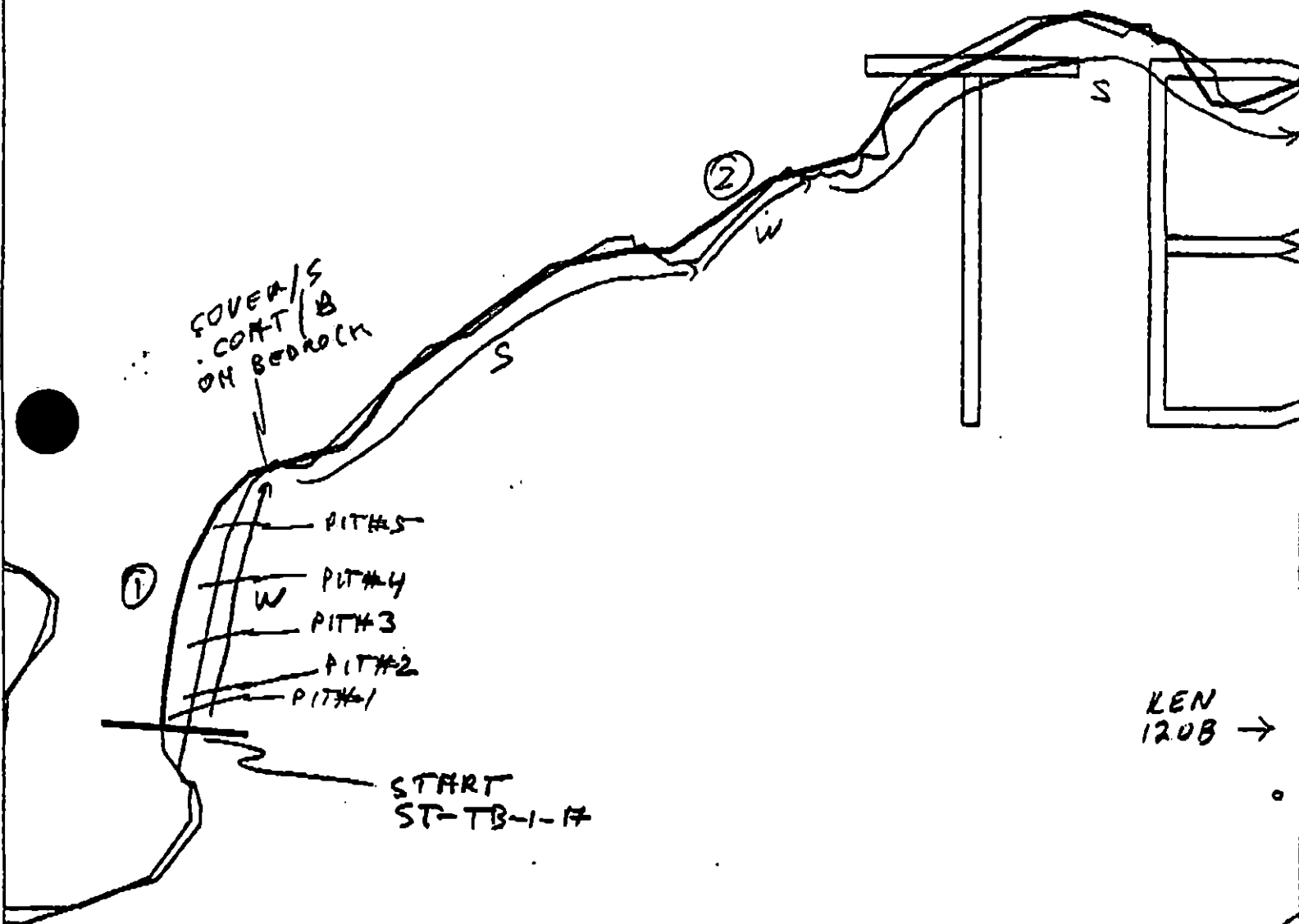
Frames 12, 13

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM)	BELOW		OIL / FILM COLOR					PIT ZONE				A N A	SUSP (M)	↓	SURFACE SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		VO	UC	W	Y	OR	BL	TR	SU	U	M	L				
#1	90				X		15-40	X	X						X					H	-	P-P/S&P
2	70					X	.								X					N	-	P-P
#3	80				X		15-40	X	X						X					H	-	P-P/S&P
#4	80					X	.								X					H	-	S&P-P&S/P/S
5	60					X	.								X					N	-	P&S-P/S&G

COMMENTS HIGH VE

- SEGMENT CONSISTS OF VERTICAL HIGHLY EXPOSED BEDROCK WITH SMALL B/C-POCKET BEACHES AND ONE PEBBLE BEACH AT WEST-END OF SEGMENT.
 ONLY OIL OBSERVED IS AT THIS PEBBLE BEACH (LOW KH&L - WILL BE VELOPED CUSPS AT EAST END) - LOCATION ①. AT WEST-END OF LOC ① SUBSURFACE VERY WEATHERED RESIDUAL OIL FILM BETWEEN 15-40 CM. (OIL IS NOT VERY VISIBLE BUT CAN BE RECOGNIZED BY OODK)
 AT EAST END OF LOC ① COAT/P & COVER/S WAS OBSERVED ON BEDROCK.
 REVIEWED JW DATE 4/30/90



XXX Wide

/// Medium

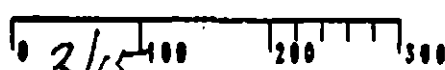
--- Narrow

TTTT Very Light

OOOO

ST-TB-1-F

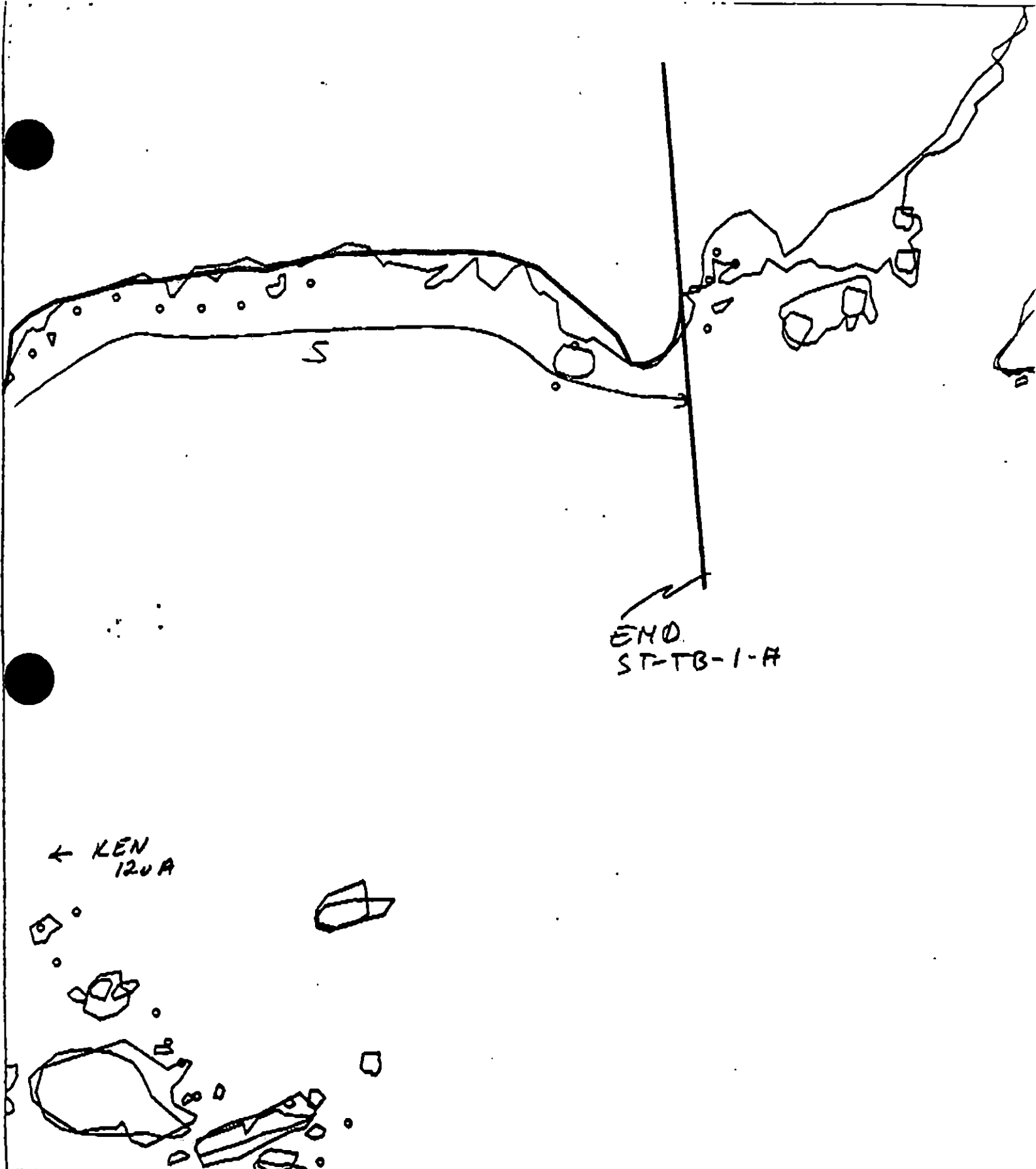
ADEC Segment Length: ~~400m~~ 2689



Map Key: KEN-120a

Name: K. DERUSSCHERF

Date: 4/29/90



END
ST-TB-1-A

← KEN
120A

XXXX Wide

/// Medium

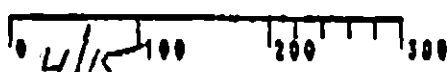
--- Narrow

TTTT Very Light

0000 No Data

ST-TB-1-A

ADEC Segment Length: 2689m



Map Key: KEN-120b

Name: K. DEBUSSCHER

Date: 4/29/90

Data Entered:

SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/22/89

Segment ST / TB-1 Subdivision A Date (mo / day / yr) 04/29/90
 Time (24 hr) 1235-1445 Biologist D. REED

- (A) Substrate type and % of segments:
 (1) Bedrock 65 (2) Boulder 19 (3) Cobble 5 (4) Pebble 10 (5) Sand 1 (6) Silt 0
- (B) Overall % cover of biota (% of segment): Dense 40 Moderate 30 Low 30
- (C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs:
 Roll No. ST-9-4
 Frames 12, 13

BARNACLES

	Dense				Moderate				Sparse				Rare		
	1U	1M	1L		1U	1M	1L		1U	1M	1L		1U	1M	1L
2	2		2		2	1M	2		2	1M	2		2		2
3	3		3		3		3		3		3		3		3
4	4		4		4		4		4		4		4		4
5	5		5		5		5		5		5		5		5
6	6		6		6		6		6		6		6		6

NOT PRESENT

MYTILUS

	Dense				Moderate				Sparse				Rare		
	1U	1M	1L		1U	1M	1L		1U	1M	1L		1U	1M	1L
2	2		2		2	1M	2		2	1M	2		2		2
3	3		3		3		3		3		3		3		3
4	4		4		4		4		4		4		4		4
5	5		5		5		5		5		5		5		5
6	6		6		6		6		6		6		6		6

NOT PRESENT

GASTROPODS

	Dense				Moderate				Sparse				Rare		
	1U	1M	1L		1U	1M	1L		1U	1M	1L		1U	1M	1L
2	2		2		2	1M	2		2		2		2		2
3	3		3		3		3		3		3		3		3
4	4		4		4		4		4		4		4		4
5	5		5		5		5		5		5		5		5
6	6		6		6		6		6		6		6		6

NOT PRESENT

FUCUS

	Dense				Moderate				Sparse				Rare		
	1U	1M	1L		1U	1M	1L		1U	1M	1L		1U	1M	1L
2	2		2		2	1M	2		2		2		2		2
3	3		3		3		3		3		3		3		3
4	4		4		4		4		4		4		4		4
5	5		5		5		5		5		5		5		5
6	6		6		6		6		6		6		6		6

NOT PRESENT

Wildlife Observations/ General Comments:

4 IMMATURE EAGLES, 8 ADULT BALD EAGLES, 3 SEACOTTERS, 2 HARTLEIGH DUCKS
 1 PELAGIC CORMORANT, 2 OYSTER CATCHERS. ON BEDROCK AND BOULDERS
 DENSE ALGAL COVER IN LOW ZONE.

Ecological Considerations:

ALL THE EAGLES WERE IN ONE SMALL AREA NEAR
 LOCATION #2. NO NESTS WERE LOCATED.
 - SEE OG MAP.

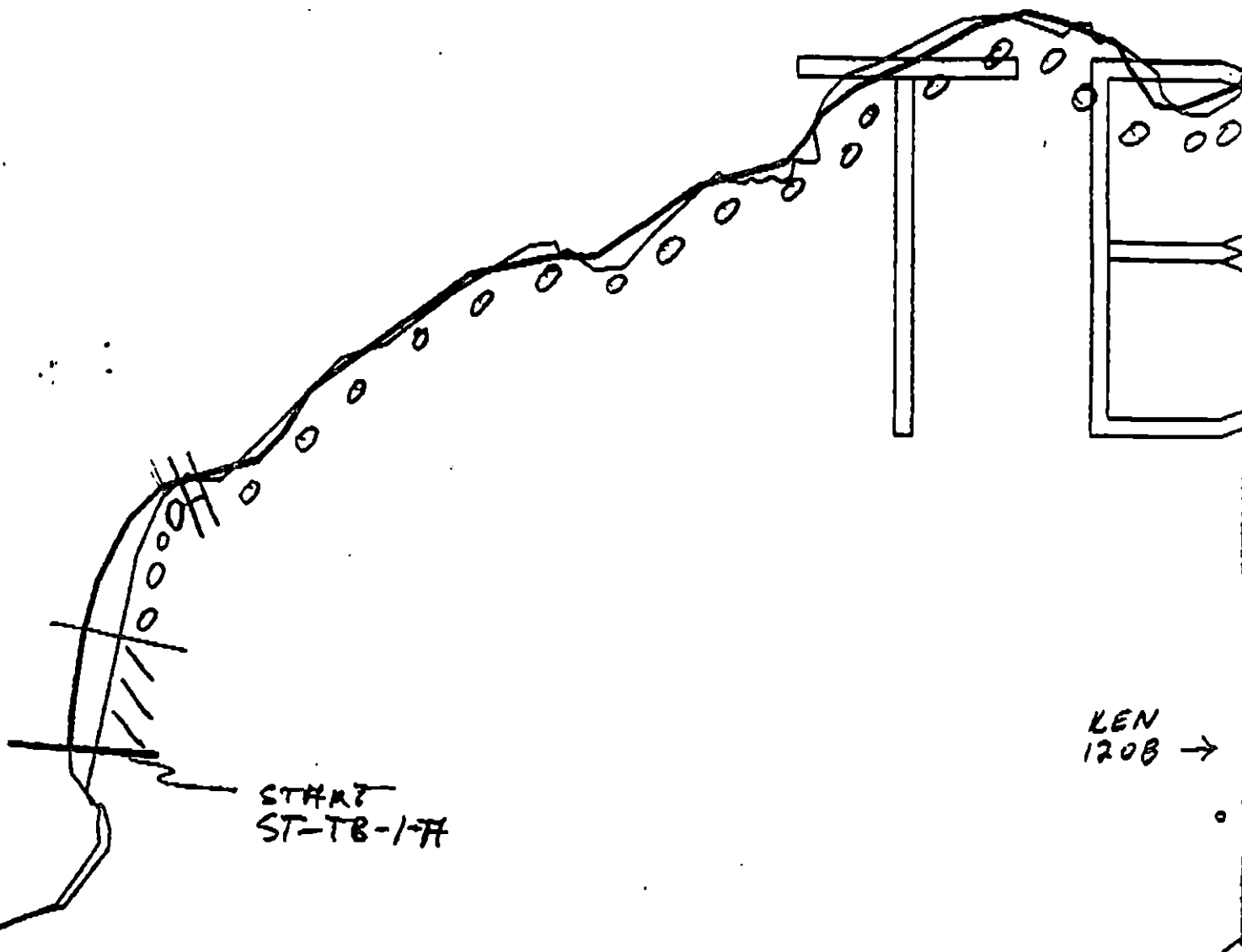
→ SEE ATTACHED

ECOLOGICAL CONSIDERATIONS:

ALL OF THE OIL IN THIS SEGMENT WAS FOUND AT LOCATION (#1) (SEE OG MAP). THERE WAS A THIN SUBSURFACE FILM IN THE HIGH ZONE OF THIS HIGH WAVE ENERGY BEACH.

THERE WAS ALSO A PATCHY OIL COAT ON THE BEDROCK IN THE HIGH ZONE AT THE NORTH-EAST END OF THE BEACH. HIGH DENSITIES OF BARNACLE WERE FOUND ON THE BEDROCK AND MANY OF THEM WERE HEAVILY OILED AND STILL ALIVE. THE SPECIES OF BARNACLE (SEMIBALANUS CARIOSUS) THAT IS FOUND THERE IS OFTEN DISLODGED BY BASHING DEBRIS DURING PERIODS OF HIGH WAVE ACTION. THIS PROCESS APPEARS TO HAVE RESULTED IN THE REMOVAL OF VARIABLE SIZED PATCHES OF OILED BARNACLES PRODUCING A MOSAIC OF OILED AND NON-OILED SURFACES. NEW NON-OILED BARNACLES HAVE COLONIZED MUCH OF THE NON-OILED PATCHES. I SUSPECT THAT WITHIN A FEW YEARS MOST OF THE OIL IN THE BARNACLE ZONE WILL BE REMOVED AS OILED BARNACLES ARE TORN LOOSE. LEAVING AN OIL COAT ONLY IN THE UPPER SPLASH ZONE.

OIL MAP

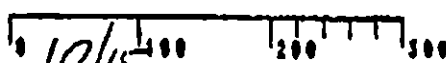


KEN
120B →

START
ST-TB-1-A

ST-TB-1-A

ADEC Segment Length: ~~200m~~ 250m



XXX Wide
 /// Medium
 --- Narrow
 TTTT Very Light
 OOOO " " " "

Map Key: KEN-120a

Name: K. OEBUSCHER

Date: 4/29/90



OIL MAPEND
ST-TB-1-A← KEN
120A

XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

ST-TB-1-A

ADEC Segment Length: 2687m

0 100 200 300

Map Key: KEN-120b

Name: ~~K. DEBOSSCHER~~

Date: 4/29/90

SHORELINE EVALUATION

SEGMENT ST/ TB-01 SUBDIVISION A (1 OF 1) DATE 4/29/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Parks
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to uncoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO SIGNATURE:

DATE:

OILING CATEGORIZATION:

Wide 0 m: Medium 102 m: Narrow 17 m: V.Light 0 m: No Oil 2291 m
Subsurface Oil Observed: Yes X No Maximum Depth 40 cm

RECOMMENDATIONS:

☒ No Treatment Recommended	☐ Snare/Absorbent Booms
☐ Treatment Recommended	☐ Oil Snares (pom poms)
☐ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☐ Bioremediation	☐ Spot Washing: _____ Wands
☐ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS:

TAG COMMENTS:

TAG APPROVAL DATE:

ADEC Art Weir Art Weir

EXXON Andy TEAL *[Signature]*

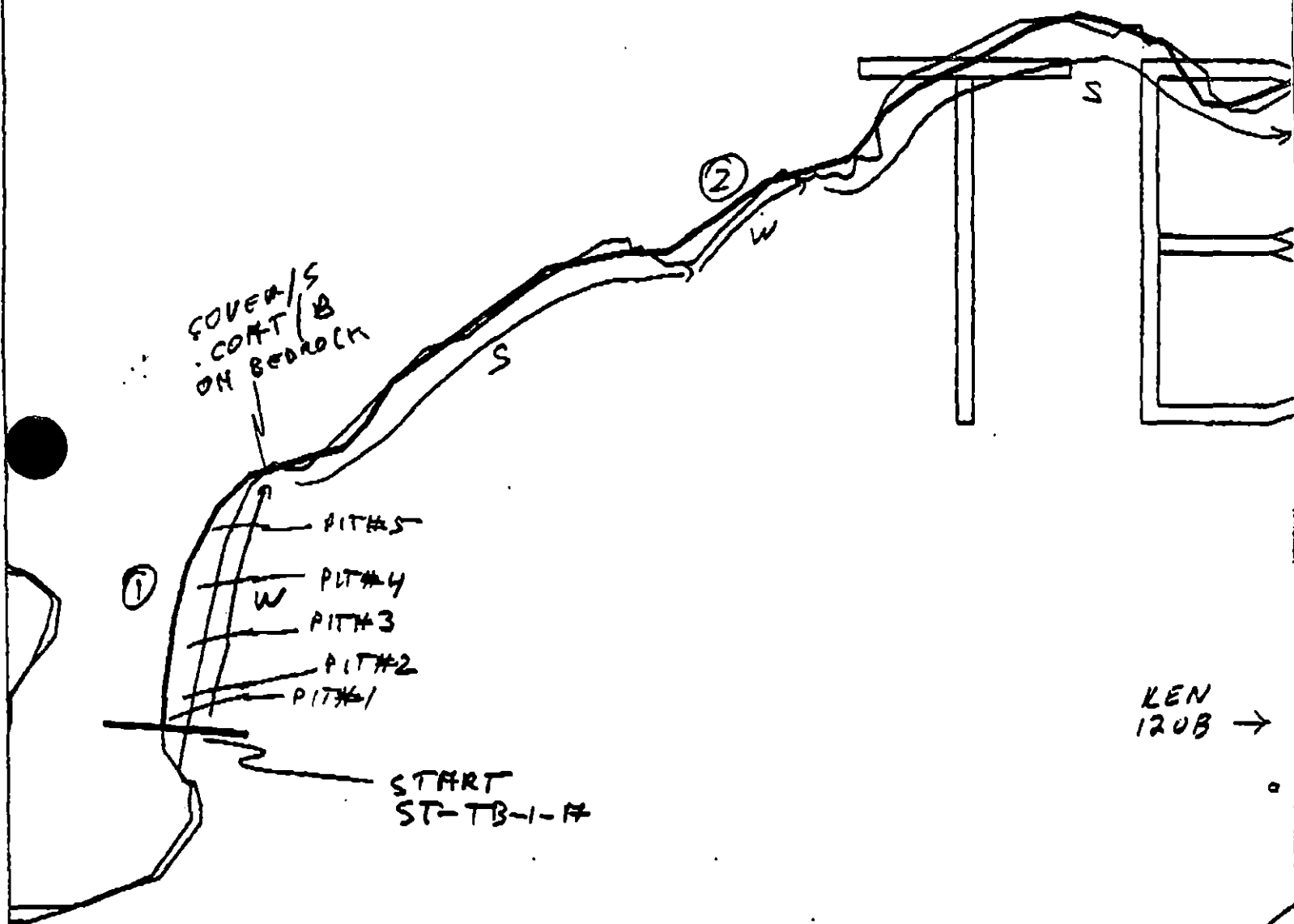
NOAA Gary Petrov Hamilton

USCG G.A. REITER G.A. REITER

FOSC:

DATE: 5-12-90

Spot wash bedrock on eastern segment
in conjunction with work on TB-63/04



XXXX Wide

ST-TB-1-A

/// Medium

ADEC Segment Length: ~~2100~~ 2689

--- Narrow

TTTT Very Light

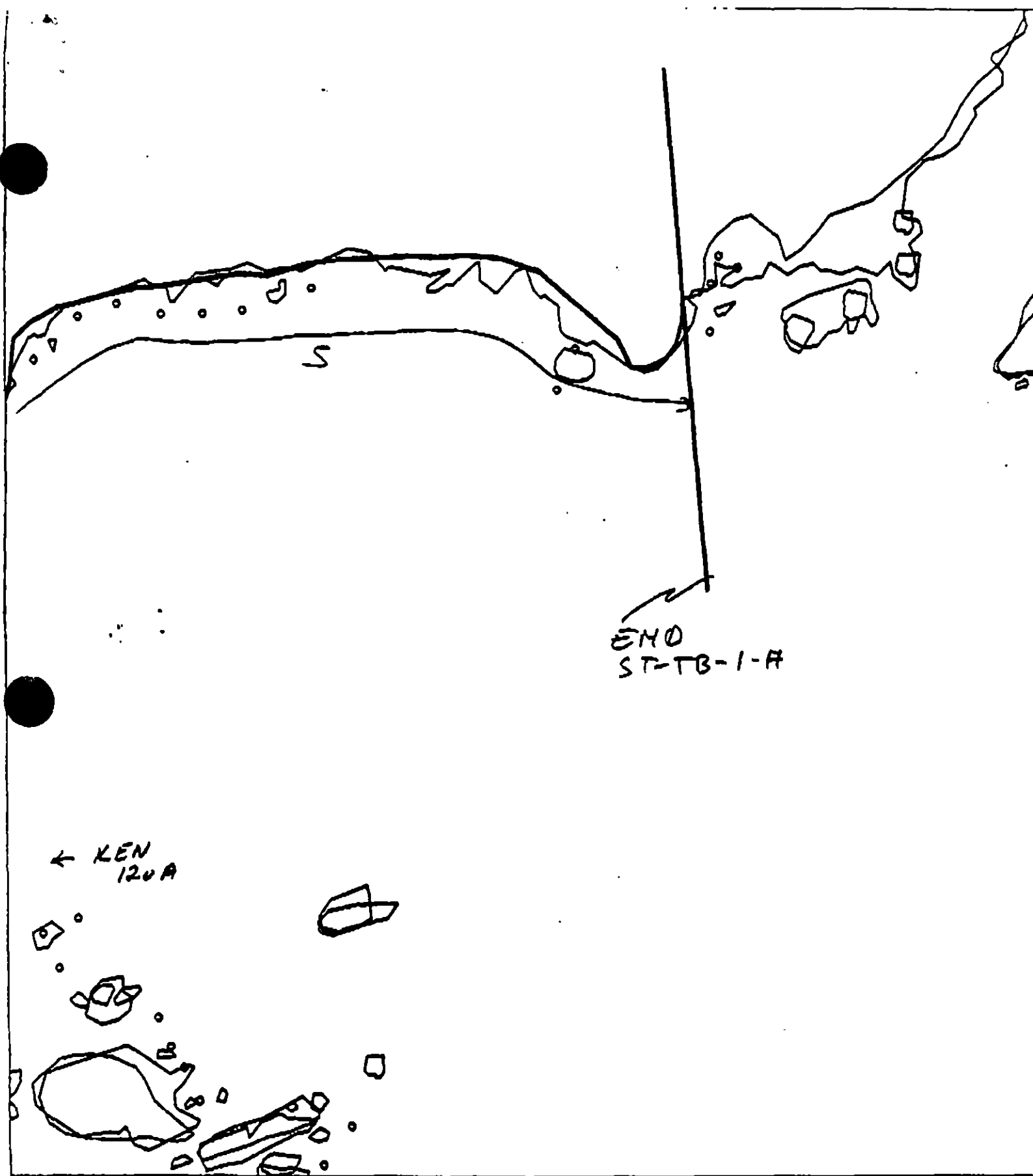
0000 No Oil

3/15 100 200 300
METERS

Map Key: KEN-120a

Name: K. DERUSSCHERFDate: 4/29/90

Data Entered:



XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-1-A

ADEC Segment Length: 2689

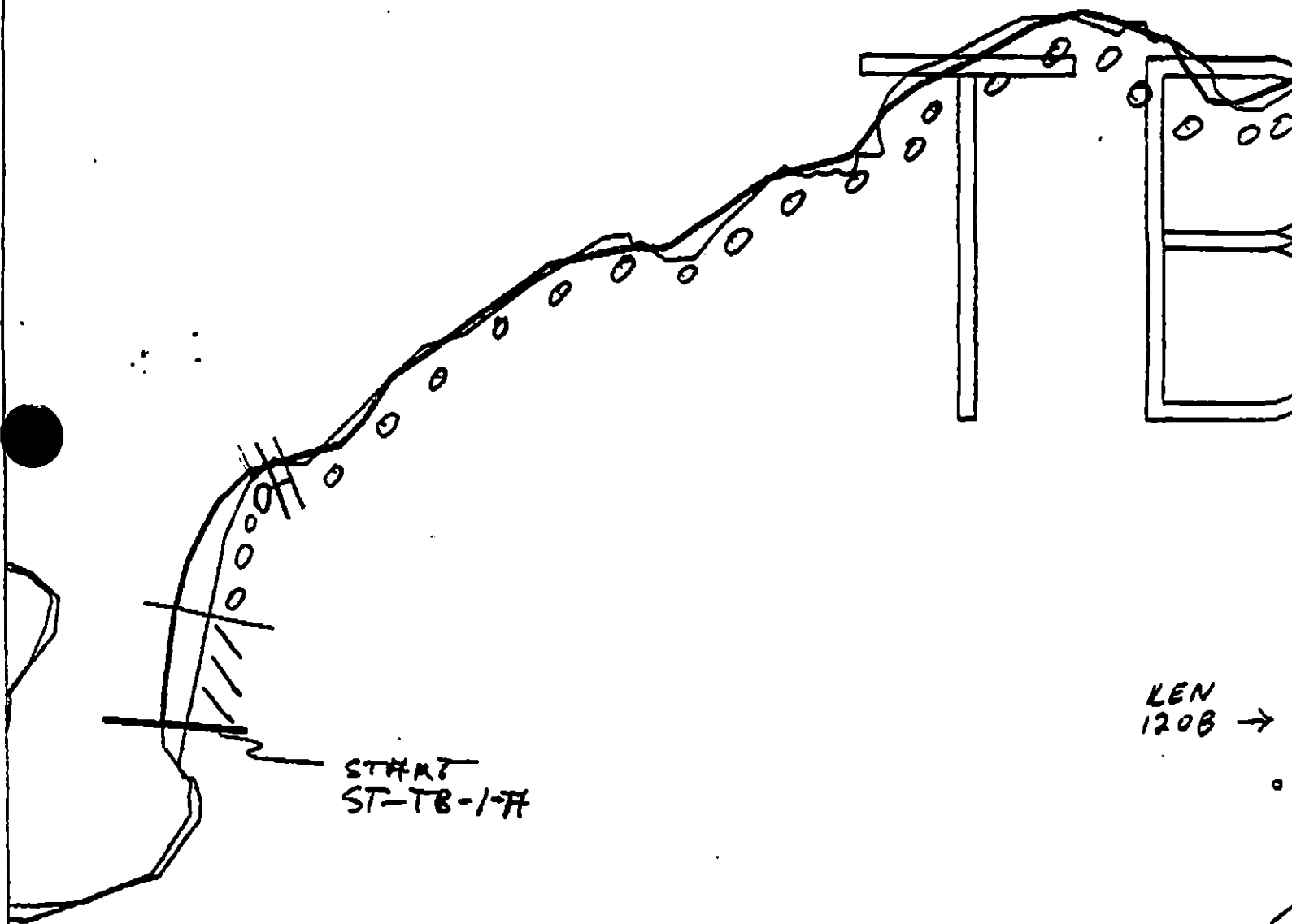
4/15 100 200 300
METERS

Map Key: KEN-120b

Name: K. DEBUSSCHEREDate: 4/29/90

Date Entered:

OIL MAP



KEN
120B →

START
ST-TB-1-H

XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-1-H

ADEC Segment Length: ~~200m~~ 250m

10/15 0 100 200 300
METERS

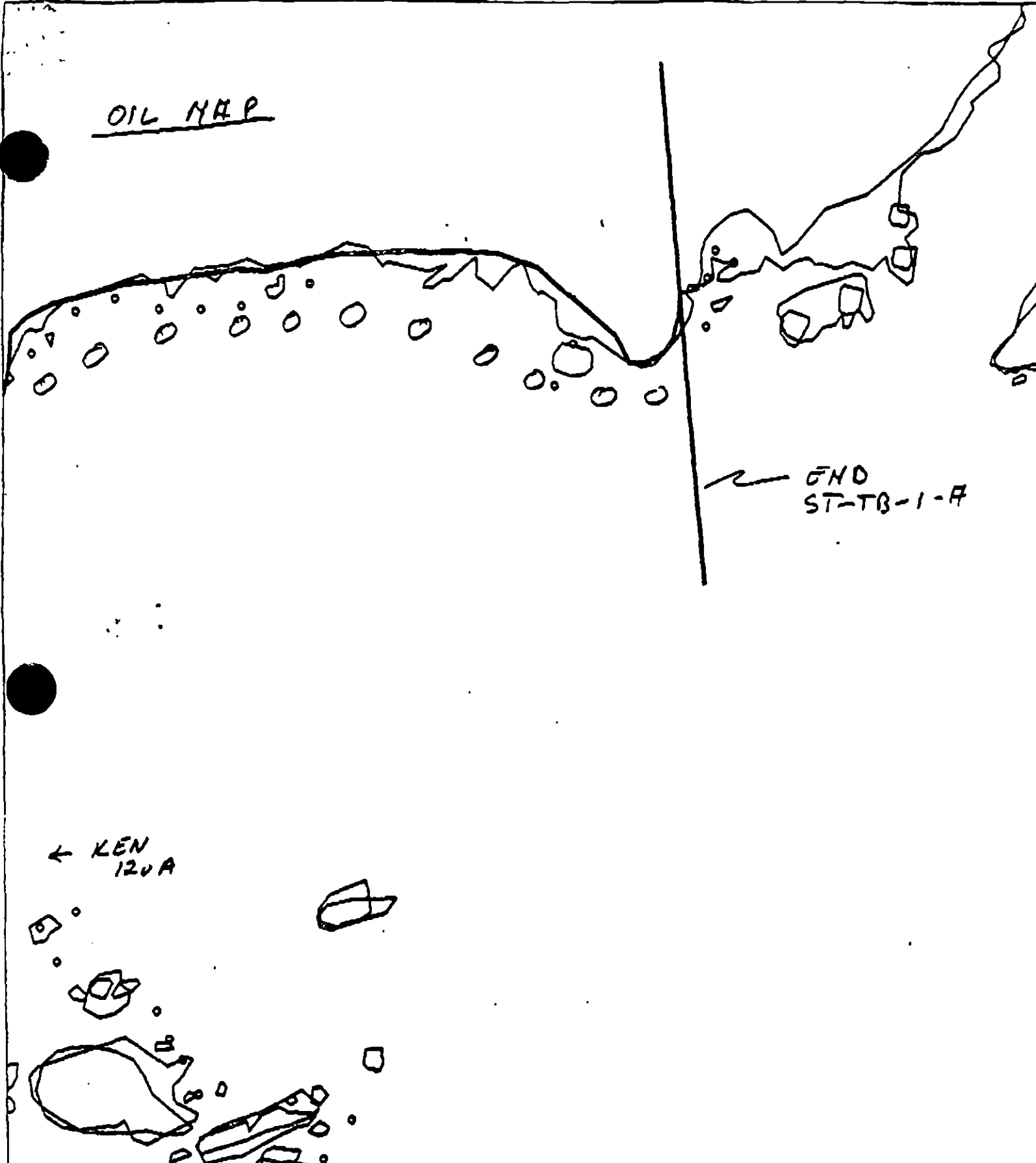
Map Key: KEN-120a

Name: K. O. BUSCHER

Date: 4/29/90

Date Entered:

OIL MAP



XXXX Wide

●/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-1-A

ADEC Segment Length: ²⁶⁸⁹~~2700~~m



Map Key: KEN-120b

Name: K. DEBOSSCHER

Date: 4/29/90

Data Entered:

1991 MAYSAP EVALUATION

SEGMENT: TB 001 SUB: A REGION: KEN SURVEY DATE: 5/19/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest,
Herring spawning, Fish harvest area

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: Timothy P. Smith Date: 6/04/91

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

N

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: June 4 1991

FOSC APPROVAL DATE: 6/7/91

ADEC

FOSC

EXXON

E. E. PAGE, CDR, USCG
CHIEF OF STAFF, FOSC

USCG

NOAA

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

TEAM NO. 4 SEGMENT TA-001 SUBDIVISION A DATE MAY 19 1991

ADEC

NAME Clara S. Crosby SIGNATURE Clara S. Crosby

☒ NTR This is a high energy beach. Previous oiling (REF: ESAP
was subsurface - LSOR - MSOR was found @ the ADEC DATA
VI to SO. in a small area last year - heavy berm
but I ^{would} not recommend treatment ^{if found} to the
high energy exposure - & how much "nature" has cleaned already.

EXXON

NAME George P. Stiles SIGNATURE George P. Stiles 5/22/91

☒ NTR No appreciable oil found.

LANDMANAGER

NAME John P. Johnson OF ADNR SIGNATURE [Signature]

☒ NTR
Some oil splatters + tar balls, but widely scattered. Concurs
w/ DEC comments

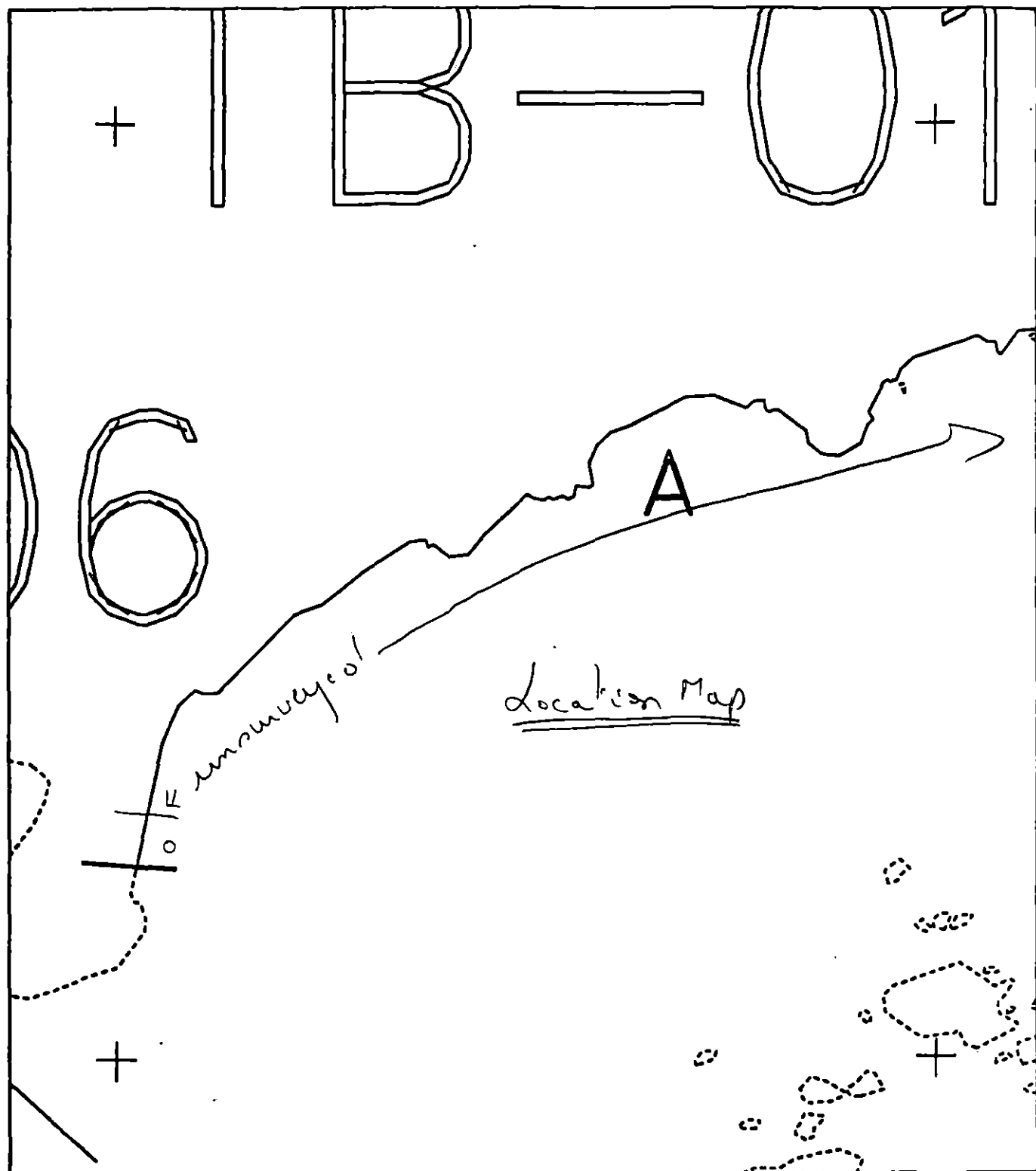
USCG/NOAA

NAME John Mathahan/McDonald SIGNATURE [Signature]

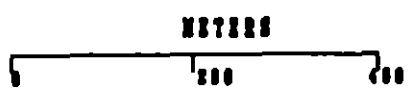
☒ NTR very, very little oil

[Signature]

REVISED: F.W. 5/25/91



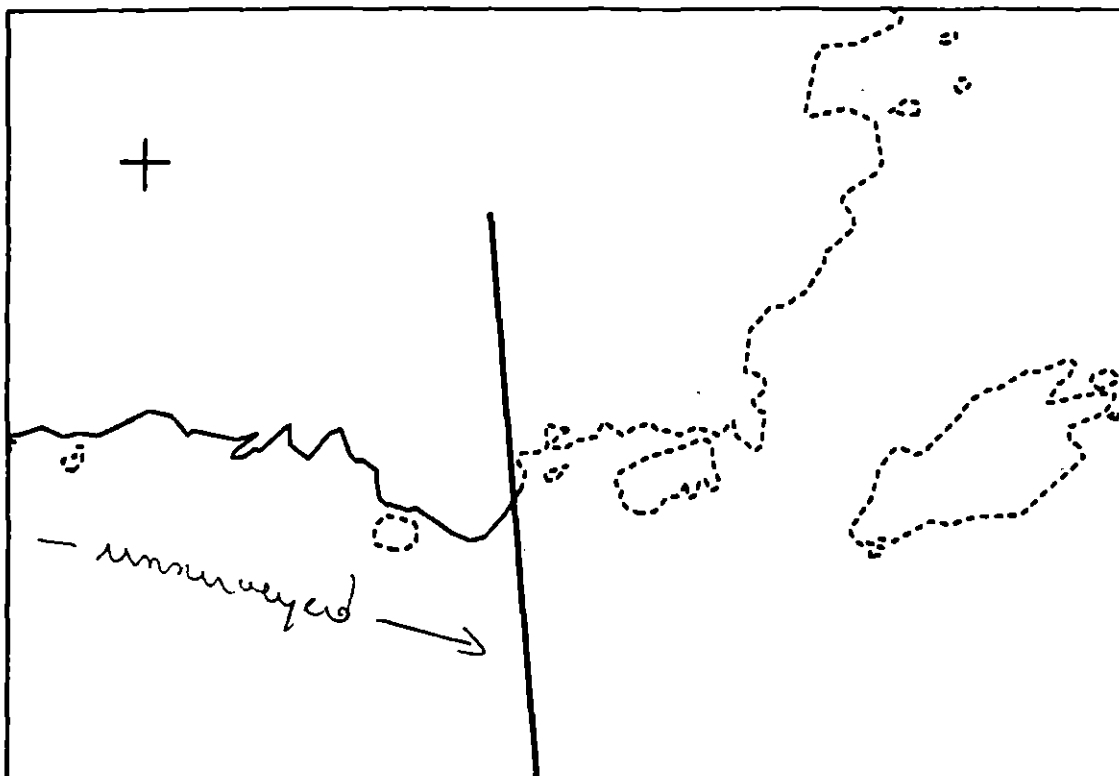
TB001 A



AK State Planning Zone 4
subdivision

Subdivision Field Map
Map Key: KENTB001Aa
Name: JMSemples
Date: MAY 19/91

REVIEWED: F.W. 5/25/91

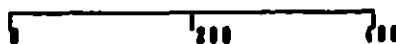


Location Map.



TB001 A

METERS



AK State Plane Zone 4
NAD 83

Subdivision Field Map

Map Key: KENTB001AB

Name: for Samples

Date: May 17/97

REVIEWED: F.W. 5/25/97

Og SKETCH MAP

TB 001-A

Jr Samples

MAY 19/91

1613 - 1625

Legend

 Bedrock bluffs

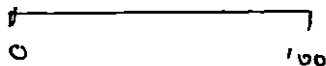
 well sorted
pl/granule

 Dead trees
and abundant
logs in backshore

 unimpaired
previous surveys showed moic.

 Two small for parties < 10 cm
picked up, among algae line,

 N

 0 100

REVIEWED: F.W. 5/25/91

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 19, 1991 1600 - 1625
SEGMENT #	TB001	TIDAL HEIGHT (Range)	5.7 => 6.3
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Calm, Clear

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

No oil was found on this subdivision

General Characteristics of TB001-A

This is a moderate to high energy beach of small to medium sized pebbles. Wave surge appears to regularly scour the pebble. No macrofauna or macroflora were observed on this beach.

Three Glaucous-winged gulls and 2 ravens were observed in the subdivision.

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			
Seabirds			
Waterfowl			
Gulls/Kittiwakes	1	3	
Shorebirds			
Corvids	1	2	
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	3		
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

B10

SKETCH MAP

TB CSD 1 - A
J. BARRY

MAY 19 / 91
1613 - 1635

Legend

- Bedrock bluffs
- well sorted
pl / granule

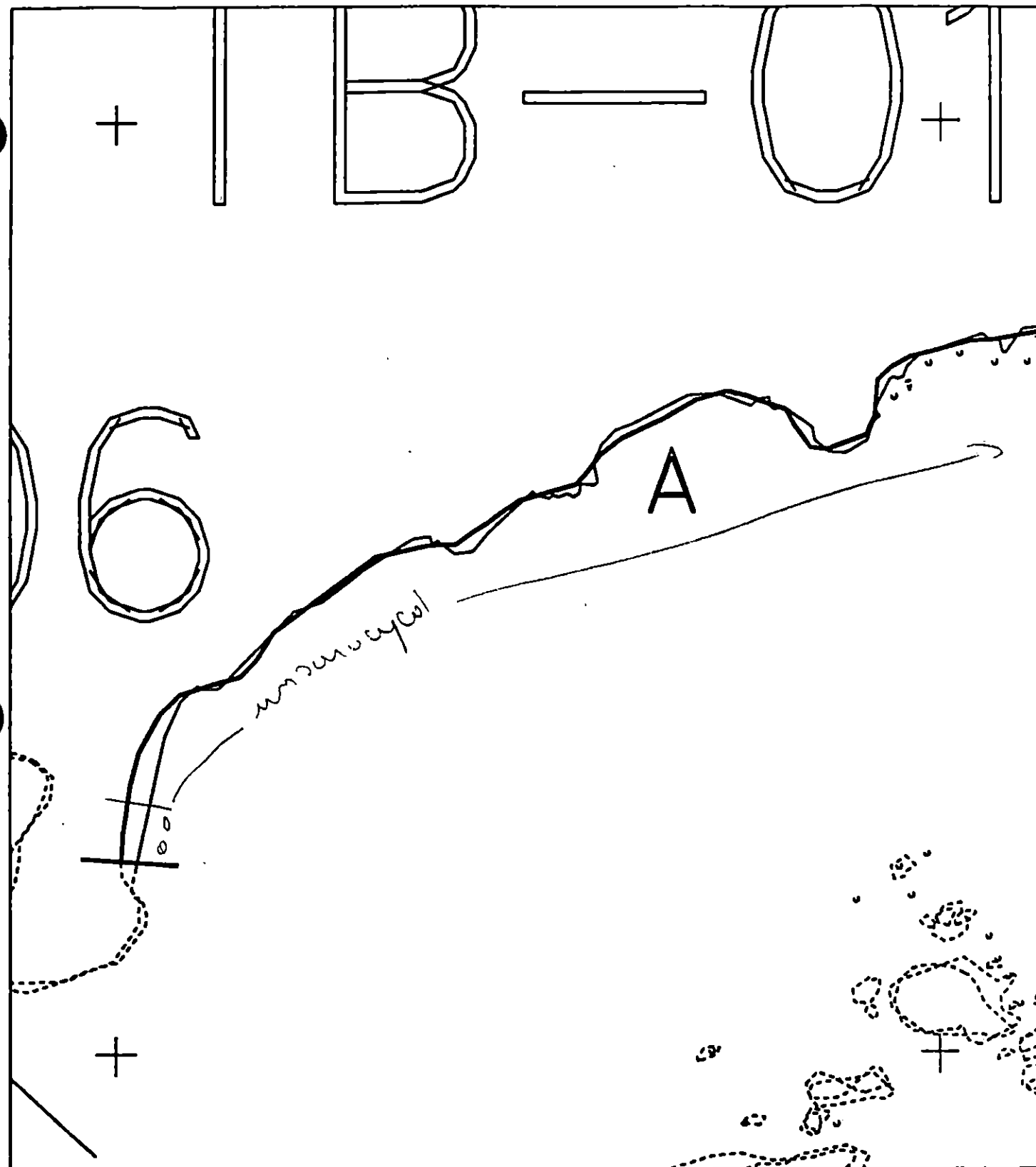
Dead trees
and abundant
logs in backshore

unmanned
Pineau survey showed moose

NO BIOTA ON COBBLE
BEACH

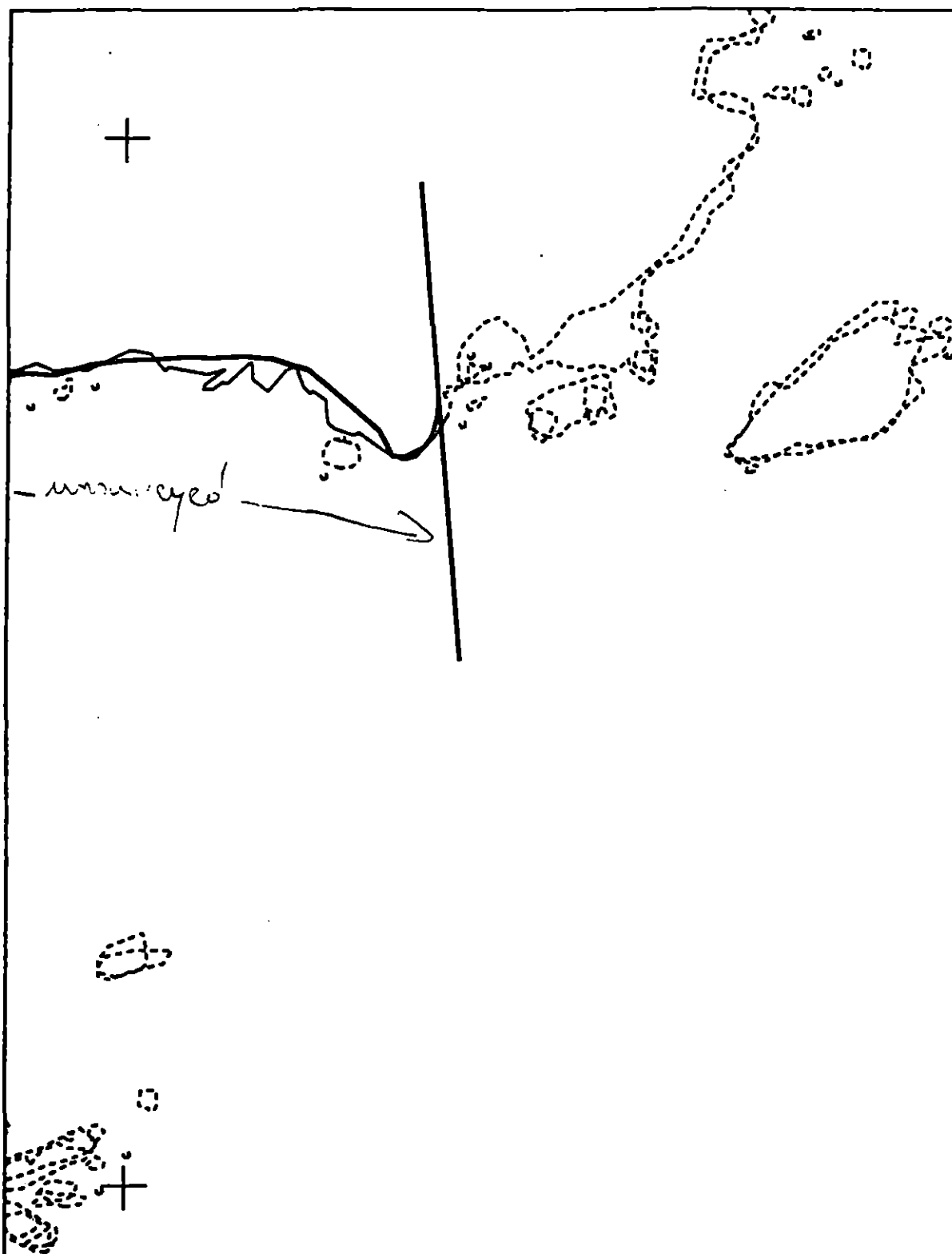
N

0 100



XXXX	Wide	TB001 A ADEC Subsegment Length: 2400m METERS AK State Plane Zone 4 15001ac	 	Subdivision Field Map
////	Medium			Map Key: KENTB001Ac
----	Narrow			Name: <u>HM Sample</u>
TTTT	Very Light			Date: <u>May 14/91</u>
0000	No Oil			Date Entered:

REVIEWED: F.W. 5/25/91



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB001 A

ADEC Subsegment Length: 2409m

METERS

0 200 400

AK State Plane Zone 4
 a13001ab



Subdivision Field Map

Map Key: KENTB001Ab

Name: In Sample

Date: May 10/91

Date Entered:

REVIEWED: F.W. 5/25/91

1991 MAYSAP EVALUATION

SEGMENT: TB 001 SUB: A REGION: KEN SURVEY DATE: 5/19/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest, Herring spawning, Fish harvest area

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____ FOSC APPROVAL DATE: _____

ADEC

FOSC

EXXON

USCG

NOAA

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

ADEC

NAME Clara S. Crosby SIGNATURE Clara S. Crosby

☒ NTR This is a high energy beach. Previous oiling (REF: 105) was subsurface - L50K - m50K was found @ the VI to SO. in a small area last year - Heavy berm but I ^{would} not recommend treatment ^{if found} due to the high energy exposure - & how much "nature" has cleaned already

EXXON

NAME George P. Stilos SIGNATURE George P. Stilos 5/22/91

☒ NTR No appreciable oil found.

LANDMANAGER

NAME John P. Johnson OF ADNR SIGNATURE [Signature]

☒ NTR Some oil splatters + der balls, but widely scattered. Concern w/ DEC comments

USCG/NOAA

NAME John M. Mahan/McDonald SIGNATURE [Signature]

☒ NTR very, very little oil

[Signature]

SEGMENT TR. 001

SUBDIVISION A

DATE MAY 11th 191

ENERGY LEVEL: ☐ H ☒ M ☐ L

WEATHER: ☒ SUN ☐ CLOUDS ☐ FOG ☐ RAIN ☐ SNOW

NEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONE

EST. OIL CATEGORY LENGTH: W_____m M_____m N_____m VL_____m NO 100m US 230m

[illegible]

DISTRIBUTION: C = 91-100%; B = 51-80%; P = 11-50%; S = 1-10%; T = <1%

SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE PHOTO ROLL # MAYSAP-_____ FRAMES

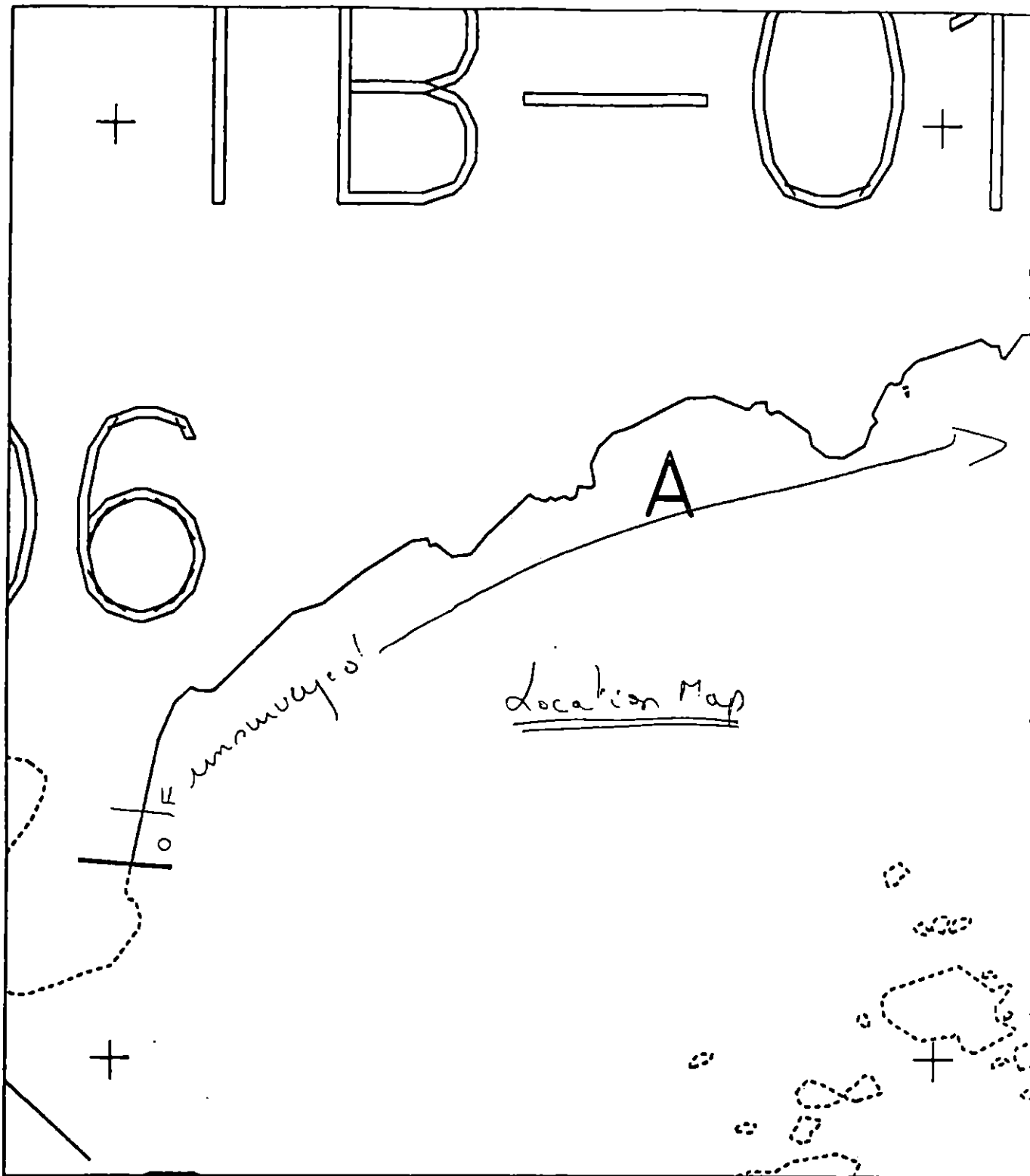
PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER						OILED ZONE cm-cm	CLEAN BELOW Y/N	H2O LEVEL (cm)	SHEEN COLOR B R G N	PIT ZONE				SURFACE-SUBSURFACE SEDIMENTS	NOTES
		OP	HOR	MOR	LOR	OF	TR					NO	S	UI	MI		
1	30							-	Y	-	-		X			p6	See map
9	50							-	Y	-	-			X		p5	
								-								/	
								-								/	
								-									
								-									
								-									

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

OG COMMENTS:

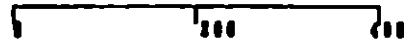
COMMENTS: Long beach of well sorted granule / pb some cb.
well developed storm berm. Lots of logs and dead trees
in the backshore. Picked up 3 tree pellets < 10 cm
among algae High tide line.

REVISED: F.W. 5/25/91



TB001 A

METERS



AK State Plane Zone 4
NAD83

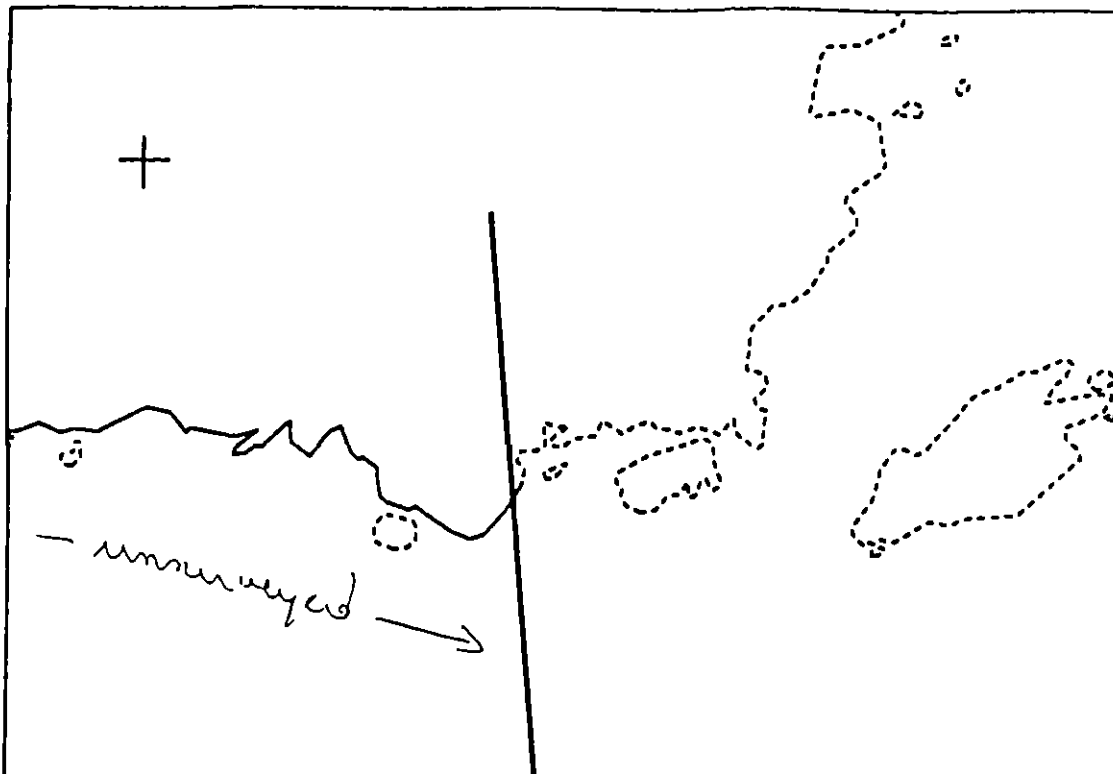
Subdivision Field Map

Map Key: KENT001Aa

Name: JM Semple

Date: MAY 13/91

REVIEWED: F.W. 5/25/91

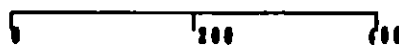


Location Map.



TB001 A

METERS



AK State Plane Zone 4
63500103

Subdivision Field Map

Map Key: KENTB001ab

Name: for Samples

Date: May 17/91

REVIEWED: F.W. 5/25/91

og SKETCH MAP

TA 001 - A

dm Samples

MAY 19/91

1613 - 1635

Legend

▨ Bedrock bluffs

⋯ well sorted
pl / granule

Dead trees
and abundant
logs in backstore

unmarked
Previous surveys showed no oic.

Two small tar patties < 10 cm
picked up, among algal line.

↑
Z

0 100

REVIEWED: F.W. 5/25/91

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 19, 1991 1600 - 1625
SEGMENT #	TB001	TIDAL HEIGHT (Range)	5.7 => 6.3
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Calm, Clear

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

No oil was found on this subdivision

General Characteristics of TB001-A

This is a moderate to high energy beach of small to medium sized pebbles. Wave surge appears to regularly scour the pebble. No macrofauna or macroflora were observed on the beach.

Three Glaucous-winged gulls and 2 ravens were observed in the subdivision.

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			
Seabirds			
Waterfowl			
Gulls/Kittiwakes	1	3	
Shorebirds			
Corvids	1	2	
Other Birds			
MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	3		
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

SKETCH MAP

TB CD 1 - A
J. BARRY

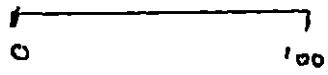
MAY 19/91
1613 - 1625

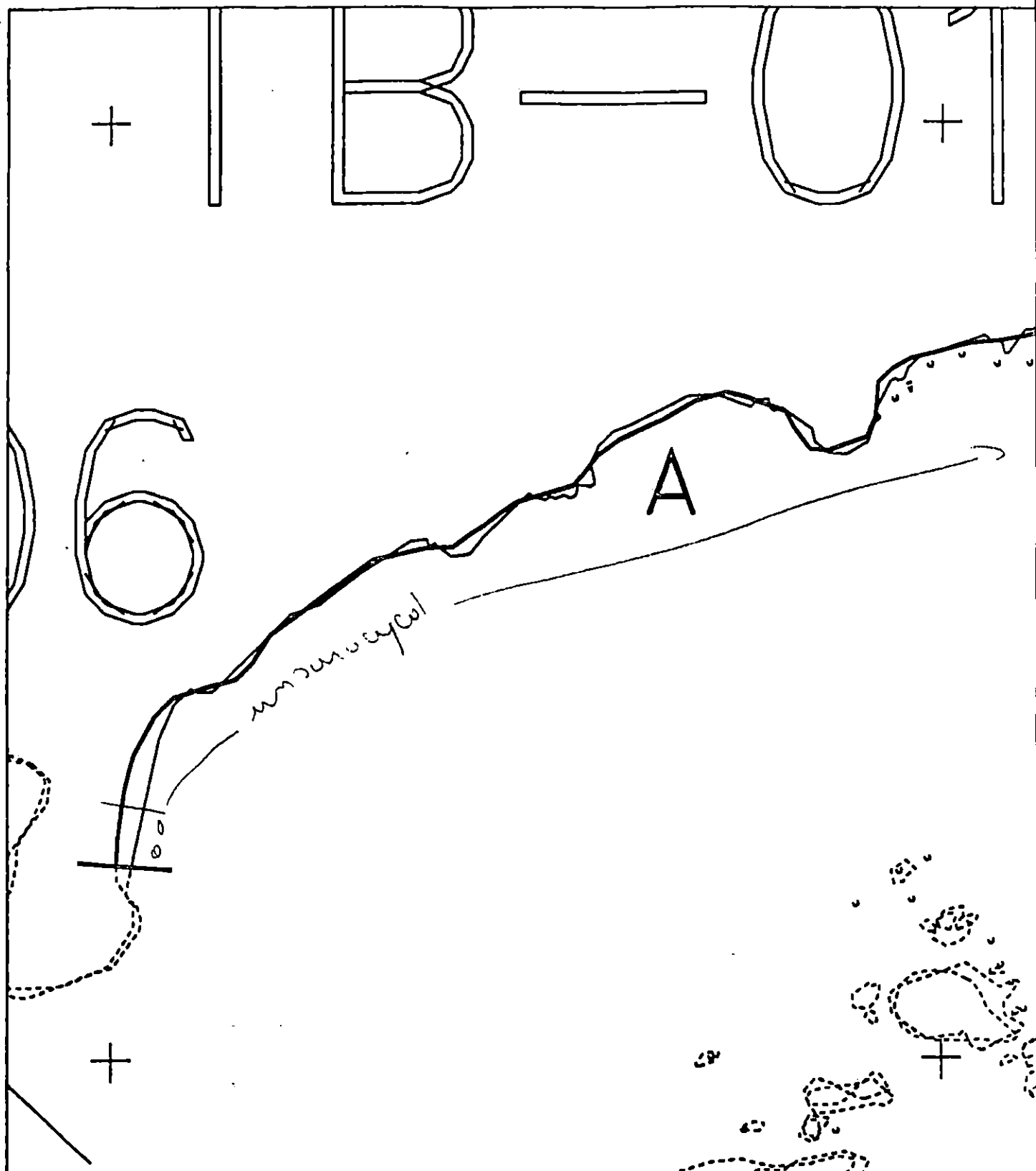
- Legend
-  Bedrock bluffs
 -  well sorted
pl / granule

Dead trees
and abundant
logs in backshore

unimpaired
Pineau omnes found moic

NO BIOTA ON COBBLE
BEACH





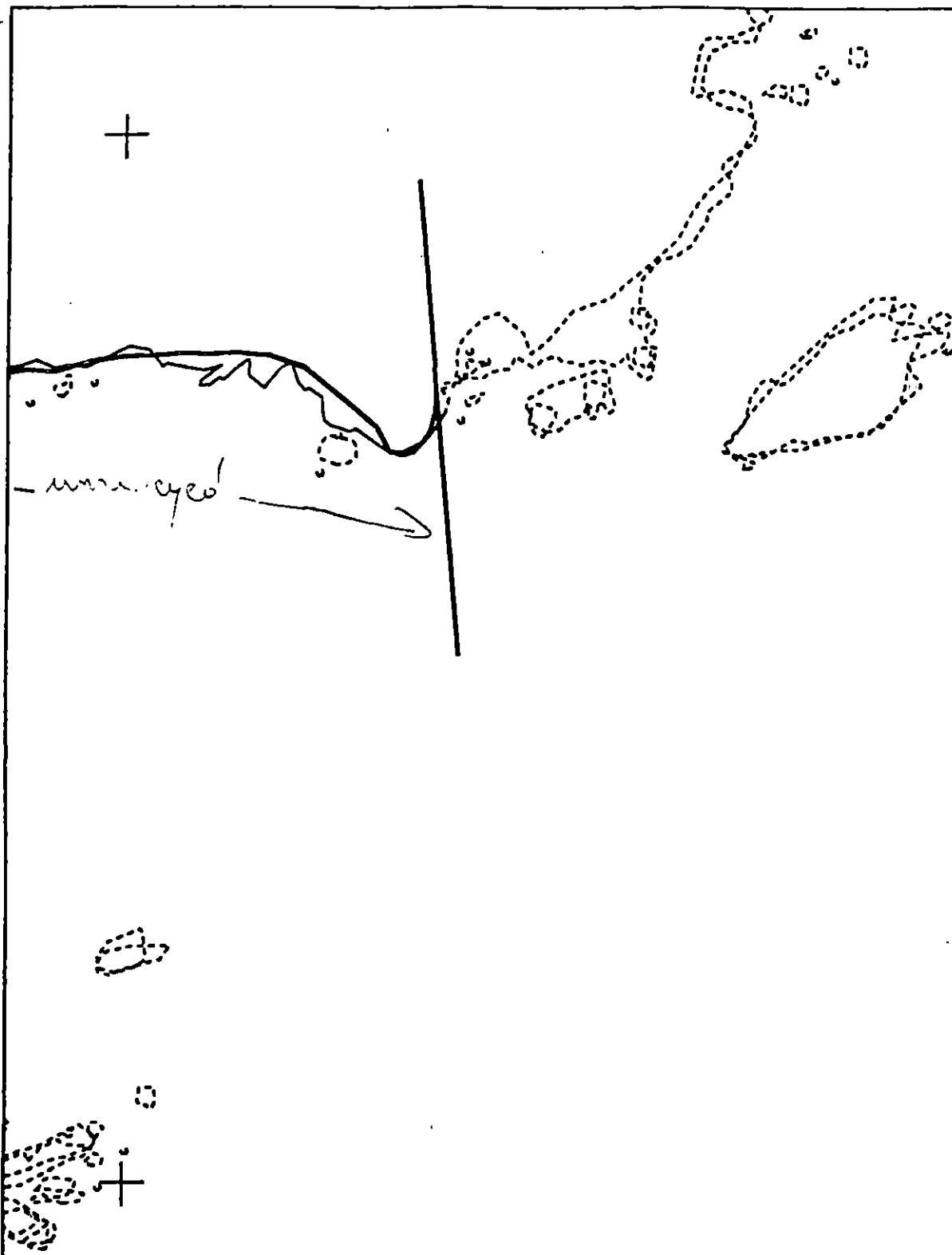
XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB001 A
 ADEC Subsegment Length: 2409m
 METERS
 0 200 400
 AK State Plane Zone 4
 1100100

Subdivision Field Map
 Map Key: KENTB001Aa
 Name: HM Sample
 Date: May 14/91
 Date Entered:



REVIEWED: F.W. 5/25/91



XXXX	Wide	TB001 A ADEC Subsegment Length: 2400m METERS 0 200 400 AK State Plane Zone 4 alib00tab	Subdivision Field Map
////	Medium		Map Key: KENTB001Ab
----	Narrow		Name: <u>In Sample</u>
TTTT	Very Light		Date: <u>May 10/91</u>
0000	No Oil		Date Entered:



REVIEWED: F.W. 5/25/91

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT TB-1 SUBDIVISION A (1 of 1)

WORK WINDOW	
Spot Washing	OPEN

CULTURAL RESOURCE EVALUATION REQUIRED PRIOR TO TREATMENT

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1J	Purse Seine Area	No constraint to spot washing.
2M	Herring Spawning	No constraint to spot washing.
5T	Bald Eagle Nest	NO CONSTRAINT. USFWS 6/1/90 map indicates no active nest within 400m of Subdivision A work site.

OTHER ECOLOGICAL CONSIDERATIONS

Avoid any unnecessary disturbance or damage to unrolled biota and substrate.

FOSC

Date

6 July 90

Prepared by

Reg R. Conner

Date

7-5-90

TB-01

TB-06

TB-02

WORK
AREAS

ECOLOGY MAP SEGMENT TB-1

SUBDIVISION A (---101---)

METERS

0 578 1155

- ★ Seabird Colony
- ▲ Active Eagle Nest
- △ Inactive Eagle Nest

1 inch = 1895 feet



Exxon Company, USA
Map Key: KEN-TB-1
June 10, 1990



SHORELINE EVALUATION

SEGMENT ST/ TB-01 SUBDIVISION A (1 OF 1) DATE 4/29/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Parks
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO SIGNATURE: *P. Daniel McManis* DATE: 5/8/90

OILING CATEGORIZATION:

Wide 0 m: Medium 102 m: Narrow 17 m: V.Light 0 m: No Oil 2291 m
Subsurface Oil Observed: Yes X No Maximum Depth 40 cm

RECOMMENDATIONS:

<u>X</u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u> </u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u> </u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: SEE CONSTRAINT ADDENDUM
DATED 7/5/90 REX C.

TAG COMMENTS:

TAG APPROVAL DATE: 5/8/90

ADEC *Art Weimer* *Art Weimer*

EXXON *Andy Tate* *Andy Tate*

NOAA *Gary Petron* *Gary Petron*

USCG *G.A. REITER* *G.A. Reiter*

FOSC: *W L* DATE: 5-12-90

Spot wash bedrock on eastern segment
in conjunction with work on TB-03/04

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT WA-1 SUBDIVISION B (2 of 2)

WORK WINDOW	
Manual Pickup	OPEN

CULTURAL RESOURCE EVALUATION REQUIRED PRIOR TO TREATMENT

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

5R Seabird Colony

NO CONSTRAINT. Work site is more than 800m from seabird colony.

OTHER ECOLOGICAL CONSIDERATIONS

Avoid any unnecessary disturbance or damage to uncollected biota and substrate.

FOSC

ML

Date

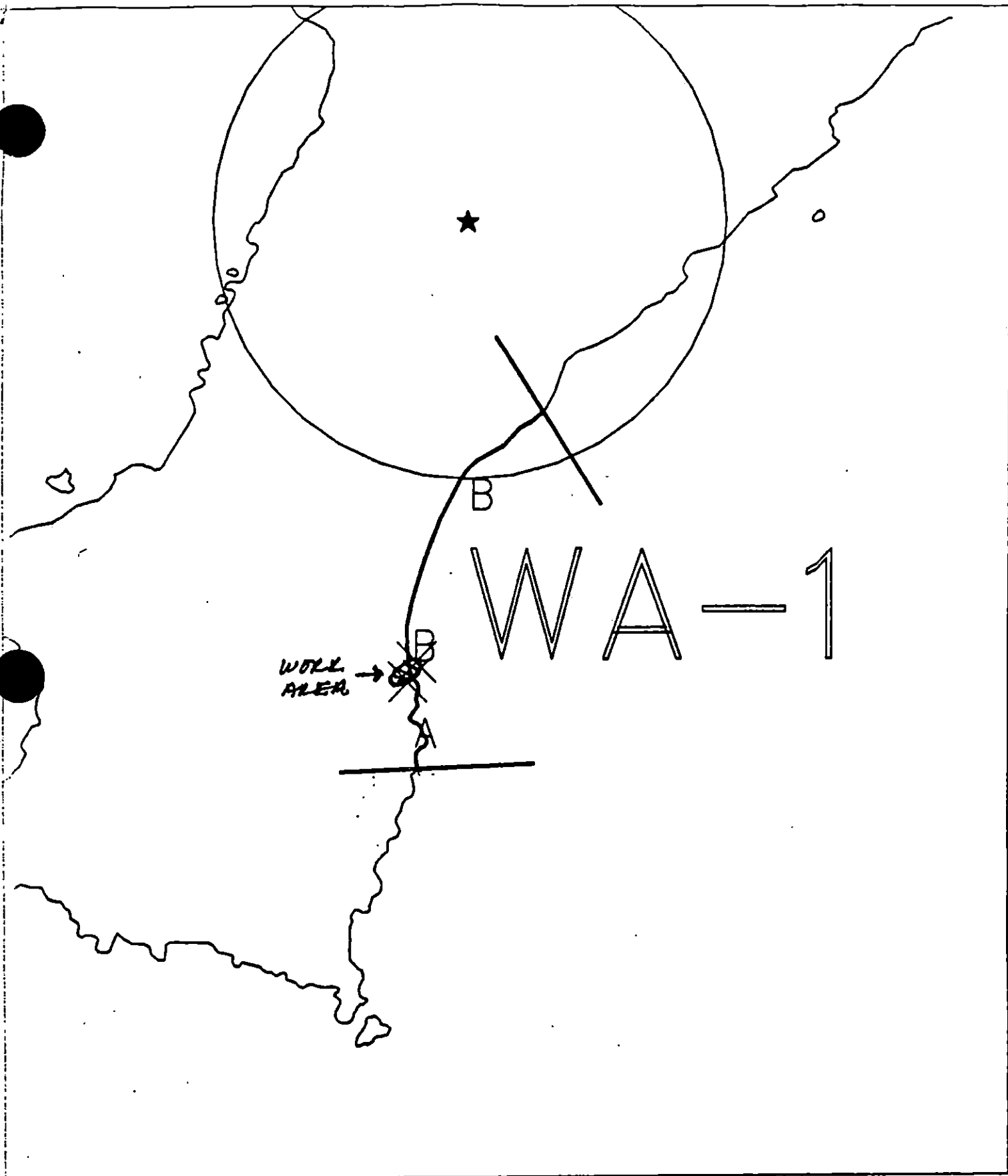
6 Jul 90

Prepared by

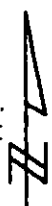
R.D. Coulter

Date

7/5/90



Exxon Company, USA
Map Key: KEN-WA-1
June 10, 1990



ECOLOGY MAP
SEGMENT WA-1
SUBDIVISION 6 (2 of 2)
METERS
0 400 815

- ★ Seabird Colony
- ▲ Active Eagle Nest
- △ Inactive Eagle Nest

1 inch = 1337 feet

SHORELINE EVALUATION

SEGMENT ST/ WA-01 SUBDIVISION B (2 OF 2) DATE 4/26/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5R Seabird colony (5/1 to 9/1)

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO SIGNATURE: Charles E. Adams DATE: 5/5/90

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 286 m: No Oil 623 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u>X</u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u> </u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u> </u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS:

TAG COMMENTS: Monitors to assess pickup of oiled fishing net.

SEE CONSTRAINT ADDENDUM
DATED 7/5/90 RELC.

TAG APPROVAL DATE: May 5, 1990
ADEC Art W. [Signature]
EXXON Mark N. [Signature] Mark N. [Signature] FOSC: [Signature] DATE: 5-9-90
NOAA [Signature]
USCG G.A. [Signature] G.A. [Signature]
Pickup + Remove net

REGION: KENAI

SEGMENT: ST/TB-02

SUBDIVISIONS: A (1 OF 1)

SHORELINE EVALUATION

SEGMENT ST/ TB-02 SUBDIVISION A (1 OF 1) DATE 4/20/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)

1B Salmon stream mouth - spawning (7/10 to 8/31)

2M Herring spawning (4/1 to 6/15)

4GG Kachemak Bay State Wilderness Park

6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. 5T - eagle nest.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 16 m: Medium 602 m: Narrow 1430 m: V.Light 184 m: No Oil 0 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 30 cm

RECOMMENDATIONS:

☐ No Treatment Recommended

☒ Treatment Recommended

☒ Manual Pickup

☒ Bioremediation

☒ Tarmat Removal

☐ Snare/Absorbent Booms

☐ Oil Snares (pom poms)

☐ Absorbents (pads, rolls, etc)

☐ Spot Washing: _____ Wands

☐ Beach Cleaner

☐ Other (see comments)

COMMENTS: Recommended treatment includes 1) manual pickup of mousse and pooled oil, 2) removal of tarmat followed by 3) bioremediation of areas indicated on sketch map. Work should be conducted before 6/16 based on herring constraints, after approval of USFWS regarding eagle nest.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____

EXXON _____

NOAA _____

USCG _____

FOSC: _____ DATE: _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

- 1A, 1B** Salmon stream mouth - fry outmigration (3/1 to 5/15)
 Salmon stream mouth - spawning (7/10 to 8/31)
 No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.
- 1C** Salmon fry nursery area (4/31 to 7/31)
- 1D** Esther Hatchery release (4/15 to 6/1)
- 1E** Main Bay Hatchery release (4/20 to 5/10)
- 1F** Sawmill Bay Hatchery release (4/15 to 6/1)
- 1G** Cannery Creek Hatchery release (4/21 to 6/1)
- 1H** Remote release site
- 1I** Gill net area (8/7 to 8/31)
- 1J** Purse seine area (7/20 to 9/30)
- 1K** Purse seine hook-off (7/20 to 9/30)
- 1L** Set net sites (8/11 to 7/25)
 For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.
- 2M** Herring spawning (4/1 to 6/15)
 Restrict boat traffic to essential minimum. Avoid damage to uncoiled intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.
- 3N, 3P, 3O, 3Q** Harbor seal and sea lion pupping (5/15 to 7/1)
 Harbor seal and sea lion molting (8/15 to 9/15)
 Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.
- 5R** Seabird colony (5/1 to 9/1)
 Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.
- 5S** Shorebird/waterfowl concentration (4/1 to 5/15)
 Restrict all activity to essential minimum, especially air traffic.
- 5T** All Bald Eagle nests (3/1 to 6/1)
 Active Bald Eagle nests (3/1 to 9/1)
 Restrict air traffic to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
- 6U** Recreation: Tent sites (6/1 to 9/15)
- 6V** Anchorages (6/1 to 9/15)
- 6W** Forest Service cabins (6/1 to 9/15)
- 6X** Lodge (6/1 to 9/15)
- 6Y** Special use destination
~~Special use destination~~
- 7Z** Subsistence area: Salmon harvesting (5/1 to 9/30)
- 7H-H** Finfish harvesting
- 7I** Deer harvesting (8/15 to 2/28)
- 7JJ** Invertebrate harvesting
 For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.

FIELD SHORELINE COMMENT SHEET

SEGMENT ST / TB-002 SUBDIVISION: R DATE 4/20/90

NOT A

USCG

NAME DONALD A. MacDONALD SIGNATURE Donald A Macdonald☐ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

The segment contains one anadromous stream towards the western end. One river otter and one sea otter were ~~sighted~~ sighted in the vicinity of the segment.

ADEC

NAME JOHN R. REED SIGNATURE John R Reed☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

I am recommending manual cleanup in segment TB-02. Asphalt pavements could be removed with shovels. There is also some pooled oil on the large island in this segment that could be manually removed with a shovel. There is a 1-2m wide bathtub ring through much of this segment. Two of the pocket beaches also had some subsurface oiling. These were beaches that were heavily oiled last summer. Tilling of these beaches may help biodegradation. Several areas in this segment were bioremediated last year and could be a candidate for reapplication. Some sheers were noticed near shore. I agree with info on SSAT.R

LAND MANAGER DNR-ODOR

NAME Jeff Johnson SIGNATURE Jeff Johnson☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

I agree with SSAT data on TB-2. Unit is within ~~Kochumuk~~ Bay State wilderness park and has high recreation + wild life resource values. Several tent sites + good anchorage. Arcia study site + Bio remediation signs should be removed after project. Eagle nest active in this unit last summer now appears abandoned. Some chain saw cuts should be removed. Evidence of past recreational use. Small island in this unit also needs treatment.

SHORELINE OILING SUMMARY

REVISION NO. 04/13/90

OG TOM SAWYER ^{NOM} USCG - D. MacDonald SEGMENT ST/ TB002
 BIO M. Carr LAND REP J. Johnson SUBDIVISION A (1 OF 1)
 EXXON R. Boyer ADEC R. Reed TIME 13:30 to 17:00
 TEAM NO. 18 TIDE LEVEL +5 TO +1.5 DATE Apr 1 20 1990
 EST. SUBDIVISION LENGTH: 2677 m ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: EAST to WEST
 SURFACE SEDIMENTS: R 55 % B 20 % C 15 % P 10 % G 0 % S 0 % M 0 % V 0 %
 SLOPE: Long 40 % Hang 5 % Vert 55 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High
 OIL CATEGORY LENGTH: W 15 m M 530 m N 1749 m VL 150 m NO 200 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR								IMPACTED ZONES			
	C	S	P	R	1	2	3	4	5	6	7	8	SU	U	M	U
ASPHALT PAVEMENT																
POOLED																
COVER																
COAT																
STAIN																
MOUSSE																
PATTIES																
TARBALLS																
FILM																
NO OIL																

 PAVEMENT H (F) S 1335 sq. m by 4 cm

 PATTIES / TARBALLS 0 BAGS

 NEAR SHORE SHEEN? NO BR RW (SL) TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

DID YOU COLLECT DEBRIS?

 YES ☒ NO ☐

 TYPE buoy, rope

 #BAGS 1

Photographs:

 Roll No. ST-18-7

 Frames 20-38

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM)	BELOW		OIL / FILM COLOR								PIT ZONE	A N A	SHEEN (Y/N)	!	SURFACE-SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	VO	1	2	3	4	5	6	7	8					
1	30																					P-S
2	15																					P-S, P, R
3	25																					P-S, P
4	30																					C-B, S
5	20																					P-S, P
6	25						0-15															P-S, P

COMMENTS ST/TB002 comprises bedrock cliffs and low angle boulder and cobble beaches. The eastern half has a nearly continuous 1 to 2m wide "bathtub" ring of coats. The western half has a significant amount of pavement, generally between boulders. No oil observed in Pits 16 & 17, which are located on either side of a large meandering stream, nor was oil observed when the channel sediment was disturbed.

 REVIEWED BAT DATE 21 Apr 90

SHORELINE OILING SUMMARY (PAGE 2)

REVISION 04/13/90

SEGMENT ST/ TB-002 SUBDIVISION A (1 OF 1)

SUBSURFACE OIL (CONTINUED)

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CH)	BELOW		OIL / FILM COLOR						PIT ZONE				A N A	SCREEN (CM)	▼	SURFACE - SUBSURFACE SEDIMENTS			
		OP	OR	OL	OF	NO		VO	UC	SL	SA	SP	ST	SC	TL	SR	SU	U	M					L		
7	40					/										/										P-S, P
8	45					/										/										P-P, S
9	25		/				10-25	/		/							/									A-S, C
10	25		/				10-25	/		/							/									P-S, P
11	35		/				15-30		/	/							/									P-S, C
12	20		/				0-6		/	/							/									C-P, S
13	20		/				0-4		/	/							/									C-P, S
14	20		/				0-3		/	/							/									C-S, P
15	15		/				0-4		/	/							/									B-S, B
16	20					/											/									S-C, P
17	20					/											/									S-P, S
							.																			
							.																			
							.																			

COMMENTS: At 9, 10, + 11 - GREATER THAN 3 METER WIDE BAND OF 'OR' IS SUBSURFACE, but not observed at surface.

REVIEWED BAT DATE 21 Apr 90

OG T. Saw
 SEGMENT ST/TB002
 SUBDIVISION A
 DATE Apr 1 20 90

SKETCH MAP - A

CHECKLIST

☐ N Arrow
☐ Approx. Scale
☐ Seg/Sub Bndy
☐ Oil Dial
☐ Width
☐ Length
☐ % Cover
☐ Substrate Character
☐ Est. HML/LWL
☐ SSL
☐ Profile Location(s)
☐ Profile(s)
☐ P/L Location(s)
☐ Photo Location(s)

LEGEND

1 Δ
 P/L - No Subsurface Oil

2 Δ
 P/L - Subsurface Oil

CT/C
 Continuous Distribution

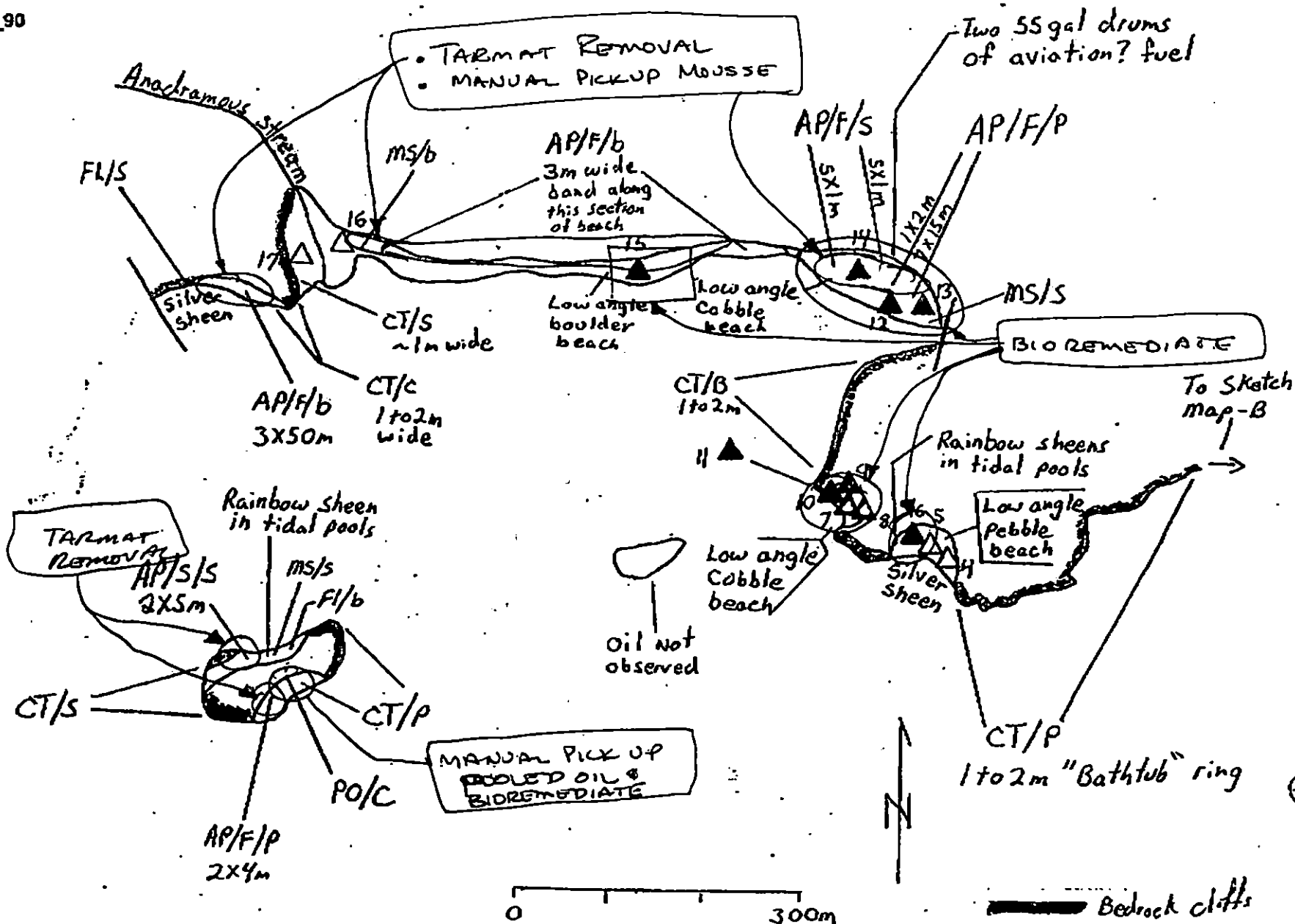
CT/B
 Broken Distribution

CT/P
 Patchy Distribution

CT/S
 Splashed Distribution

eee
 Oiled Vegetation

1 $\Rightarrow$
 Photo location, direction, and number



HFR-24-1350 02:07 FRUN Ensco Hiras.

Ensco TU

SSHT F.04

OG T. Myer

SEGMENT ST TB002

SUBDIVISION A

DATE Apr 1 20 90

SKETCH MAP - B

CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWA/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pli Location(s)
- ☐ Photo Location(s)

LEGEND

1 Δ

Pli - No Subsurface Oil

2 Δ

Pli - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

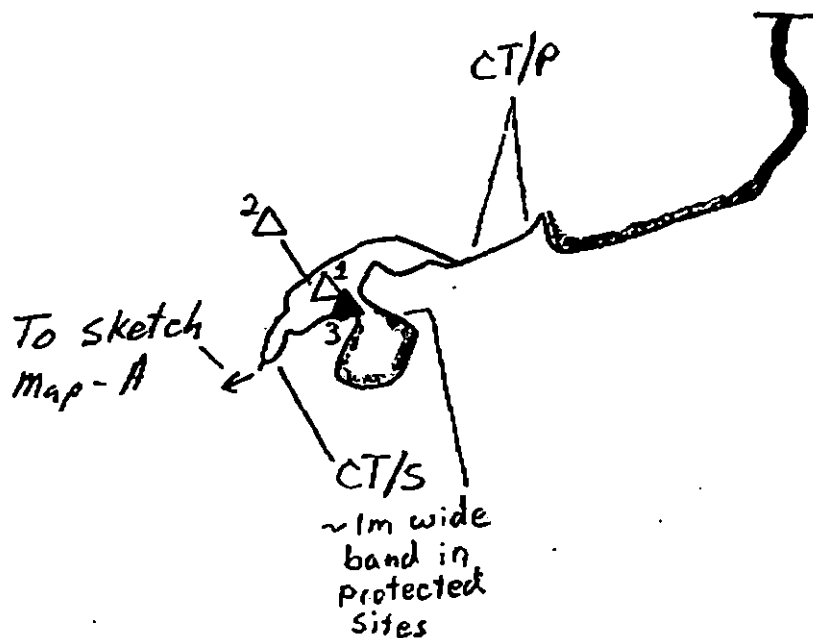
Splashed Distribution

eee

Oiled Vegetation

1 →

Photo location, direction, and number



0 300m



Bedrock Cliff

see sketch Map-A

Oil Character Length (m): AP _____ PO _____ CV _____ CT _____ ST _____ MS _____ PT _____ TB _____ FL _____ NO _____

SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/23/90

Segment ST / TB002 Subdivision A Date (mo / day / yr) 4-20-90Time (24 hr) 1352 Biologist MARK CARR(A) Substrate type and % of ^{SUBDIVISION} segments:
(1) Bedrock 55 (2) Boulder 20 (3) Cobble 15 (4) Pebble 10 (5) Sand 0 (6) Silt 0(B) Overall % cover of biota (% of ^{SUBDIVISION} segment): Dense 80 Moderate 10 Low 10

(C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs:
Roll No. ST-18-7Frames 20-38

BARNACLES

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

NOT PRESENT AT ANY ZON

MYTILUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT IN UPPER ZONE

NOT PRESENT

NOT PRESENT IN ANY ZON

GASTROPODS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

NOT PRESENT IN ANY ZON

FUCUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

NOT PRESENT IN ANY ZON

Wildlife Observations/ General Comments:

BALD EAGLE (2), BOTH MATURE, w/ NEST

MT. GOAT (1)

SEA OTTER (1)

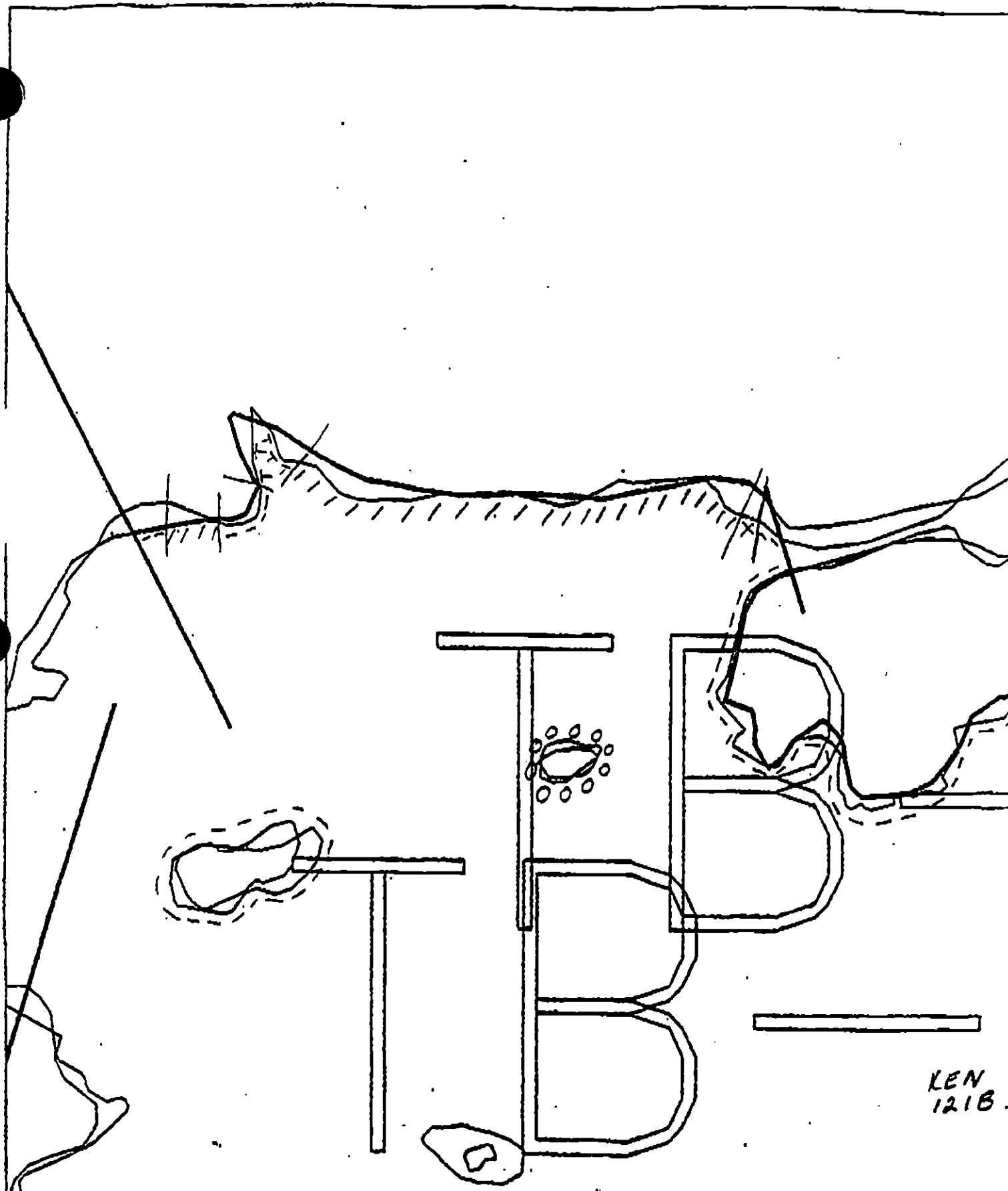
PELAGIC COMMORAINT (2)

WHITE-WINGED SCOTER (2)

RIVER OTTER (1)

Ecological Considerations:

1A, B (SALMON STREAM), 2M (HERRING SPANNING), 4B (ALASKA STATE PARK / WILDS
GNN (SHORTFISHING).
EAGLE NEST (5 T)



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

TB-2

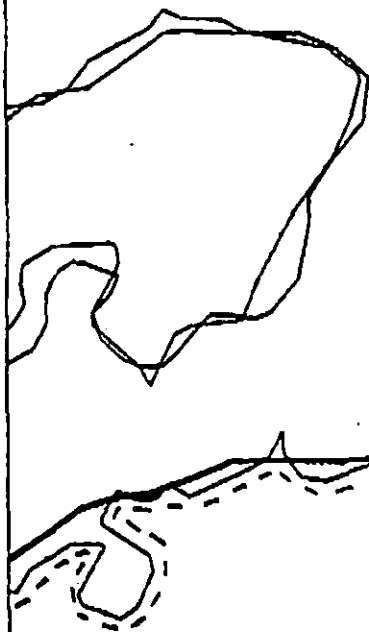
ADEC Segment Length: 2232m

Map Key: KEN-121a

Name: T. Sawyer

Date: 4-21-90

TB-06

← ILEN
121A

XXXX Wide
//// Medium
---- Narrow
TTTT Very Light
0000 No Oil

ADEC Segment Length: 2232m

0 100 200 300
meters

TB-2

Map Key: KEN-121b

Name: T. SawyerDate: 4-21-90

Data Entered:

SHORELINE EVALUATION

SEGMENT ST/ TB-02 SUBDIVISION A (1 OF 1) DATE 4/20/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
2M Herring spawning (4/1 to 6/15)
4GG Kachemak Bay State Wilderness Park
6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. 5T - eagle nest.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: J. Daniel McWhorter

DATE: 5/1/90

OILING CATEGORIZATION:

Wide 16 m: Medium 602 m: Narrow 1430 m: V.Light 184 m: No Oil 0 m
Subsurface Oil Observed: Yes X No Maximum Depth 30 cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u> X </u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u> X </u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> X </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> X </u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes 1) manual pickup of mousse and pooled oil, 2) removal of tarmat followed by 3) bioremediation of areas indicated on sketch map. Work should be conducted before 6/16 based on herring constraints, after approval of USFWS regarding eagle nest.

TAG COMMENTS: MANUAL TILL STORM BEACH/UTZ OF SMALL POCKET BEACH IN AREA OF PILES 9, 10, +11 NOTED ON SKETCH MAP PRIOR TO B.O.

TAG APPROVAL DATE: 5/1/90
ADEC Art Weiner
EXXON Andy Testa
NOAA Gary Petros
USCG Kenneth Kenne

FOSC: WGL

DATE: 5-6-90

OG T. Saw
 SEGMENT ST/18002
 SUBDIVISION A

DATE Apr 1 20 90

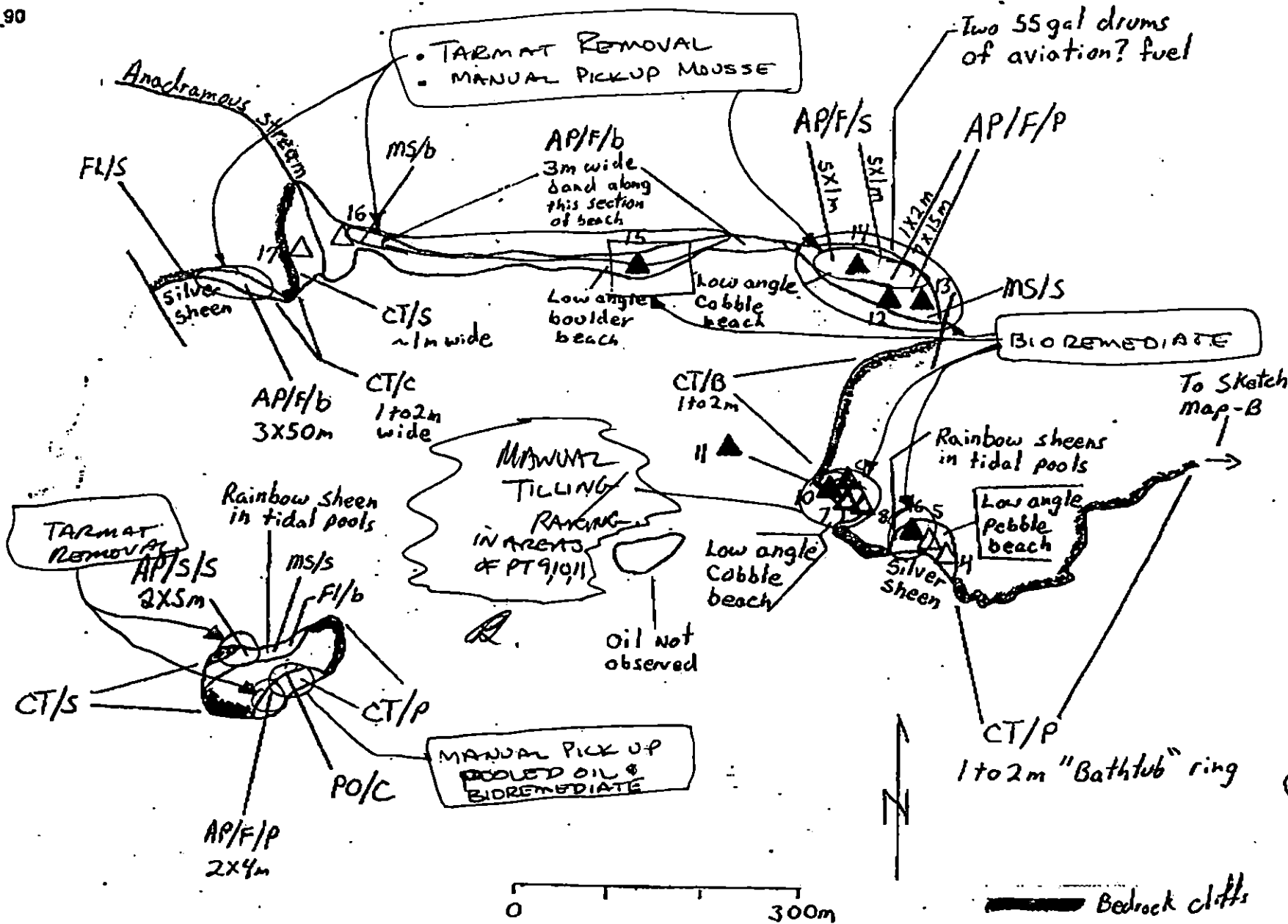
CHECKLIST

- N Arrow
- Approx. Scale
- Seg/Sub Bndry
- Oil Dist
- Width
- Length
- % Cover
- Substrate Character
- Est. HML/LWL
- SSL
- Profile Location(s)
- Profile(s)
- PH Location(s)
- Photo Location(s)

LEGEND

- 1 Δ
- PK - No Subsurface Oil
- 2 Δ
- PK - Subsurface Oil
- CT/C
- Continuous Distribution
- CT/B
- Broken Distribution
- CT/P
- Patchy Distribution
- CT/S
- Splashed Distribution
- Oil Vegetation
- 1 →
- Photo location, direction, and number

SEARCH MAP - A



Character Length (m): AP 460 PO 10 CV 0 CT 1100 ST 0 MS 25 PT 0 TB 0 FL 150 NO 200

OG T. Sawyer
SEGMENT ST/TB002

KETCH MAP - B

SUBDIVISION A

DATE Apr 1 20 90

CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWA/LWA
- ☐ SSZ
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pli Location(s)
- ☐ Photo Location(s)

LEGEND

1 Δ

PI - No Subsurface Oil

2 Δ

Pli - Seabed Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

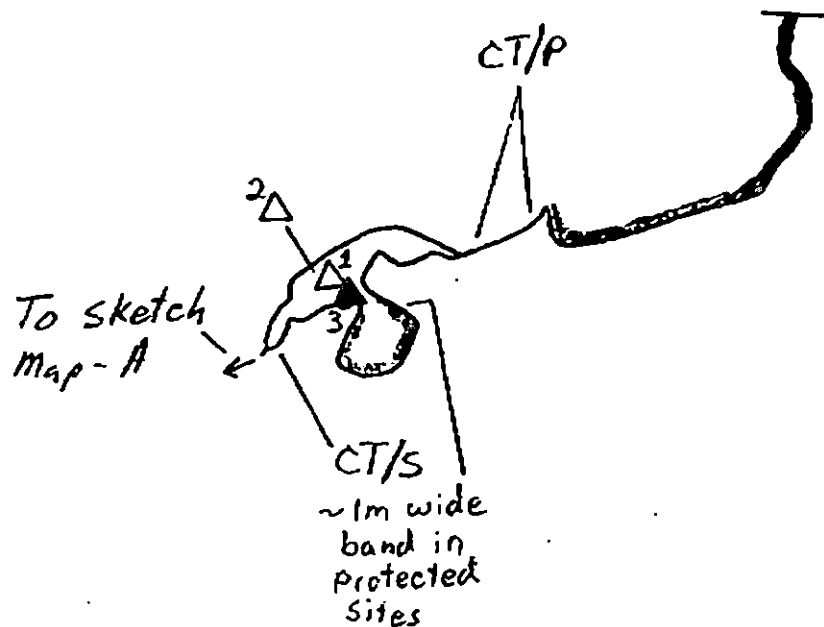
Spashed Distribution

eee

Oiled Vegetation

1 $\rightarrow$

Photo location, direction,
and number



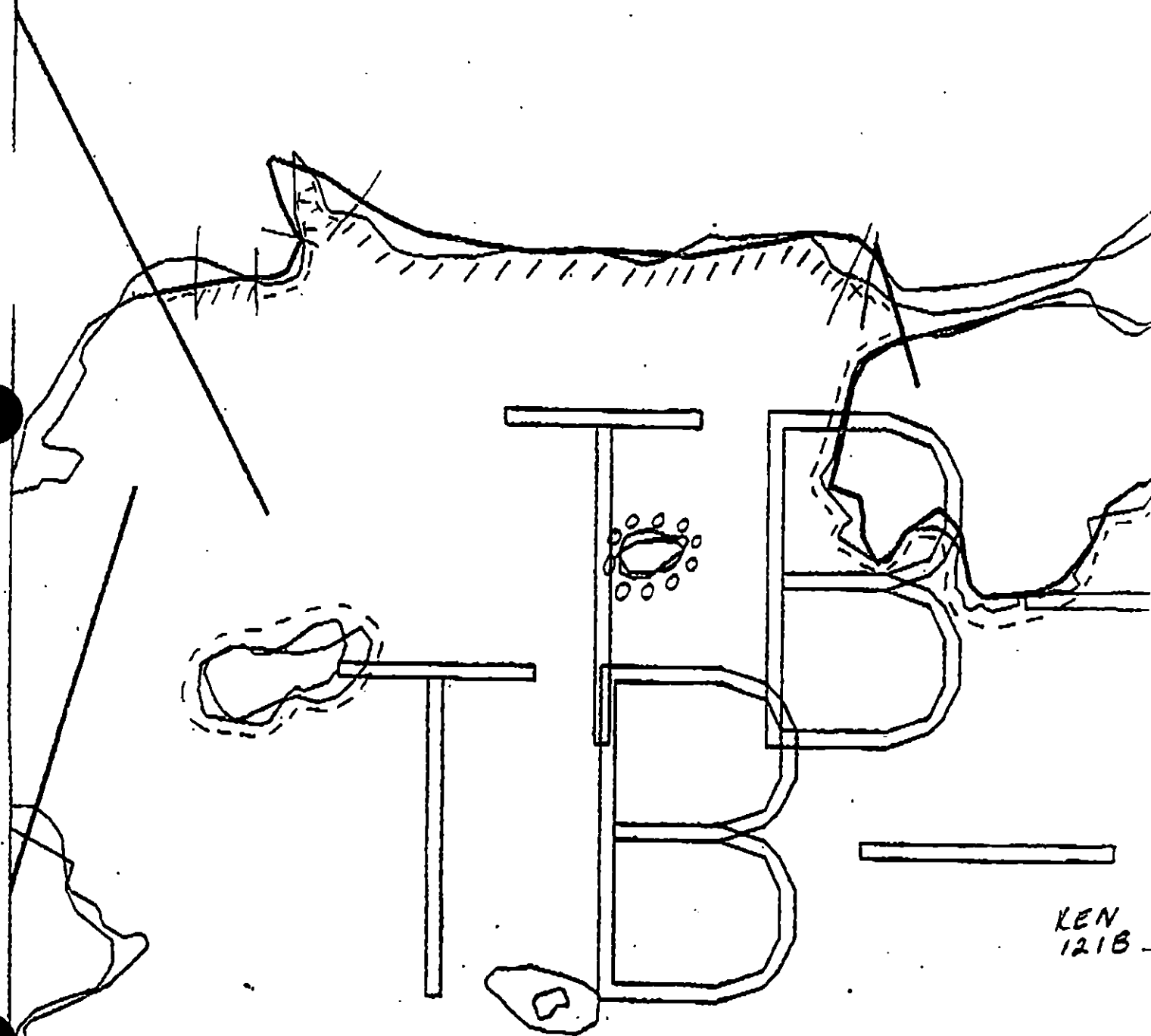
0 300m



Bedrock
Cliff

See Sketch Map - A

Oil Character Length (m): AP _____ PO _____ CV _____ CT _____ ST _____ MS _____ PT _____ TB _____ FL _____ NO _____



XXXX Wide

//// Medium

----- Narrow

TTTT V r v i i

T B - 2

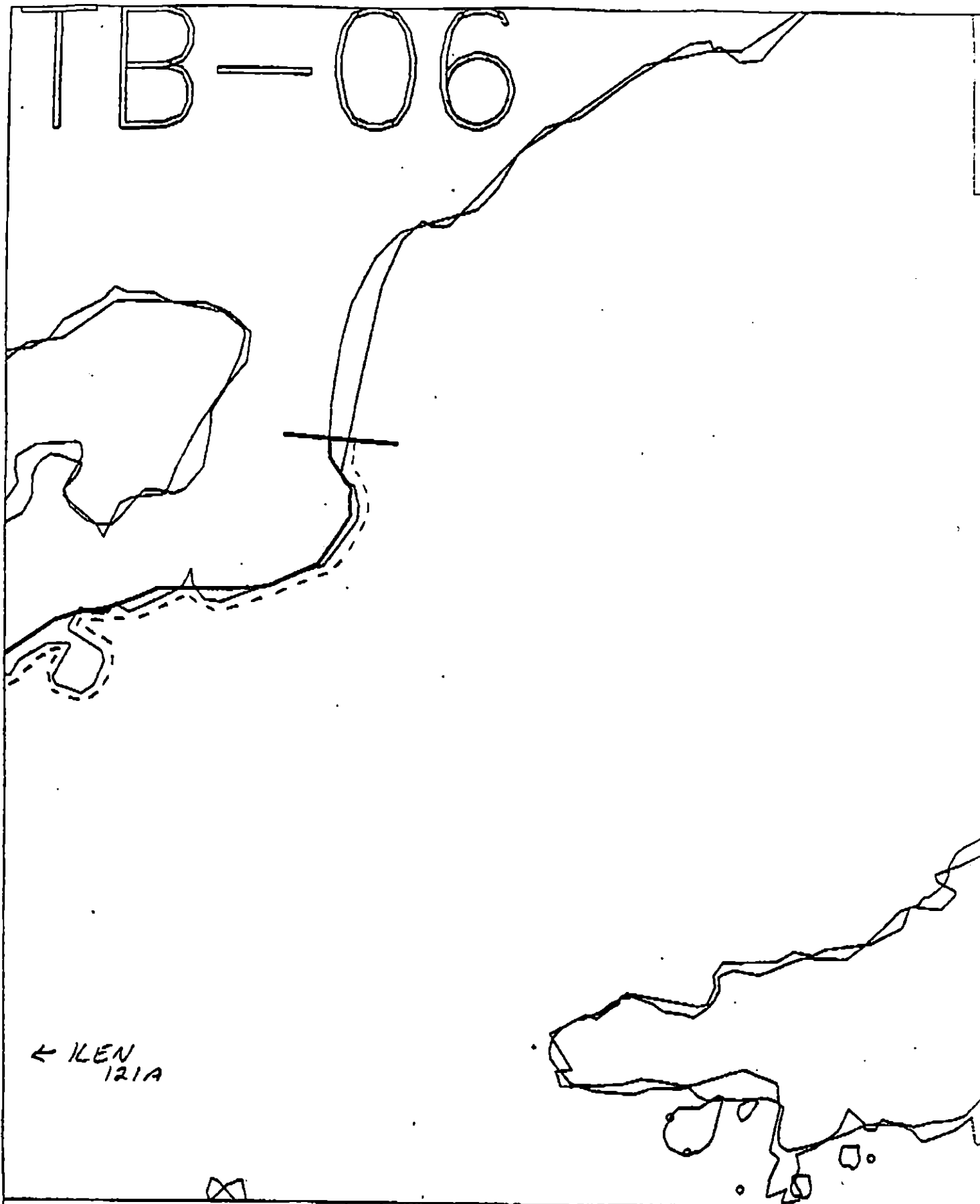
ADFC Segment Length: 2232m

Map Key: KEN-121a

Name: T. Sawyer

4.71.05

TB-06



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

OOOO No Oil

TB-2

ADEC Segment Length: 2232m

0 100 200 300

Map Key: KEH-121b

Name: T. SawyerDate: 4-21-90

Data Entered:

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/TB-002 STREAM NO: 232-10-10340 DATE 4/30/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
5T All Bald Eagle nests (3/1 to 6/1)
2M Herring spawning (4/1 to 6/15)
4GA State Marine Park Alaska State Wilderness Park
6NN Recreation: Sportfishing
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Rachel Joan Darr DATE: 5/25/90

Subsurface Oil Observed: Yes _____ No X Maximum Depth _____

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: _____ Wands
<u>X</u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommend manual removal of tarmat and patties as indicated on the attached ADF&G sketch map. Work from 6/15 to 7/9 with approval of USFWS due to eagle nest.

TAG COMMENTS: Bioremediation (CUSTOMER) IS REQUIRED FOLLOWING TREATMENT
Removal

TAG APPROVAL DATE: 5/24/90
ADEC Art Wagon Art Wagon
EXXON Andy G. Reed
NOAA Burt Wagon Burt Wagon
USCG M. J. HALL, M. J. HALL

FOSC: [Signature] DATE: 5/31/90

TB-002

FRAME(S)

9, 10

DESCRIPTION

Anale of Northern Anomalous Fish stream (232-10-10340)

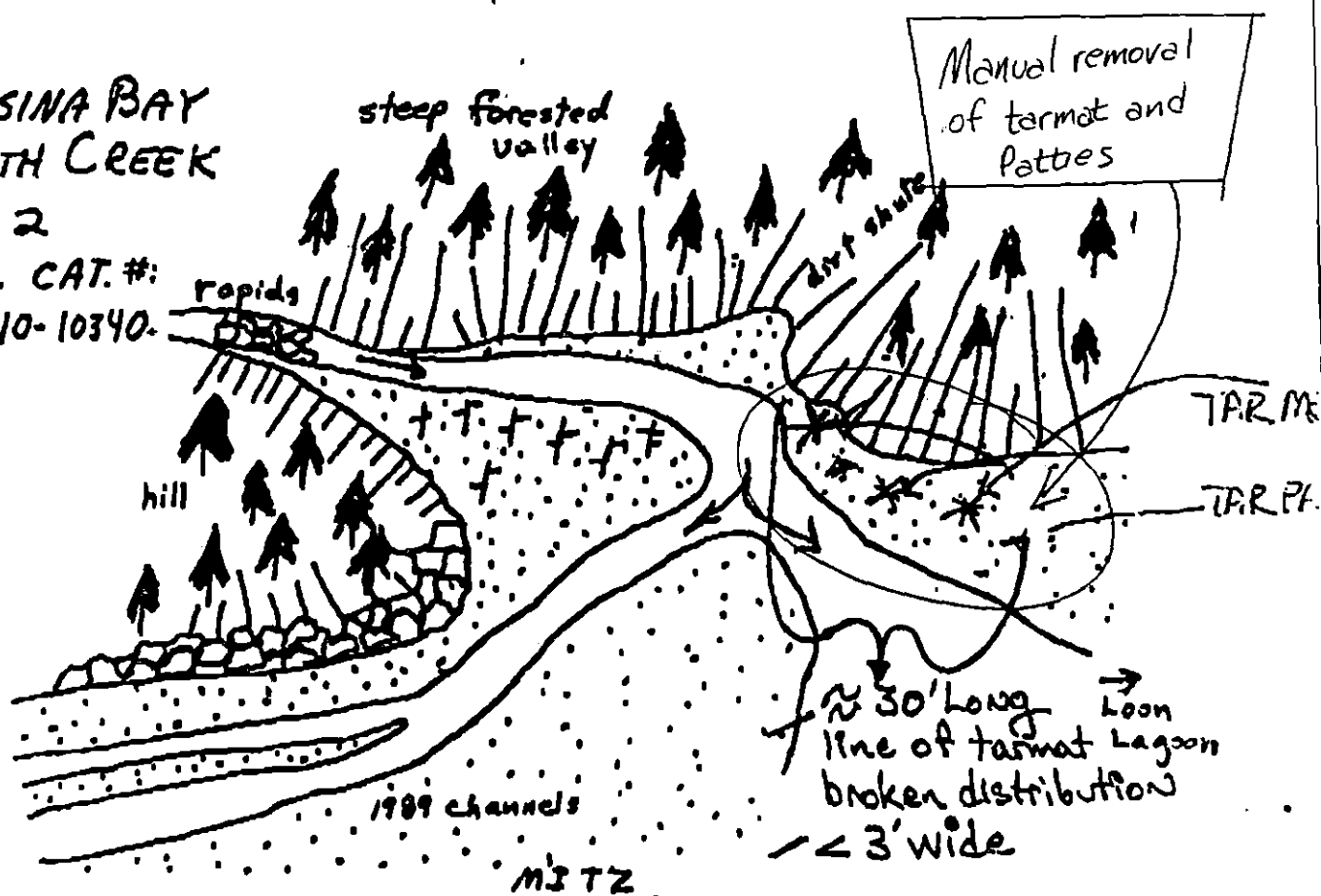
48 OIL DISTRIBUTION DIAGRAM

TONSINA BAY
NORTH CREEK

TB-2

ANAD. CAT. #:

232-10-10340.

ANADSCAT Recommended

- Sample taken
- Photo frame # and shot direction.

Anadromous Stream
232-10-10340

EAGLE
NEST

KEN
121B

XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

TB-2

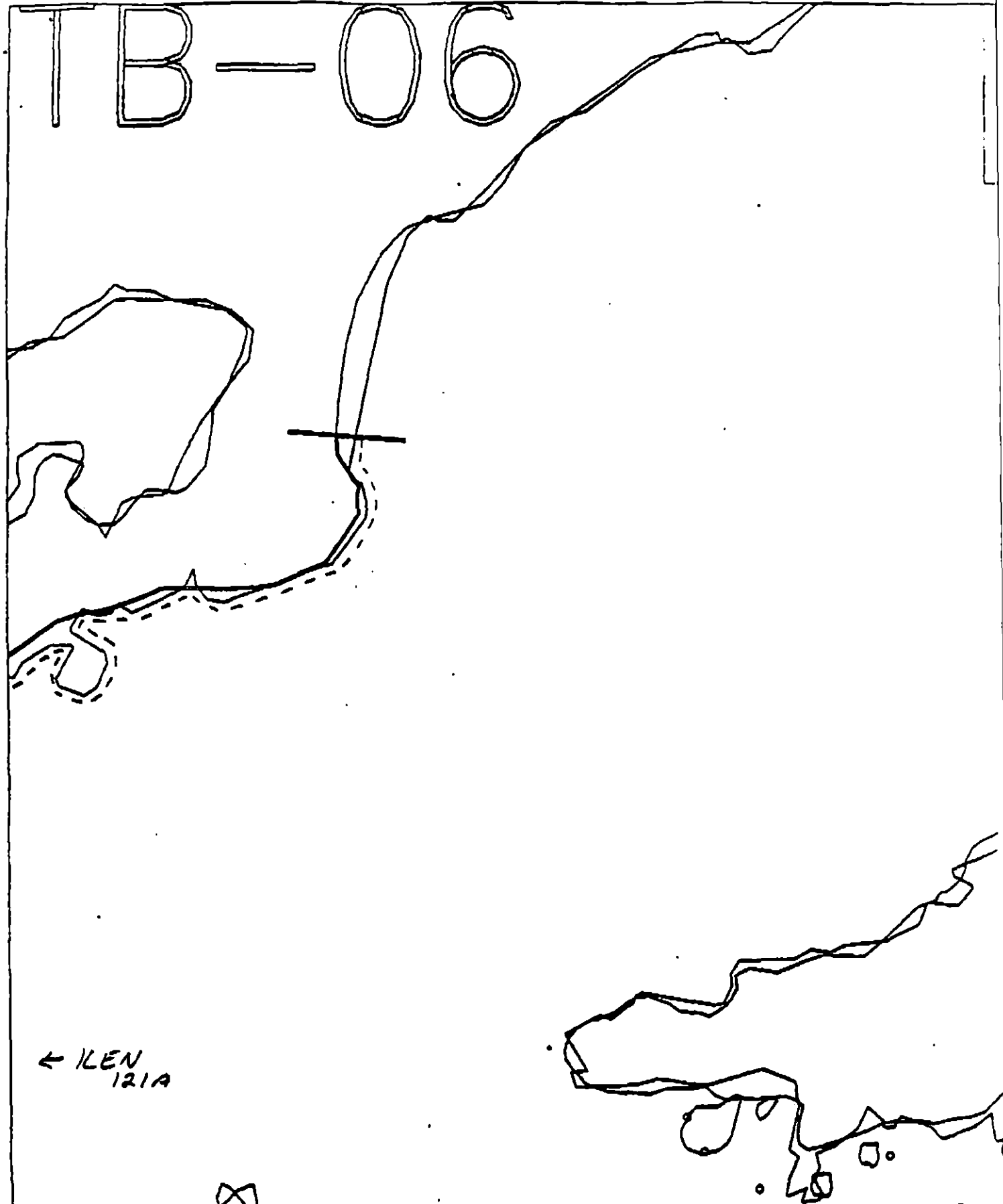
ADEC Segment Length: 2232m

Map Key: KEN-121a

Name: T. Sawyer

Date: 4-21-90

TB-06



← ILEN
121A

XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

TB-2

ADEC Segment Length: 2232m

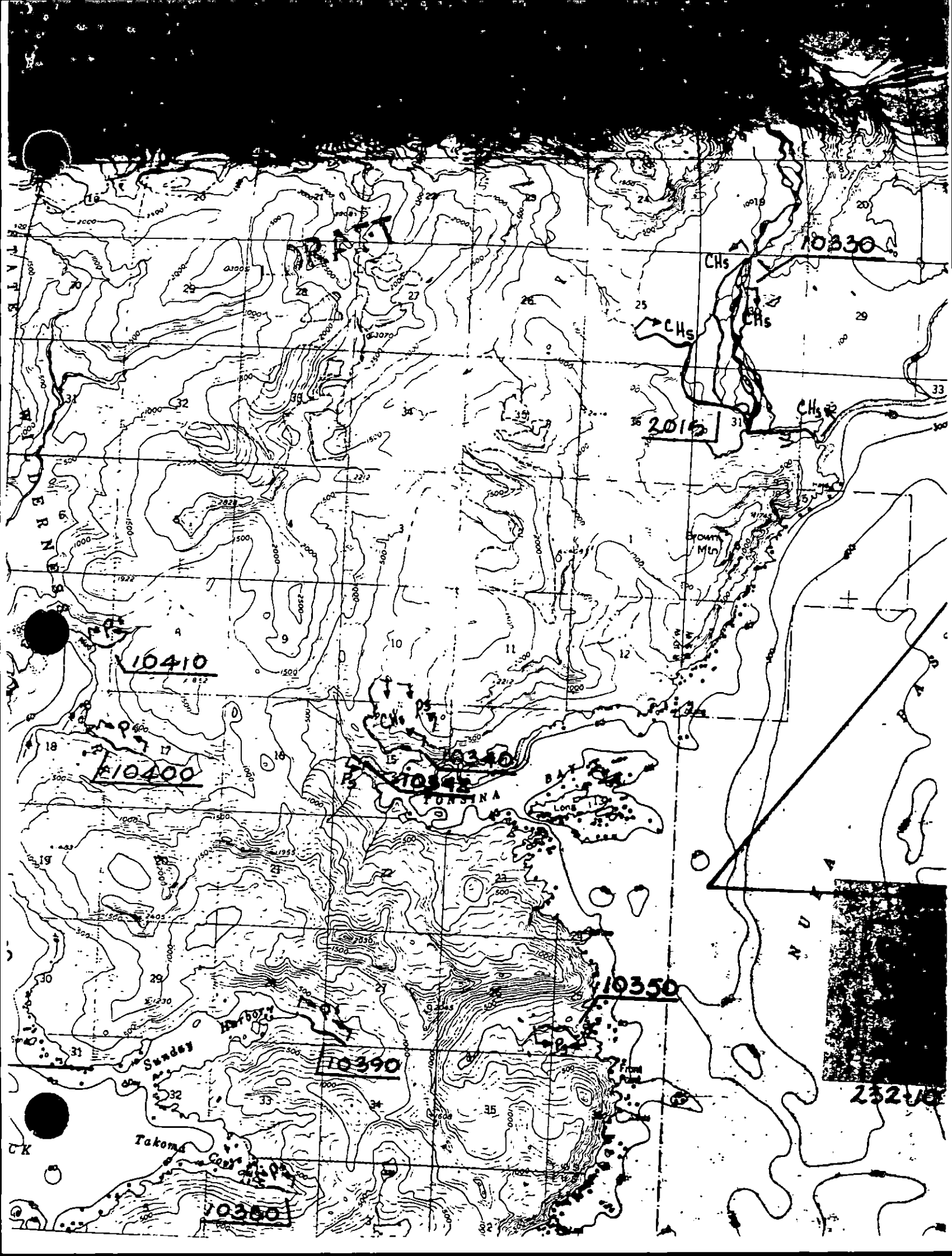


Map Key: KEN-121b

Name: T. Sawyer

Date: 4-21-90

Data Entered:



1991 MAYSAP EVALUATION

SEGMENT: TB 002 SUB: A REGION: KEN SURVEY DATE: 5/20/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/15

Ecological/Constraints (see page two for details) Eagle nest, Herring spawning, Fish harvest area, Anadromous stream

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: Timothy J. Smith Date: 6/07/91

RECOMMENDATIONS:

INITIAL**TAG**

FOSC

TREATMENT REQUIRED (Y or N)

N_____

✓

2

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: June 6 1991

FOSC APPROVAL DATE: 6/8/91

ADEC

FOSC

E. E. PAGE, CDR, USCG
CHIEF OF STAFF, FOSC

EXXON

USCG

NOAA

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.

MAYSAP FIELD SHORELINE COMMENT SHEET

TEAM NO. 4 SEGMENT TB 002 SUBDIVISION A DATE 5/20/91

ADEC

AME

Clara Crosby

SIGNATURE

Clara F. Cross

☒ NTR Crew of 6 worked the island for 'approximately
 2-3 hours. This area is significantly improved. - ~~WMA~~ CC
~~There is a view to the south of the island (from)~~
~~the north. The island is not a good place to~~
~~live. The island is not a good place to live. The island is not~~
~~a good place to live. The island is not a good place to live.~~

EXXON

NAME

George P. Stile

SIGNATURE

George P. Stebbins

☒ NTR No appreciable oil remaining. 56 bags of ~~oily~~ oily sediment were taken off during the survey mainly from the large Island. No treatment recommended.

LANDMANAGER

NAME

Walt Johnson OF ADNR

SIGNATURE

[Handwritten signature]

☒ NTR Significant oil deposits were located on a small island in this segment. Treatment was recommended, but survey crew members elected to attempt removal and were successful. I rejected the side following treatment, and do not recommend further treatment at this time. Very little oil found in the rest of the segment.

USCG/NOAA

NAME _____

G/NOAA
John McMahon/McDonald.

SIGNATURE

[Handwritten signature]

☒ NTR Segment was manually clean-up around the island especially thus leaving no appreciable oil. Remainder of segment showed very little oil which was picked up by the VECO crew.

Donald MacDonnell

MAYSAP SHORELINE OILING SUMMARY

PAGE 2 OF 14

TEAM NO. 4

OG J. M. Seinfeld

BIO J. Berry

SEGMENT TB002-A

SEC Crosby

LANDMANAGER Johnson for ADNR

SUBDIVISION A

CON George P. Stiles

USCG/NOAA McMahon/McDonald

DATE 5/21/91

TIME 14:07 to 16:00

TIDE LEVEL +0.6 ft. to +3.6 ft.

ENERGY LEVEL: ☐ H ☒ M ☐ L

SURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELO WEATHER: ☒ SUN ☐ CLOUDS ☐ FOG ☐ RAIN ☐ SNOW

TOTAL LENGTH SHORELINE SURVEYED: 1106 m NEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONE

EST. OIL CATEGORY LENGTH: W m M m N 3 m VL 103 m NO 1000 m US 1564 m

L O C	SURFACE OIL CHARACTER										SURFACE SEDIMENT TYPE	SHORE SLOPE VHML	AREA		ZONE				NOTES
	AP	MS	TB	SOR	CV	CT	ST	FL	DB	NO			WIDTH m	LENGTH m	S	UI	MI	LI	
A1					S	S					Bed	✓	1	60	*				
A2	S										"	L	2	3			*		
A3				S							740	L	2	3			*		
A4						T					Bed	✓	1	40	*				

DISTRIBUTION: C = 91-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = <1%

SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE

PHOTO ROLL # MAYSAP-

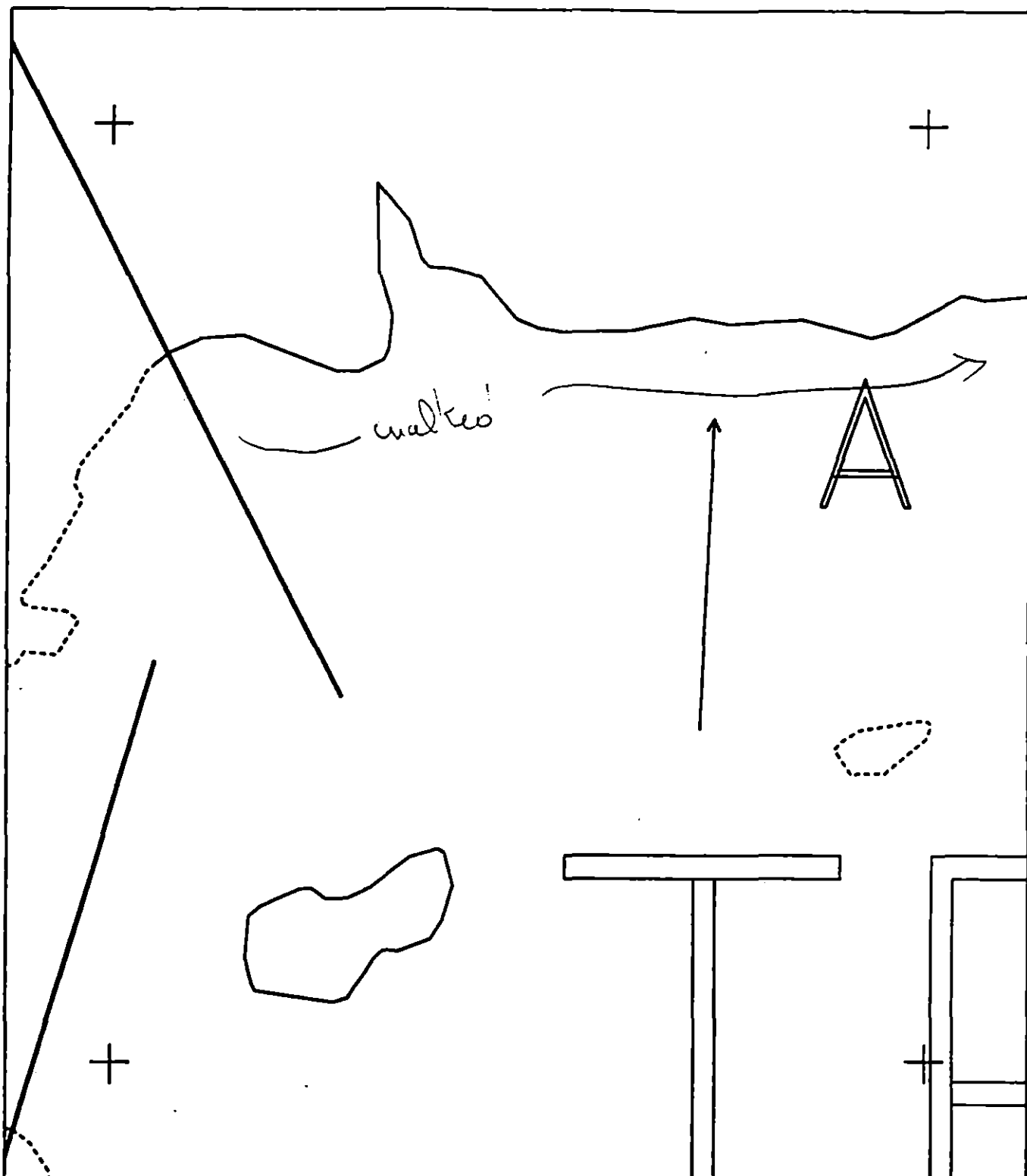
FRAMES

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER							OILED ZONE cm-cm	CLEAN BELOW Y/N	H2O LEVEL (cm)	SHEEN COLOR B R S N	PIT ZONE				SURFACE- SUBSURFACE SEDIMENTS	NOTES
		OP	HOR	MOR	LOR	OF	TR	NO					S	UI	MI	LI		

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

OG COMMENTS: Long section of pl/dk LITZ ch/pb - Bd - cliffs backline. wide intertidal delta to the north. Oil consist of ct/cv on bedrock cliffs. Very weathered patchy; L50R thin and weathered; and in northern part have small patches of up (on bedrock ramp) L50R on amacrober mud, and a few ct on bedrock walls. The island included in this segment showed heavier oiling. L50R on the north side and AP/H50R on the north side.

revised 5.29 94
REVISIONS - 5/21/91



T B 0 0 2 A

Subdivision Field Map

Map Key: KENTD002Aa

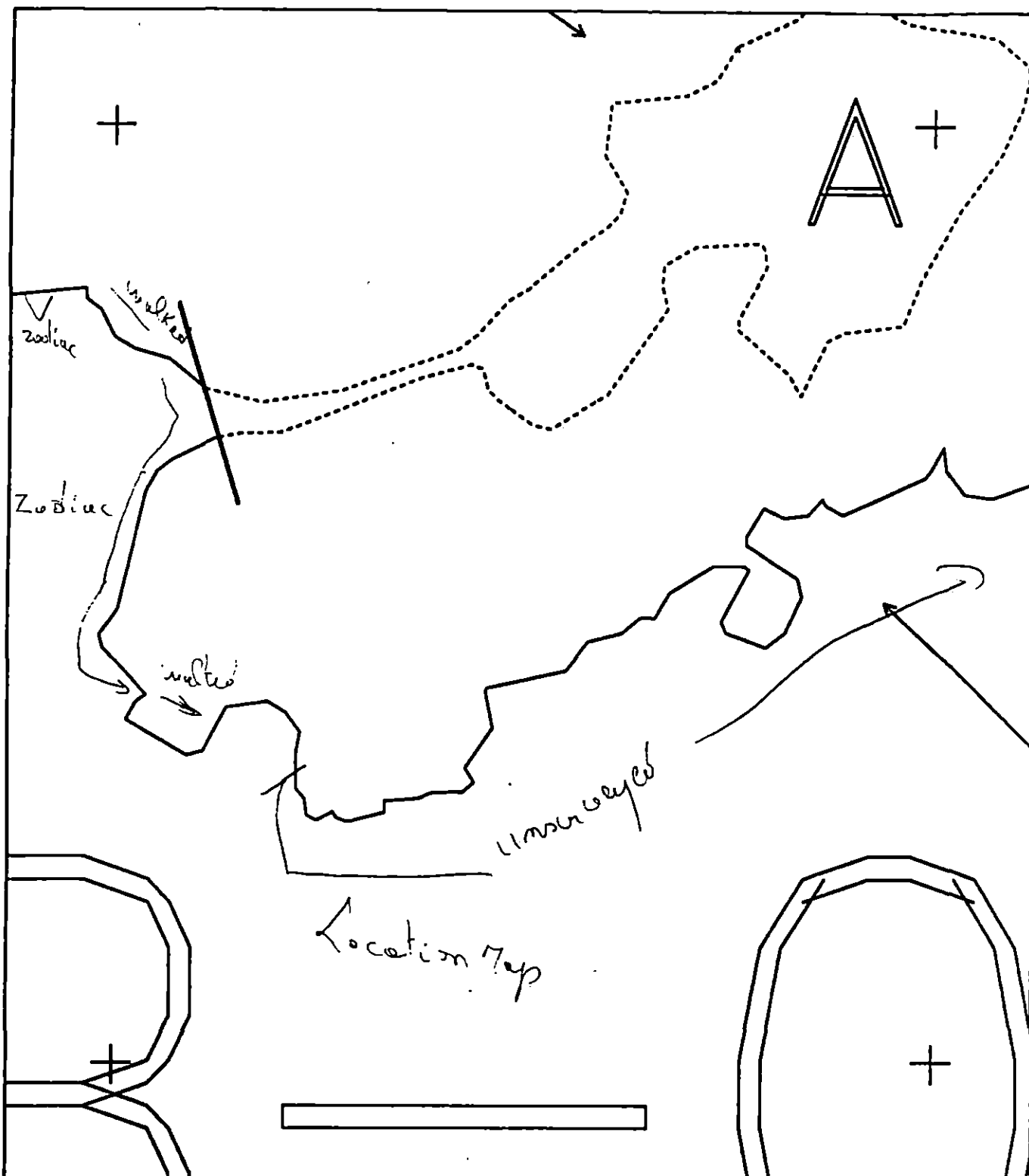
Name: Ja Samir

Date: May 20/9.



NOTES

AK State Plane Zone 6
4100200



T B 0 0 2 A

Subdivision Field Map

Map Key: KENTB0024b

Name: Jim Semel

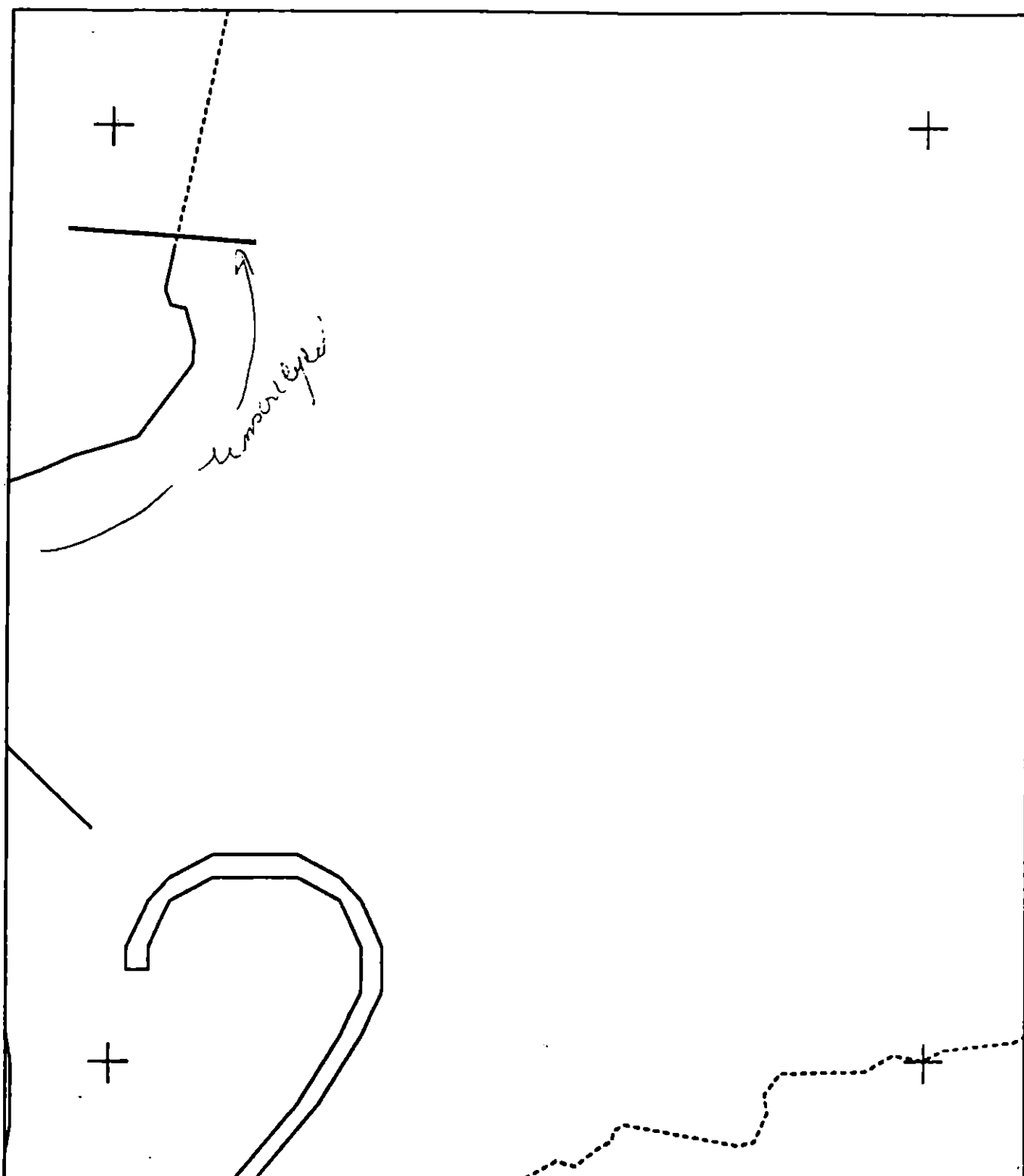
Date: 7 Aug 91



NOTES

100	200
-----	-----

AK State Plane Zone 4
410010



Og Sketch Map

TB.002.A

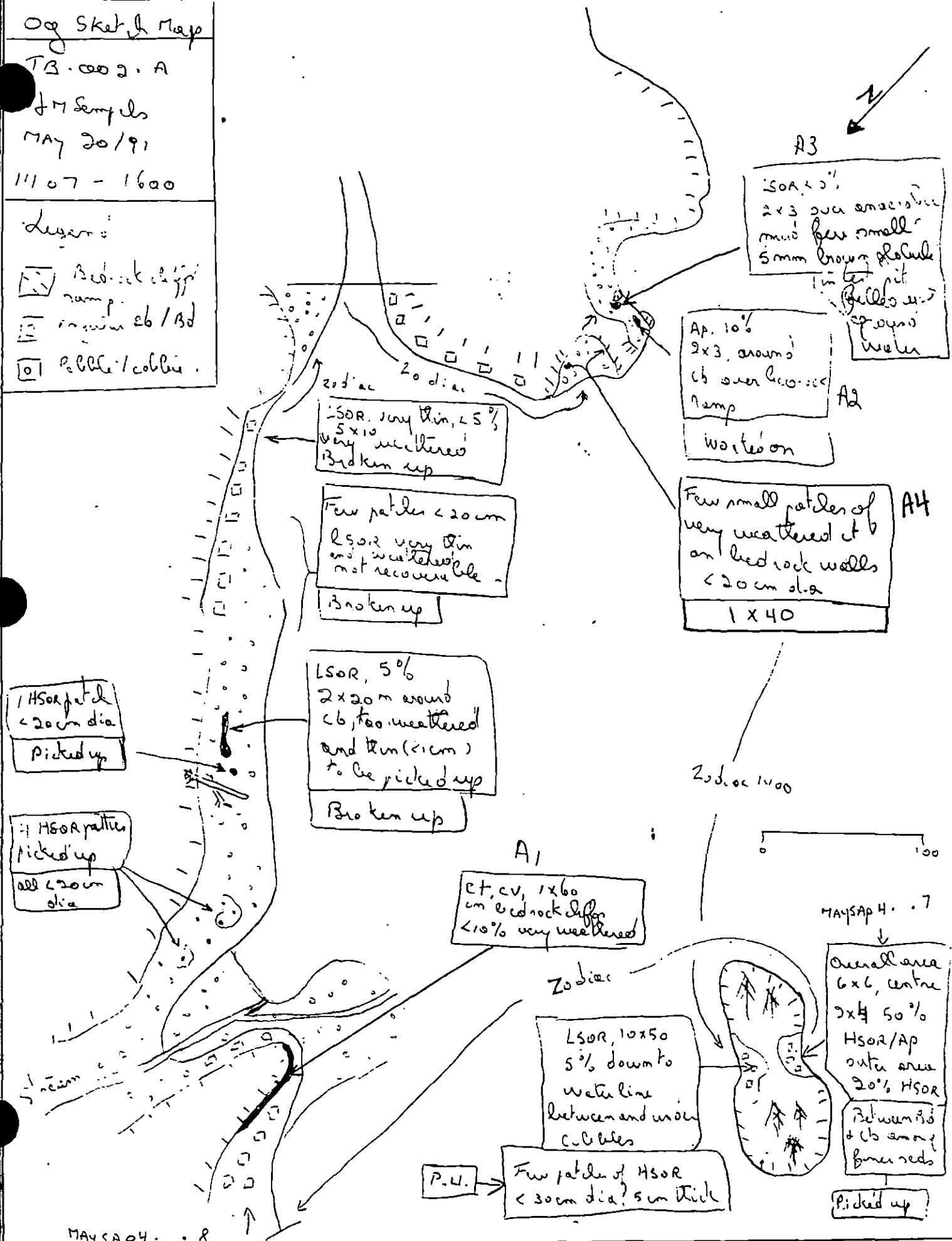
HM Samples

MAY 20/91

1107 - 1600

Legend:

- Bedrock chipping ramp.
- irregular cb / Bd
- Pebble / cobble.



MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 20, 1991 1415 - 1600
SEGMENT #	TB002	TIDAL HEIGHT (Range)	+0.6 => +3.6
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Variable 0-5 kt., clear

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

- A1 Oil (CT) on bedrock cliffs. Little biota present in oiled area. Occasional barnacles, black lichen. Low zones have a moderately dense band of Fucus, with moderate littorine snail and limpet densities. Barnacles are moderately dense in Fucus zone. Mussels are sparse to moderate in the cobble talus, and somewhat more abundant on the tidal flat formed by the anadromous stream delta.
- A2 Oil (AP) is present in the upper to middle intertidal zone, amongst cobble and boulder on the bedrock ramp. The biota in this area are sparse to moderately abundant. Acorn barnacles are moderately abundant towards the lower zone, especially under cobble or on bedrock. Mussels are common in patches along crevices or under boulders. Amphipods, littorine snails, limpets, and occasional hermit crabs are the most common mobile invertebrates.
- A3 The oil (LSOR) at this site is located within a dense mussel bed in the middle intertidal zone. The oil is sparse and the bed is quite dense. Recent recruitment by the mussels has extended the bed size during the past year. The sediments underneath the bed are black, due to anaerobic conditions unrelated to the presence of oil. Clams are also present in this area. Barnacles are present in patches over some of the cobble. The nearby cobble and bedrock outcrops have moderate to dense cover of Fucus. Littorine snails and limpets are patchy within the nearby cobble.

(continued)

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1 Nest (unattended)		
Seabirds			
Waterfowl	2	24	
Gulls/Kittiwakes	2	25	
Shorebirds	1	1	
Corvids	1	20	
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters		River Otter	1
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

Other areas

The island site, where some oil was found and treated, had fairly dense cover of Fucus in the middle zone, with sparse densities of mussels. The oil was located in the upper zone above the Fucus, where biota were much less abundant. Littorine snails, limpets, and the isopod, Ligia pallasii, as well as oligochaete worms, were found amongst the cobble, but in fairly low densities. Filamentous green algae were the most abundant species, and formed a sparse film on most cobble in the high zone.

Cleanup Considerations

Manual cleanup was performed at several locations on this subdivision. Additional manual cleanup will have little or no adverse effect on the biota at A1 or A2. Cleanup should not be performed at site A3. This will undoubtedly impact the mussel bed and there is so little oil remaining that the benefits would not balance the biological impact.

General Characteristics of TB002-A

This subdivision includes an island with boulder talus and bedrock outcrop shores, an anadromous stream and stream delta, a long medium angle cobble and pebble beach, and a few pocket beaches of pebbles to cobble. Most sites are protected shores, though a couple are exposed to low to moderate surf at times. The biota vary according to the habitat type. Bedrock shores typically have quite high cover or densities of organisms, with a zone of green filamentous algae above a band of Fucus and barnacles. The biota of cobble and pebble shores vary according to slope and exposure. The cobble shores on the northwestern shore are well protected, and have fairly high cover of Fucus on most cobble in the middle zone, as well as moderate, and patchy, densities of barnacles. Littorines, limpets, and oligochaetes are usually moderate in density. Higher in the intertidal the abundances of most species are low. Barnacles appear to be very scarce, but can be found on the underside of many cobbles. Similarly, oligochaete worms are fairly common under cobble, especially where some organic detritus is present.

The tidal flat formed by the delta of the anadromous stream may be an important local site for bird roosting and foraging. The flat has a moderately dense mussel and clam bed.

(continued)

General Zonation Pattern : Bedrock or Boulder/Cobble Talus Shores

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal

Oil Spatters			- - - - -			
Black Lichen		- - - - -				
Bare Rock			- - -			
Green Filamentous Algae			-- ++**++--	- - - - -		
Rockweed (Fucus)				--++**++*--	- - -	
Barnacles (Balanus)			- - + + +	++++--	- - - - -	
Red Algae				- - - - -	++**+-+--++**	
Green Algae (Ulva/other)			- -	++- - + + - -		+++
Mussels (Mytilus)				- - - + + + -		
Crustose Red Algae (Hildenbrandia)				-----+++-+--		
Upright Brown Algae (not Fucus)					- - - -++**	*****
Eel Grass						- -++*
Clams						- - - - -

Legend: (-) Sparse to rare, (+) Moderate. (*) Abundant

Common Species on TB002-A

A. Marine Plants

1. Diatoms, Blue Greens
2. Green Algae - Chlorophyta
Enteromorpha sp., Ulva sp., Urospora sp.
3. Brown Algae - Phaeophyta
Ectocarpus spp., Fucus distichus, Hildenbrandia sp., Ralfsia sp.,
Syctosiphon lomentaria
4. Red Algae - Rhodophyta
Endocladia muricata,, Halosaccion glandiforme, Iridaea sp.,
Odonthalia floccosa, Petrocelis sp., Porphyra sp., Rhodomela larix
5. Higher Plants - Zostera marina (eel grass), Leymus mollis (beach rye
grass)

II. Marine Animals

1. Sponges - Porifera - Halichondria bowerbanki?,
2. Anemones - Anthopleura artemesia, Epiactis ritteri,
3. Hydroids - Sertulariidae
5. Flatworms - Platyhelminthes - Polyclads
6. Nemertean Worms - Ribbon Worms - Emplectonema sp.
8. Polychaete Worms
Nereidae - Nereis spp.
Spriorbidae - Spirorbis sp.
10. Crustaceans
 - a. Amphipods - Traskorchestia traskiana
 - b. Barnacles - Balanus glandula
 - c. Crabs - Paguridae (hermit crabs)
 - d. Isopods - Idotea wosnesenskii, Gnorimorsphaeroma oregonensis, Ligia
pallasii
11. Mollusca
 - a. Chitons - Mopalia mucosa, Tonicella lineata,
 - b. Snails - Gastropods
Littorina sitkana, L. keenae, Natica clausa, Nucella lamellosa,
N. lima, Searlesia dira

- c. Limpets - *Lottia digitalis*, *L. limatula*, *L. persona*, *Tectura fenestrata*, *T. persona*, *T. scutum*
 - d. Nudibranches - *Lamellidoris fusca*, *Melibe leonina*, *Onchidella borealis*
 - e. Bivalves - *Clinocardium* sp., *C. nuttalli*, *Hiatella arctica*, *Macoma nasuta*, *Modiolus modiolus*, *Mytilus edulis*, *Pododesmus cepio*, *Prototheca staminea*, *Saxidomus giganteus*.
12. Echinoderms
- a. Brittle Stars - *Ophiolus aculeatus*?, *Ophiothrix spiculata*?, *Amphipholis*?
 - b. Sea stars - *Dermasterias imbricata*, *Leptasterias hexactis*, *Pycnopoda helianthoides*
 - c. Sea Cucumbers - Holothurians - *Eupentacta* sp.,
 - d. Urchins - *Strongylocentrotus droebachiensis*
13. Bryozoans - *Membranipora* sp., *Schizoporella* sp.
14. Ascidians - *Synocium*? sp., *Aplidium*?
15. Fishes
- Cottidae -
 - Stichaeidae - *Xiphister atropurpureus*, *X. mucosus*
- III. Birds - Crow (20), Lesser Scaup (20), Glaucous-winged Gull (20), Black-bellied plover (1), Boneparte's Gull (5), Harlequin Duck (4).

BIO SKETCH MAP

TB002-A

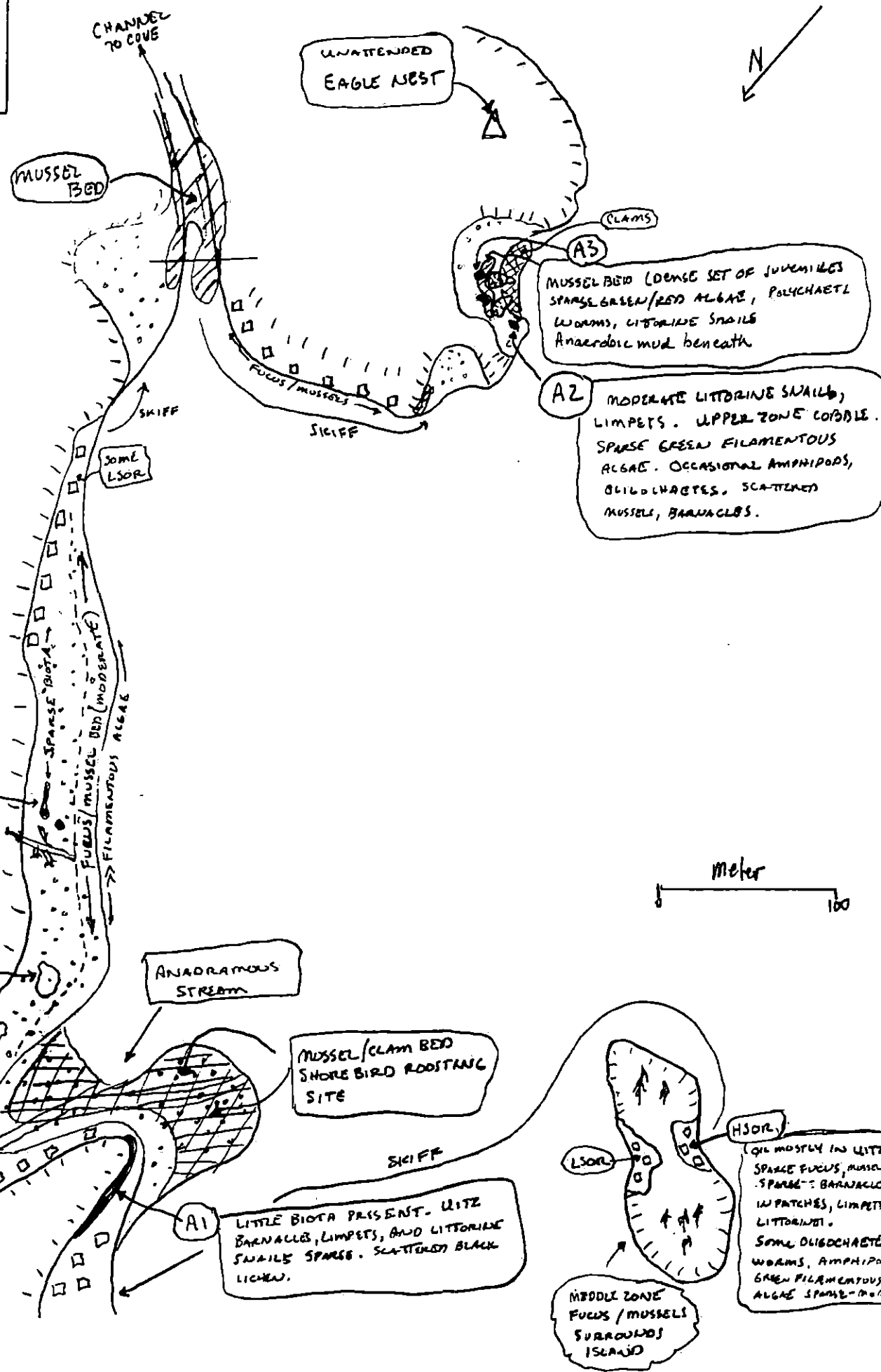
J.P. Barry

20 MAY 91

1407-1600

Legend

- Bedrock Cliffs
- Angular Cb/Bd
- Pebble/cobble
- MUSSELS
- MUSSELS/CLAMS





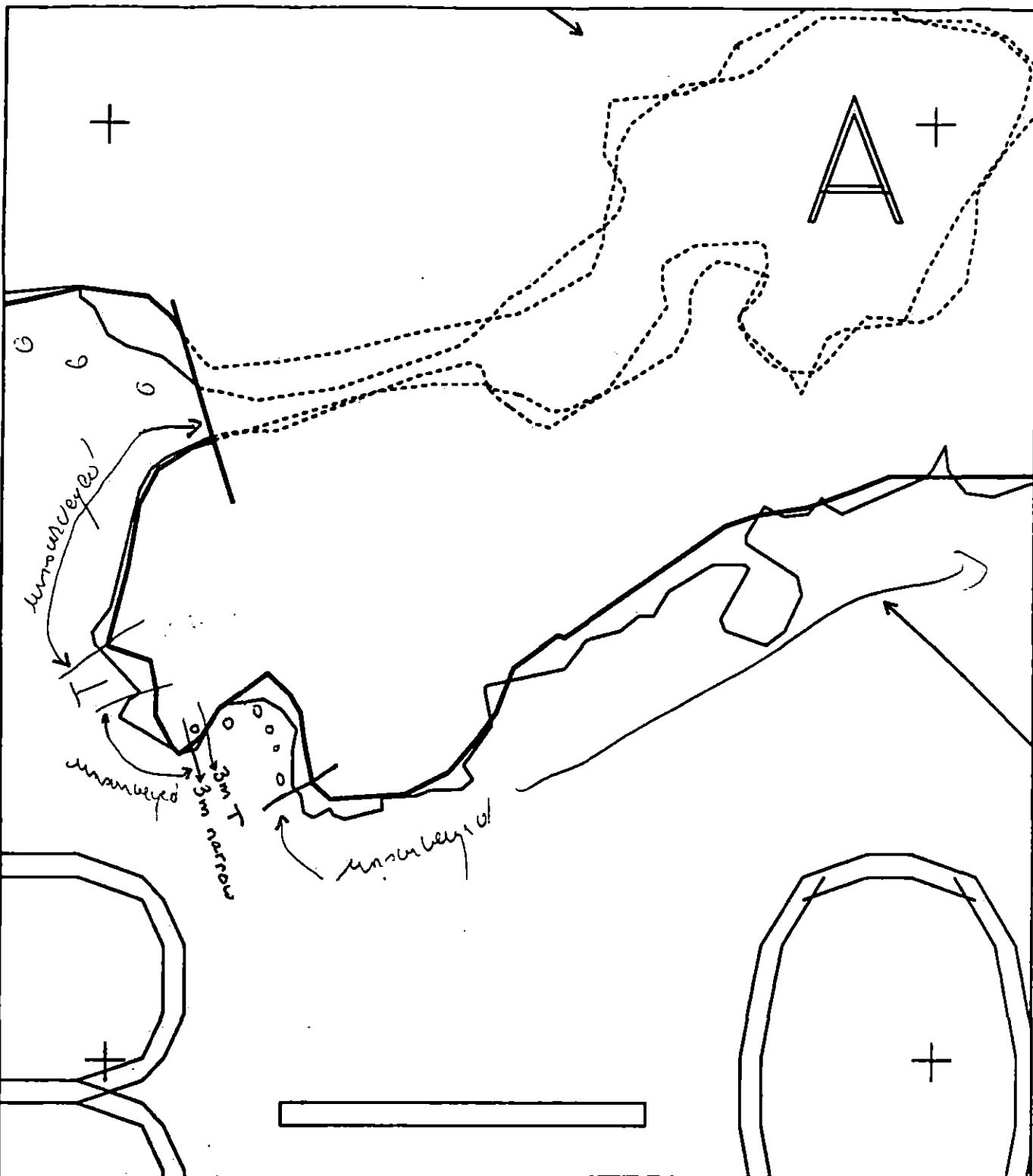
XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB002 A
 ADEC Subsegment Length: 2670m
 METERS
 0 100 200
 AK State Plane Zone 4
 115002aa



Subdivision Field Map
 Map Key: KENTB002Aa
 Name: 17 Empire
 Date: May 20/91
 Date Entered:

Revised: MC 5/31/91
 reviewed 5.23 91



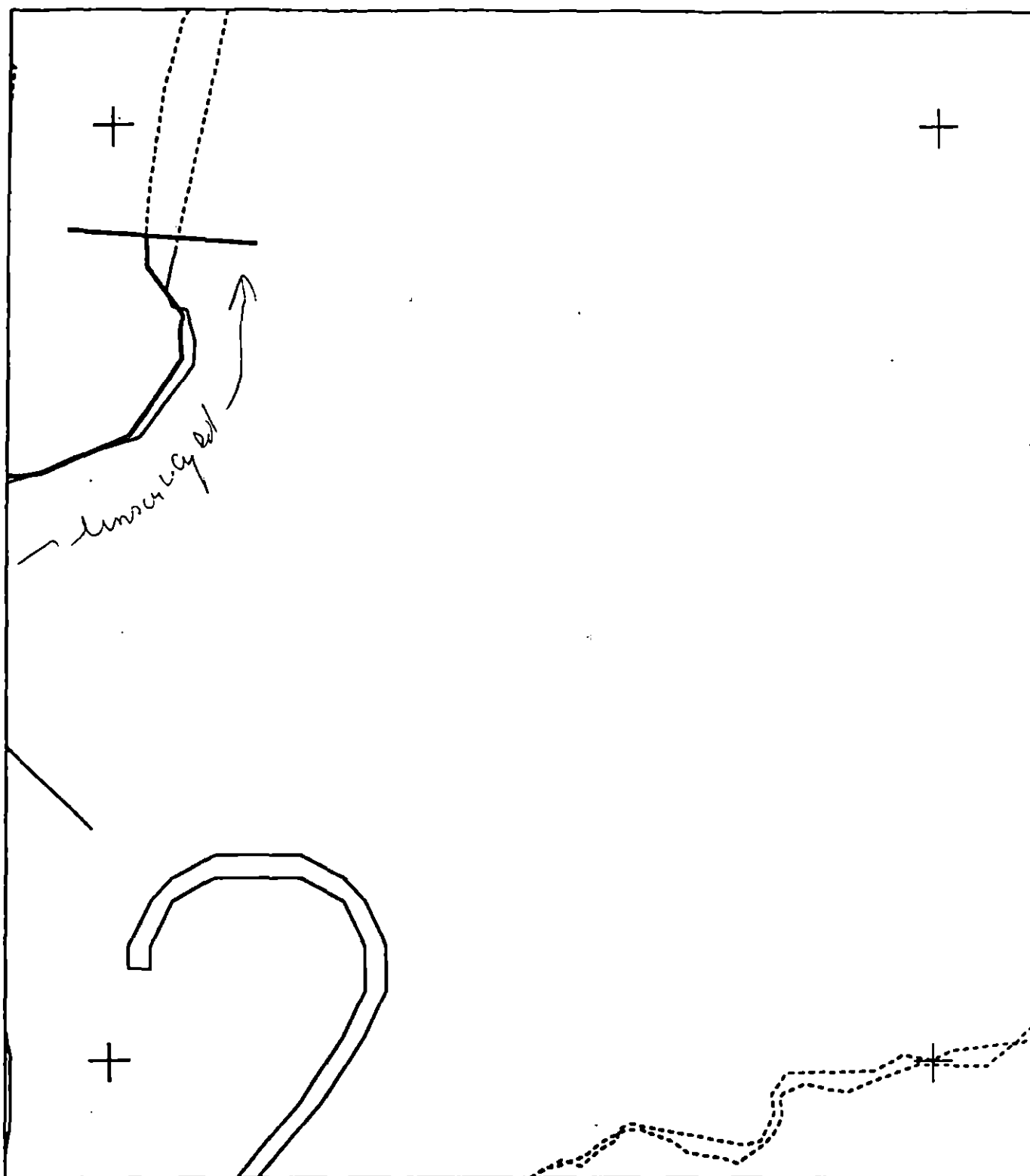
XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB002 A
 ADEC Subsegment Length: 2670m
 METERS
 0 100 200
 AK State Plane Zone 4
 14002ab



Subdivision Field Map
 Map Key: KENTB002Ab
 Name: JM Semple
 Date: May 23/91
 Data Entered:

Reviewed: MC 5/31/91



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB002 A

ADEC Subsegment Length: 2670m

METERS

0 100 200

AK State Plane Zone 4
 15002ac



Subdivision Field Map

Map Key: KENTB002Ac

Name: JH SempleDate: May 20/91

Date Entered:

Reviewed by: MC 5/31/91

1991 MAYSAP EVALUATION

SEGMENT: TB 002 SUB: A REGION: KEN SURVEY DATE: 5/20/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/15

Ecological/Constraints (see page two for details) Eagle nest,
Herring spawning, Fish harvest area, Anadromous stream

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____

FOSC APPROVAL DATE: _____

ADEC _____

FOSC _____

EXXON _____

USCG _____

NOAA _____

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.

TEAM NO. 4SEGMENT TB 002SUBDIVISION ADATE 5/20/91

ADEC

NAME

Clara Crosby

SIGNATURE

Clara J. Crosby☒ NTR

Crew of 6 worked the island for approximately 2-3 hours. This area is significantly improved. ~~There is no more oil to be removed from this area. The oil that was spotted on the island has been removed. The oil that was spotted on the island has been removed. The oil that was spotted on the island has been removed.~~ CC

EXXON

NAME

George P. Stile

SIGNATURE

George P. Stile☒ NTR

No appreciable oil remaining. 56 bags of ~~oil~~ oily sediment were taken off during the survey mainly from the large Island. No treatment recommended.

LANDMANAGER

NAME

Jeff Johnson OF ADNR

SIGNATURE

Jeff Johnson☒ NTR

Significant oil deposits were located on a small island in this segment. Treatment was recommended, but survey crew members elected to attempt removal and were successful. I inspected the site following treatment, and do not recommend further treatment at this time. Very little oil found in the rest of the segment.

USCG/NOAA

NAME

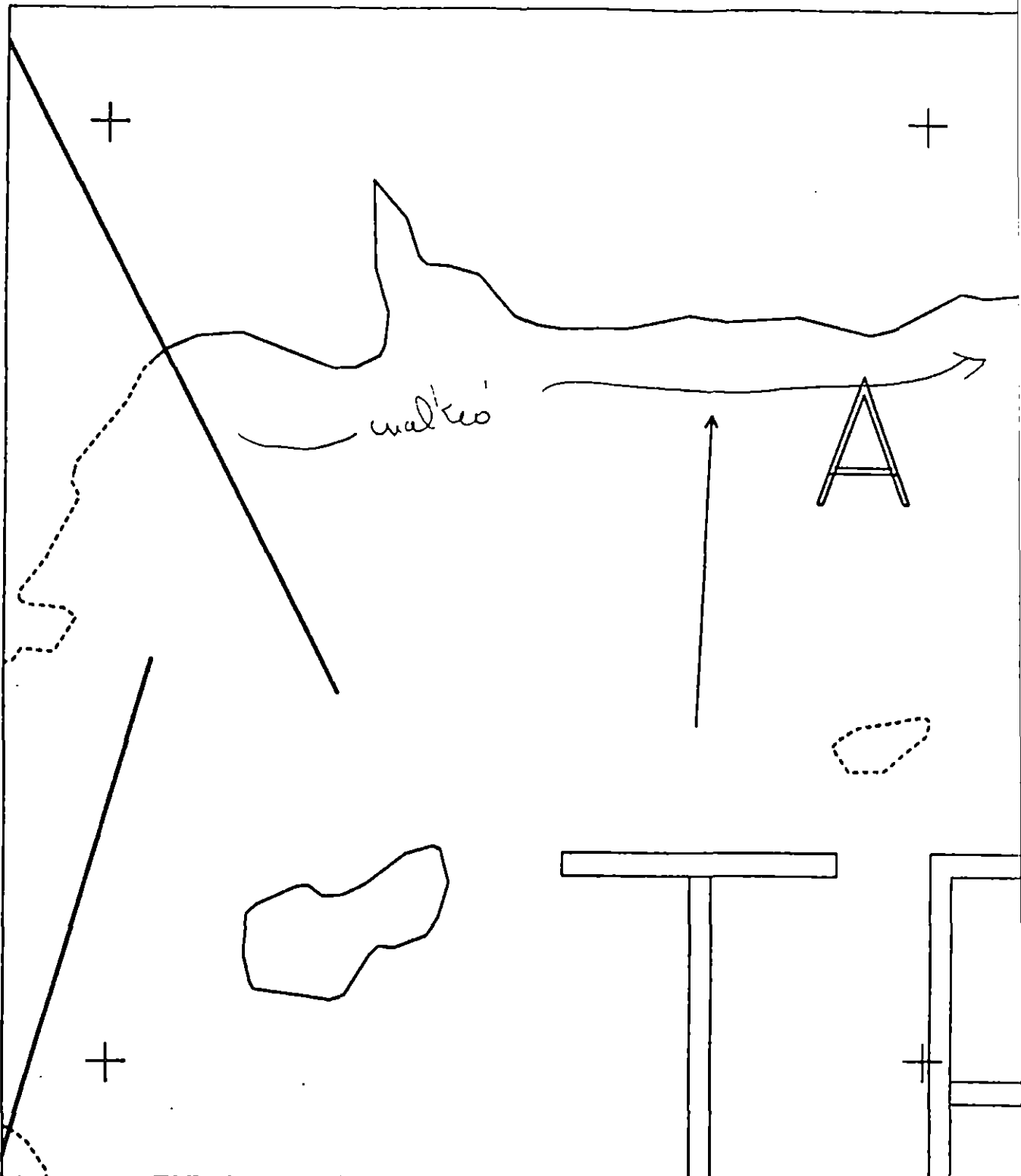
John McMahon/McDonald

SIGNATURE

John McMahon/McDonald☒ NTR

Segment was manually clean-up around the island especially, thus leaving no appreciable oil. Remainder of segment showed very little oil which was picked up by the VEO crew.

John McMahon/McDonald



TB002 A

Subdivision Field Map

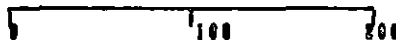
Map Key: KENTB002Aa

Name: for Samples

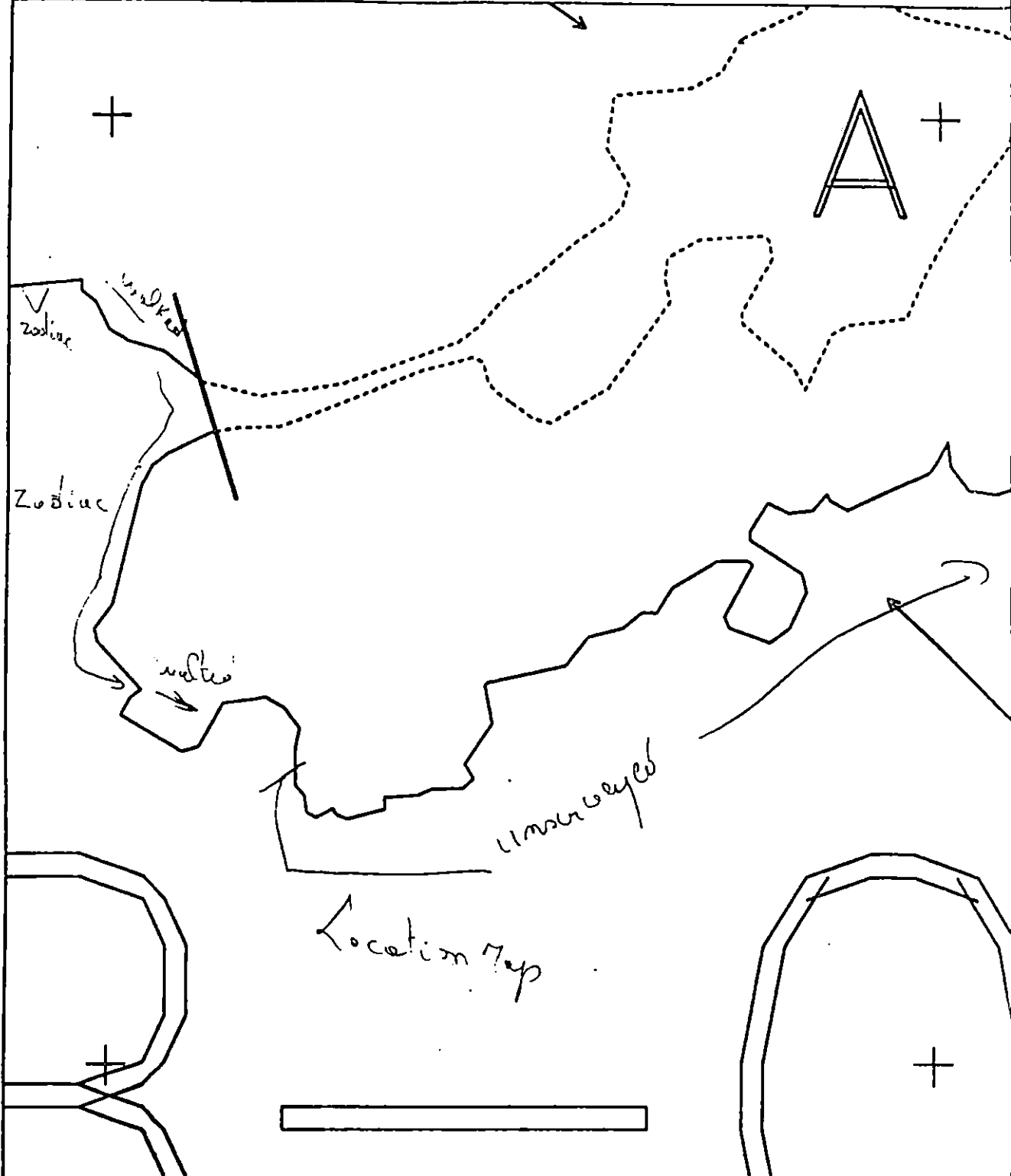
Date: May 20/9



METERS



AK State Plane Zone 4
NAD83



Location Map

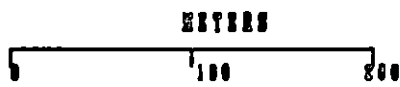
TB002 A

Subdivision Field Map

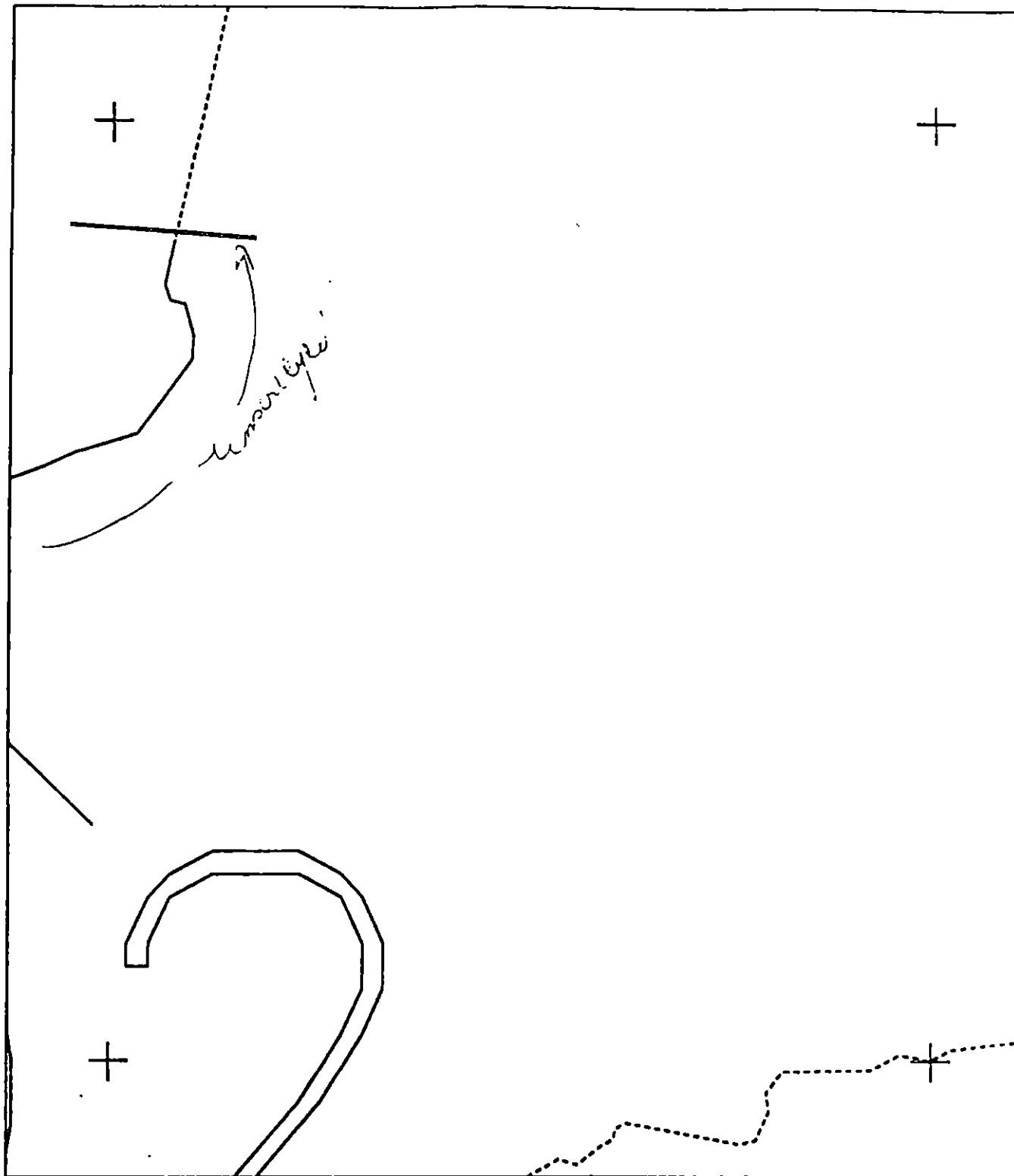
Map Key: KENTB002Ab

Name: Jim Campbell

Date: May 20/91



AK State Plane Zone 4
NAD83



TB002 A



AK State Plane Zone 4
81600200

Subdivision Field Map
Map Key: KBHTB002Ac
Name: J. Sengler
Date: May 20/91

Obj Sketch Map

TB.002.A

HM Samples
MAY 20/91

1107 - 1600

Legend:

- 100m x 100m ramp
- 100m x 100m ab / Ad
- 100m x 100m / cobble

A3

LSOR 4.5%
2x3 area around
mid few small
5mm brown phallic

Ap. 10%
2x3, around
cb over LSOR
ramp

Worked on

Few small patches of
very weathered cb
on bed rock walls
< 20cm dia
1 x 40

A4

LSOR, very thin, 4.5%
5x10
very weathered
Broken up

Few patches < 20cm
LSOR very thin
not recoverable
Broken up

LSOR, 5%
2x20m around
cb, too weathered
and thin (< 1cm)
to be picked up
Broken up

1 HSOR patch
< 20cm dia
Picked up

1 HSOR patch
Picked up
all < 20cm
dia

et, cv, 1x60
cm bed rock diff
< 10% very weathered

A1

Zodiac

LSOR, 10x50
5% down to
water line
between and under
cobbles

P.L. Few patches of HSOR
< 30cm dia, 5cm thick

MAY 24. 7

Overall are
6x6, with
2x4 50%
HSOR / Ap
outer area
20% HSO
Between B
& Cb area
further red

Picked up

MAY 24. 8

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 20, 1991 1415 - 1600
SEGMENT #	TB002	TIDAL HEIGHT (Range)	+0.6 => +3.6
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Variable 0-5 kt., clear

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

- A1 Oil (CT) on bedrock cliffs. Little biota present in oiled area. Occasional barnacles, black lichen. Low zones have a moderately dense band of Fucus, with moderate littorine snail and limpet densities. Barnacles are moderately dense in Fucus zone. Mussels are sparse to moderate in the cobble talus, and somewhat more abundant on the tidal flat formed by the anadromous stream delta.
- A2 Oil (AP) is present in the upper to middle intertidal zone, amongst cobble and boulder on the bedrock ramp. The biota in this area are sparse to moderately abundant. Acorn barnacles are moderately abundant towards the lower zone, especially under cobble or on bedrock. Mussels are common in patches along crevices or under boulders. Amphipods, littorine snails, limpets, and occasional hermit crabs are the most common mobile invertebrates.
- A3 The oil (LSOR) at this site is located within a dense mussel bed in the middle intertidal zone. The oil is sparse and the bed is quite dense. Recent recruitment by the mussels has extended the bed size during the past year. The sediments underneath the bed are black, due to anaerobic conditions unrelated to the presence of oil. Clams are also present in this area. Barnacles are present in patches over some of the cobble. The nearby cobble and bedrock outcrops have moderate to dense cover of Fucus. Littorine snails and limpets are patchy within the nearby cobble.

(continued)

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1 Nest (unattended)		
Seabirds			
Waterfowl	2	24	
Gulls/Kittiwakes	2	25	
Shorebirds	1	1	
Corvids	1	20	
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters		River Otter	1
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

Reviewed MB 5/30/91

Other areas

The island site, where some oil was found and treated, had fairly dense cover of *Fucus* in the middle zone, with sparse densities of mussels. The oil was located in the upper zone above the *Fucus*, where biota were much less abundant. Littorine snails, limpets, and the isopod, *Ligia pallasii*, as well as oligochaete worms, were found amongst the cobble, but in fairly low densities. Filamentous green algae were the most abundant species, and formed a sparse film on most cobble in the high zone.

Cleanup Considerations

Manual cleanup was performed at several locations on this subdivision. Additional manual cleanup will have little or no adverse effect on the biota at A1 or A2. Cleanup should not be performed at site A3. This will undoubtedly impact the mussel bed and there is so little oil remaining that the benefits would not balance the biological impact.

General Characteristics of TB002-A

This subdivision includes an island with boulder talus and bedrock outcrop shores, an anadromous stream and stream delta, a long medium angle cobble and pebble beach, and a few pocket beaches of pebbles to cobble. Most sites are protected shores, though a couple are exposed to low to moderate surf at times. The biota vary according to the habitat type. Bedrock shores typically have quite high cover or densities of organisms, with a zone of green filamentous algae above a band of *Fucus* and barnacles. The biota of cobble and pebble shores vary according to slope and exposure. The cobble shores on the northwestern shore are well protected, and have fairly high cover of *Fucus* on most cobble in the middle zone, as well as moderate, and patchy, densities of barnacles. Littorines, limpets, and oligochaetes are usually moderate in density. Higher in the intertidal the abundances of most species are low. Barnacles appear to be very scarce, but can be found on the underside of many cobbles. Similarly, oligochaete worms are fairly common under cobble, especially where some organic detritus is present.

The tidal flat formed by the delta of the anadromous stream may be an important local site for bird roosting and foraging. The flat has a moderately dense mussel and clam bed.

(continued)

Reviewed MB 5/37

General Zonation Pattern : Bedrock or Boulder/Cobble Talus Shores

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal
Oil Spatters			- - - - -			
Black Lichen		- - - - -				
Bare Rock			- - - - -			
Green Filamentous Algae			--_++*++*++--	- - - - -		
Rockweed (Fucus)				---+*++*++*--	- - -	
Barnacles (Balanus)			- - + + +	++*++*++	- - - - -	
Red Algae				- - - - -	++*++*++*++*++	
Green Algae (Ulva/other)			- -	---+ - + + - -	- - -	+++
Mussels (Mytilus)				- - - + + + -		
Crustose Red Algae (Hildenbrandia)				-----++*++*++		
Upright Brown Algae (not Fucus)					-- - ++*++*++	*****
Eel Grass						- - ++*
Clams						- - - - -

Legend: (-) Sparse to rare, (+) Moderate, (*) Abundant

Common Species on TB002-A

A. Marine Plants

1. Diatoms, Blue Greens
2. Green Algae - Chlorophyta
Enteromorpha sp., Ulva sp., Urospora sp.
3. Brown Algae - Phaeophyta
Ectocarpus spp., Fucus distichus, Hildenbrandia sp., Ralfsia sp.,
Syctosiphon lomentaria
4. Red Algae - Rhodophyta
Endocladia muricata,, Halosaccion glandiforme, Iridaea sp.,
Odonthalia floccosa, Petrocelis sp., Porphyra sp., Rhodomela larix
5. Higher Plants - Zostera marina (eel grass), Leymus mollis (beach rye
grass)

II. Marine Animals

1. Sponges - Porifera - Halichondria bowerbanki?,
2. Anemones - Anthopleura artemesia, Epiactis ritteri,
3. Hydroids - Sertulariidae
5. Flatworms - Platyhelminthes - Polyclads
6. Nereid Worms - Ribbon Worms - Emplectonema sp.
8. Polychaete Worms
Nereidae - Nereis spp.
Spirorbidae - Spirorbis sp.
10. Crustaceans
 - a. Amphipods - Traskorchestia traskiana
 - b. Barnacles - Balanus glandula
 - c. Crabs - Paguridae (hermit crabs)
 - d. Isopods - Idotea wosnesenskii, Gnorimorsphaeroma oregonensis, Ligia
pallasii
11. Mollusca
 - a. Chitons - Mopalia mucosa, Tonicella lineata,
 - b. Snails - Gastropods
Littorina sitkana, L. keenae, Natica clausa, Nucella lamellosa,
N. lima, Searlesia dira

Reviewed MS 5/13

- c. Limpets - *Lottia digitalis*, *L. limatula*, *L. persona*, *Tectura fenestrata*, *T. persona*, *T. scutum*
 - d. Nudibranches - *Lamellidoris fusca*, *Melibe leonina*, *Onchidella borealis*
 - e. Bivalves - *Clinocardium* sp., *C. nuttalli*, *Hiatella arctica*, *Macoma nasuta*, *Modiolus modiolus*, *Mytilus edulis*, *Pododesmus cepio*, *Prototheca staminea*, *Saxidomus giganteus*.
12. Echinoderms
- a. Brittle Stars - *Ophiolus aculeatus*?, *Ophiothrix spiculata*?, *Amphipholis*?
 - b. Sea stars - *Dermasterias imbricata*, *Leptasterias hexactis*, *Pycnopoda helianthoides*
 - c. Sea Cucumbers - Holothurians - *Eupentacta* sp.,
 - d. Urchins - *Strongylocentrotus droebachiensis*
13. Bryozoans - *Membranipora* sp., *Schizoporella* sp.
14. Ascidians - *Synocium*? sp., *Aplidium*?
15. Fishes
- Cottidae -
 - Stichaeidae - *Xiphister atropurpureus*, *X. mucosus*
- III. Birds - Crow (20), Lesser Scaup (20), Glaucous-winged Gull (20), Black-bellied plover (1), Boneparte's Gull (5), Harlequin Duck (4).

Reviewed MB 5/2/9

BIO SKETCH MAP

TB 002-A

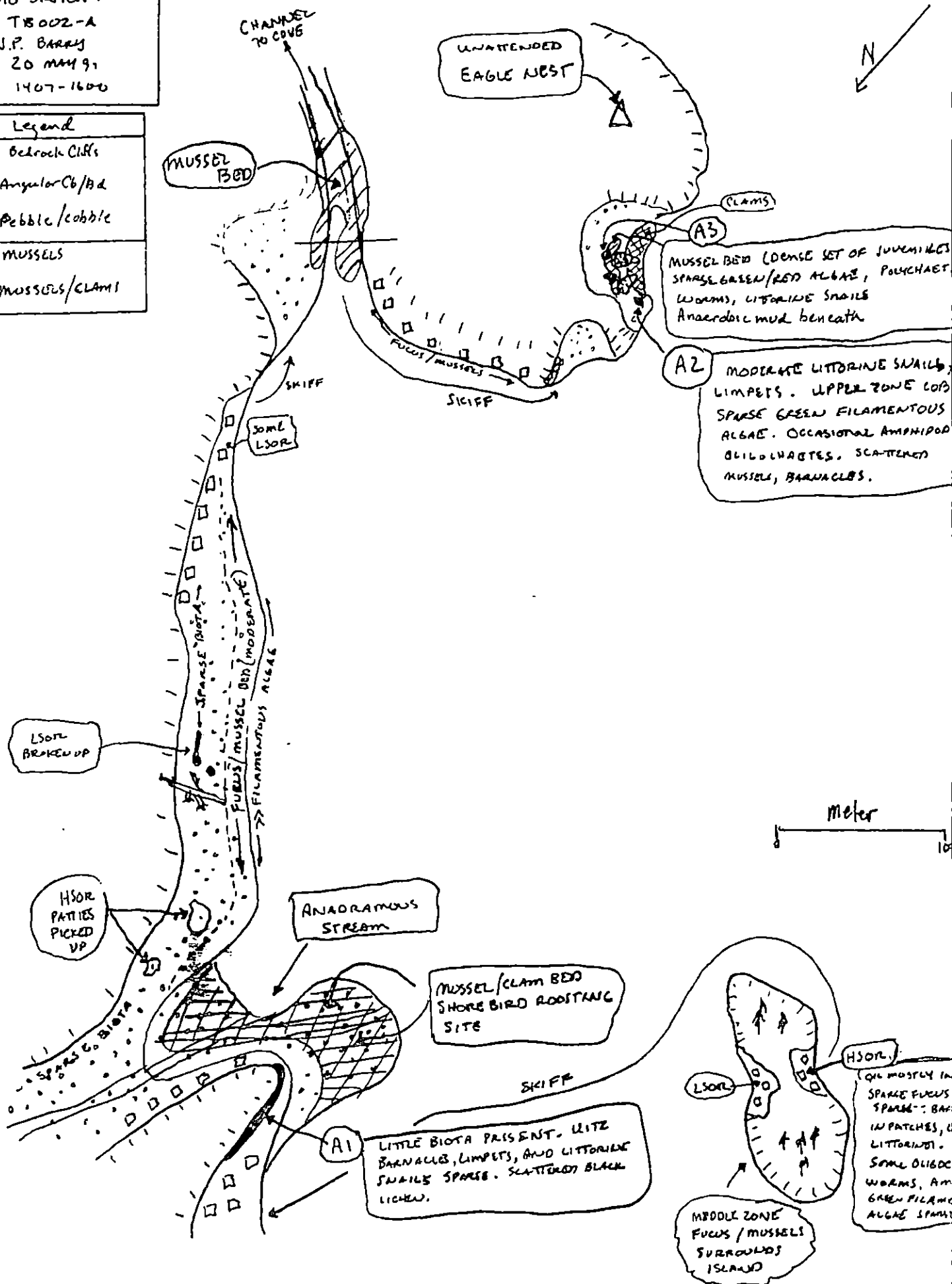
J.P. BARRY

20 MAY 91

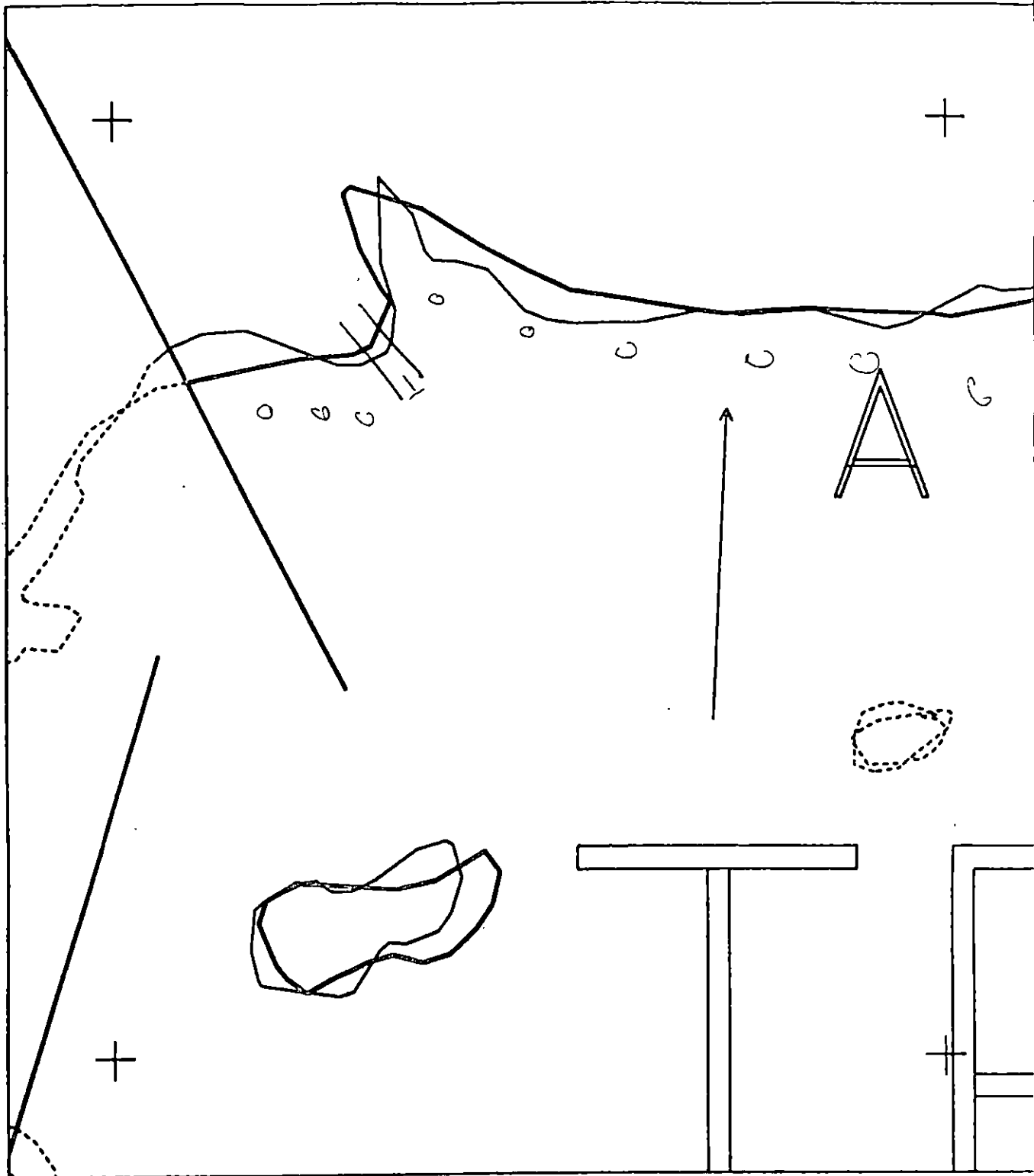
1407-1600

Legend

- Bedrock Cliffs
- Angular Cb/Bd
- Pebble/cobble
- MUSSELS
- MUSSELS/CLAMS



Reviewed MB 5/30/91

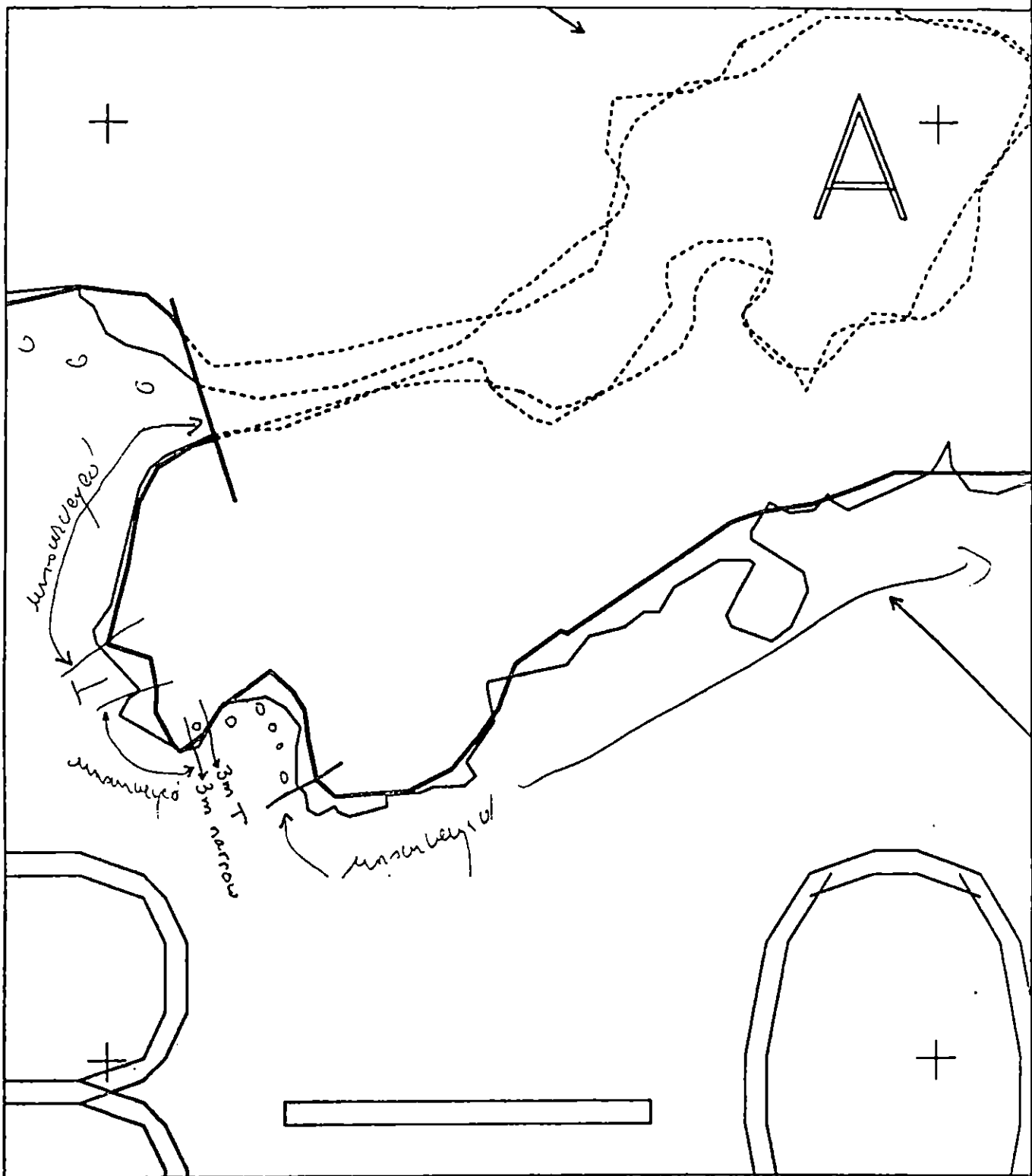


XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB002 A
 ADEC Subsegment Length: 2070m
 METERS
 0 100 200
 AK State Plane Zone 4
 n1b00200

Subdivision Field Map
 Map Key: KENTB002Aa
 Name: for Sample
 Date: May 20/91
 Date Entered:

Reviewed: MC 5/31/91
 reviewed 5.23 91



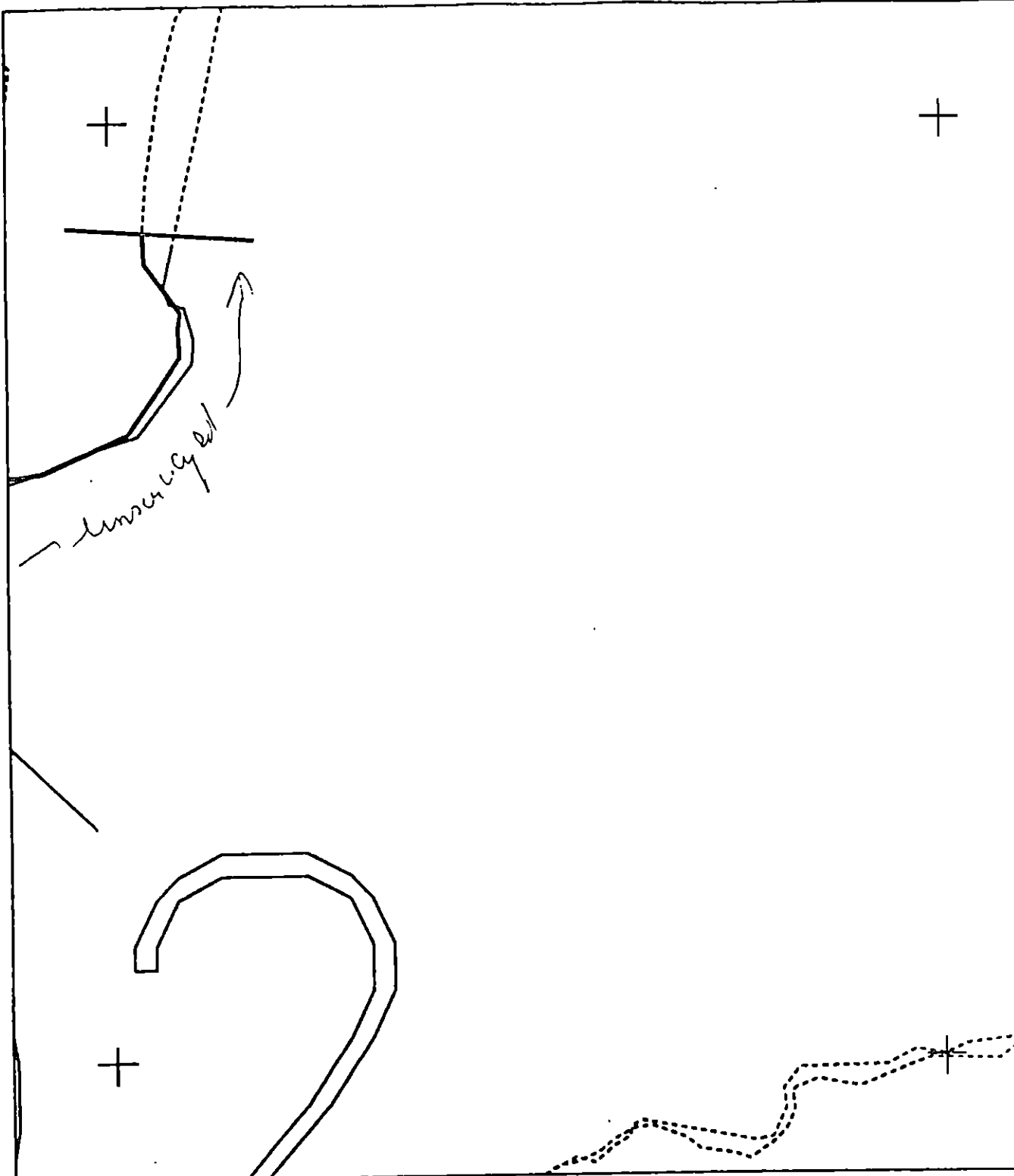
XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB002 A
 ADEC Subsegment Length: 2670m
 METERS
 0 100 200
 AK State Plane Zone 4
 15002ab

Subdivision Field Map
 Map Key: KENTB002Ab
 Name: JM Semple
 Date: May 20/91
 Date Entered:



Reviewed: MC 5131/91



XXXX	Wide	TB002 A ADEC Subsegment Length: 2670m METERS AK State Plane Zone 4 11b90200	Subdivision Field Map
////	Medium		Map Key: KENTB002Ac
----	Narrow		Name: <i>JH Semple</i>
TTTT	Very Light		Date: <i>May 20/91</i>
0000	No Oil		Date Entered:

REVIEWED: MC 5/31/91

ANADROMOUS FISH STREAM ASSESSMENT

REGION: KENAI

SEGMENT: ST/TB-002

SUBDIVISION: A

STREAM NO: 232-10-10340

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/TB-002 STREAM NO: 232-10-10340 DATE 4/30/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
5T All Bald Eagle nests (3/1 to 6/1)
2M Herring spawning (4/1 to 6/15)
4GA State Marine Park Alaska State Wilderness Park
6NN Recreation: Sportfishing
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: _____ DATE: _____

Subsurface Oil Observed: Yes _____ No X Maximum Depth _____

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☒ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☐ Bioremediation	☐ Spot Washing: _____ Wands
☒ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS: Recommend manual removal of tarmat and patties as indicated on the attached ADF&G sketch map. Work from 6/15 to 7/9 with approval of USFWS due to eagle nest.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____

EXXON _____

NOAA _____

USCG _____

FOSC: _____ DATE: _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

- 1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream without authorization from ADF&G. No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore oil or toxicity levels, such as manual removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.
AGENCY CONTACT PERSON: ADF&G John Morison 267-2324
- 1C Salmon fry nursery area (4/31 to 7/31)
No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.
AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214
- 1D Esther Hatchery release (4/15 to 6/15)
1E Main Bay Hatchery release (4/20 to 6/15)
1F Sawmill Bay Hatchery release (4/15 to 6/1)
1G Cannery Creek Hatchery release (4/21 to 6/1)
1H Remote release site
No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G or PWS Aquaculture Association for confirmation and authorization.
AGENCY CONTACT PERSON: 1E ADF&G Larry Peltz 424-3214
1D 1F 1G PWS Aquaculture Association John McMillan or Bruce Suzumoto 424-7511
- 1I Gill net area (6/7 to 8/31)
1J Purse seine area (7/20 to 9/30)
1K Purse seine hook-off (7/20 to 9/30)
1L Set net sites (6/11 to 7/25)
Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
AGENCY CONTACT PERSON: ADF&G James Brady 424-3212
- 2M Herring spawning (4/1 to 6/15)
Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to unopened intertidal and subtidal algae and seagrass. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235
- 3I Harbor seal and sea lion pupping (5/15 to 7/1)
3O, 3Q Harbor seal and sea lion molting (8/15 to 9/15)
Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of Inipol within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.
AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235
ADF&G Don Calkins 267-2403
- 5R Seabird colony (5/1 to 9/1)
Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.
AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
- 5S Shorebird/waterfowl concentration (4/1 to 5/15)
Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.
AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
ADF&G Tom Roth 267-2206
- 5T All Bald Eagle nests (3/1 to 6/1)
Active Bald Eagle nests (3/1 to 9/1)
Restrict air traffic and all disturbance to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
- 6U Recreation: Tent sites (6/1 to 9/15)
6V Anchorages (6/1 to 9/15)
6W Forest Service cabins (6/1 to 9/15)
6X Lodge (6/1 to 9/15)
6Y Special use destination
6NW Sport Fishing
7Z Subsistence area: Salmon harvesting (5/1 to 9/30)
7HH Finfish harvesting
7I Deer harvesting (8/15 to 2/28)
Invertebrate harvesting
Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic and beach disturbance to essential minimum. If plans for treatment include methods such as hot water wash or application of Inipol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.
AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2359

EXXON COMMAND CENTER (HOMER)

P.O. Box 4848
4014 Lake St.
Homer, AK 99603
Tel: 235-8444
Fax: 235-5963

April 30, 1990

The attached is a ADF&G survey for segment TB-002, stream #232-10-10340. The stream was not surveyed by ANAD. Please refer to SSAT TB-002. Minor type A clean-up is indicated.

Darryl Yoes

BY/mo

TB-2.

232-10-10340

A comprehensive Pre ANAD SCAT was conducted on TB-002, Cat. # 232-10-10340. The ANAD SCAT reviewed the results of this prescreen and decided it was NOT necessary to re-survey this stream. It was decided that they (the ANAD SCAT Team) would take the findings of the Pre-ANAD SCAT.

Manual pick up is recommended, therefore we need to route this on through.

Jack R.

DRAFT

SEGMENT ST/ TB-002 SUBDIVISION: 232-10-10340 DATE 4/30/91

USCG

NAME _____

SIGNATURE _____

☐ NO TREATMENT RECOMMENDED
COMMENTS

☐ TREATMENT SUGGESTED

ADF46
~~REC~~

NAME Doug Hill

SIGNATURE Douglas O'Hill

☐ NO TREATMENT RECOMMENDED
COMMENTS

☒ TREATMENT SUGGESTED

— Recommend Manual pickup and Removal of tar mats and
padding from Eastern bank at mouth of stream.
This is anadromous fish stream (chums & pinks)

LAND MANAGER

NAME _____

SIGNATURE _____

☐ NO TREATMENT RECOMMENDED
COMMENTS

☐ TREATMENT SUGGESTED

Group A

ADFG MULTI-ASSESSMENT DATA FORM

Prescreening 14

1 SURVEY TYPE: ☒ SS ☐ DS ☐ TS ☐ AVS ☐ SCHA ☐ HHS ☐ PTA2 REGION: PWS ☒ KP, CI ☐ K, APMETHOD: Aerial ☒ Ground ☐ Boat condova (Adjusted)3 DATE: 4-17-7015 HIGH TIDE TIMES: 055121 TEAM RECORDER: Doug Hill4 START TIME: 141516 HIGH TIDE HTS: 10.4122 OBSERVERS: Susan McLain6 STOP TIME: 142817 LOW TIDE TIMES: 131823 AGENCY: ADFG8 SEGMENT #: TB-218 LOW TIDE HTS: 2.0124 PHOTOS TAKEN: ☒ Y ☐ N

7 STATION #: _____

19 TIDE HT AT SURVEY: 10.0Roll # 90-COH-006-H Frame: 9, 10

9 K-UNIT: _____

Ebb ☒ Slack ☐ Flood ☐ Slack25 VIDEO TAKEN: ☒ Y ☐ N TAPE: _____9 STAT AREA: 232-1020 USCG QUAD: Selkova 3-3

Starts: _____ Ends: _____

10 LAT: 59° 25' 011 LONG: 151° 19' 026 SAMPLES TAKEN: ☒ Y ☐ N Number _____12 SOURCE: Map ☒ Loren ☐011 COH/NO - 4/25/7013 LOCATION: Tonsina Bay - N creek AFS #232-10-

Sediment _____

14 DESCRIPTION: North shore of Tonsina Bay, stream mouth approx.

Biological _____

1/4 mile west of Looe Lagoon.
EXTENT OF OIL

Water _____

	SHORELINE				STREAM			
	L	M	H	S	L	M	H	S
27 SURFACE COVERAGE								
28 SURFACE THICKNESS								
29 PENETRATION								

35 CATALOGED ANAD. FISH STREAM? ☒ Y ☐ N37 CATALOG #: 232-10-1034038 STREAM NAME: Tonsina North39 OIL IN STREAM BED? ☒ Y ☐ Nnone observed40 OIL ON STREAM BANKS? ☒ Y ☐ N41 OIL ON BEACH ADJACENT TO MOUTH? ☒ Y ☐ N(within 50 meters)42 OIL WITHIN 1 MILE OF STREAM? ☒ Y ☐ Nwhere: N.W. stream at beach30 OVERALL OIL IMPACT: ☐ N ☐ VL ☐ L ☐ M ☐ H43 ANADROMOUS FISH PRESENT? ☒ Y ☐ N31 OIL TYPE: Pooled ☐ Mousse ☐ Tar ☒ Asphalt ☐ Sticky ☐ Stain32 OILED DEBRIS? ☒ Y ☐ N33 SHORELINE TYPE: Headland ☐ Low-lying Rocks ☐ Beach ☒ Cove ☐Lagoon ☐ Marsh ☐34 WAVE EXPOSURE: High ☐ Moderate ☒ Low

44 ANADROMOUS FISH OBSERVATION

36 SUBSTRATE TYPE: Bedrock ☐ Boulder ☐ Cobble 20%Species ☐ Aerial ☐ GroundGravel 20% Sand 10% Mud/silt ☐

COMMENTS: 3 observers walked both sides of stream channel up from mouth. No oil was observed on W. side. Several large tar mats + tar patties were observed on E. side up in 25 yds of mouth of stream.

TB-002

FRAME(S)

9, 10

DESCRIPTION

Anals of Northern Anadromous Fish stream (232-10-10340)

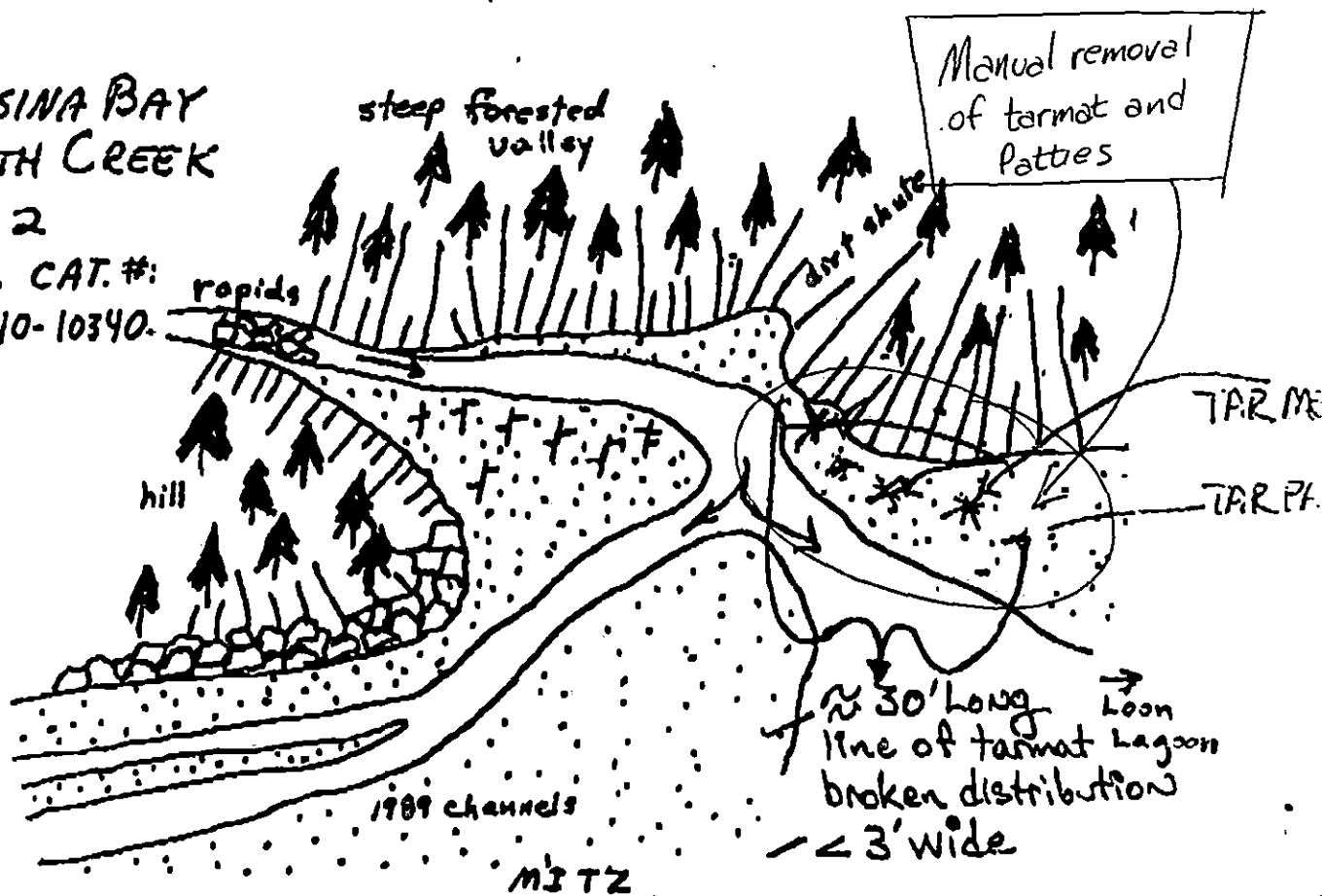
46 OIL DISTRIBUTION DIAGRAM

TONSINA BAY
NORTH CREEK

TB-2

ANAD. CAT. #:

232-10-10340.

ANADSCAT Recommended

- Sample taken
- Photo frame # and shot description

Anadromous Stream
232-10-10340

EAGLE
NEST

KEN
121B

XXXX Wide

//// Medium

--- Narrow

TTTT Very Narrow

TB-2

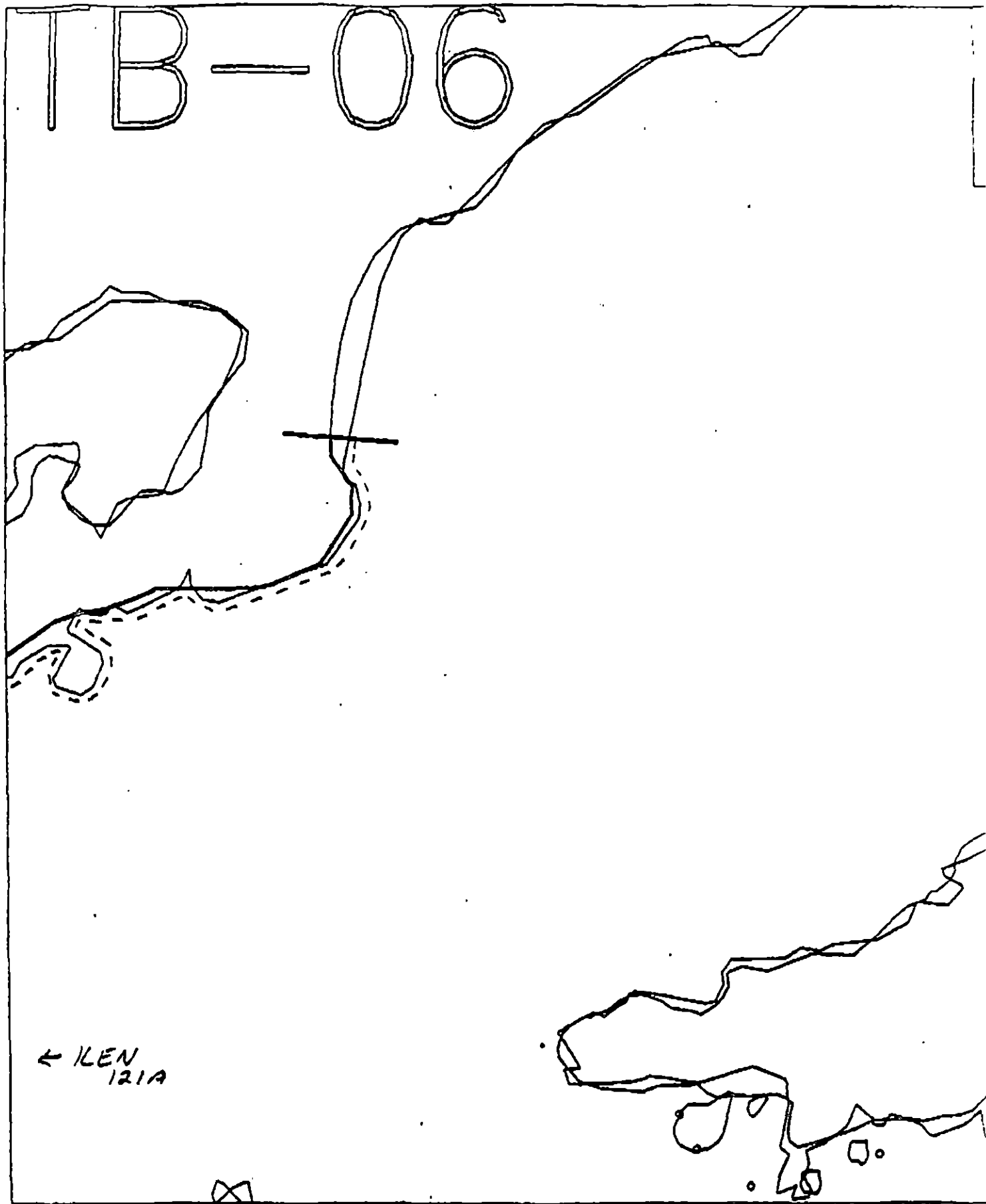
ADFC Segment Length: 2232m

Map Key: KEN-121a

Name: T. Sawyer

4.21.00

TB-06

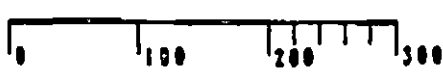


← ILEN
121A

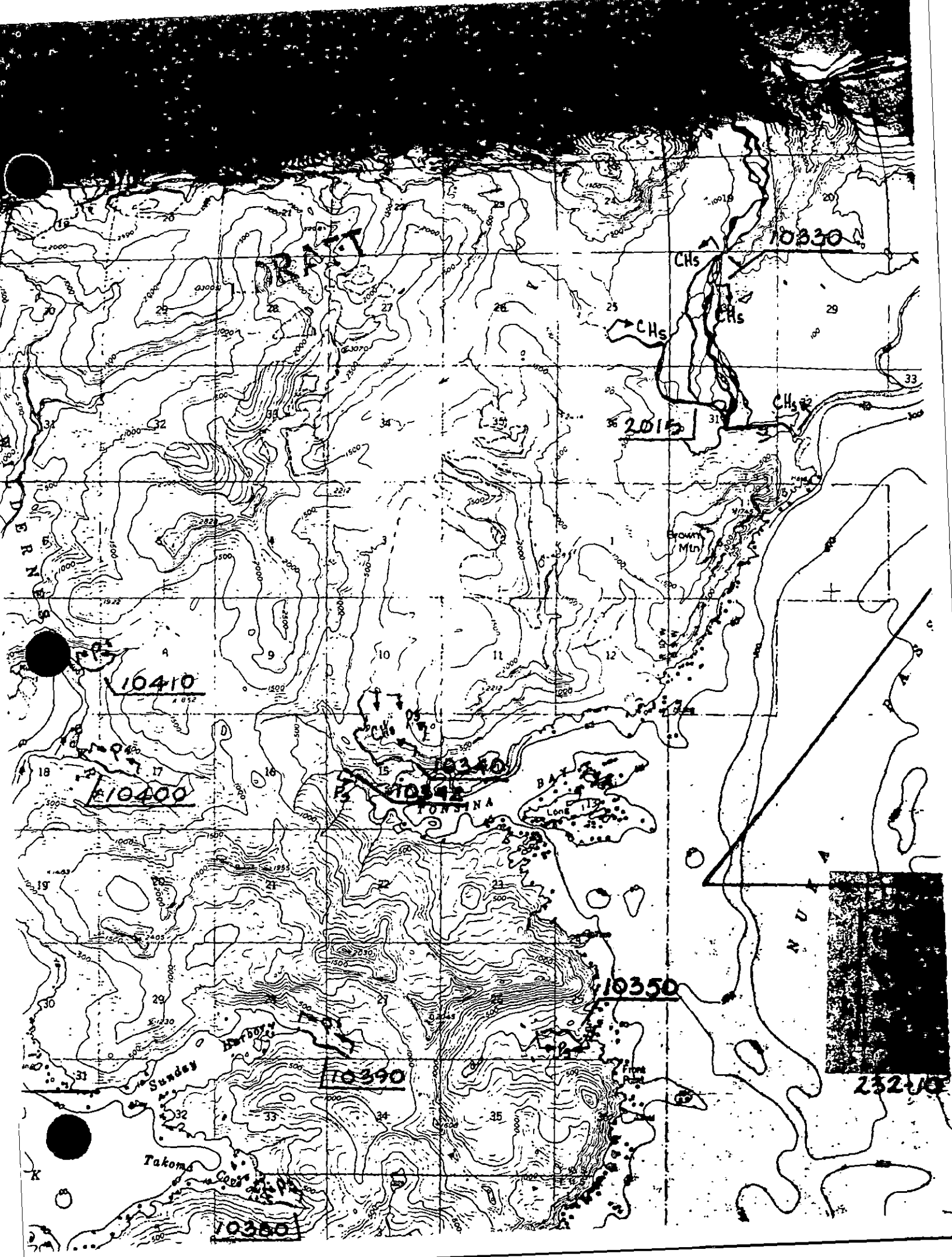
XXXX Wide
//// Medium
---- Narrow
TTTT Very Light
OOOO No Oil

TB-2

ADEC Segment Length: 2232m



Map Key: KEN-121b
Name: T. Sawyer
Date: 4-21-90
Data Entered:



ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT TB-2 SUBDIVISION A (1 of 1)

WORK WINDOW	
Manual Pickup Tarmat Removal	OPEN
Bioremediation and Manual Tilling Less Than 100m From Stream	WORK To 7/10 (ADF&G MONITOR REQ.)
Bioremediation and Manual Tilling More Than 100m From Stream	OPEN

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B Salmon Stream

ADF&G catalogued anadromous stream (232-10-10340) is in Subdivision A. This subdivision is closed to bioremediation and manual tilling less than 100m from stream 7/10 to 8/31. Before 7/10, bioremediation and manual tilling are permitted less than 100m from stream with on-site ADF&G monitor or ADEC alternate present. No constraint to bioremediation and manual tilling more than 100m from stream. No constraint to manual pickup and tarmat removal.

2M Herring Spawning

No constraint to manual pickup, tarmat removal, bioremediation, and manual tilling.

OTHER ECOLOGICAL CONSIDERATIONS

No disturbance to stream bed or banks. No flushing of pollutants or sediments into stream drainage; do not allow Inpol to enter stream flow. On-site examination and consultation by ADF&G monitor is required prior to bioremediation in order to authorize a setback distance from the stream during chemical application; if ADF&G monitor's presence is impossible, authorization may be given by the ADEC monitor. Restrict boat traffic to essential minimum. Avoid any unnecessary disturbance or damage to unloiled substrate and biota especially intertidal and subtidal algae and seagrass.

FOSC

Date

6-19-90

Prepared by

Date

6/16/90

TB-01

TB-06

TB-02

TB-04

Anadromous
Fish Stream
No. 232-10-10340

Anadromous
Fish Stream
232-10-10342



Exxon Company, USA

Map Key: KEN-TB-2

June 10, 1990



ECOLOGY MAP
SEGMENT TB-2
SUBDIVISION A (1 of 1)

METERS

0 525 1049

- ★ Seabird Colony
- ▲ Active Eagle Nest
- △ Inactive Eagle Nest

1 inch = 1721 feet

SHORELINE EVALUATION

SEGMENT ST/ TB-02 SUBDIVISION A (1 OF 1) DATE 4/20/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
2M Herring spawning (4/1 to 6/15)
4GG Kachemak Bay State Wilderness Park
6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. 5T - eagle nest.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: [Signature]

DATE: 5/1/90

OILING CATEGORIZATION:

Wide 16 m: Medium 602 m: Narrow 1430 m: V.Light 184 m: No Oil 0 m
Subsurface Oil Observed: Yes X No Maximum Depth 30 cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u>X</u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes 1) manual pickup of mousse and pooled oil, 2) removal of tarmat followed by 3) bioremediation of areas indicated on sketch map. Work should be conducted before 6/16 based on herring constraints, after approval of USFWS regarding eagle nest.

SEE CONSTRAINTS ADDENDUM DATED 6/16/90. [Signature]

TAG COMMENTS: MANUAL TILL STORM BEACH / UTR OF SMALL POCKET BEACH IN AREA OF PITS 9, 10, +11 NOTED ON SKETCH MAP PRIOR TO B.O.

TAG APPROVAL DATE: 5/1/90.
ADEC Art Weiner Dit Weiner
EXXON Cheryl Tetz
NOAA Gary Petros Gary Petros
USCG Kenneth H. Kennedy

FOSC: [Signature]

DATE: 5-6-90

ANADROMOUS FISH STREAM EVALUATION ADDENDUM

CONSTRAINTS FOR STREAM NO. 232-10-10340

SEGMENT TB-002 SUBDIVISION A

WORK WINDOW	
Manual Pickup Tarmat Removal	OPEN
Bioremediation Less Than 100m From Stream	WORK PRIOR TO 7/10 (ADF&G MONITOR REQ.)
Bioremediation More Than 100m From Stream	OPEN

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B Salmon Stream

ADF&G catalogued anadromous stream (232-10-10340) is in Subdivision A. This subdivision is closed to bioremediation less than 100m from stream 7/10 to 8/31. Before 7/10, bioremediation are permitted less than 100m from stream with on-site ADF&G monitor or ADEC alternate present. No constraint to bioremediation more than 100m from stream. No constraint to manual pickup and tarmat removal.

2M Herring Spawning

No constraint to manual pickup, tarmat removal, and bioremediation.

5T Bald Eagle Nest

NO CONSTRAINT. USFWS 6/1/90 map indicates no active nest within 400m of Subdivision A work site.

OTHER ECOLOGICAL CONSIDERATIONS

No disturbance to stream bed or banks. No flushing of pollutants or sediments into stream drainage; do not allow Inipol to enter stream flow. On-site examination and consultation by ADF&G monitor is required prior to bioremediation in order to authorize a setback distance from the stream during chemical application; if ADF&G monitor's presence is impossible, authorization may be given by the ADEC monitor. Restrict boat traffic to essential minimum. Restrict air traffic and all disturbance to essential minimum. No personnel or boat traffic within 400m of active nests. Air approach and takeoff from and to seaward only; maintain 400m horizontal, 300m vertical distance from active nests. Avoid any unnecessary disturbance or damage to unloiled substrate and biota especially intertidal and subtidal algae and seagrass.

SEE SUBDIVISION CONSTRAINT ADDENDUM TB-002A
FOR ADDITIONAL CONSTRAINT INFORMATION.

FOSC

Date

6-19-90

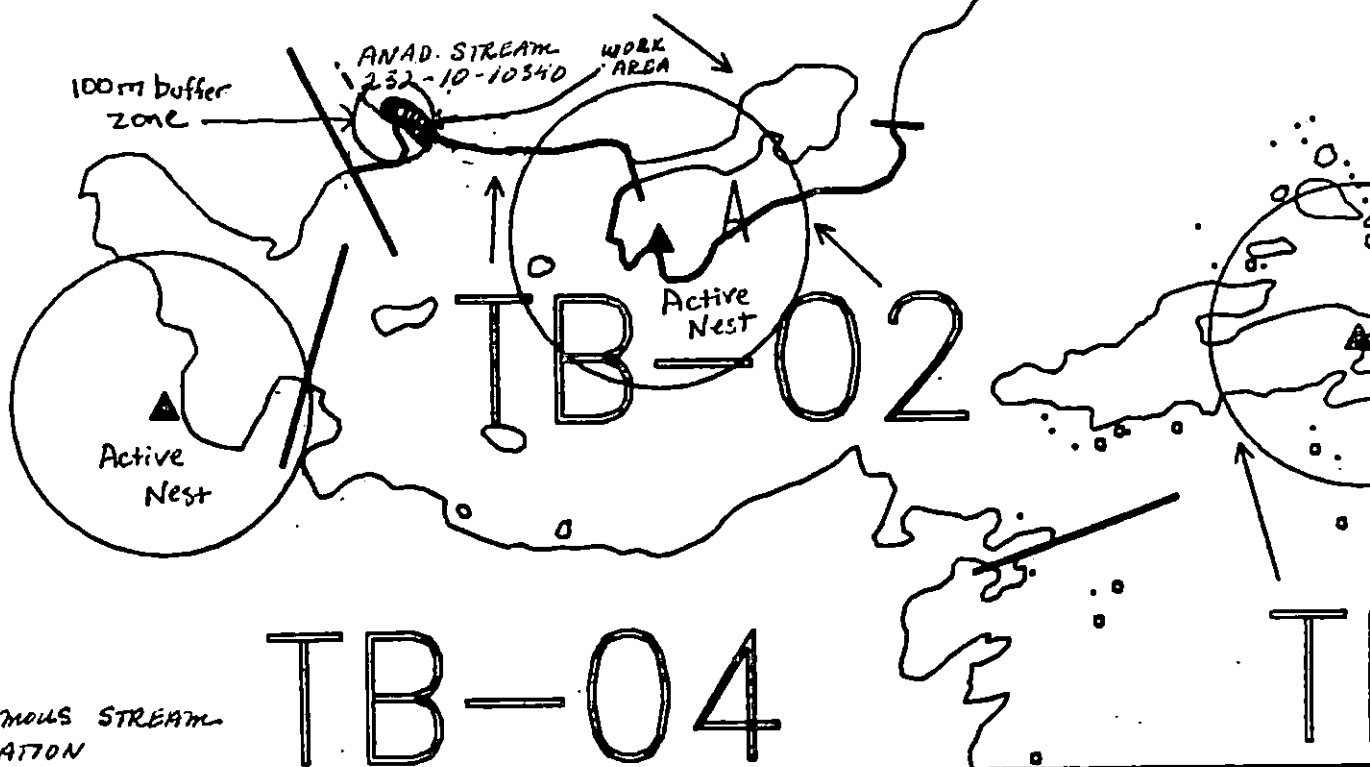
Prepared by

Date

6/16/90

TB-01

TB-06



ANADROMOUS STREAM
EVALUATION



Exxon Company, USA
Map Keys: KEN-TB-2

ECOLOGY MAP
SEGMENT TB-2

SUBDIVISION A (1 of 1)
METERS

★ Seabird Colony
▲ Eagle Nest

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/TB-002 STREAM NO: 232-10-10340 DATE 4/30/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
5T All Bald Eagle nests (3/1 to 6/1)
2M Herring spawning (4/1 to 6/15)
4GA State Marine Park Alaska State Wilderness Park
6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Rachel Jean Dore DATE: 5/25/90

Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u>X</u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommend manual removal of tarmat and patties as indicated on the attached ADF&G sketch map. Work from 6/15 to 7/9 with approval of USFWS due to eagle nest.

SFR CONSTRAINTS ADDENDUM dated 6/14/90

TAG COMMENTS: Bioremediation (CUSTOMER) IS REQUIRED FOLLOWING TREATMENT
REMOVAL

TAG APPROVAL DATE: 5/24/90
ADEC Art Weber
EXXON Andy Gier
NOAA Burt Weaver
USCG M. J. Hall

FOSC: [Signature] DATE: 5/31/90

REGION: KENAI

SEGMENT: ST/TB-04

SUBDIVISIONS: A (1 OF 1)

SHORELINE EVALUATION

SEGMENT ST/ TB-04 SUBDIVISION A (1 OF 1) DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

2M Herring spawning (4/1 to 6/15)

4GG Kachemak Bay State Wilderness Park

6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 193 m: Medium 27 m: Narrow 2217 m: V. Light 541 m: No Oil 221 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 13 cm

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☒ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☒ Bioremediation	☐ Spot Washing: _____ Wands
☒ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmat and mousse, 2) burning of oiled logs, and 3) bioremediation of areas shown on attached sketch map. Work should be conducted after 6/15 based on herring constraints.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____

EXXON _____

NOAA _____

USCG _____

FOSC: _____ DATE: _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

1A	Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B	Salmon stream mouth - spawning (7/10 to 8/31) No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.
1C	Salmon fry nursery area (4/31 to 7/31)
1D	Esther Hatchery release (4/15 to 6/1)
1E	Main Bay Hatchery release (4/20 to 5/10)
1F	Sawmill Bay Hatchery release (4/15 to 6/1)
1G	Cannery Creek Hatchery release (4/21 to 6/1)
1H	Remote release site
1I	Gill net area (6/7 to 8/31)
1J	Purse seine area (7/20 to 9/30)
1K	Purse seine hook-off (7/20 to 9/30)
1L	Set net sites (6/11 to 7/25) For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.
2M	Herring spawning (4/1 to 6/15) Restrict boat traffic to essential minimum. Avoid damage to unrolled intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.
3N, 3P 3O, 3Q	Harbor seal and sea lion pupping (5/15 to 7/1) Harbor seal and sea lion molting (8/15 to 9/15) Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.
5R	Seabird colony (5/1 to 9/1) Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.
5S	Shorebird/waterfowl concentration (4/1 to 5/15) Restrict all activity to essential minimum, especially air traffic.
5T	All Bald Eagle nests (3/1 to 6/1) Active Bald Eagle nests (3/1 to 9/1) Restrict air traffic to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
6U	Recreation: Tent sites (5/1 to 9/15)
6V	Anchorage (5/1 to 9/15)
6W	Forest Service cabins (8/1 to 9/15)
6X	Lodge (5/1 to 9/15)
6Y 6AA	Special use destination Sportfishing
7Z	Subsistence area: Salmon harvesting (5/1 to 9/30)
7HH	Finfish harvesting
7I	Deer harvesting (8/15 to 2/28)
7JJ	Invertebrate harvesting For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.

FIELD SHORELINE COMMENT SHEET

SEGMENT ST / TB-04 SUBDIVISION: A (1 of 1) DATE 4/21/90

NAME Donald A. MacDonell

SIGNATURE Donald A. MacDonell

☐ NO TREATMENT RECOMMENDED

☐ TREATMENT SUGGESTED

COMMENTS

This segment has no special concerns other than a rich intertidal zone. The Torina Bay has both river and sea otters with a sea otter pupping beach on Long Island. A Area classified as soft asphalt pavement generally appears to be less weathered than what I would consider asphalt however there does not appear to be a good surface classification for it. If it has been subsurface oil then it would be classified as OK (oiled but not saturated). The Oo basically agrees with this. The rest of the SSAT report is fine.

NAME JOHN R. REED

SIGNATURE John R. Reed

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

pavements and some saturated substrates still remain at Grim Beach

I am recommending manual removal OR breakup of asphalt pavements in TB-04. This is a long segment with vertical headlands and small pocket beaches. There is a 1-2m bathtub ring on protected vertical rock faces. Grim Beach on the western end of the segment was hot water washed, flooded, and bioremediated. Some near shore sheen could be seen at Grim beach. Several asphalt pavements can be found on beaches in the Eastern end of TB-04. I agree with information on SSAT Form.

LAND MANAGER

NAME Sharie Methven-Toney

SIGNATURE Sharie Methven-Toney

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

This segment TB4 is within Kachemak Bay Wilderness Park, receives use from campers, kayakers, sport. This segment includes Grim Beach on the west side end where the summer of 1989 was treated with hot water & cold water wash & flooded and then bioremediated, I recommend additional treatment. The segment contains small pocket beaches, & rock faces, one notable stream with large volume output, good test sites. On the eastern portion of the segment referred to as Isthmus Beach, observed asphalt pavements, recommend treatment manually shoveling oil & bagging it & moving the rocks over, the area needs to be cleaned on the low tide only. Wildlife in the area: bald eagles, mallard ducks, Glaucous-winged gulls, cormorants, harlequin ducks, scoters, sea otters.

SHORELINE OILING SUMMARY

REVISION NO. 04/13/90

OG SAWYER NOAA. MACDONALD SEGMENT ST/ TB-004
 BIO CARR LAND REP Methuen-Toney DNE SUBDIVISION A (1 OF 1)
 XXON BOVEL ADEC REED TIME 14:15:17:45
 TEAM NO. 18 TIDE LEVEL +3.5 → +2.0 DATE 4/21/90
 EST. SUBDIVISION LENGTH: 3639 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: WEST to EAST
 SURFACE SEDIMENTS: R 45 % B 30 % C 10 % P 10 % G 0 % S 5 % M 0 % V 0 %
 SLOPE: Lang 50 % Hang 0 % Vert 50 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High
 OIL CATEGORY LENGTH: W 125 m M 60 m N 2605 m VL 550 m NO 299 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR								IMPACTED ZONES			
	C	R	P	S	1	2	3	4	5	6	7	8	BU	U	M	L
ASPHALT PAVEMENT			0													
POOLED																
COVER																
COAT																
STAIN																
MOUSSE																
PATTIES																
TARBALLS																
FILM																
NO OIL																

PAVEMENT H (F) S 18/5 sq. m by 3 cmPATTIES / TARBALLS 0 BAGSNEAR SHORE SHEEN? (NO) BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

DID YOU COLLECT DEBRIS?

YES ☒ NO ☐TYPE PLASTIC
CONTAINERS, E.
#BAGS 2

Photographs:

Roll No. ST-18-7 and 8Frames 39 1 to 7

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (cm)	BELOW		OIL / FILM COLOR								PIT ZONE				A N A	SHEEN (Y/N)	V	SURFACE - SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		VO	VO	1	2	3	4	5	6	7	8	BU	U	M	L				
1	25						0.5																Y	10	C-G, S
2	25																								C-G, S
3	30						0.12																		C-G, C
4	25						0.10																		C-P, S, G
5	20						0.8																Y	15	B-P, S
6	15						0.8																Y	10	B-P, G, S

COMMENTS ST/TB004: This segment consists of nearly equal amounts of beached and low angle beaches. Both the east and west ends of this segment have significant oiling, whereas the central part has somewhat less oiling.

REVIEWED

BATDATE 22 Apr 90

SHORELINE OILING SUMMARY (PAGE 2)

SEGMENT ST/ TB004 SUBDIVISION A (1 OF 1)

REVISION 06/13/90

SUBSURFACE OIL (CONTINUED)

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-FT)	BELOW		OIL / FILM COLOR								PIT ZONE				A N A	SHEEN (Y/N)	F	SURFACE - SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UC	BR	BL	BR	BL	OR	OL	OT	LT	SU	U	M	L				
7	25					/												/							S-C, S
8	20					/												/				N	10		P-S, C
9	25					/												/							S-S, C
10	25					/												/							P-P, S
11	30					/												/							P-C, S
12	40					/												/				N	25		P-S, G
13	35	/					8-13	/		/								/							P-S, C
							.																		
							.																		
							.																		
							.																		
							.																		
							.																		
							.																		

COMMENTS

REVIEWED BA7 DATE 22 Apr 90

OG T. Sanger

SEGMENT ST/BOOY

SUBDIVISION A

DATE Apr. 21 90

CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dir.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HML/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pli Location(s)
- ☐ Photo Location(s)

LEGEND

1 Δ
Pli - No Subsurface Oil

2 Δ
Pli - Subsurface Oil

CT/C
Continuous Distribution

CT/B
Broken Distribution

CT/P
Patchy Distribution

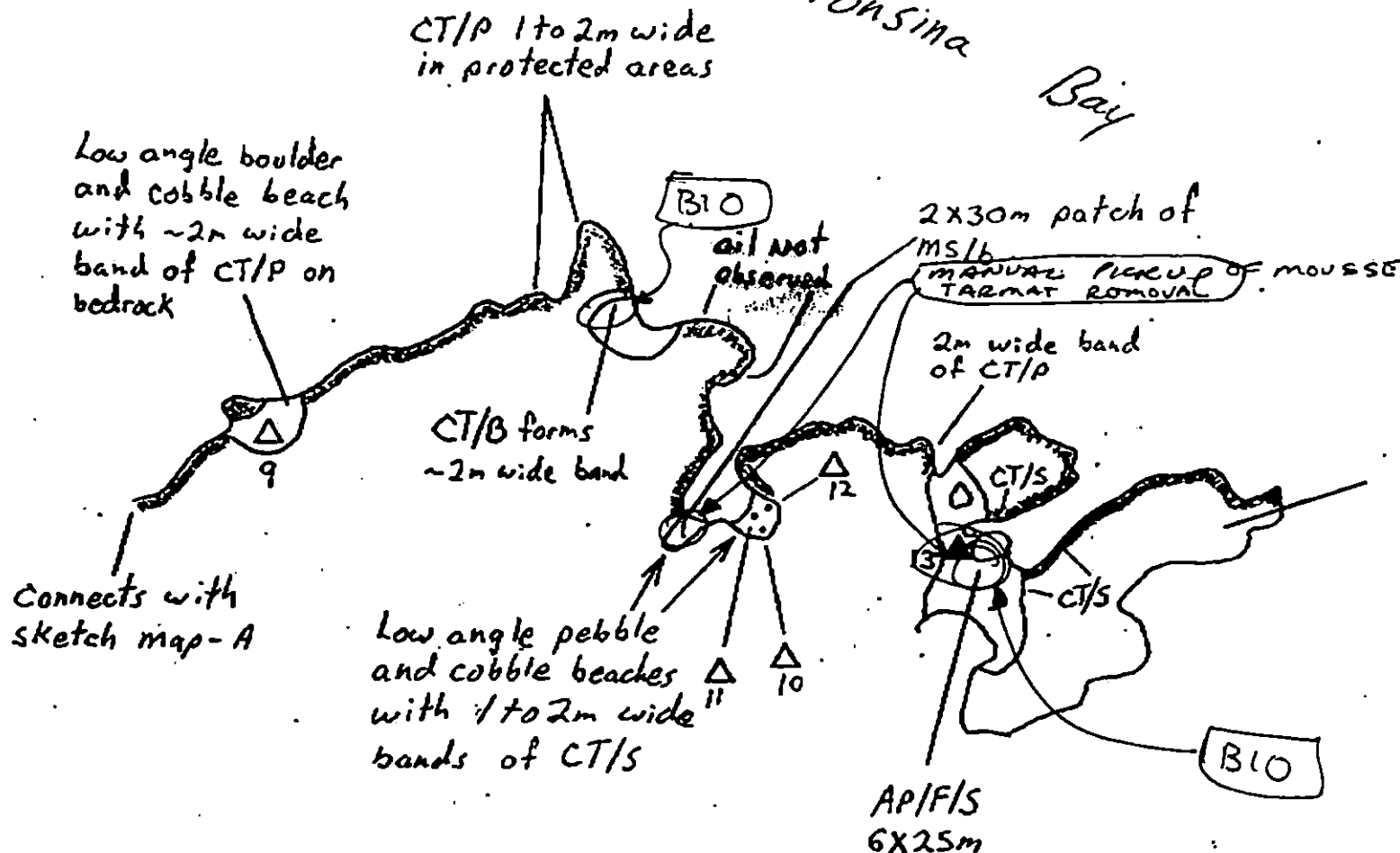
CT/S
Splashed Distribution

eee
Oiled Vegetation

1 →
Photo location, direction,
and number

TCH MAP - B

Tonsina Bay



0 300m



see sketch map - A

Oil Character Length (m): AP _____ PO _____ CV _____ CT _____ ST _____ MS _____ PT _____ TB _____ FL _____ NO _____

REVISION: 03/24/90

OG T. Sawyer

SEGMENT 8004

SUBDIVISION A

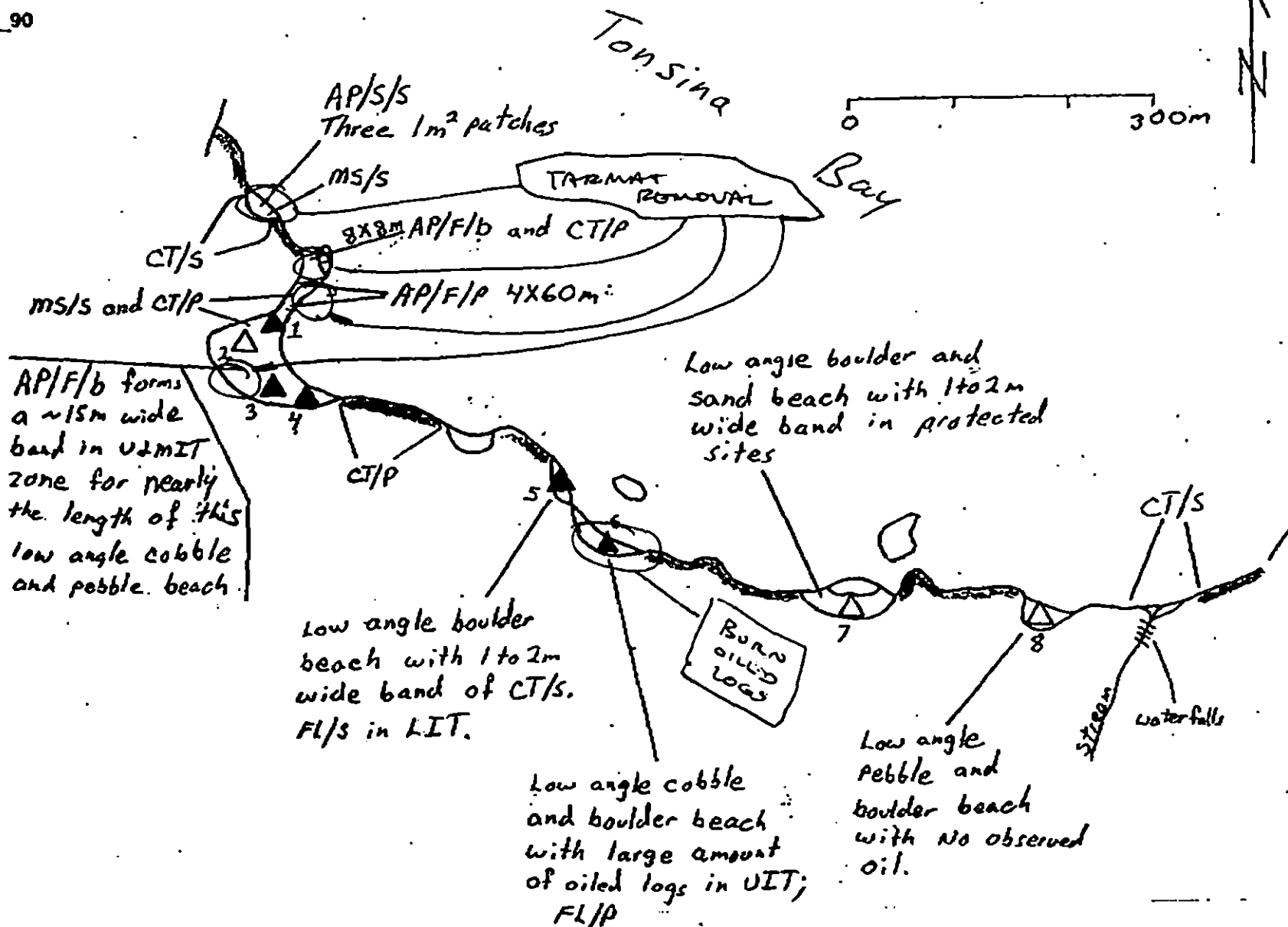
DATE Apr 1 21 90

CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWW/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pli Location(s)
- ☐ Photo Location(s)

LEGEND

- 1 Δ
Pl - No Subsurface Oil
- 2 Δ
Pl - Subsurface Oil
- CT/C
Continuous Distribution
- CT/B
Broken Distribution
- CT/P
Patchy Distribution
- CT/S
Sporadic Distribution
- eee
Oiled Vegetation
- 1 $\Rightarrow$
Photo location, direction, and number



Oil Character Length (m): AP 140 PO 0 CV 0 CT 700 ST 0 MS 40 PT 0 TB 0 FL 90 NO 300

REVISION: 03/24/98

SHORELINE ECOLOGICAL SUMMARY

REVISION: 02/22/90

Segment ST/ TB004 Subdivision A (1 OF 1) Date (mo / day / yr) 4-21-90Time (24 hr) 1415 Biologist MARK CARR

- (A) Substrate type and % of ^{SUBDIVISION} segments:
 (1) Bedrock 45 (2) Boulder 30 (3) Cobble 10 (4) Pebble 10 (5) Sand 5 (6) Silt 0
- (B) Overall % cover of biota (% of ^{SUBDIVISION} segment): Dense 80 Moderate 10 Low 10
- (C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs:
Roll No. ST-18-7 / ST-18-8Frames 39 / 1-8

BARNACLES

	Dense	Moderate	Sparse	Rare
300	1U	1U	1U	1U
300	2	2	2	2
300	3	3	3	3
300	4	4	4	4
300	5	5	5	5
300	6	6	6	6

NOT PRESENT
NOT PRESENT AT ANY ZONE

MYTILUS

	Dense	Moderate	Sparse	Rare
300	1U	1U	1U	1U
300	2	2	2	2
300	3	3	3	3
300	4	4	4	4
300	5	5	5	5
300	6	6	6	6

NOT PRESENT
NOT PRESENT IN UPPER INTERTIDAL ZONE

GASTROPODS

	Dense	Moderate	Sparse	Rare
300	1U	1U	1U	1U
300	2	2	2	2
300	3	3	3	3
300	4	4	4	4
300	5	5	5	5
300	6	6	6	6

NOT PRESENT
NOT PRESENT IN ANY ZONE

FUCUS

	Dense	Moderate	Sparse	Rare
300	1U	1U	1U	1U
300	2	2	2	2
300	3	3	3	3
300	4	4	4	4
300	5	5	5	5
300	6	6	6	6

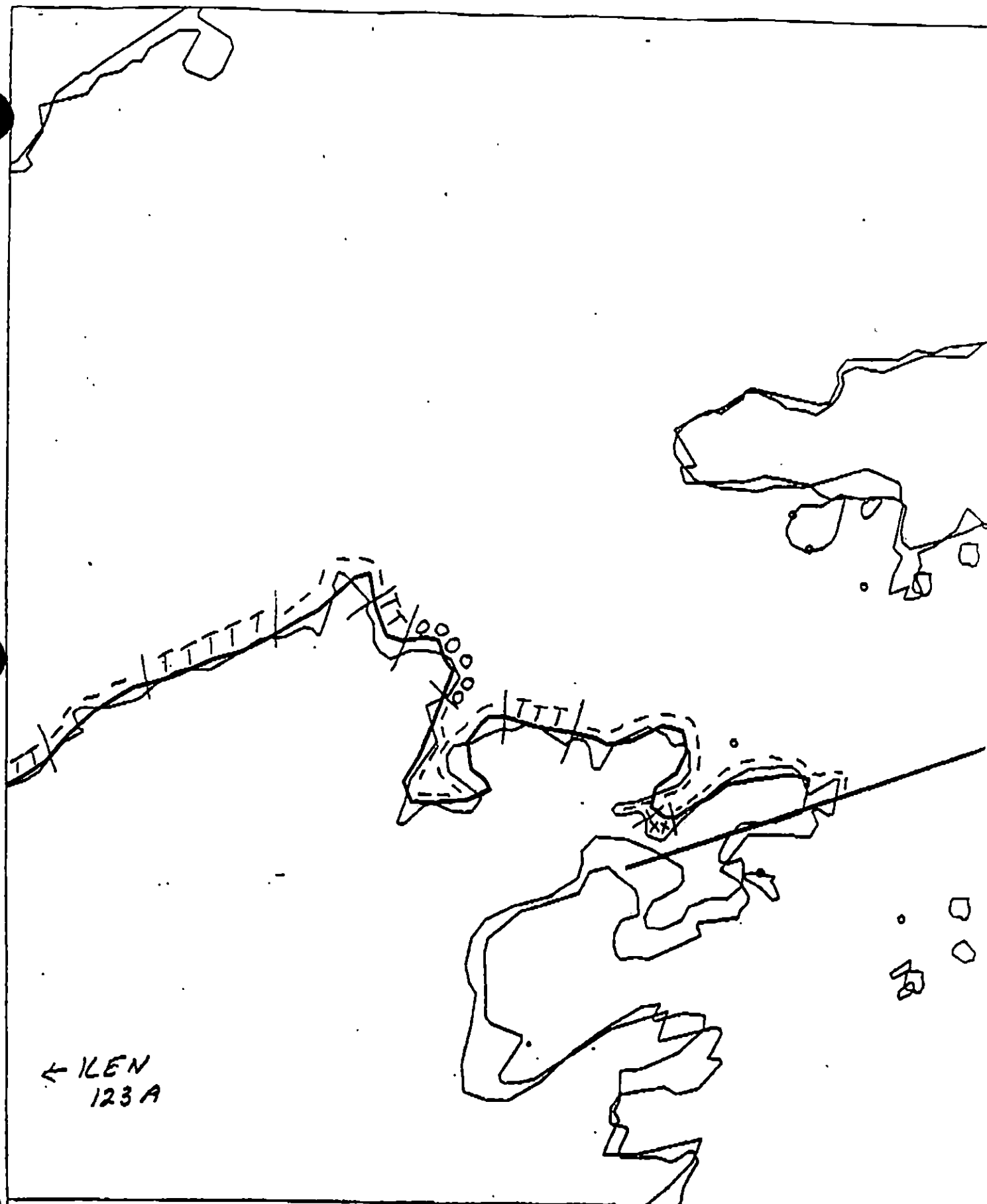
NOT PRESENT
NOT PRESENT IN ANY ZONE

Wildlife Observations/ General Comments:

Bald eagle (1), immature
Common loon (3)Mallard ducks (8)
Harlequin ducks (15)Glaucous-winged gull (21)
Scoters (4) Sea otter (1)
Stellar's Jay (1)

Ecological Considerations:

2M (HERRING SPAWNING), 400 (Alaska State Park / Wilderness),
600 (SPORT FISHING)



XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

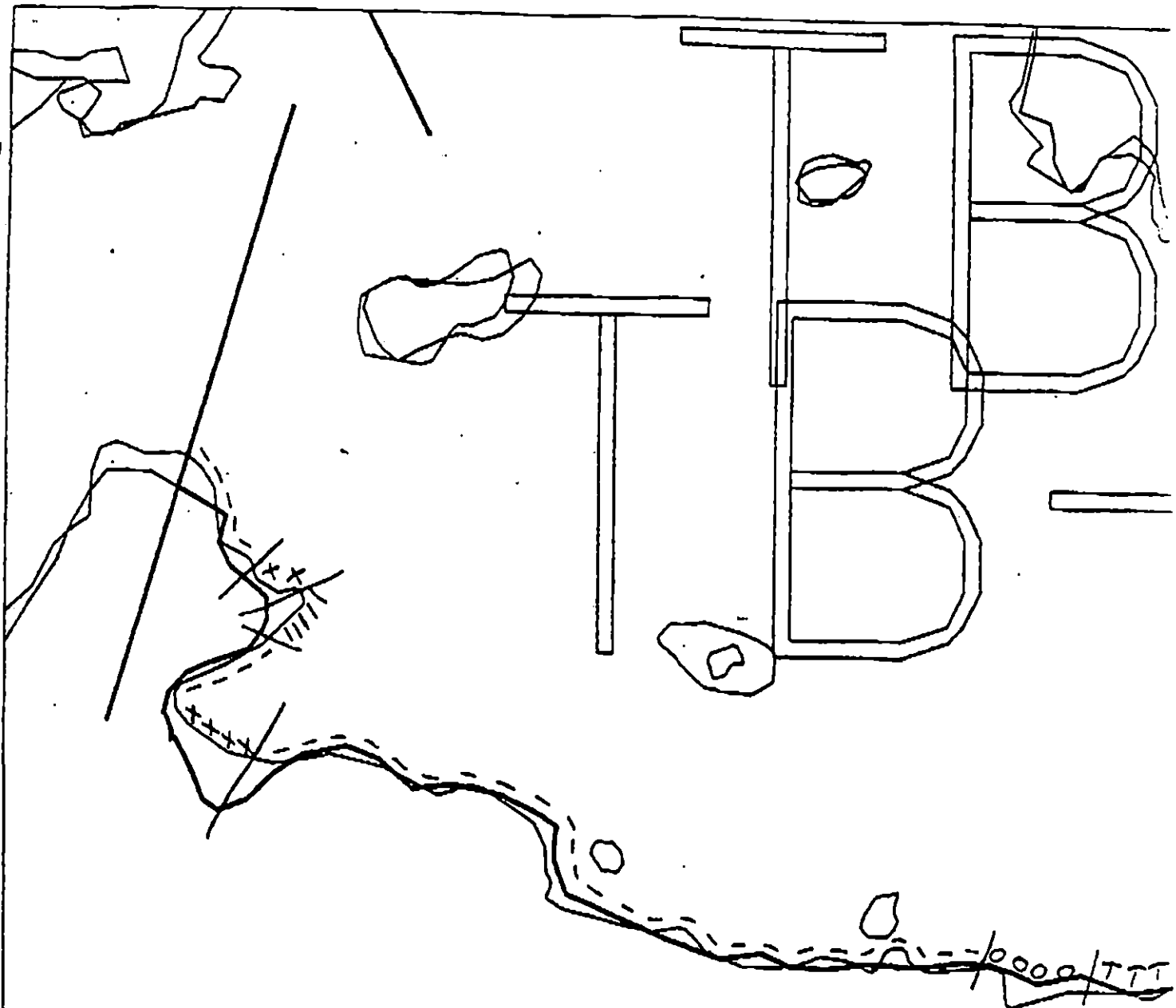
TB-4

ADEC Segment Length: 3171m

Map Key: KEN-123b

Name: T. Sawyer

Date: Apr. 21, 1990



LEA
123B

XXXX Wide

Medium

----- Narrow

TTTT Very Light

T B - 4

ADEC Segment Length: 3171m



Map Key: KEN-123a

Name: T. Sawyer

Date: Apr 21, 1991

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT TB-4 SUBDIVISION A (1 of 1)

WORK WINDOW	
Manual Pickup Tarmat Removal	OPEN
Bioremediation	WORK 6/15 - 7/10 OR AFTER 8/10

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1J	Purse Seine Area	Closed to bioremediation between 7/10 and 8/10. No constraint to manual pickup and tarmat removal.
2M	Herring Spawning	Closed to bioremediation prior to 6/15. No constraint to manual pickup and tarmat removal.
5T	Bald Eagle Nest	NO CONSTRAINT. USFWS bald eagle impact assessment conducted on 5/19/90 by Mary Portner indicates no active nests within 400m of the work area.

OTHER ECOLOGICAL CONSIDERATIONS

Restrict air traffic to essential minimum after 7/10. Restrict boat traffic to essential minimum. Avoid any unnecessary disturbance or damage to unrolled substrate and biota, especially intertidal and subtidal algae and seagrass.

TAG APPROVAL DATE 6/01/90.

ADEC Ray Morris Ray Morris

EXXON AMY JEN AMY JEN

NOAA G.A. Reiter G.A. Reiter

USCG G.A. Reiter G.A. Reiter

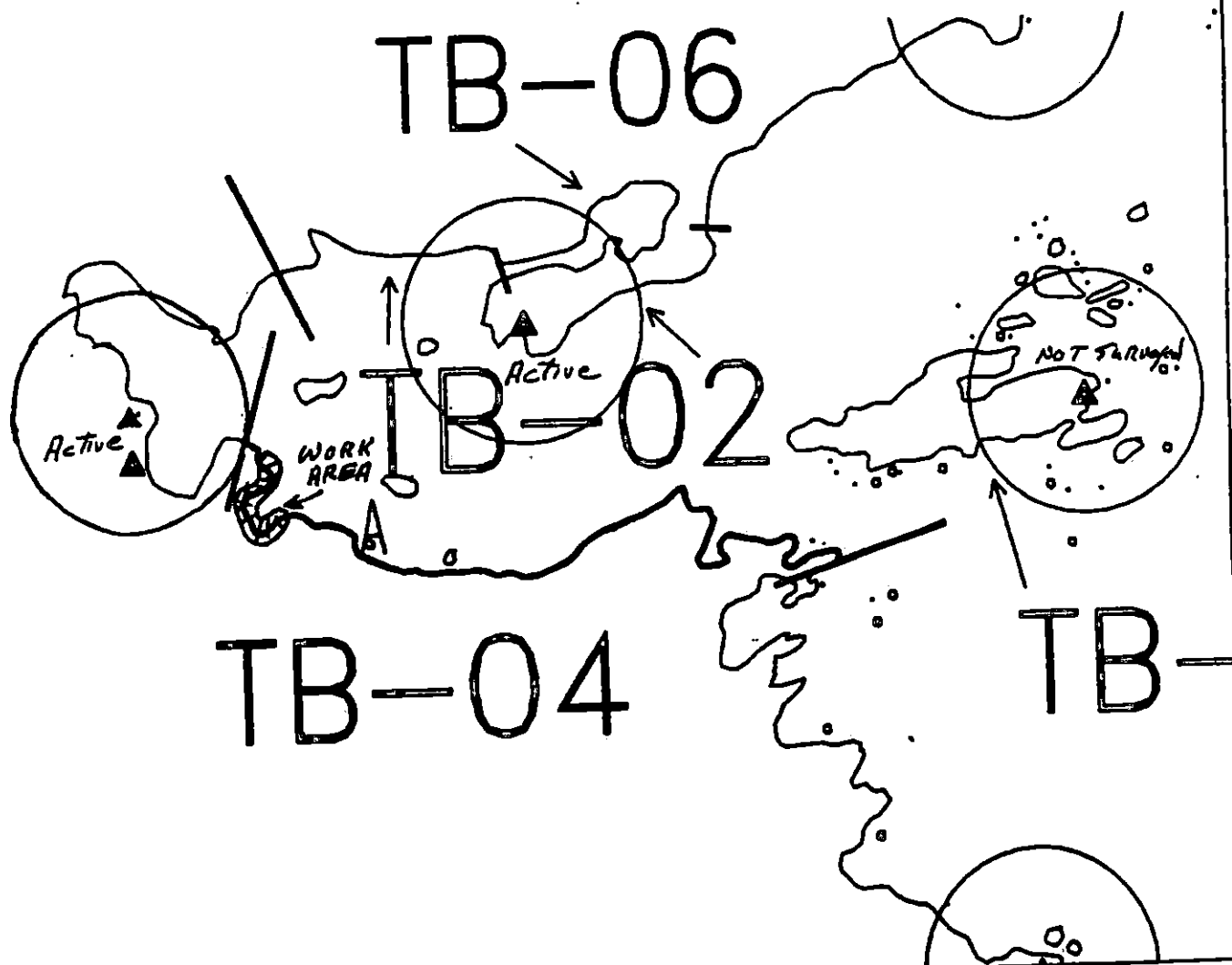
FOSC DR Borne, CDR, USCG DATE 6/2/90

Acting

Prepared By: Andru Meyer WTR

Date 5/31/90

*Incorporates information from
USFWS bald eagle survey 5/19/90.*



ECOLOGY MAP ^{5/31}
SEGMENT TB-4
SUBDIVISION A (1 of 1)

★ Seabird Colony
▲ Eagle Nest

SHORELINE EVALUATION

SEGMENT ST/ TB-04 SUBDIVISION A (1 OF 1) DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

M Herring spawning (4/1 to 6/15)

4GG Kachemak Bay State Wilderness Park

6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: [Signature]

DATE: 5/1/90

OILING CATEGORIZATION:

Wide 193 m: Medium 27 m: Narrow 2217 m: V. Light 541 m: No Oil 221 m
Subsurface Oil Observed: Yes X No Maximum Depth 13 cm

RECOMMENDATIONS:

 No Treatment Recommended

X Treatment Recommended

X Manual Pickup

X Bioremediation

X Tarmat Removal

 Snare/Absorbent Booms

 Oil Snares (pom poms)

 Absorbents (pads, rolls, etc)

 Spot Washing: Wands

 Beach Cleaner

 Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmat and mousse, 2) burning of oiled logs, and 3) bioremediation of areas shown on attached sketch map. Work should be conducted after 6/15 based on herring constraints.

[See Addendum Dated 5/31/90]

TAG COMMENTS: MONITORS TO DETERMINE SIGNIFICANCE OF CEGS

TAG APPROVAL DATE: 5/1/90

ADEC Art Weimer Art Weimer

EXXON Andy Petrus Andy Petrus

NOAA Gary Petrus Gary Petrus

USCG [Signature]

FOSC: [Signature]

DATE: 5-6-90

SHORELINE EVALUATION

SEGMENT ST/ TB-04 SUBDIVISION A (1 OF 1) DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

2M Herring spawning (4/1 to 6/15)

4GG Kachemak Bay State Wilderness Park

6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: *David McManis*

DATE: 5/1/90

OILING CATEGORIZATION:

Wide 193 m: Medium 27 m: Narrow 2217 m: V.Light 541 m: No Oil 221 m
Subsurface Oil Observed: Yes X No Maximum Depth 13 cm

RECOMMENDATIONS:

 No Treatment Recommended

X Treatment Recommended

X Manual Pickup

X Bioremediation

X Tarmat Removal

 Snare/Absorbent Booms

 Oil Snares (pom poms)

 Absorbents (pads, rolls, etc)

 Spot Washing: Wands

 Beach Cleaner

 Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmat and mousse, 2) burning of oiled logs, and 3) bioremediation of areas shown on attached sketch map. Work should be conducted after 6/15 based on herring constraints.

TAG COMMENTS: Monitors to determine significance of logs

TAG APPROVAL DATE: 5/1/90

ADEC Art Weimer Det Weimer

EXXON Andy Katz

NOAA Gary Petrac Ray Petrac

USCG Kenneth Keane

FOSC: *W L*

DATE: 5-6-90

OG T. Sander

SEGMENT ST/BOOY

SUBDIVISION A

DATE Apr. 21 90

CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Bndry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWM/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pht Location(s)
- ☐ Photo Location(s)

LEGEND

1 Δ

Pht - No Subsurface Oil

2 Δ

Pht - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

Splashed Distribution

eee

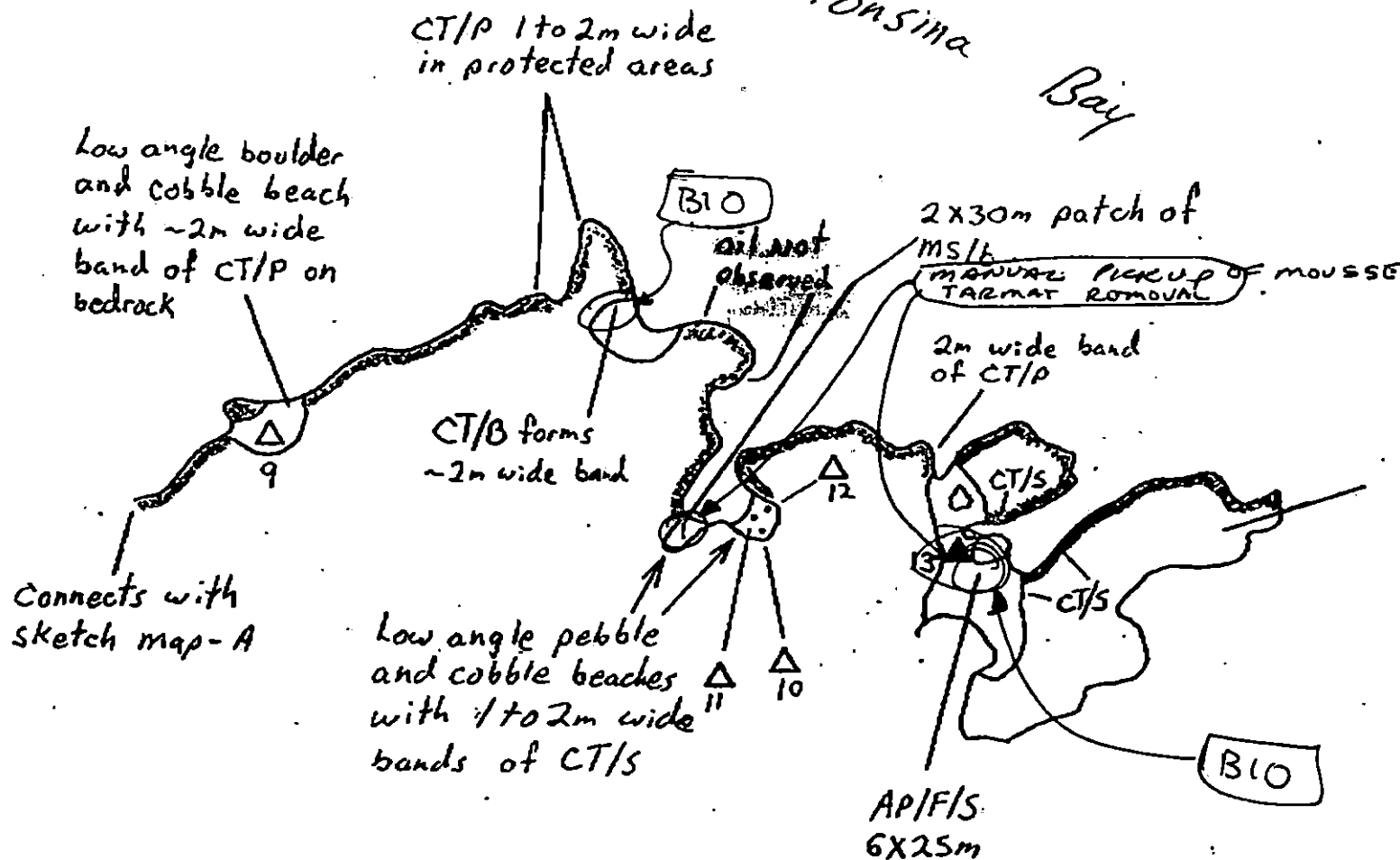
Oiled Vegetation

1 →

Photo location, direction, and number

TCH MAP - B

Tonsina Bay



0 300m



see sketch map - A

Oil Character Length (m): AP _____ PO _____ CV _____ CT _____ ST _____ MS _____ PT _____ TB _____ FL _____ NO _____

OG T. Sawyer

SEGMENT B004

SUBDIVISION A

DATE Apr 12/90

CHECKLIST

☐ N Arrow
☐ Approx. Scale
☐ Seg/Sub Bndry
☐ Off Dist.
☐ Width
☐ Length
☐ % Cover
☐ Substrate Character
☐ Est. HWT/LWT
☐ SSL
☐ Profile Location(s)
☐ Profile(s)
☐ PH Location(s)
☐ Photo Location(s)

LEGEND

1 Δ
 PH - No Subsurface Oil

2 Δ
 PH - Subsurface Oil

$\square$ CT/C
 Continuous Distribution

$\square$ CT/B
 Broken Distribution

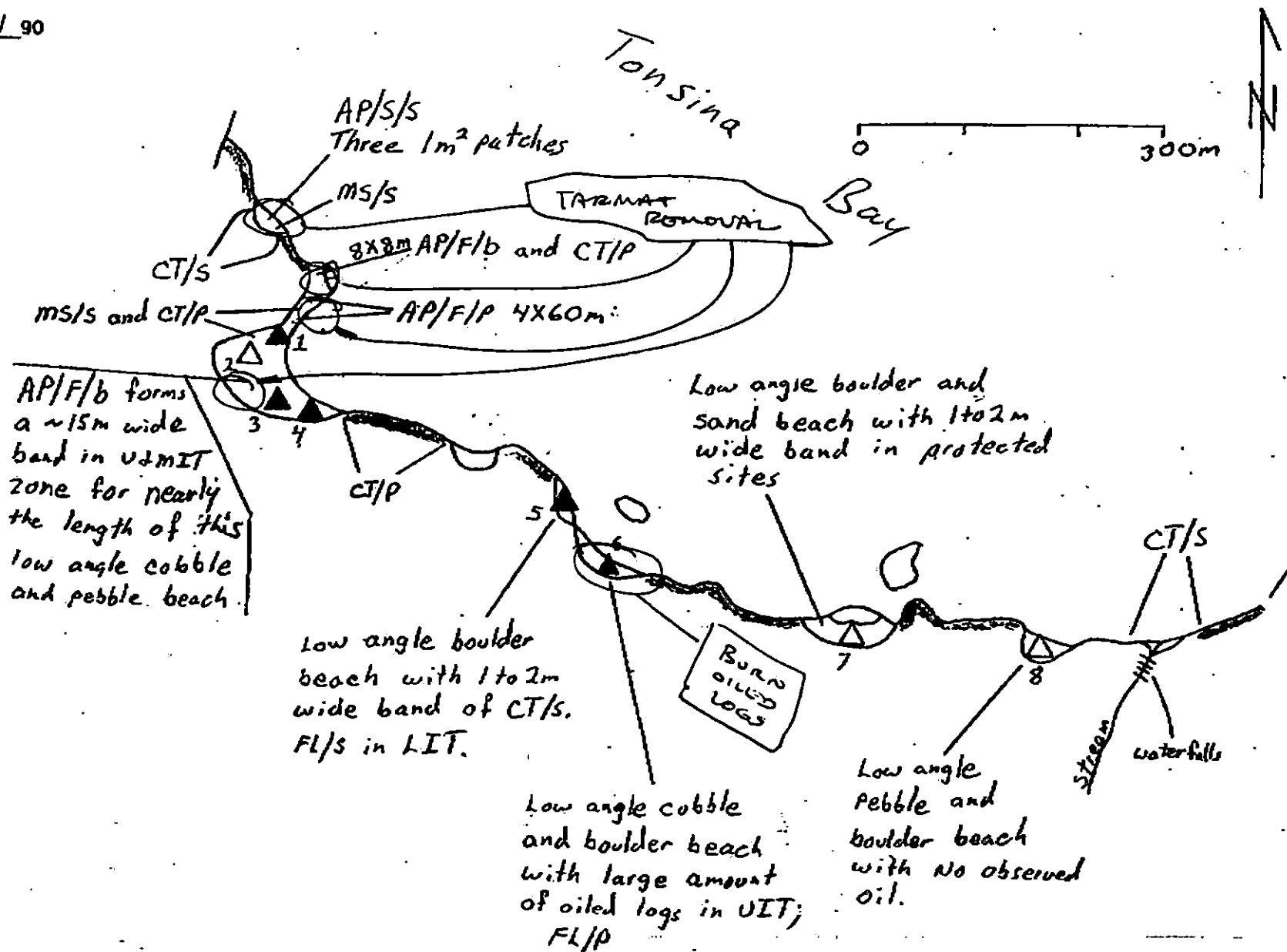
$\square$ CT/P
 Patchy Distribution

$\square$ CT/S
 Splashed Distribution

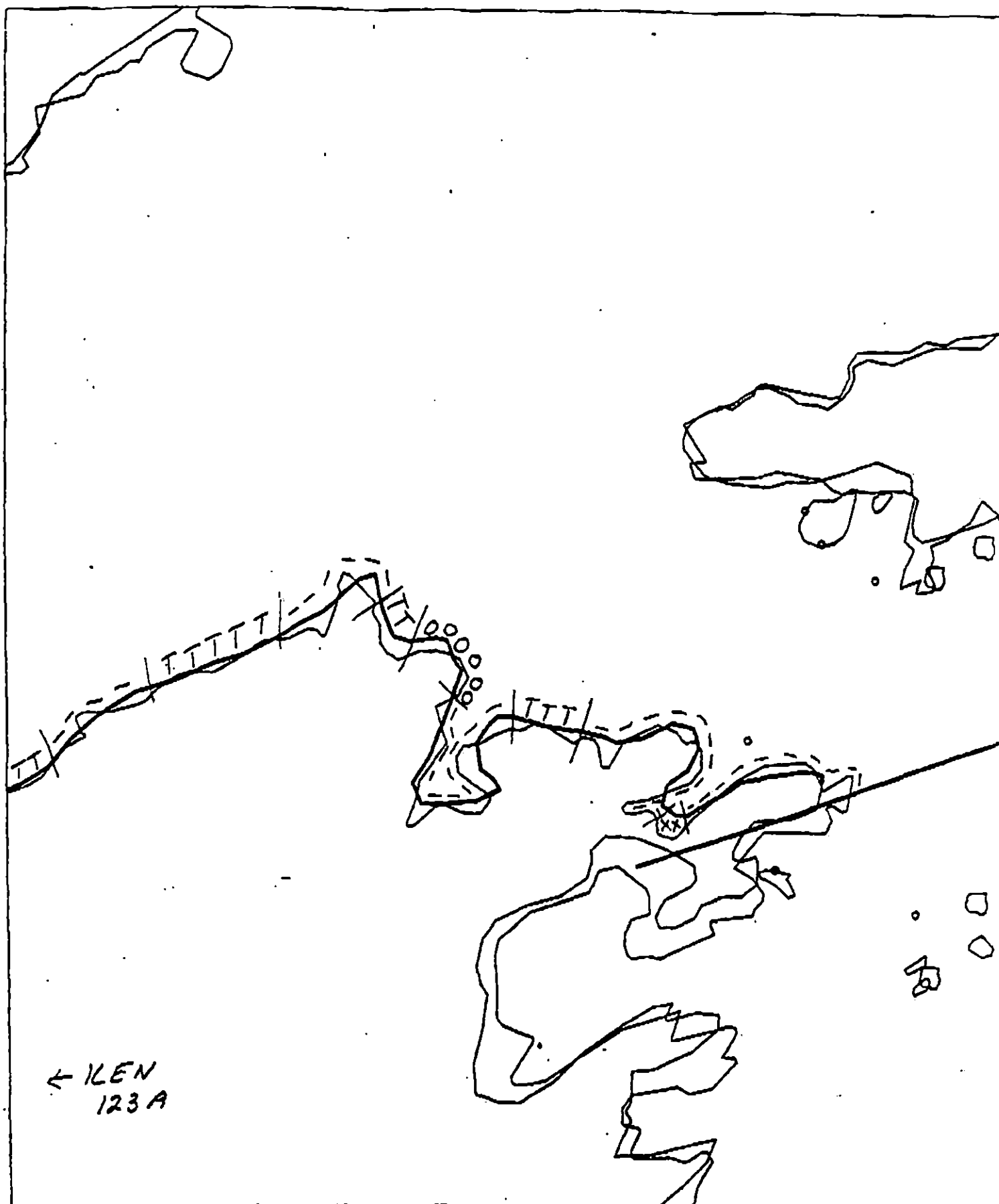
$\lll$
 Oiled Vegetation

1 $\rightarrow$
 Photo location, direction,
 and number

ETCH MAP - A



Oil Character Length (m): AP 140 PO 0 CV 0 CT 700 ST 0 MS 40 PT 0 TB 0 FL 90 NO 300



XXXX Wide

//// Medium

--- Narrow

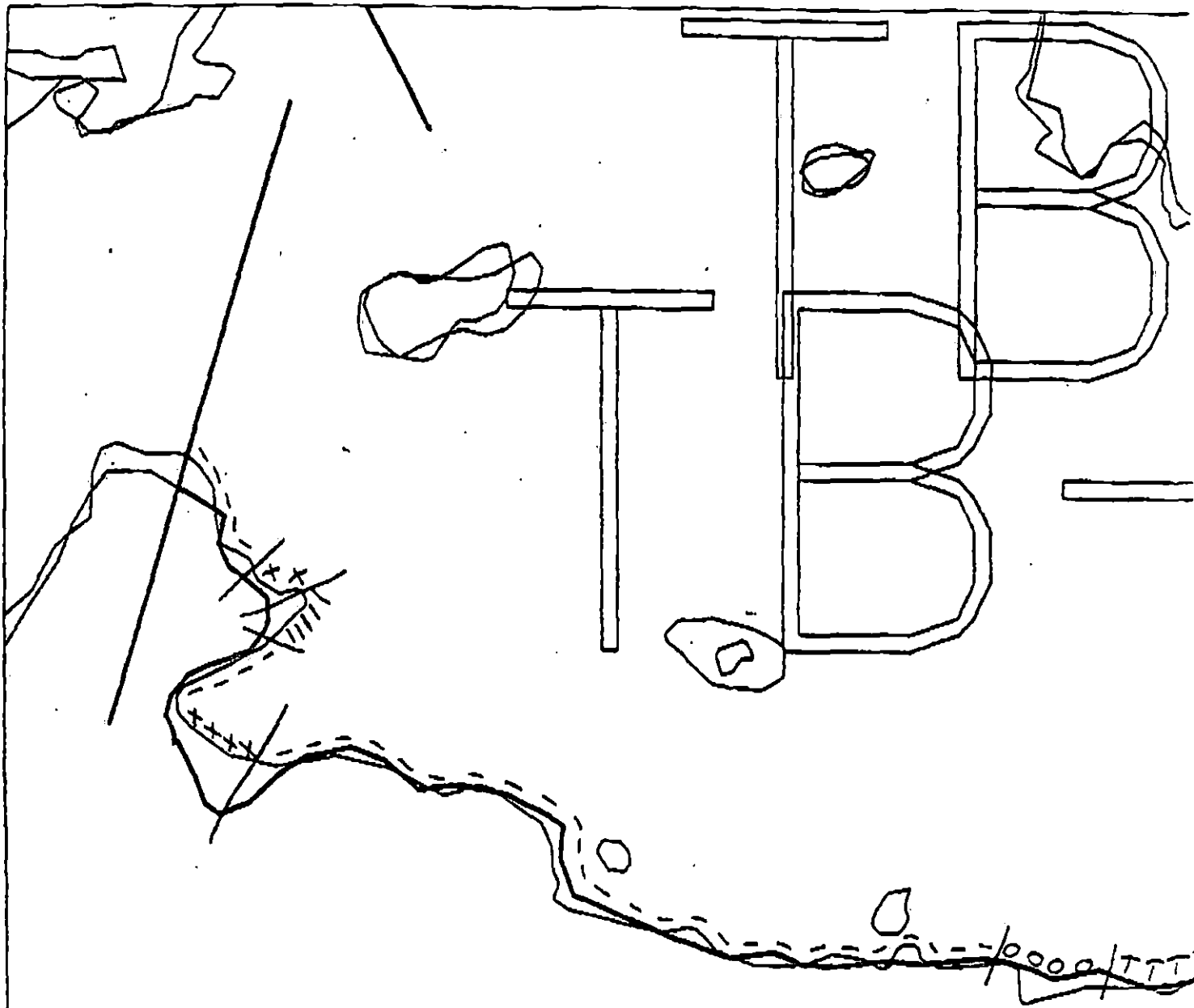
TTTT Very Light

TB-4

ADEC Segment Length: 3171m

Map Key: KEN-1236

Name: T. SawyerDate: Apr. 21, 1990

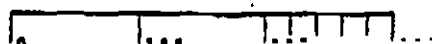


KEN
123B

XXXX Wide
 //// Medium
 --- Narrow
 TTTT Very Light

TB-4

ADEC Segment Length: 3171m



Map Key: KEN-123a

Name: T. Sawyer

Date: Apr 21, 1990

1991 MAYSAP EVALUATION

SEGMENT: TB 004 SUB: A REGION: KEN SURVEY DATE: 5/18/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest,
Herring spawning, Fish harvest area

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____ FOSC APPROVAL DATE: _____

ADEC _____ FOSC _____

EXXON _____

USCG _____

NOAA _____

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

TEAM NO. 4 SEGMENT TB-00- SUBDIVISION A DATE MAY 13 / 91

ADEC

NAME

Clara S. Crosby

SIGNATURE

Clara S. Crosby☐ NTRIF Treatment Recommendations -

Suggest this entire Beach be looked @ by TAG -

This survey was conducted on a rainy day - a significant amt of silt was present.

EXXON

NAME

George P. Stiles

SIGNATURE

☐ NTR

Several areas exist with subsurface oiling. The entire beach was not worked due to the stream, fucus and mussel bed per one of the VECO crew members. These limitations should fully be explored prior to any treatment recommendation.

LANDMANAGER

NAME

Jeff JohnsonOF ADNR

SIGNATURE

Jeff Johnson☐ NTREXT.R

Although this beach has significant mussel/fucus beds, there are several exposed areas of oiled sediments that are not within the beds, and these spots should be treated. Crew members were successful with manual methods, but I concur with DEC; that TAG should decide which treatment method would be most appropriate. The goal will be to maximize the effectiveness of oil recovery while minimizing damage to biota. The segment is within Kachemak Bay/State Wilderness Park; the existing oil remaining has significant negative visual impact.

USCG/NOAA

NAME

McMahon/McDonald

SIGNATURE

Jeff McMahon☐ NTR

I have reservations for manual treatment on and within healthy mussel and fucus beds. If however this is not a constraint then I would recommend Type A treatment.

MAYSAP SHORELINE OILING SUMMARY

PAGE 2 OF 15TEAM NO. 4OG J. M. SamplesBIO J. BerrySEGMENT TB-001ADEC CrosbyLANDMANAGER Jeff Johnson for A DNRSUBDIVISION AEXXON StilesUSCG/NOAA McMahon/McDonaldDATE May 11 191TIME 12:04 to 13:30TIDE LEVEL -1.5 ft. to +1.5 ft.ENERGY LEVEL: ☐ H ☒ M ☐ LSURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELOWEATHER: ☐ SUN ☒ CLOUDS ☐ FOG ☒ RAIN ☐ SNOWTOTAL LENGTH SHORELINE SURVEYED: 300 mNEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONEEST. OIL CATEGORY LENGTH: W 0 m M 130 m N 0 m VL 190 m NO 50 m US 2899 m

L O C	SURFACE OIL CHARACTER										SURFACE SEDIMENT TYPE	SHORE SLOPE VHML	AREA		ZONE				NOTES
	AP	MS	TB	SOR	CV	CT	ST	FL	DB	NO			WIDTH m	LENGTH m	S	UI	MI	LI	
A1	S			S	S						Bd	M	6	120		X			See map 4/21
A2				S							cb/pl	L	20	70		X			H
A3				P							cb/pl	L	20	60			K		5% MSOR + 10% CSOR
A4	S			S							Bd/Lb	M	2	20		X			

DISTRIBUTION: C = 91-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = <1%

SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE PHOTO ROLL # MAYSAP- _____ FRAMES _____

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER							OILED ZONE cm-cm	CLEAN BELOW Y/N	H2O LEVEL (cm)	SHEEN COLOR B R S N	PIT ZONE				SURFACE-SUBSURFACE SEDIMENTS	NOTES
		OP	HOR	MOR	LOR	OF	TR	NO					S	UI	MI	LI		
1	20							X	-					X			Sd/pl/gv	See map
2	20							X	-						X		" "	
3	20							X	-						X		" "	
4	20							X	-							X	" "	
5	25			X					0-5	Y				X			" "	
6	20							X	-						X		" "	
7	25			X					0-5	Y					X		" "	
8	28							X	-							X	" "	
9	20			X					0-7	Y	13	B			X		" "	

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

* 0-5 cm DOES NOT CONSTITUTE SUBSURFACE OIL (shows RE SOR)

OG COMMENTS:

Small cove with beach of angular cobble/pobble, bounded by steep cross-bedded cliffs fringed by talus of angular boulders. The upper intertidal shows a differentiation of sediment: relatively well sorted pebble to the north and angular cobbles/boulders to the south east.

Oil line is present mainly in the top 5 cm of sediment. Once

[illegible]

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

* 0-5 cm DOES NOT CONSTITUTE SUBSURFACE OIL (SHOULD BE SOR)

OG COMMENTS:

pit logs) and occurs over extensive areas as
L and M soil over the intertidal zone. The oiled
areas overlap extensive mussel zones (see attached
biology report). Patches of asphalt and/or HSOA
also occur at the base of the cliffs, mostly
on the northwestern side of the cove, where a substantial
amount of oil was recovered by manual pickup.
The rest of this subdivision was not surveyed as
previous reports show no oil.

REVIEWED: MC 5/23/91
revised 5.23.94

BIO SKETCH MAP
 TBOOY-A
 JP BARKLEY
 18 MAY 1991
 1204-1330

Legend

② bedrock cliffs

▣ Angular cobbles, boulder talus

⊞ Cobble, pebbles (common)

⊞ Pebble, boulder

⊞ vegetated cliff

(A1, A4)

Sparse biota - Green Algal films, moderate to dense Littorines and limpets under cobbles. Fucus and barnacles scattered. Oligochaetes (or nematodes) abundant under some cobbles

FILAMENTOUS GREEN ALGAE, SPARSE FUCUS, BARNACLES OLIGOCHAETES, LIMPETS, LITTORINES common UNDER COBBLE

unsubmerged

(A2)

(A1)

ALGAL FILMS

SPARSE FUCUS BED

STREAM

CLAM (subtidal)

Dense Mussel/Fucus Bed
 MUSSELS/FUCUS APPAR
 Generally Healthy, tho
 sparse numbers of juvenile
 mussels present. Little
 limpets, worms, amphipods
 and barnacles patchy,
 and sometimes dense
 Highest densities in
 areas with the least
 oil. Little biota present
 in heaviest oiled
 spots.

(A3)

(A4)

N

Meters

20 40

Cg Sketch Map

Legend

TB.004.A

17 Samples

May 18/91

1204 - 1330

Bedrock Cliffs
on Bluffs

ANGULAR SAND/COBBLE, TAL. 3

COBBLE / PEBBLE
(angular)

PEBBLE / COBBLE

Vegetation - m. w. w.

Admission Pass and
Cross Section
Location

A2

MSOR 5% } 20.70 }
LSOR 10% } Tax in 1980

A1

AP, HSOR, CV
6 (Average) x 100
5%, MAX patch size 0.5 x 1 m
max thickness 5 cm. around
boulders / cobbles.

Worked
ON

A3

MSOR 5% } 20 x 60
LSOR 10% } Shcen

Worked on

Stream



Meters

0 20 40

MAYSAP 4.6

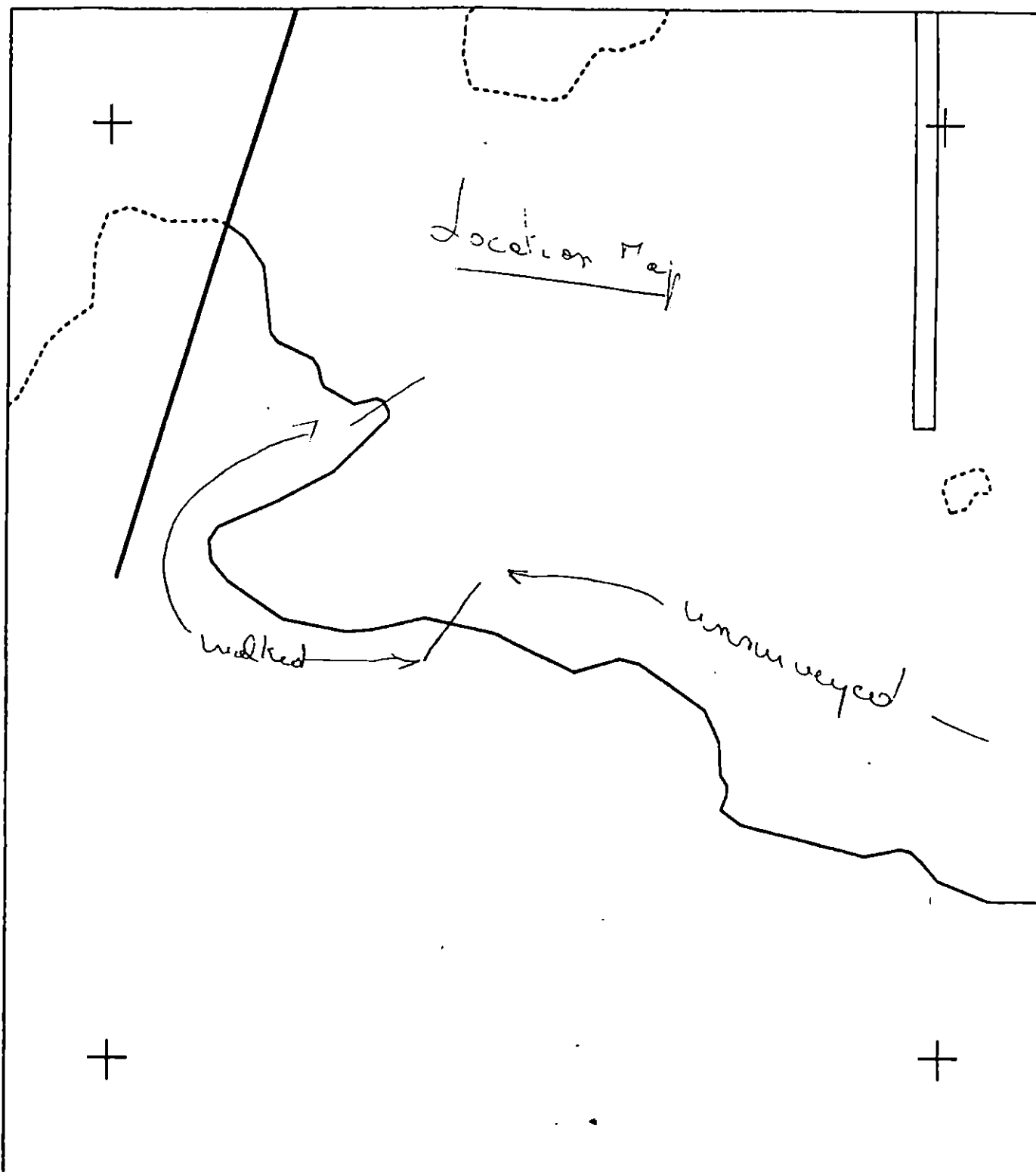
1 to 5
Clockwise panorama

AP, HSOR, < 5%
2 x 30 m.

A4

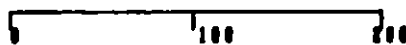
UNSURVEYED

reviewed 5.23 97



TB004 A

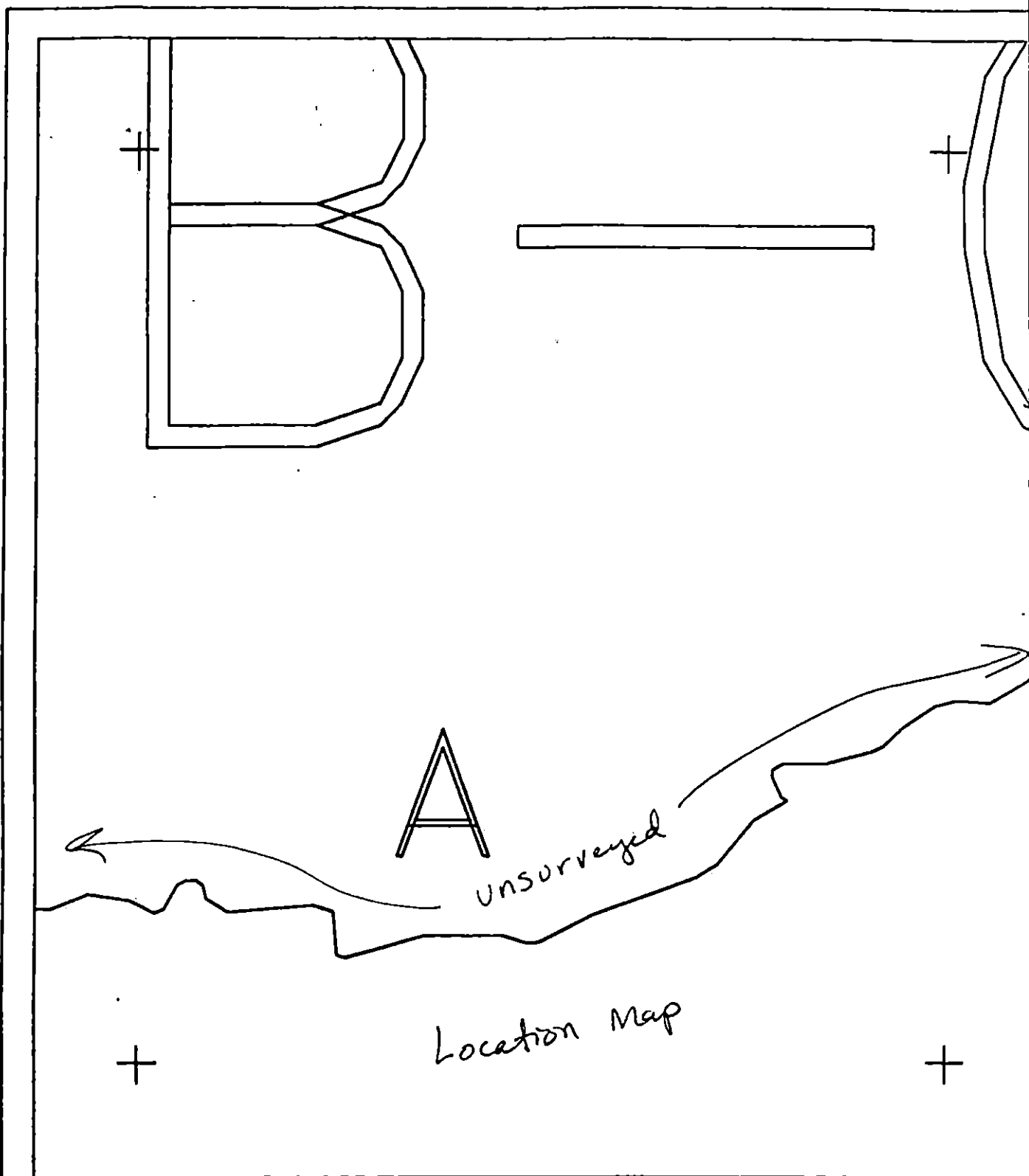
METERS

AK State Plane Zone 4
NAD83

Subdivision Field Map

Map Key: KENTB004Aa

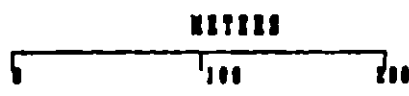
Name: for SamplesDate: MAY 12/91



Location Map

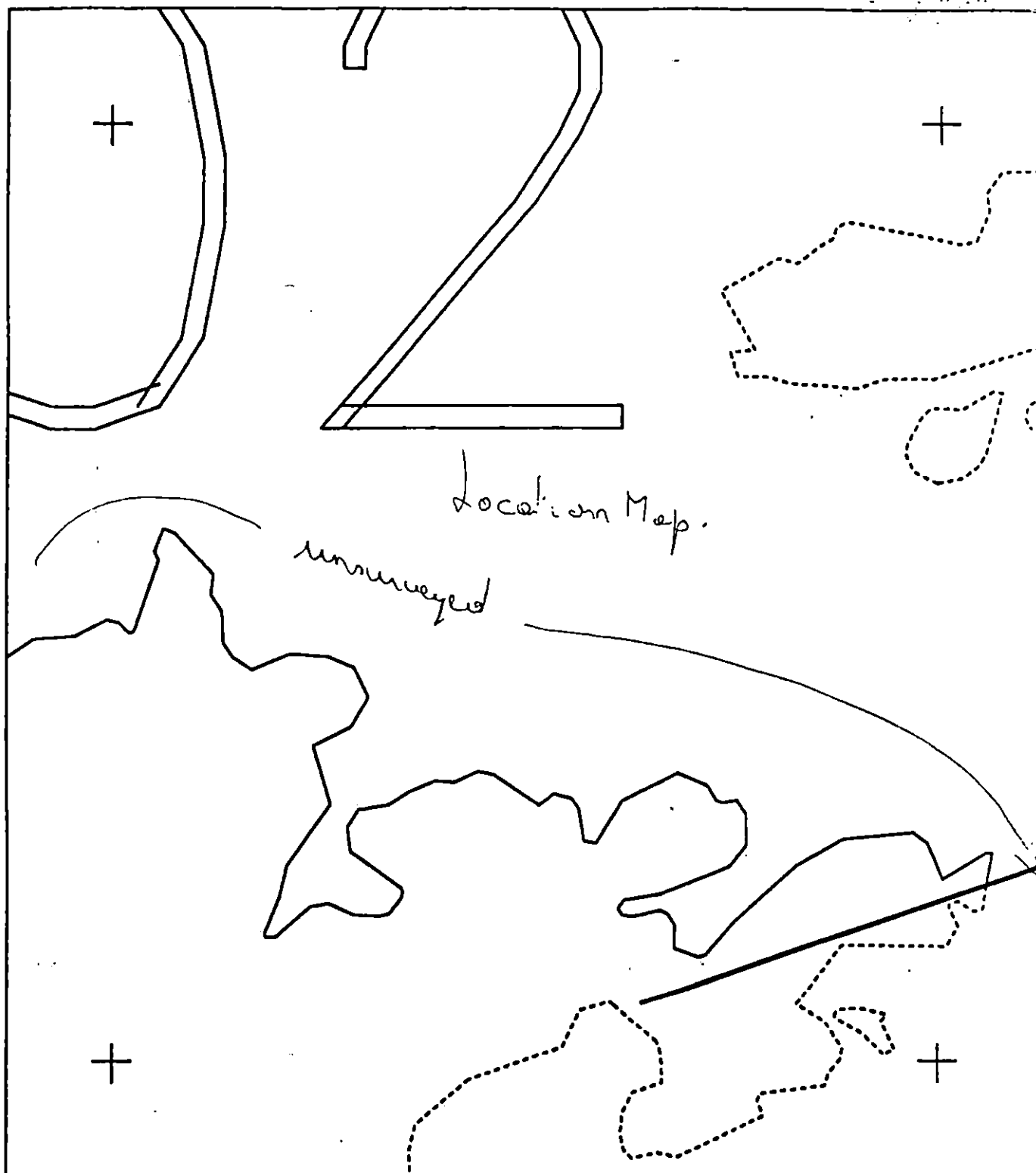


TB004 A



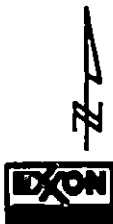
AK State Plane Zone 4
511884.5

Subdivision Field Map
Map Key: KENTB004Ab
Name: JM Sampels
Date: May 2/91



Location Map.

unsurveyed



TB004 A

METERS

0 100 200

AK State Plane Zone 4
61800400

Subdivision Field Map

Map Key: KENTB004A

Name: J M Samples

Date: MAY 12/91

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 18, 1991	1215 - 1330
SEGMENT #	TB004	TIDAL HEIGHT (Range)	-1.5 => +1.0	
SUBDIVISION	A	BIOLOGIST	JIM BARRY	
SEA STATE	1 ft. chop	WIND SPEED/DIRECTION	SW 15-25 kt., rain	

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

A1.A4 Oil is located along the cobble and boulder talus at the edge of the beach, leading to the upland. Most of the oil is in the upper intertidal at the upper edge of the Fucus zone. Biota are generally sparse at this level. Green algal films are present on most of the cobble, with moderate to dense patches of littorine snails and limpets under the cobble. Fucus and barnacles are scattered sparsely over the cobble. Oligochaete (or nematode?) worms are quite abundant under some cobble.

The abundance of Fucus and associated species increase in the middle zone below the oiled area and a moderate clam bed occurs in the lowest zone.

A2 This oiled area (LSOR/MSOR) is located along the upper zone of the beach. Filamentous green algae are the dominant species on the beach cobble at this location. Fucus and barnacles are sparse on the cobble. Oligochaete (Nematodes?) worms are abundant under many cobble, and appear to be in fairly close contact with oil. Littorine snails and limpets are moderately to sparsely abundant and amphipod are present in some dense patches, particularly where oiling is light, or lower.

A3 This area has MSOR in the sediments amongst a fairly dense mussel and Fucus bed in the cobble/pebble beach. Oil is distributed in patches of varying thickness and oil content throughout the bed. Mussels and Fucus appear quite healthy through much of the bed. Areas with the heaviest oiling have the lowest densities of all species.

(continued)

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	2	
Seabirds	2	5	
Waterfowl	1	2	
Gulls/Kittiwakes	3	5	
Shorebirds	1	20	
Corvids	1	2	
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

though mussels are present even within fairly heavily oiled (LSOR/MSOR) sediments. Littorine snails, limpets, hermit crabs, amphipods, isopods, barnacles, polychaete worms, and other species are present in oiled sediments, but appear more dense in areas with lighter oil or no oil.

Cleanup Considerations

Mussel Bed

The major resource of concern on this beach is the middle intertidal mussel and rockweed (Fucus) bed. A considerable portion of this bed has LSOR or MSOR embedded in the sediments amongst the mussels, barnacles, and Fucus. Because the oil is distributed throughout the bed, rather than in a few isolated locations, there are only two realistic options for effective cleanup and recovery of this resource. These are 1) no treatment, followed by natural degradation and weathering of the remaining oil, and 2) removal of the oiled sediments. Option 2 will require nearly complete destruction of the mussel/Fucus bed overlying the oiled sediments during treatment. The value of these options depends upon the time scale of 1) natural degradation of the remaining oil under conditions of no treatment and 2) the recovery of the mussel/Fucus bed from natural recruitment and growth. An additional consideration for option 2 is the potential priority ranking of this subdivision in the overall cleanup program.

The unpredictability of the rate of natural degradation of oil and rates of recovery for disturbed mussel/Fucus beds on this, or similar, beaches, confounds the treatment recommendation. Rates of natural degradation and weathering of oiled sediments appear to be quite variable and related to exposure, habitat type, etc.

Rates of recruitment and recovery of mussel/Fucus beds also are quite variable. Because Fucus exhibits strong and widespread recruitment throughout Prince William Sound and the Kenai region, it is likely that it will recover rapidly (ca 2y), irrespective of the extent of disturbance to the existing bed. Re-establishment of the mussel bed may proceed more slowly, due to several factors including rates of reproduction by local adult populations of mussels (the number of larvae in the water), the effects of local currents on larval transport (the rate larvae will arrive at the beach), and the negative effect of removing the existing mussel bed on larval settlement behavior. Larvae of mussels are known to settle preferentially amongst adults of their own species. Thus, removal of the adult population may retard settlement of larvae from the plankton until a small bed is present. Studies from the exposed coastline of Washington suggest that recovery from disturbance to mussel beds may require up to 25 years or more. These studies may, however, have no application to the protected cove habitat of TB004-A. I expect that recovery following total removal of the mussel/Fucus bed will be much less than 25 years, and may be as little as 7 - 10 year.

In view of these considerations, estimates of the rates of natural degradation for the MSOR at this site (which I am ignorant of) should be compared with the time scale for re-establishment of the mussel/Fucus bed following a catastrophic disturbance (i.e. cleanup removal). If the natural rate of degradation for the MSOR in these sediments is slow (ca much greater than 10 years), the time scale for recovery via treatment option 2 (removal of sediments and mussels/Fucus bed) may be more rapid than the time required for recovery under option 1 (no treatment).

An additional, and potentially very important, factor is the effect of removing the surface sediments containing the oil on the underlying fine-grained sediments. Removal of the coarse-grained surface sediments may result in the erosion of the fine-grained component, with detrimental consequences for the re-establishment of the mussel/Fucus bed.

and maintenance of the lower zone eel grass/clam bed. Consult geologists regarding this risk.

Other Areas

Manual removal was performed on parts of this subdivision during the survey. Additional treatment, if recommended, will not adversely affect the biota on this beach, with the exception of the mussel bed discussed above.

General Characteristics of TB004-A

This subdivision, located along the inside of Tonsina Bay, has one small pocket beach with significant oiling. This protected cove, composed of cobble, pebbles, and sand, and bordered by bedrock cliffs and talus boulders, was the only section of the subdivision surveyed. The major biological features of the beach are a middle intertidal mussel and Fucus bed, and a sparse clam bed in the low zone.

The mussel/Fucus bed extends from the lower edge of the upper zone into the low zone and has variable abundances of species, somewhat related to the distribution of oil on the beach (see below). Fucus is dense within the bed, with adult and juveniles present. Mussels also are quite dense, if patchy, and consolidate the sediments throughout much of the bed. Several other groups are abundant. Intertidal crustaceans, such as amphipods and hermit crabs, are very abundant under cobble throughout much of the bed. Barnacles are abundant on most cobble, often in very dense patches. Marine snails, such as limpets and littorines, also are abundant under most cobble. Several species of polychaete worms are commonly found under cobble in the beach sediments. Most species show evidence of recovery or recruitment. Fucus juveniles are abundant. Juveniles and spat of mussels are present, but not particularly abundant. Eggs of littorine snails are very common.

The lower zone clam bed appears to have moderate abundant densities of clams and associated species. Several species were found, including cockles, jingle shells, little necks, and butter clams. Green and brown algae, are present, as is a small amount of eel grass. The tidal height prevented close inspection of the extreme low zone.

(continued)

General Zonation pattern of TB004-A

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal
Oil			---	- + + * + + - -		
Black Lichen		-- + + * + -				
Bare Rock		- - - - -				
Filamentous Green/Brown Algae			- + + * + + -	- - - - -	- - - - -	
Rockweed (Fucus)				- - + + * + * + * + * - - + - - -		
Barnacles (Balanus)			- - + + + - - + - * - * - * - - - - - - - - -			
Mussels (Mytilus)			- - + + * + * + * + * - - - - -			
Other Red Algae				- - - + - - + - + - - - - +		
Green Algae (Ulva/other)				- + - - - - - + - + - + - + - + - + - + -		
Crustose Brown Algae (Hildenbrandia)				- - - - - - - - - - - - - - -		
Upright Brown Algae (not Fucus)					- - + + - - + - + - - - -	
Eel Grass						- - + - +
Clams						- - + - + - + - + - + - +

Legend: (-) Sparse to rare. (+) Moderate. (*) Abundant

Common Species on TB004-A

A. Marine Plants

1. Diatoms, Blue Greens
2. Green Algae - Chlorophyta
Acrosiphonia sp., Enteromorpha sp., Ulva sp., Urospora sp.
3. Brown Algae - Phaeophyta
Agarum fimbriatum, Ectocarpus spp., Fucus distichus, Hildenbrandia sp.,
Syctosiphon lomentaria
4. Red Algae - Rhodophyta
Endocladia muricata, Halosaccion glandiforme, Membranoptera dimorpha,
Odonthalia floccosa, Palmaria palmata, Porphyra sp.,
5. Higher Plants - Zostera marina (eel grass), Leymus mollis (beach rye grass)

II. Marine Animals

2. Anemones - Anthopleura artemesia, E. prolifera?
5. Flatworms - Platyhelminthes - Polyclads
6. Nemertean Worms - Ribbon Worms - Emplectonema gracile
8. Polychaete Worms
Glyceridae
Nepthyidae
Nereidae - Nereis spp.
Serpulidae - Serpula sp., Crucigera sp., Eudistylia polymorpha
Spriorbidae - Spiroboris sp.
10. Crustaceans
 - a. Amphipods - Orchestia sp.?, Traskorchestia traskiana
 - b. Barnacles - Balanus glandula, Semibalanus cariosus
 - c. Crabs - Paguridae (hermit crabs).
 - d. Isopods - Cirdana harfordi, Idotea wosnesenskii, Gnorimorsphaeroma oregonensis

11. Mollusca

- a. Chitons - *Modalia mucosa*, *Katharina tunicata*, *Tonicella lineata*.
- b. Snails - Gastropods
Fusitriton oreoonensis, *Littorina sitkana*, *L. keenae*, *Natica clausa*, *Nucella lamellosa*, *N. lima*, *Searlesia dira*.
- c. Limpets - *Lottia limatula*, *Tectura fenestrata*, *T. persona*, *Siphonari*
thersites
- e. Bivalves - *Chlamys hastata*, *Clinocardium* sp., *C. nuttalli*, *Hiatella*
arctica, *Macoma nasuta*, *Modiolus modiolus*, *Mytilus edulis*,
Pododesmus cepio, *Prototheca staminea*, *Saxidomus giganteus*

12. Echinoderms

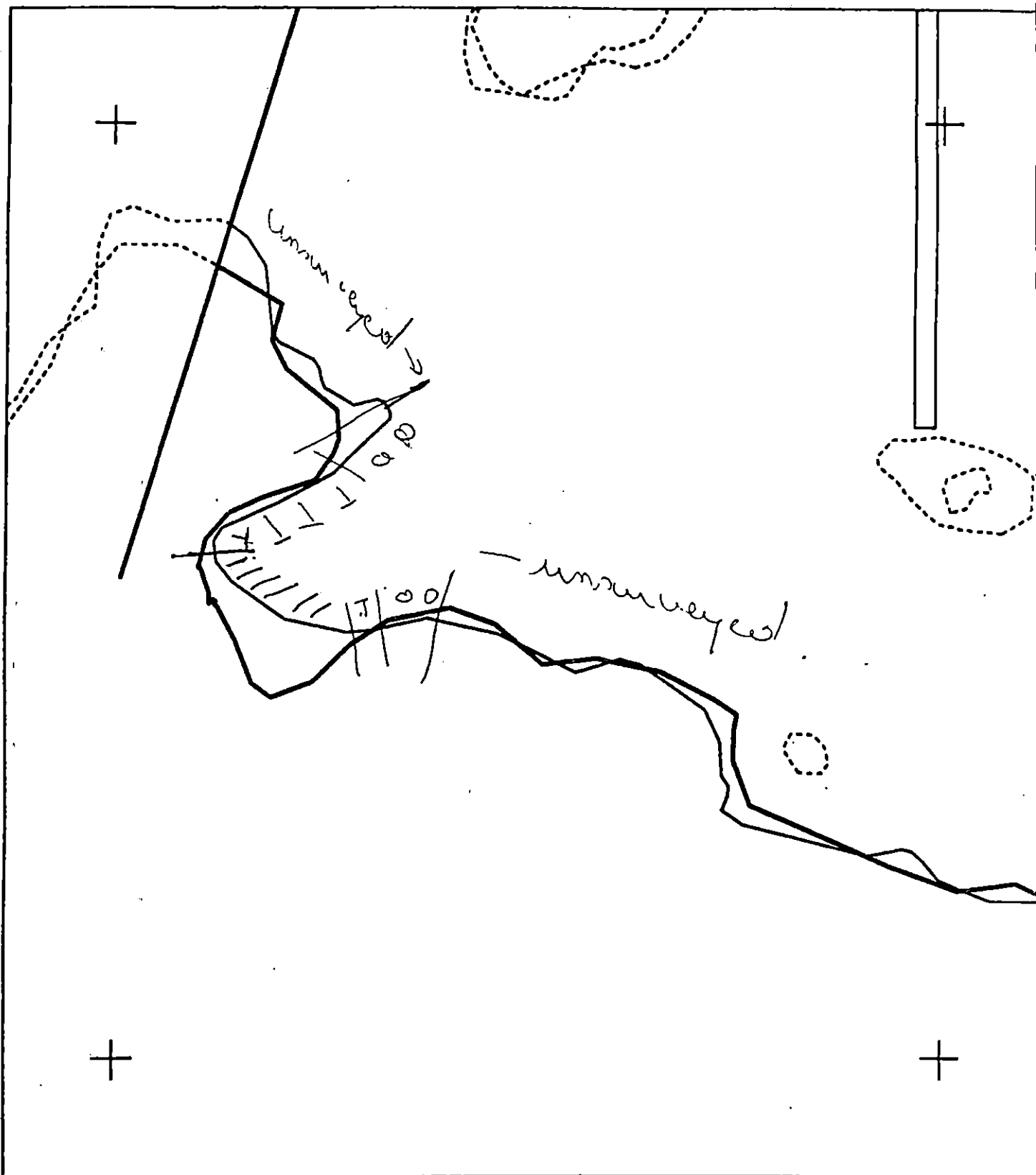
- a. Brittle Stars - *Ophiolus aculeatus*?, *Ophiothrix spiculata*?,
Amphipholis?
- b. Sea stars - *Dermasterias imbricata*, *Leptasterias hexactis*,
Pycnopoda helianthoides, *S. stimpsoni*.
- c. Sea Cucumbers - Holothurians - *Eupentacta* sp.
- d. Urchins - *Strongylocentrotus droebachiensis*

13. Bryozoans - *Membranipora* sp., *Schizoporella* sp.

15. Fishes

- Cottidae -
- Stichaeidae - *Xiphister atropurpureus*, *X. mucosus*

III. Birds - Bald eagle (2), Pigeon Guillemot (2), Red faced Cormorant (3), Black-legged Kittiwake (2), Glaucous-winged gull (2), Herring Gull (1), Harlequin Duck (2), Raven (2), Western Sandpiper (20)



XXXX Wide
//// Medium
---- Narrow
TTTT Very Light
0000 No Oil

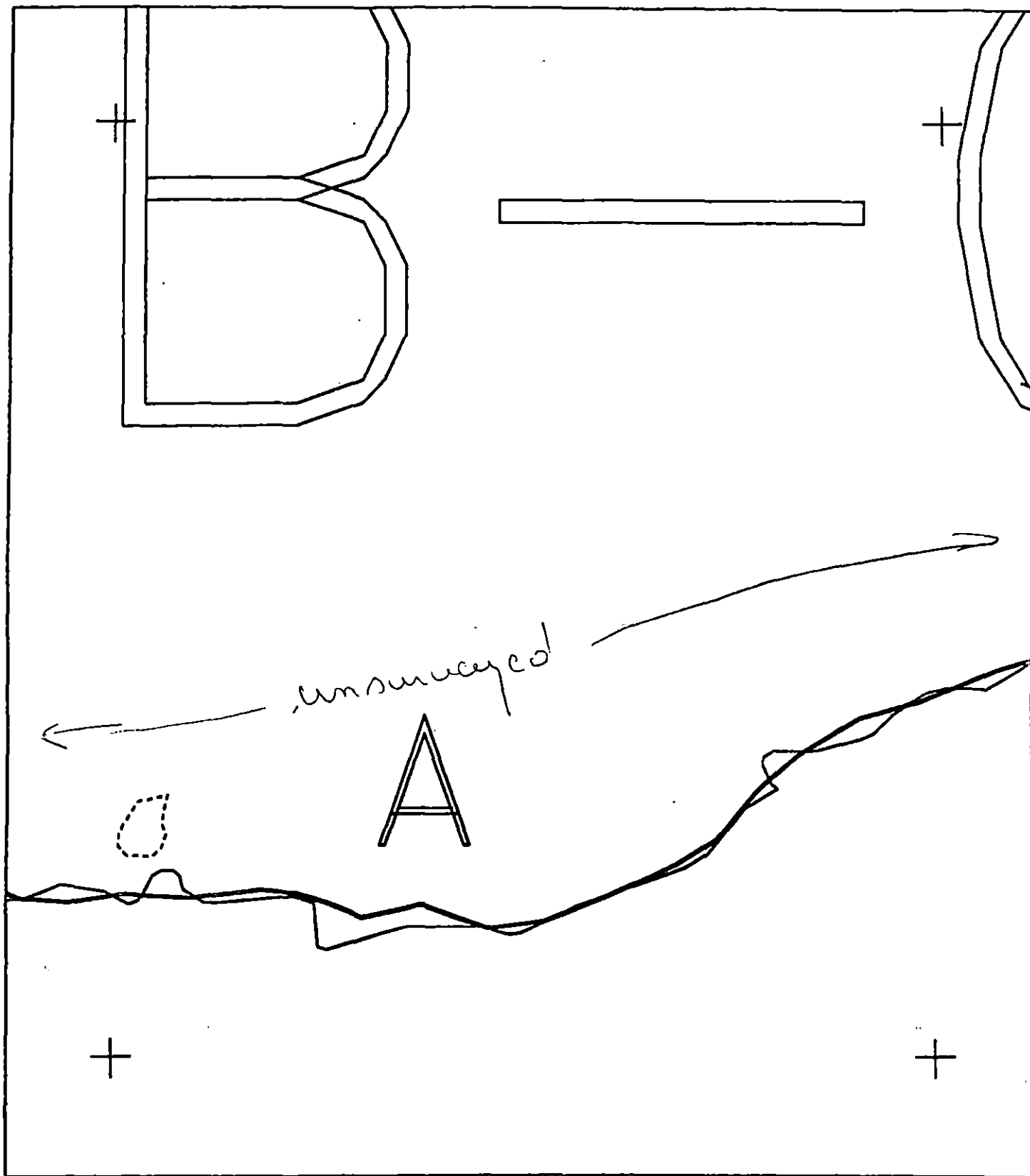
TB004 A
ADEC Subsegment Length: 3100m
METERS

5 100 200
AK State Plane Zone 4
81500400



Subdivision Field Map
Map Key: KENTB004Aa
Name: Jim Sempers
Date: May 18/91
Date Entered:

Reviewed: MC 5/23/91
Reviewed 5.23 91



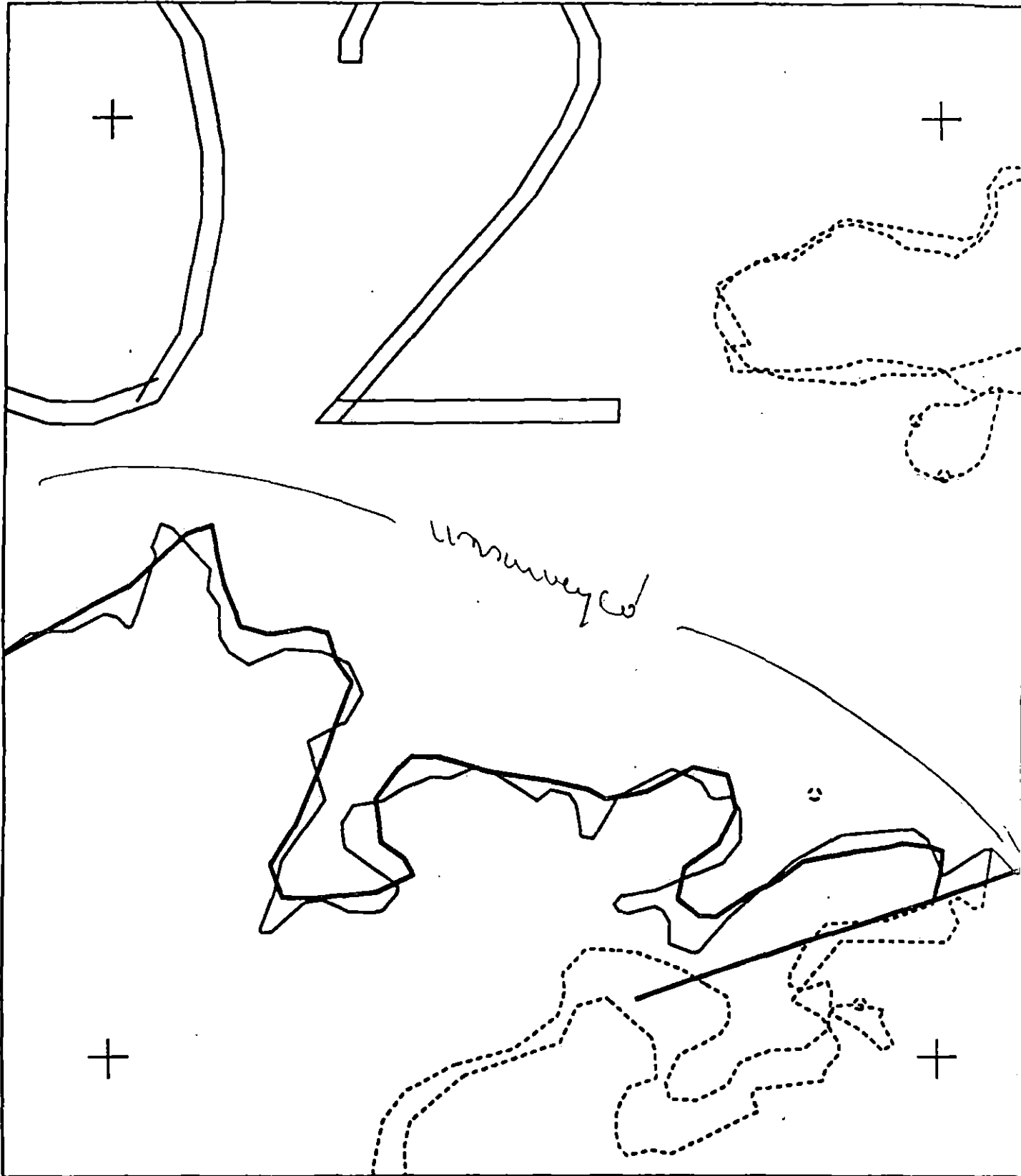
XXXX Wide
//// Medium
---- Narrow
TTTT Very Light
0000 No Oil

TB004 A
ADEC Subsegment Length: 3199m
METERS
0 100 200
AK State Plane Zone 4
al6004ab



Subdivision Field Map
Map Key: KENTB004Ab
Name: M. Samples
Date: MAY 16/91
Data Entered:

REVIEWED: MC 5/23/91



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB004 A
 ADEC Subsegment Length: 3189m
 METERS
 0 100 200
 AK State Plane Zone 4
 115004Ac



Subdivision Field Map
 Map Key: KENTB004Ac
 Name: Jim Semple
 Date: May 18/91
 Date Entered:

Reviewed: 5/23/91

1991 MAYSAP EVALUATION

SEGMENT: TB 004 SUB: A REGION: KEN SURVEY DATE: 5/18/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest, Herring spawning, Fish harvest area

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find, and contact Exxon's Cultural Resource Program immediately: 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

RECOMMENDATIONS:

	INITIAL	TAG	FOSC
TREATMENT REQUIRED (Y or N)	<u>N</u>	<u>Y</u> <i>[initials]</i>	<u>Y</u>
Manual Pickup (Check as Req.)	<u> </u>	<u>X</u>	<u>X</u>
Spot Washing	<u> </u>	<u> </u>	<u> </u>
Bio-Customblen Only	<u> </u>	<u>X</u>	<u>X</u>
Bio-Inipol/Customblen	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>

COMMENTS:

INITIAL:

TAG: ACCESS OIL IN AREA BOUNDED BY PITS 9, 10 AND 15 AND REMOVE 0-8 CM MOUSSE, SOR, OR SEDIMENTS AND APPLY CUSTOMBLEN. REMOVE EASILY ACCESSIBLE AP/HSOR IN AREA A4.

FOSC:

TAG APPROVAL DATE: 6/11/91

FOSC APPROVAL DATE: 6/13/91

ADEC *[Signature]*

FOSC *[Signature]* E. E. PAGE, CDR, USCG

EXXON *[Signature]*

EXXON *[Signature]* CHIEF OF STATE - No Net Environmental Benefit - will destroy significant recovering biota for minimal oil.

USCG *[Signature]*

NOAA *[Signature]*

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

TEAM NO. 4 SEGMENT TB-004 SUBDIVISION A DATE MAY 18 / 91

ADEC

NAME

Clara S. Crosby

SIGNATURE

Clara S. Crosby☐ NTRTreatment Recommendations -

Suggest this entire Beach be looked @ by
TAG -

This Survey was conducted on a rainy day - a significant
amt of silt was present.

EXXON

NAME

George P. Stiles

SIGNATURE

☐ NTR

Several areas exist with subsurface oiling.
The entire beach was not worked due to the stream,
fucus and mussel beds per one of the VECO crew
members. These limitations should fully be explored
prior to any treatment recommendation.

LANDMANAGER

NAME

Jeff Johnson

OF

ADNR

SIGNATURE

Jeff Johnson☐ NTR☒ T.R.

Although this beach has significant mussel/fucus beds, there are some
exposed areas of oiled sediments that are not within the beds, and these
spots should be treated. Crew members were successful with manual methods,
but I concur with DEC; that TAG should decide which treatment method
would be most appropriate. The goal will be to maximize the effectiveness of
oil recovery while minimizing damage to biota. The segment is within Kachemak Bay/
State Wilderness Park; the existing oil remaining has significant negative visual impact.

USCG/NOAA

NAME

McMahon/McDonald

SIGNATURE

Jeff McMahon☐ NTR

I have reservations for manual treatment on and
within healthy mussel and fucus beds. If
however this is not a constraint then I would
recommend Type A treatment.

PAGE 2 OF 15 16

DATE May 118 191

Revised: 5.23.94
Reviews: MC 5/23/94

[illegible]

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

* 0-5 cm DOES NOT CONSTITUTE SUBSURFACE OIL (SHOWS BGL SOIL)

OG COMMENTS:

pit logs) and occurs over extensive areas on L and M cor over the intertidal zone. The oiled areas overlap extensive mussel zones (see attached biology report). Patches of asphalt and/or HSO₂R also occur at the base of the cliffs, mostly on the northwestern side of the cove, where a substantial amount of oil was recovered by manual pickup. The rest of this subduction was not surveyed as previous reports show no oil.

REMOVED: MC 5/23/91
revised 5.23.94

Cg Sketch Map

TB.004.A

17 Samples

MAY 18/91

1204 - 1330

Legend

Bedrock Cliffs
on bluffs

ANGULAR SANDS/
cobble, TALL 3

cobble / pebble
(angular)

pebble / cobble

vegetation in mounds

Adumous - bas and
bas - moun
Rockstone

A2

MSOR, 5% } 20.70 }
LSOR, 10% }

Max impat & size

STORM BEAM

FG

A1

AP, HSOR, CV
6 (Average) x 100
5% MAX pat & size 0.5 x 1m
max thickness 5 cm. around
boulders / cobbles.

Worked
ON

A3

MSOR 5% } 20 x 60
LSOR 10% } screen

Worked on

Stream

Meters

20 40

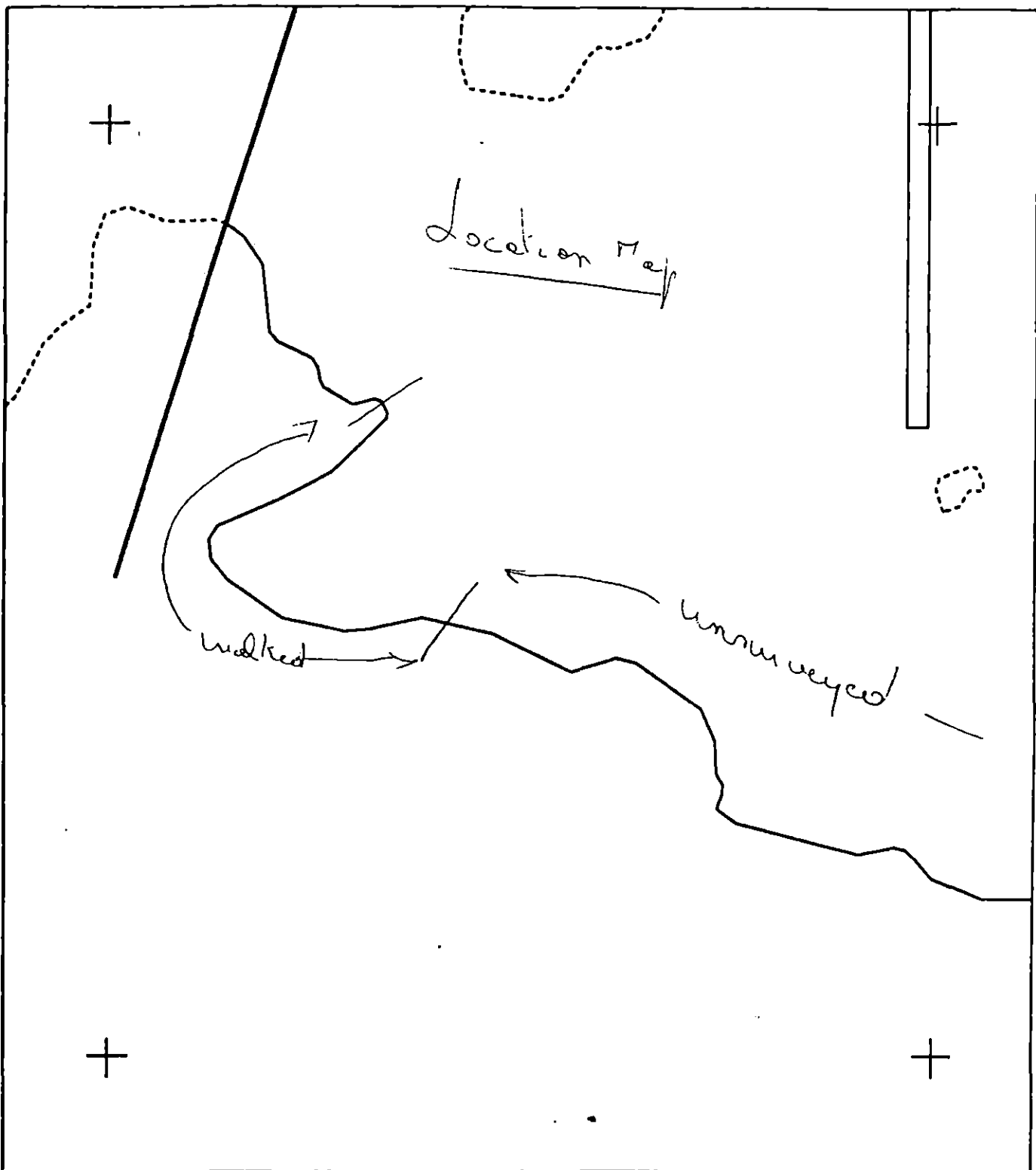
MAYSAP 4.6

1 to 5
Rockstone permeable

AP, HSOR, < 5% } A4
20 x 20 m.

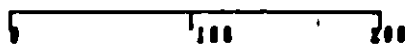
UNSURVEYED

reviewed 5.23 94



TB004 A

METERS



AK State Plane Zone 4
NAD83

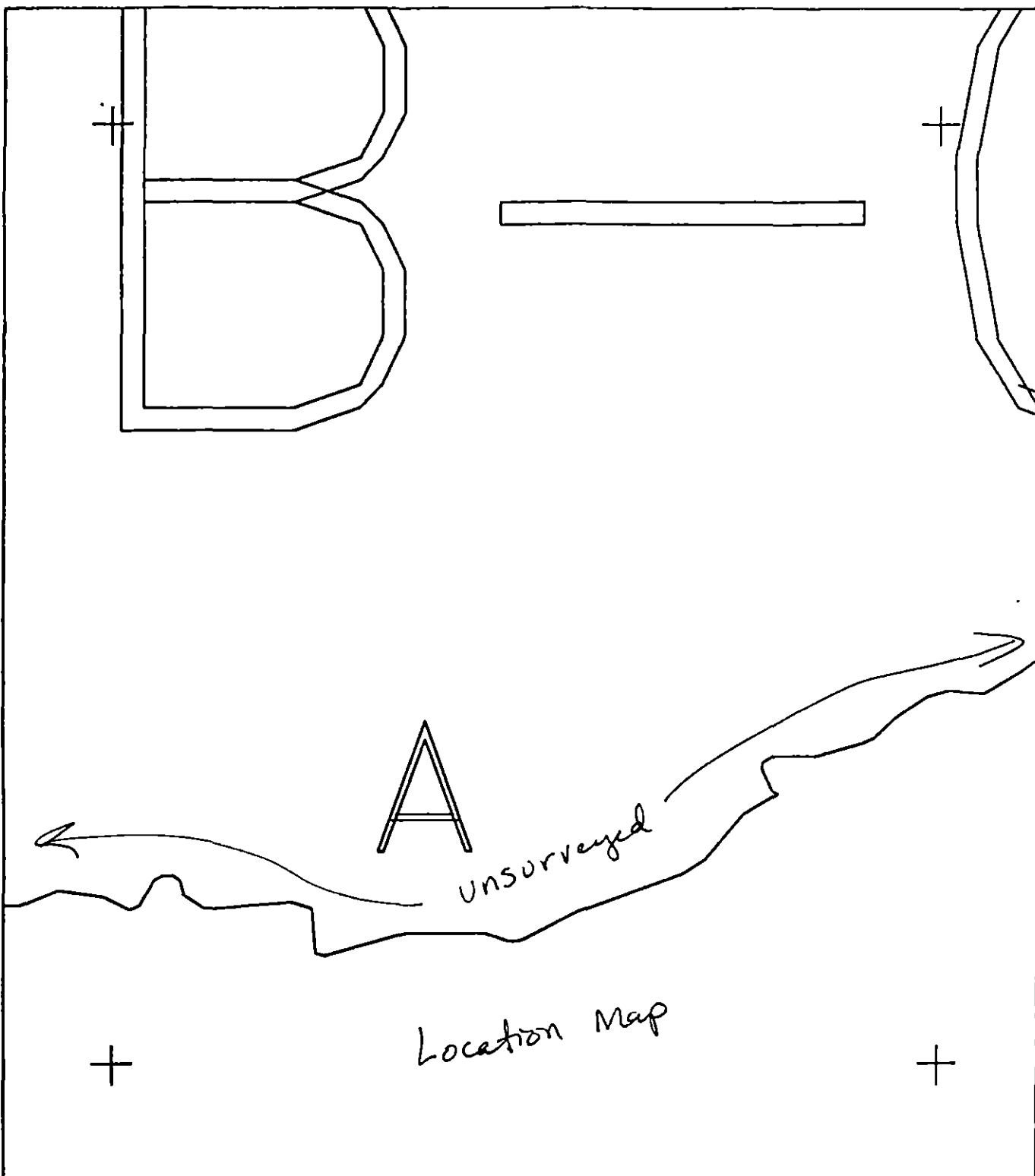


Subdivision Field Map

Map Key: KENTB004Aa

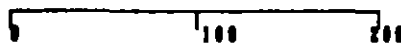
Name: for Samples

Date: MAY 18/91



TB004 A

METERS



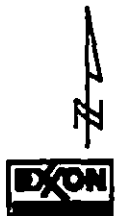
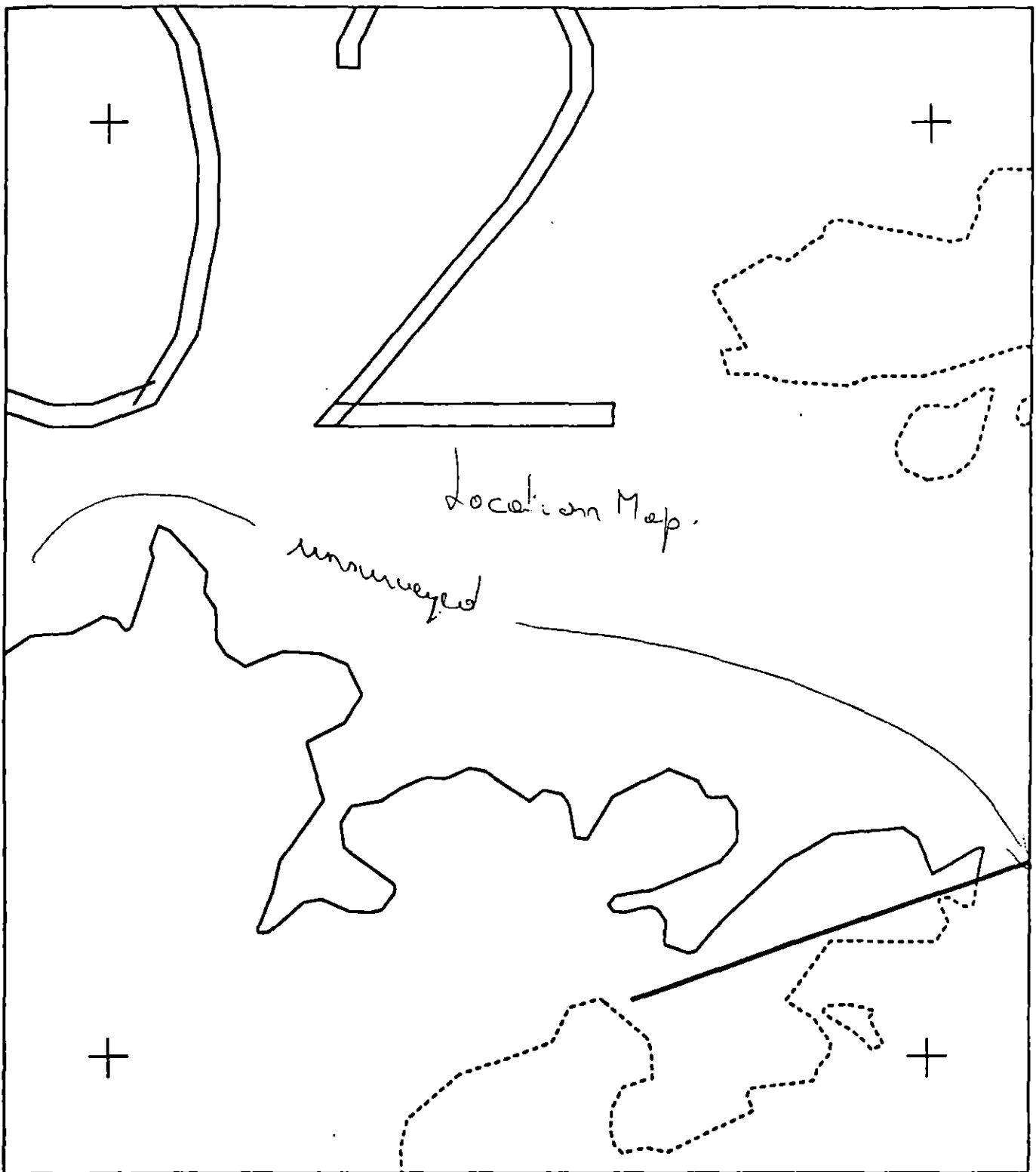
AK State Plane Zone 4
NAD83

Subdivision Field Map

Map Key: KENTB004Ab

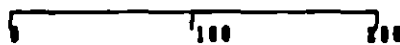
Name: J M Sampels

Date: May 13/91



TB004 A

METERS



AK State Plane Zone 4
NAD83

Subdivision Field Map

Map Key: KBNTB004Ac

Name: J. M. Semple

Date: MAY 18/91

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 18, 1991 1215 - 1330
SEGMENT #	TB004	TIDAL HEIGHT (Range)	-1.5 => +1.0
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	1 ft. chop	WIND SPEED/DIRECTION	SW 15-25 kt., rain

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

A1,A4 Oil is located along the cobble and boulder talus at the edge of the beach, leading to the upland. Most of the oil is in the upper intertidal at the upper edge of the Fucus zone. Biota are generally sparse at this level. Green algal films are present on most of the cobble, with moderate to dense patches of littorine snails and limpets under the cobble. Fucus and barnacles are scattered sparsely over the cobble. Oligochaete (or nematode?) worms are quite abundant under some cobble.

The abundance of Fucus and associated species increase in the middle zone below this oiled area and a moderate clam bed occurs in the lowest zone.

A2 This oiled area (LSOR/MSOR) is located along the upper zone of the beach. Filamentous green algae are the dominant species on the beach cobble at this location. Fucus and barnacles are sparse on the cobble. Oligochaete (Nematodes?) worms are abundant under many cobble, and appear to be in fairly close contact with oil. Littorine snails and limpets are moderately to sparsely abundant and amphipods are present in some dense patches, particularly where oiling is light, or lower.

A3 This area has MSOR in the sediments amongst a fairly dense mussel and Fucus bed in the cobble/pebble beach. Oil is distributed in patches of varying thickness and oil content throughout the bed. Mussels and Fucus appear quite healthy through much of the bed. Areas with the heaviest oiling have the lowest densities of all species.

(continued)

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	2	
Seabirds	2	5	
Waterfowl	1	2	
Gulls/Kittiwakes	3	5	
Shorebirds	1	20	
Corvids	1	2	
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

though mussels are present even within fairly heavily oiled (LSOR/MSOR) sediments. Littorine snails, limpets, hermit crabs, amphipods, isopods, barnacles, polychaete worms, and other species are present in oiled sediments, but appear more dense in areas with lighter oil or no oil.

Cleanup Considerations

Mussel Bed

The major resource of concern on this beach is the middle intertidal mussel and rockweed (Fucus) bed. A considerable portion of this bed has LSOR or MSOR embedded in the sediments amongst the mussels, barnacles, and Fucus. Because the oil is distributed throughout the bed, rather than in a few isolated locations, there are only two realistic options for effective cleanup and recovery of this resource. These are 1) no treatment, followed by natural degradation and weathering of the remaining oil, and 2) removal of the oiled sediments. Option 2 will require nearly complete destruction of the mussel/Fucus bed overlying the oiled sediments during treatment. The value of these options depends upon the time scale of 1) natural degradation of the remaining oil under conditions of no treatment and 2) the recovery of the mussel/Fucus bed from natural recruitment and growth.

An additional consideration for option 2 is the potential priority ranking of this subdivision in the overall cleanup program.

The unpredictability of the rate of natural degradation of oil and rates of recovery for disturbed mussel/Fucus beds on this, or similar, beaches, confounds the treatment recommendation. Rates of natural degradation and weathering of oiled sediments appear to be quite variable and related to exposure, habitat type, etc.

Rates of recruitment and recovery of mussel/Fucus beds also are quite variable. Because Fucus exhibits strong and widespread recruitment throughout Prince William Sound and the Kenai region, it is likely that it will recover rapidly (ca 2y), irrespective of the extent of disturbance to the existing bed. Re-establishment of the mussel bed may proceed more slowly, due to several factors including rates of reproduction by local adult populations of mussels (the number of larvae in the water), the effects of local currents on larval transport (the rate larvae will arrive at the beach), and the negative effect of removing the existing mussel bed on larval settlement behavior. Larvae of mussels are known to settle preferentially amongst adults of their own species. Thus, removal of the adult population may retard settlement of larvae from the plankton until a small bed is present. Studies from the exposed coastline of Washington suggest that recovery from disturbance to mussel beds may require up to 25 years or more. These studies may, however, have no application to the protected cove habitat of TB004-A. I expect that recovery following total removal of the mussel/Fucus bed will be much less than 25 years, and may be as little as 7 - 10 year.

In view of these considerations, estimates of the rates of natural degradation for the MSOR at this site (which I am ignorant of) should be compared with the time scale for re-establishment of the mussel/Fucus bed following a catastrophic disturbance (i.e. cleanup removal). If the natural rate of degradation for the MSOR in these sediments is slow (ca much greater than 10 years), the time scale for recovery via treatment option 2 (removal of sediments and mussels/Fucus bed) may be more rapid than the time required for recovery under option 1 (no treatment).

An additional, and potentially very important, factor is the effect of removing the surface sediments containing the oil on the underlying fine-grained sediments. Removal of the coarse-grained surface sediments may result in the erosion of the fine-grained component, with detrimental consequences for the re-establishment of the mussel/Fucus bed

and maintenance of the lower zone eel grass/clam bed. Consult geologists regarding this risk.

Other Areas

Manual removal was performed on parts of this subdivision during the survey. Additional treatment, if recommended, will not adversely affect the biota on this beach, with the exception of the mussel bed discussed above.

General Characteristics of TB004-A

This subdivision, located along the inside of Tonsina Bay, has one small pocket beach with significant oiling. This protected cove, composed of cobble, pebbles, and sand, and bordered by bedrock cliffs and talus boulders, was the only section of the subdivision surveyed. The major biological features of the beach are a middle intertidal mussel and Fucus bed, and a sparse clam bed in the low zone.

The mussel/Fucus bed extends from the lower edge of the upper zone into the low zone and has variable abundances of species, somewhat related to the distribution of oil on the beach (see below). Fucus is dense within the bed, with adult and juveniles present. Mussels also are quite dense, if patchy, and consolidate the sediments throughout much of the bed. Several other groups are abundant. Intertidal crustaceans, such as amphipods and hermit crabs, are very abundant under cobble throughout much of the bed. Barnacles are abundant on most cobble, often in very dense patches. Marine snails, such as limpets and littorines, also are abundant under most cobble. Several species of polychaete worms are commonly found under cobble in the beach sediments. Most species show evidence of recovery or recruitment. Fucus juveniles are abundant. Juveniles and spat of mussels are present, but not particularly abundant. Eggs of littorine snails are very common.

The lower zone clam bed appears to have moderate abundant densities of clams and associated species. Several species were found, including cockles, jingle shells, little necks, and butter clams. Green and brown algae, are present, as is a small amount of eel grass. The tidal height prevented close inspection of the extreme low zone.

(continued)

General Zonation pattern of TB004-A

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal
Oil			---	-++*+--		
Black Lichen		---+*+-				
Bare Rock		-- --				
Filamentous Green/Brown Algae			---+*+--	- - - - -		
Rockweed (Fucus)				---+*+*+*+*+--	- - -	
Barnacles (Balanus)			- -	+++--+-*-*+-----	- - - - -	
Mussels (Mytilus)			- - +	+*+*+*+*+*+*	- - - - -	
Other Red Algae				- - - + - -	+ + - - -	- +
Green Algae (Ulva/other)				- + - - - -	- + + + + + + + + +	++ -
Crustose Brown Algae (Hildenbrandia)				-----		
Upright Brown Algae (not Fucus)					---+---+---+---+	
Eel Grass						- - + +
Clams						- - + + + + + + + +

Legend: (-) Sparse to rare. (+) Moderate. (*) Abundant

Common Species on TB004-A

A. Marine Plants

1. Diatoms, Blue Greens
2. Green Algae - Chlorophyta
Acrosiphonia sp., Enteromorpha sp., Ulva sp., Urospora sp.
3. Brown Algae - Phaeophyta
Agarum fimbriatum, Ectocarpus spp., Fucus distichus, Hildenbrandia sp.,
Sycosiphon lomentaria
4. Red Algae - Rhodophyta
Endocladia muricata, Halosaccion glandiforme, Membranoptera dimorpha,
Odonothalia floccosa, Palmaria palmata, Porphyra sp.,
5. Higher Plants - Zostera marina (eel grass), Leymus mollis (beach rye grass)

II. Marine Animals

2. Anemones - Anthopleura artemesia, E. prolifera?
5. Flatworms - Platyhelminthes - Polyclads
6. Nemertean Worms - Ribbon Worms - Emplectonema gracile
8. Polychaete Worms
Glyceridae
Nepthyidae
Nereidae - Nereis spp.
Serpulidae - Serpula sp., Crucigera sp., Eudistylia polymorpha
Spiorbidae - Spiorbis sp.
10. Crustaceans
 - a. Amphipods - Orchestia sp.?, Traskorchestia traskiana
 - b. Barnacles - Balanus glandula, Semibalanus cariosus
 - c. Crabs - Paguridae (hermit crabs).
 - d. Isopods - Cirdana harfordi, Idotea wosnesenskii, Gnorimorsphaeroma oregonensis

- 11. Mollusca
 - a. Chitons - *Mopalia mucosa*, *Katharina tunicata*, *Tonicella lineata*.
 - b. Snails - Gastropods
 - Fusitriton oregonensis*, *Littorina sitkana*, *L. keenae*, *Natica clausa*, *Nucella lamellosa*, *N. lima*, *Searlesia dira*.
 - c. Limpets - *Lottia limatula*, *Tectura fenestrata*, *T. persona*, *Siphonaria thersites*
 - e. Bivalves - *Chlamys hastata*, *Clinocardium* sp., *C. nuttalli*, *Hiatella arctica*, *Macoma nasuta*, *Modiolus modiolus*, *Mytilus edulis*, *Pododesmus cepio*, *Prototheca staminea*, *Saxidomus giganteus*.
 - 12. Echinoderms
 - a. Brittle Stars - *Ophiolus aculeatus*?, *Ophiothrix spiculata*?, *Amphipholis*?
 - b. Sea stars - *Dermasterias imbricata*, *Leptasterias hexactis*, *Pycnopoda helianthoides*, *S. stimpsoni*.
 - c. Sea Cucumbers - Holothurians - *Eupentacta* sp.
 - d. Urchins - *Strongylocentrotus droebachiensis*
 - 13. Bryozoans - *Membranipora* sp., *Schizoporella* sp.
 - 15. Fishes
 - Cottidae -
 - Stichaeidae - *Xiphister atropurpureus*, *X. mucosus*
- III. Birds - Bald eagle (2), Pigeon Guillemot (2), Red faced Cormorant (3), Black-legged Kittiwake (2), Glaucous-winged gull (2), Herring Gull (1), Harlequin Duck (2), Raven (2), Western Sandpiper (20)

BIO SKETCH MAP
 TBOOY-A
 JP BARRY
 18 MAY 1991
 1204-1330

Legend

⊠ Bedrock Cliffs

⊠ Angular Cobble, boulder talus

⊠ Cobble/pebble (concretion)

⊠ Pebble/Cobble

⊠ vegetated area

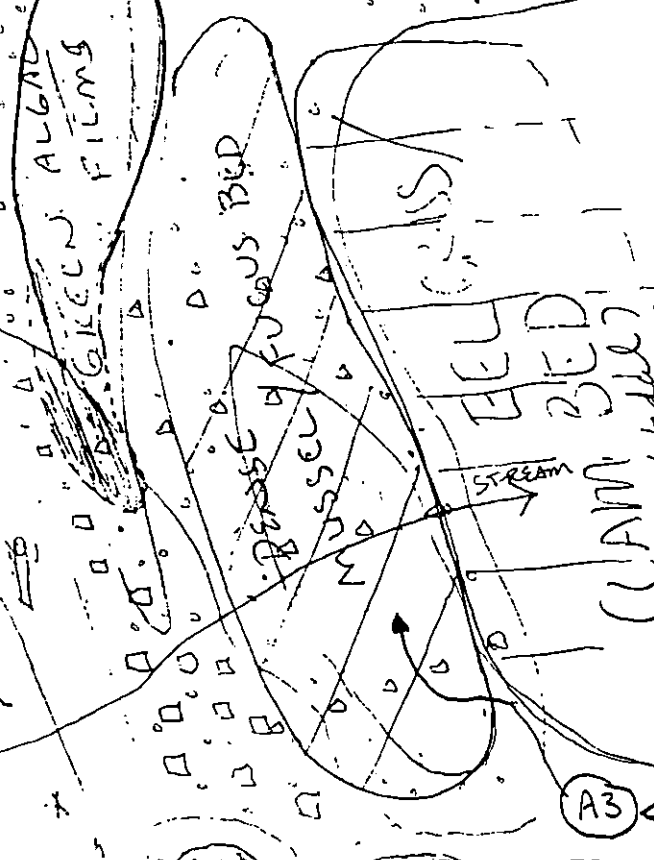
A4

Sparse biota - Green Algal films, moderate to dense Littorines and limpets under rubble. Fucus and barnacles scattered. Oligochaetes (or nematodes) abundant under some rubble

FILAMENTOUS GREEN ALGAE, SPARSE FUCUS, BARNACLES OLIGOCHAETES, LIMPTS, LITTORINES COMMON UNDER COBBLE

A2

A1



Dense Mussel/Fucus Bed
 MUSSELS/FUCUS APPEAR
 Generally Healthy, ~~the~~
 sparse numbers of juvenile
 mussels present. Littorine
 limpets, worms, amphipod
 and barnacles patchy,
 and sometimes dense.
 Highest densities in
 areas with the least
 oil. Little biota present
 in heaviest oiled
 spots.

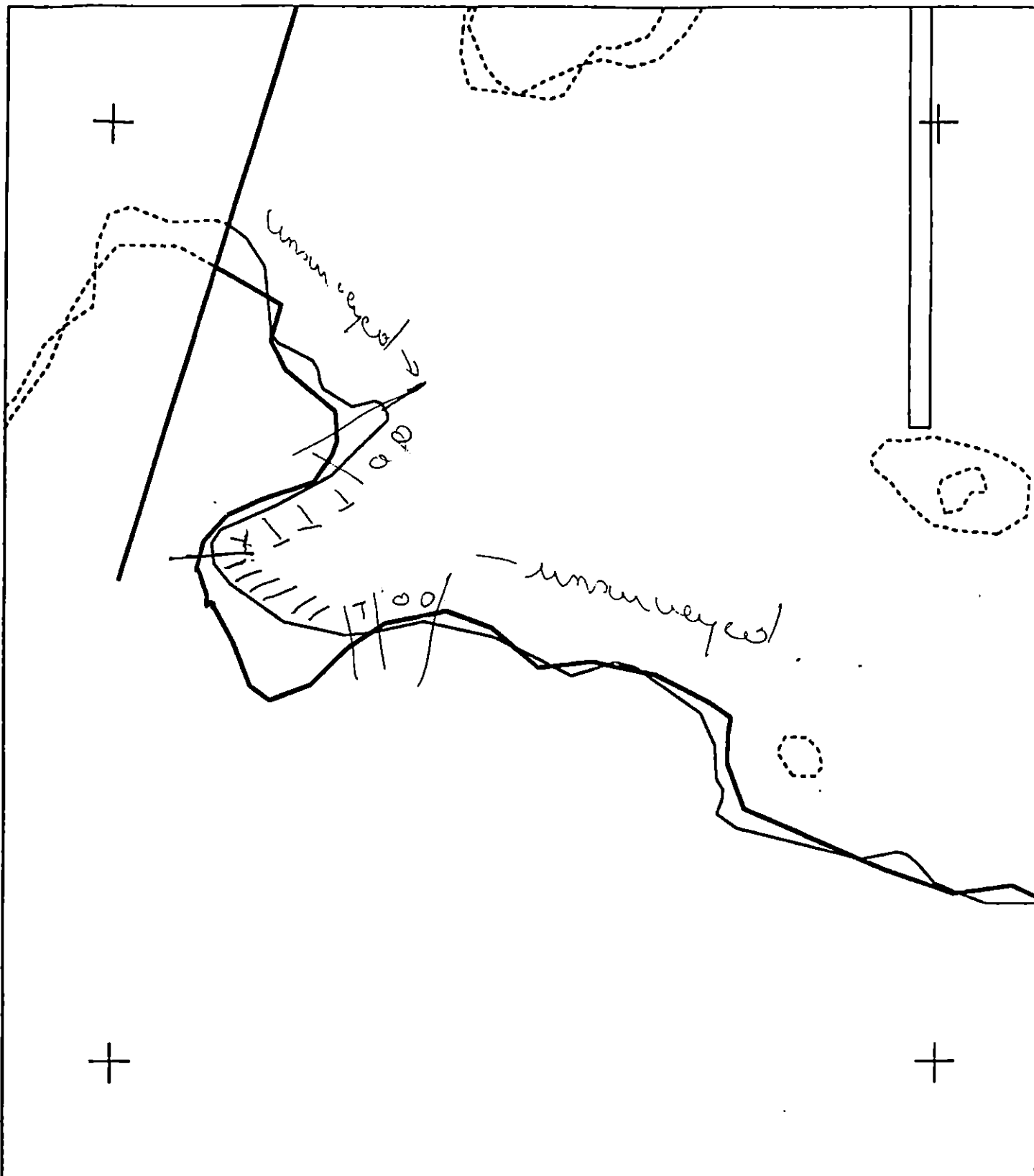
N

Meters

0

20

40



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB004 A

ADEC Subsegment Length: 3199m

METERS

0 100 200

AK State Plane Zone 4
 21600400



Subdivision Field Map

Map Key: KENTB004Aa

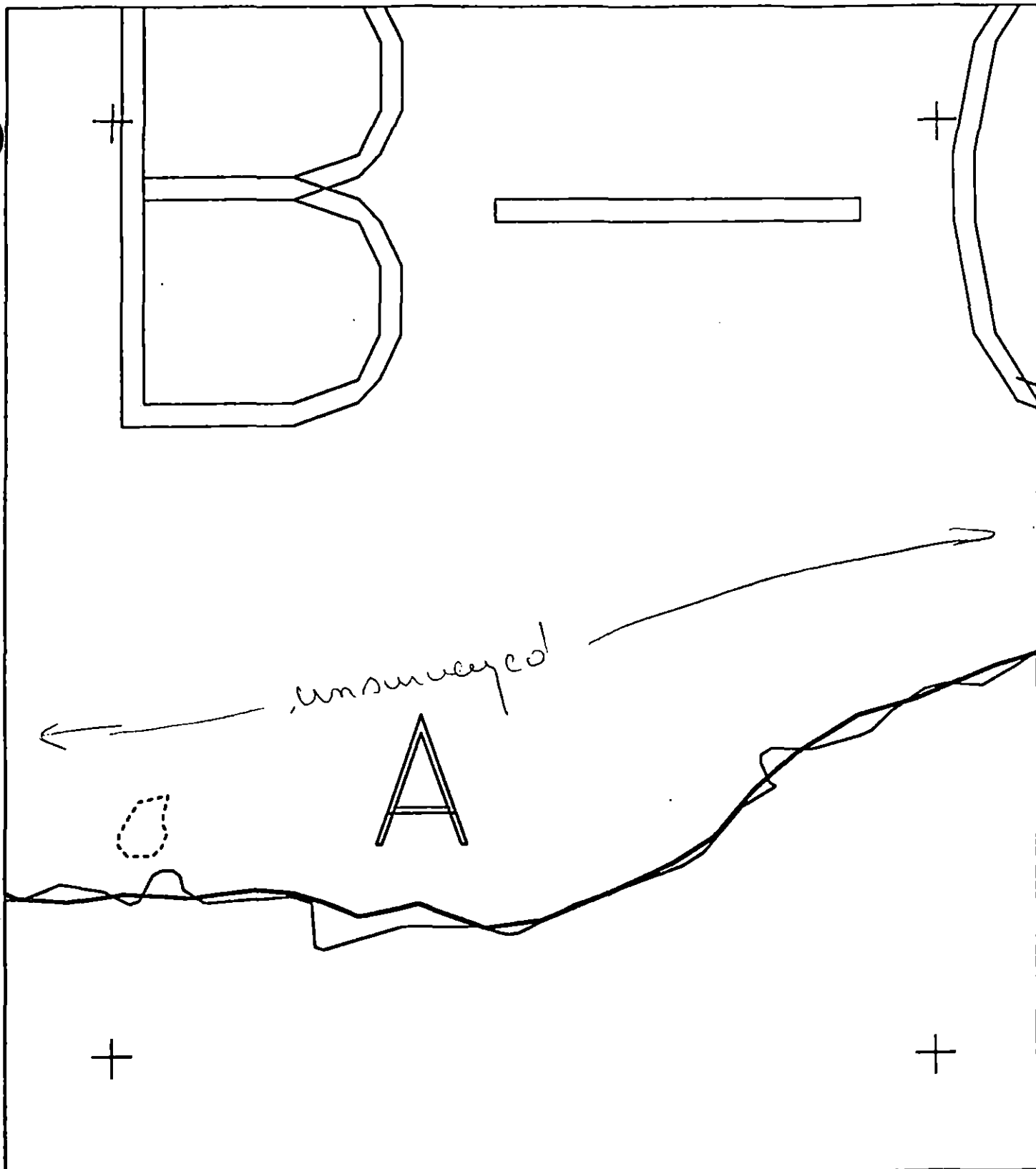
Name: Jim Sempels

Date: MAY 18/91

Data Entered:

Revised: MC 5/23/91

reviewed 5.23 91



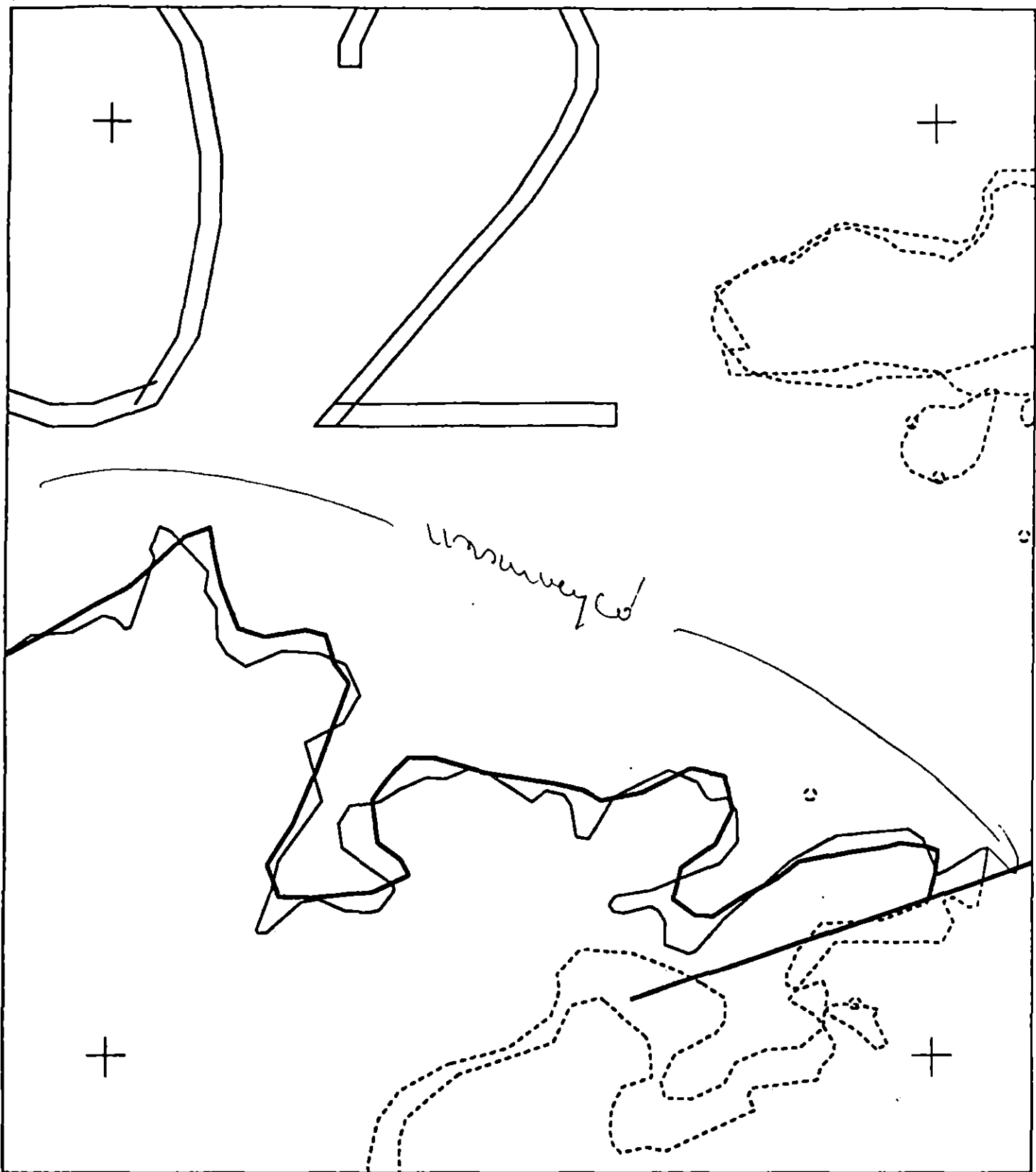
XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB004 A
 ADEC Subsegment Length: 3199m
 METERS
 0 100 200
 AK State Plane Zone 4
 215004ab



Subdivision Field Map
 Map Key: KENTB004Ab
 Name: J M Samples
 Date: MAY 18/91
 Date Entered:

Reviewed: MC 5/23/91
 Reviewed 5.23 99



XXXX
////

TTTT
0000

Wide
Medium
Narrow
Very Light
No Oil

TB004 A

ADEC Subsegment Length: 3199m

METERS

0 100 200

AK State Plane Zone 4
atb00400



Subdivision Field Map

Map Key: KENTB004Ac

Name: J. M. Semple

Date: May 18/91

Date Entered:

Reviewed: 5/23/91 by
Reviewed 5.23 91

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT TB-5 SUBDIVISION ⁸ (1 of 2)

WORK WINDOW

Bioremediation

WORK PRIOR TO 7/10

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

- | | | |
|----|------------------|---|
| 1J | Purse Seine Area | Closed to bioremediation after 7/10. |
| 2M | Herring Spawning | Closed to bioremediation prior to 6/15. |
| 5T | Bald Eagle Nest | NO CONSTRAINT. USFWS 4/9/90 map indicates no active nest within 400m of Subdivision ⁸ work site. |

OTHER ECOLOGICAL CONSIDERATIONS

Restrict boat traffic to essential minimum. Avoid any unnecessary disturbance or damage to unrolled substrate and biota especially intertidal and subtidal algae and seagrass.

FOSC

[Signature]

Date

6-15-90

Prepared by

[Signature]

Date

6/15/90

TB-06

TB-02

TB-05

WORK
AREA



Exxon Company, USA
Map No. KFN-TB-5



ECOLOGY MAP
SEGMENT TB-5
SUBDIVISION A (1 of 2)
METERS



Seabird Colony



Eagle Nest

SHORELINE EVALUATION

SEGMENT ST/ TB-05 SUBDIVISION A (1 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Park
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINT: If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3274 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Richard D. Durr DATE: 5/25/90

OILING CATEGORIZATION:

Wide 0 m: Medium 54 m: Narrow 723 m: V.Light 987 m: No Oil 1689 m
Subsurface Oil Observed: Yes X No Maximum Depth 17 cm

RECOMMENDATIONS:

☒ No Treatment Recommended	☐ Snare/Absorbent Booms
☐ Treatment Recommended	☐ Oil Snares (pom poms)
☐ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☒ Bioremediation	☐ Spot Washing: <u> </u> Wands
☐ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS: SEE CONSTRAINTS ADDENDUM dated 5/6/90

TAG COMMENTS: BIOREMEDIATE AREA INDICATED ON SKETCH

TAG APPROVAL DATE: 5/11/90
ADEC Art Weimer
EXXON Art Weimer
NOAA Joseph C. Tallent
USCG D. D. Rome
FOSC: R. Zupofsky DATE: 5/31/90

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT TB-5 SUBDIVISION ^A (2 of 2)

WORK WINDOW

Tarmat Removal Less Than 400m From Active Nest	CLOSED
Tarmat Removal More Than 400m From Active Nest	OPEN
Bioremediation and Manual/Mechanical Raking Less Than 400m From Active Nest	CLOSED
Manual/Mechanical Raking More Than 400m From Active Nest	OPEN
Bioremediation More Than 400m From Active Nest	WORK 6/15 to 7/10

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1J	Purse Seine Area	Closed to bioremediation after 7/10. No constraint to tarmat removal and manual/mechanical raking.
2M	Herring Spawning	Closed to bioremediation prior to 6/15. No constraint to tarmat removal and manual/mechanical raking.
5T	Bald Eagle Nest	USFWS 4/9/90 map indicates an active nest in Subdivision A. Closed to tarmat removal, bioremediation, and manual/mechanical raking within 400m of active nest. No constraint to tarmat removal, bioremediation, and manual/mechanical raking more than 400m from active nest.

OTHER ECOLOGICAL CONSIDERATIONS

If eagle nest constraint is removed, other ecological considerations will apply.

FOSC

[Signature]

Date

6-15-90

Prepared by

[Signature]

Date

6/15/90

TB-05

METERS



Eagle Nest

SHORELINE EVALUATION

SEGMENT ST/ TB-05 SUBDIVISION B (2 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Park
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3274 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: J. David McMillan

DATE: 5/11/90

OILING CATEGORIZATION:

Wide 91 m: Medium 94 m: Narrow 0 m: V.Light 0 m: No Oil 0 m
Subsurface Oil Observed: Yes X No Maximum Depth 15 cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u> </u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u>X</u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmat and 2) bioremediation of areas shown on attached sketch map. Work should be conducted between 6/15 and 7/10 based on herring spawning and purse seine area with approval of USFWS regarding eagle nest.

SEE CONSTRAINTS ADDENDUM dated 6/15/90

TAG COMMENTS: MANUALLY RAKE THE SURFACE TO BREAK UP/EXPOSE THE SURFACE OIL PRIOR TO BIOREMEDIATION IN AREAS 2 + 3

TAG APPROVAL DATE: 5/11/90
ADEC ART WEAVER
EXXON ANDY TAYLOR
NOAA JASON JOHNSON
USCG D. D. ROME

FOSC: J. J. J. J.

DATE: 6/1/90

REGION: KENAI

SEGMENT: ST/TB-05

SUBDIVISIONS: A (1 OF 2)

SHORELINE EVALUATION

SEGMENT ST/ TB-05 SUBDIVISION A (1 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Park
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 0 m: Medium 54 m: Narrow 723 m: V.Light 987 m: No Oil 1689 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 17 cm

RECOMMENDATIONS:

<u>X</u> No Treatment Recommended	_____ Snare/Absorbent Booms
_____ Treatment Recommended	_____ Oil Snares (pom poms)
_____ Manual Pickup	_____ Absorbents (pads, rolls, etc)
_____ Bioremediation	_____ Spot Washing: _____ Wands
_____ Tarmat Removal	_____ Beach Cleaner
	_____ Other (see comments)

COMMENTS: _____

TAG COMMENTS: _____

TAG APPROVAL DATE: _____
ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

- 1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
 1B Salmon stream mouth - spawning (7/10 to 8/31)
 No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream without authorization from ADF&G. No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore oil or toxicity levels, such as manual removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.
 AGENCY CONTACT PERSON: ADF&G John Morison 267-2324
- 1C Salmon fry nursery area (4/31 to 7/31)
 No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.
 AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214
- 1D Esther Hatchery release (4/15 to 6/15)
 1E Main Bay Hatchery release (4/20 to 6/15)
 1F Sawmill Bay Hatchery release (4/15 to 6/1)
 1G Cannery Creek Hatchery release (4/21 to 6/1)
 1H Remote release site
 No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G or PWS Aquaculture Association for confirmation and authorization.
 AGENCY CONTACT PERSON: 1E ADF&G Larry Peltz 424-3214
 1D 1F 1G PWS Aquaculture Association John McMillan or Bruce Suzumoto 424-7511
- 1I Gill net area (6/7 to 8/31)
 1J Purse seine area (7/20 to 9/30)
 1K Purse seine hook-off (7/20 to 9/30)
 1L Set net sites (6/11 to 7/25)
 Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
 AGENCY CONTACT PERSON: ADF&G James Brady 424-3212
- 2M Herring spawning (4/1 to 6/15)
 Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to unopened intertidal and subtidal algae and seagrass. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
 AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235
- 3O, 3Q Harbor seal and sea lion pupping (5/15 to 7/1)
 Harbor seal and sea lion molting (8/15 to 9/15)
 Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of Inipol within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.
 AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235
 ADF&G Don Calkins 267-2403
- 5R Seabird colony (5/1 to 9/1)
 Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
- 5S Shorebird/waterfowl concentration (4/1 to 5/15)
 Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
 ADF&G Tom Roth 267-2206
- 5T All Bald Eagle nests (3/1 to 6/1)
 Active Bald Eagle nests (3/1 to 9/1)
 Restrict air traffic and all disturbance to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
- 6U Recreation: Tent sites (5/1 to 9/15)
 6V Anchorages (5/1 to 9/15)
 6W Forest Service cabins (5/1 to 9/15)
 6X Lodge (5/1 to 9/15)
 6Y Special use destination
 6AA Sport Fishing
 7Z Subsistence area: Salmon harvesting (5/1 to 9/30)
 7HH Finfish harvesting
 Deer harvesting (8/15 to 2/28)
 Invertebrate harvesting
 Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic and beach disturbance to essential minimum. If plans for treatment include methods such as hot water wash or application of Inipol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.
 AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2359

FIELD SHORELINE COMMENT SHEET

SEGMENT ST 1 TB-5 SUBDIVISION: A DATE 04/27/90NORA
1300A
NAME

STEPHEN STURN

SIGNATURE

Stephen Sturn

☒ NO TREATMENT RECOMMENDED
COMMENTS☒ TREATMENT SUGGESTED
of oil

Location 2 - A fairly continuous coat to cover was present on South facing vertical bedrock (VITE) on the western end of location #2. In places, this coat is patchy and very weathered - in others the coat is more continuous grading into a weathered, tacky coat. Both barnacles and mussels, partially covered w/coat to cover are present, but not in the abundance as observed in other areas of this location. Although new barnacle spat observed on weathered cover/coat indicates that intertidal life can adapt to oiled surfaces, it appears that the long term effect is still uncertain. If barnacles and mussels can adapt to oiled surface then it is recommended that no treatment of this location is necessary - and let natural processes (photodegradation/wave agitation) proceed.

(continued)

ADEC

NAME

Wesley Ghormlay

SIGNATURE

Wesley Ghormlay

☐ NO TREATMENT RECOMMENDED
COMMENTS☒ TREATMENT SUGGESTED

Location #2 - West Pocket beach, 3 m wide band of coat/cover that has some recover oil present. The cover consists of sticky, tacky oil mixed w/spruce needles. Clean-up considerations are scraping coat/cover with brushes or scrapers to remove coat/cover then wiping with sorbent pads. However, new growth of barnacles & algae are present in oiled area. Most of the oil is weathered but when you remove the needle that is where you find your sticky oil. Spruce needles & oil comes off very easily by scraping (ADEC rep. experimented by scraping w/a rock & was quite successful).

Location #4 - Treat as outlined above, but Hot H₂O may be a plus in this area - High exposed wave action, ~~with~~ new barnacles present. Sporadic subsurface oil present may need to be evaluated.

LAND MANAGER

NAME

J. David McMahon (ADUR)

SIGNATURE

J. David McMahon

☐ NO TREATMENT RECOMMENDED
COMMENTS☒ TREATMENT SUGGESTED

Oiling of TB-5A is limited to thin asphaltic coatings of oil & spruce needles on vertical rock faces. In concern with ADEC above if this can be done in a relatively short time frame. source impact, other than aesthetics, appears to be minimal and recovery rapid. Scraping of the thickest deposits and spot washing may be the best alternative, hence. Significant time investment is unwarranted.

FIELD SHORELINE COMMENT SHEET

PAGE 2 of 2

SEGMENT ST / TB-5 SUBDIVISION: A DATE 4/27/90NOAA
1800

NAME

STEPHEN STURM

SIGNATURE

Stephen Sturm☒ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

If intertidal life cannot adjust then spot hot H₂O washing is recommended at expense of existing organisms in the affected area.

Location -4 - Same As Above, on ventral bedrock. Small work crews should locate small crevices (1-2' x 2') of oiled substrates beneath boulder veneer and either remove or break-up. As these crevices are in the U/TZ, they should be exposed to physical processes and microbial degradation.

* "Most of the surface oil remaining on high-energy segments of the Alaskan coast will be removed within the next year or two, based on observations of the AMOCO CADIZ and NESTUCCA spills; clean-up could take longer in lower energy beaches." NOAA RECOMMENDATION TO FOSC 1-25-90

ADEC

NAME

SIGNATURE

☐ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

LAND MANAGER

NAME

SIGNATURE

☐ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

SHORELINE OILING SUMMARY

REVISION NO. 04/13/90

OG K. DEBUSSCHERE ~~XXXX~~ S. D. STURM SEGMENT ST/ TB-5
 BIO D. REEF LAND REP J. David / M. Mahan SUBDIVISION H (1 OF 2)
 EXXON T: DIB2 ADEC Wesley Shormier TIME 11:00 to 1:30 RND 20:00 to 20:00
 TEAM NO. 9 TIDE LEVEL -1 to 6 to 3 to 5 DATE 4/22/90
 ST. SUBDIVISION LENGTH: 3671 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☒ Rock
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: S to N
 SURFACE SEDIMENTS: R 75 % B 15 % C 15 % P 5 % G 0 % S 0 % M 0 % V 0 %
 SLOPE: Long 25 % Hang 40 % Vert 35 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High
 OIL CATEGORY LENGTH: W 0 m M 40 m N 760 m VL 1080 m NO 1880 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR					IMPACTED ZONES			
	0	1	2	3	4	5	6	7	8	SU	U	M	U
ASPHALT PAVEMENT													
POOLED													
COVER				X		X					X		
COAT	V	X		0		V					V	0	
STAIN			X			X					X		
MOUSSE													
PATTIES													
TARBALLS													
FILM													
NO OIL										X		X	X

PAVEMENT H F 9 0 sq. m by 0 cmPATTIES / TARBALLS 0 BAGSNEAR SHORE SHEEN? ☒ NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

DID YOU COLLECT DEBRIS?

YES ☐ NO ☒TYPE 0#BAGS 0

Photographs:

Roll No. ST-9-4Frames 2,3

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (cm)	BELOW		OIL / FILM COLOR					PIT ZONE				A N A	SHEEN (Y/N)	↓	SURFACE - SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		VO	VE	4	5	6	7	8	SU	U	M	U				
LOC ① 1	30					X	-										X			N	-	C-PaGdS
2	40					X	-										X			N	-	P-PaGdS
LOC ② 3	40					X	-										X			N	-	P-PaGdS
④ 4	50					X	-										X			N	-	B-PaGdS
5	30	X					15-17	X	X								X			N	-	B-C/PaGdS
LOC ④ 6	40					X	-										X			N	-	P-PaG

COMMENTS

- SUBDIVISION IS DOMINATED BY HIGH ANGLE TO VERTICAL BEDROCK WITH SOME B/C POCKET BEACHES. THE MAJORITY OF THE SEGMENT HAS LIMITED ACCESS BECAUSE OF OFFSHORE ROCK OUTCROPS. WAVE EXPOSURE IS MEDIUM TO HIGH.
- OILING CONSISTS MAINLY OF COATING ON VERTICAL TO HIGH ANGLE ROCK FACES. IN LOCATION ② FOR EXAMPLE THIS COAT EXTENDS TO ≤ 3 M WIDE.

REVIEWED BAT DATE 1 MAY 90

SHORELINE OILING SUMMARY (PAGE 2)

REVISION 04-12-90

SEGMENT ST/ TB-5 SUBDIVISION A (1 OF 2)

SUBSURFACE OIL (CONTINUED)

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (cm)	BELOW		OIL / FILM COLOR						PIT ZONE				A N A	SHEAR (Y/N)	↓	SURFACE - SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UG	1/2" / 4"	1/4" / 1/2"	1/8" / 1/4"	1/16" / 1/8"	1/32" / 1/16"	1/64" / 1/32"	BU	U	M	U				
LOC ④	7	30				X	.											X			N	-	B-C/P/S/GA
LOC ⑤	8	30				X	.										X				N	-	P-P/C/P
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																
							.																

COMMENTS

- LOCATION ④ IS A C/B POCKET BEACH WITH CORTING ON ROCK FRAC AND SOME COVER/S

ON THE BEACH SURFACE CORT/B IN UE & CORT/S IN M.I.
BEACH HAS SUBSURFACE OIL IN UE (UNDER BAC) BUT SUBSURFACE OIL HAS A PATCHY DISTRIBUTION. AND DOES NOT EXTEND IN M.I.

REVIEWED

BAC

DATE 1 MAY 90

2/17

S = SKIFF
W = WALK

TB-O

XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-A

Approx. Segment Length: ³⁹¹¹~~3910~~m

5/17 100 200 300

Map Key: KEN-TB-5c

Name: K. DERUSSCHOW

Date: 4/27/90

Date Entered:

SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/22/90

Segment ST / TB5-A Subdivision A Date (mo / day / yr) 04/27/90
 Time (24 hr) 1100-1330 2020-2050 Biologist D. REED

- (A) Substrate type and % of segments:
 (1) Bedrock 75 (2) Boulder 15 (3) Cobble 5 (4) Pebble 5 (5) Sand 0 (6) Silt 0
- (B) Overall % cover of biota (% of segment): Dense 60 Moderate 30 Low 10
- (C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs: ST-9-4
 Roll No. 2,3
 Frames 2,3

BARNACLES

Dense	Moderate	Sparse	Rare
1M 1L	1U 1M 1L	1U 1M 1L	1U 1M 1L
X 2 2	2 2 X	X 2 2	2 2 2
3 3	3 3	3 3	3 3 3
4 4	4 4	4 4	4 4 4
5 5	5 5	5 5	5 5 5
6 6	6 6	6 6	6 6 6

NOT PRESENT

MYTILUS

Dense	Moderate	Sparse	Rare
1U 1M 1L	1U 1M 1L	1U 1M 1L	1U 1M 1L
2 2 2	2 2 X	2 2 X	2 2 2
3 3	3 3	3 3	3 3 3
4 4	4 4	4 4	4 4 4
5 5	5 5	5 5	5 5 5
6 6	6 6	6 6	6 6 6

NOT PRESENT

GASTROPODS

Dense	Moderate	Sparse	Rare
1U 1M 1L	1U 1M 1L	1U 1M 1L	1U 1M 1L
2 2 2	2 2 X	2 2 X	2 2 2
3 3	3 3	3 3	3 3 3
4 4	4 4	4 4	4 4 4
5 5	5 5	5 5	5 5 5
6 6	6 6	6 6	6 6 6

NOT PRESENT

FUCUS

Dense	Moderate	Sparse	Rare
1U 1M 1L	1U 1M 1L	1U 1M 1L	1U 1M 1L
2 2 2	2 2 2	2 2 X	2 2 X
3 3	3 3	3 3	3 3 3
4 4	4 4	4 4	4 4 4
5 5	5 5	5 5	5 5 5
6 6	6 6	6 6	6 6 6

NOT PRESENT

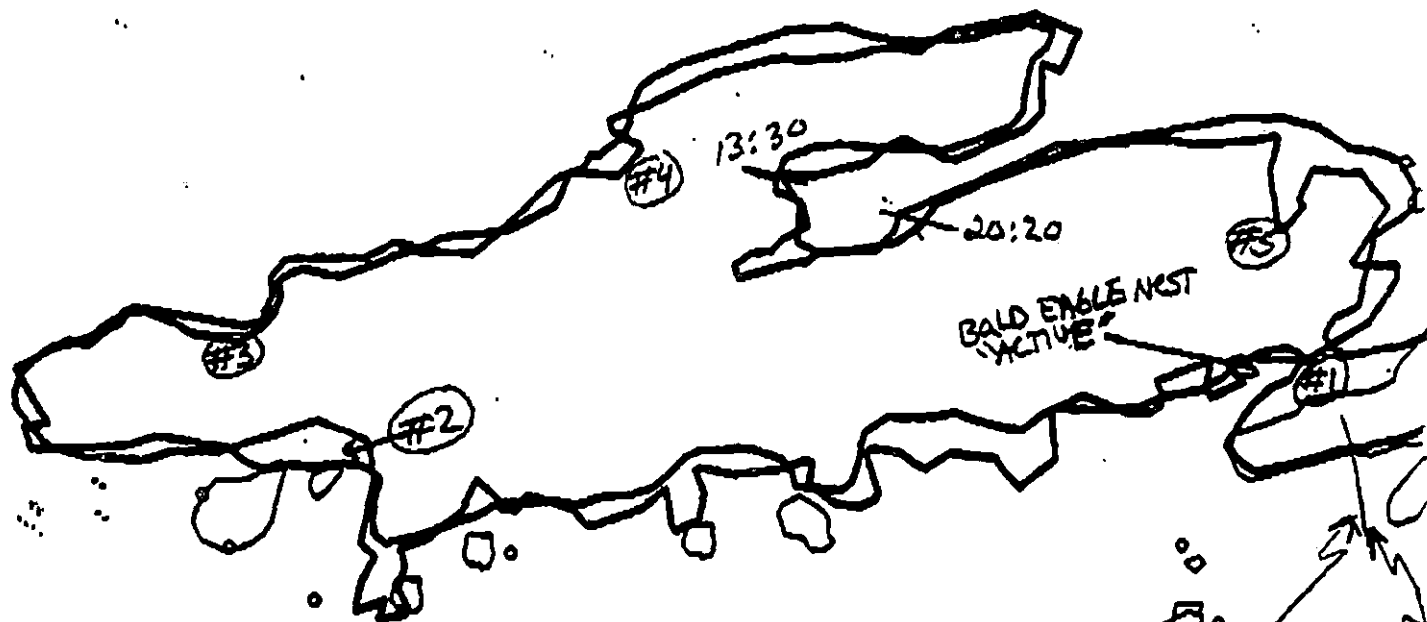
Wildlife Observations/ General Comments:

1 BALD EAGLE WITH NEST, 4 SEA OTTERS, 1 OYSTER CATCHER, 1 PIGEON GUILLIMOT, 20 GLAUCOUS WING GULLS. LOW ZONE HAS DENSE ALGAL COVER; ALARIA, LAMINARIA, CYMATHERE, DESMORESTIA, NEREOCYSTIS FOREST IN SUBTIDAL.

Ecological Considerations:

WAVE EXPOSURE OF THIS SUBDIVISION IS RELATIVELY HIGH (ESPECIALLY ON THE SOUTH SIDE AND EASTERN END). IT CONSISTS LARGELY OF BEDROCK WHICH SUPPORTS A DENSE BIOTA. OILED COAT AT LOCATIONS 2 & 4 IS ON SOUTH FACING BEDROCK AND IS QUITE WEATHERED. LITTLE MORTALITY OF MUSSELS AND BARNACLES ON OILED SURFACES WITH NOTICEABLE SETTLEMENT AND NEW GROWTH. IN SHORT, ORGANISMS ON OILED COAT APPEAR TO BE DOING WELL. IF CLEAN UP IS RECOMMENDED FOR THE PURPOSE OF AESTHETICS AND ORGANISMS ARE KILLED IN THE PROCESS I WOULD PREDICT (BASED ON THE HIGH EXPOSURE OF THIS AREA AND THE FACT THAT THE ORGANISMS THAT LIVE THERE ARE LIKELY ADAPTED TO FREQUENT DISTURBANCE) THAT THE ORGANISMS WILL RECOVER AND REPRODUCE NORMALLY WITHIN A SHORT PERIOD OF TIME.

ECOLOGY MAP
RESOURCE CODES FOR SUBDIVISION
1-5T



START
ST-TB-5-A
11:00

END
ST-TB-5-A
20:20

XXXX Wide

/// Medium

---- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-A

Approx. Segment Length: 3840m



Map Key: KEN-TB-5b

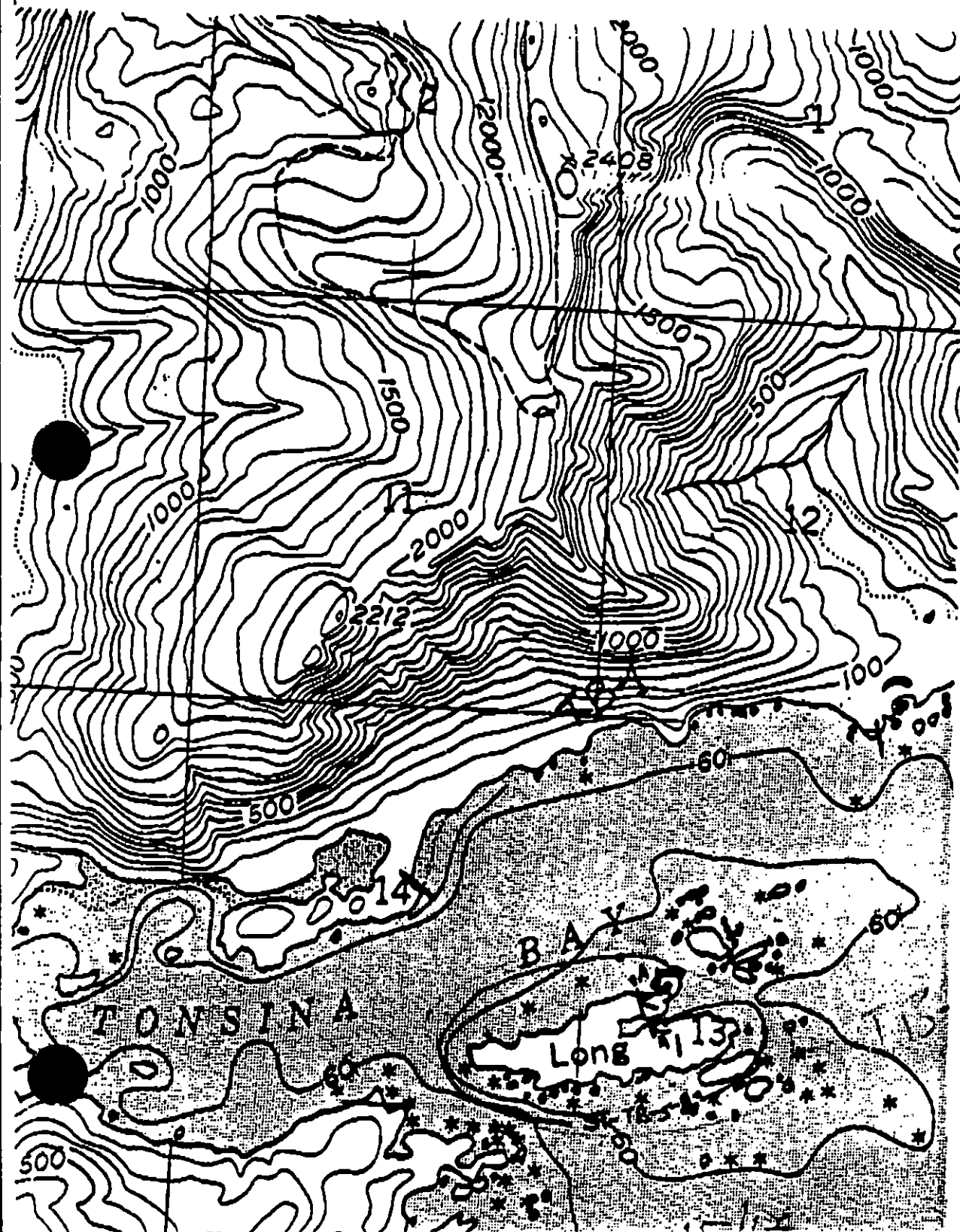
Name: DAN REED

Date: 04/27/90

Date Entered:

ST-TB-5-A
(3671meters)

- Mostly Vertical bedrock w/many rock outcrops.- Difficult Access
- Only oil is on vertical bedrock faces. Very weathered and baked
- NO TREATMENT RECOMMENDED



OIL MAP

TB-O

XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-A

Approx. Segment Length: ³⁹¹¹~~3911~~m

0 100 200 300
13117 METERS

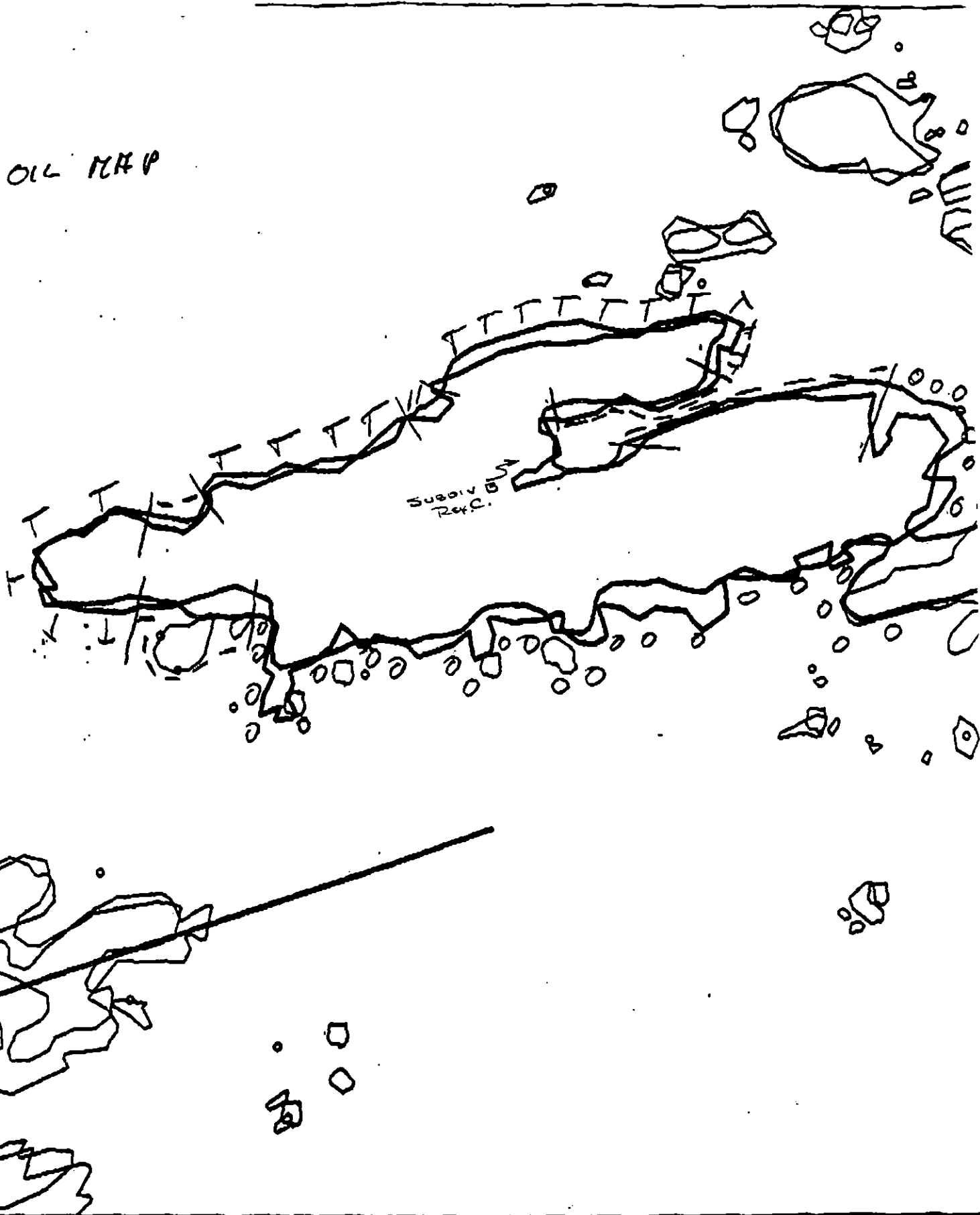
Map Key: KEN-TB-5c

Name: K. DEBUSSCHERE

Date: 4/27/80

Data Entered:

OIL MAP



XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-A

Approx. Segment Length: ³⁹¹¹~~3400~~m



Map Key: KEN-TB-5b

Name: K. DEBUSS (H.C.M.)

Date: 4/27/90

REGION: KENAI

SEGMENT: ST/TB-05

SUBDIVISIONS: B (2 OF 2)

SHORELINE EVALUATION

SEGMENT ST/ TB-05 SUBDIVISION B (2 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Park
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to uncoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3274 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 91 m: Medium 94 m: Narrow 0 m: V.Light 0 m: No Oil 0 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 15 cm

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☐ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☒ Bioremediation	☐ Spot Washing: _____ Wands
☒ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmat and 2) bioremediation of areas shown on attached sketch map. Work should be conducted between 6/15 and 7/10 based on herring spawning and purse seine area with approval of USFWS regarding eagle nest.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)

1B Salmon stream mouth - spawning (7/10 to 8/31)

No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream without authorization from ADF&G. No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore oil or toxicity levels, such as manual removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.

AGENCY CONTACT PERSON: ADF&G John Morison 267-2324

1C Salmon fry nursery area (4/31 to 7/31)

No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.

AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214

1D Esther Hatchery release (4/15 to 6/15)

1E Main Bay Hatchery release (4/20 to 6/15)

1F Sawmill Bay Hatchery release (4/15 to 6/1)

1G Cannery Creek Hatchery release (4/21 to 6/1)

1H Remote release site

No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G or PWS Aquaculture Association for confirmation and authorization.

AGENCY CONTACT PERSON: 1E ADF&G Larry Peltz 424-3214

1D 1F 1G PWS Aquaculture Association John McMillan or Bruce Suzumoto 424-7511

1I Gill net area (8/7 to 8/31)

1J Purse seine area (7/20 to 9/30)

1K Purse seine hook-off (7/20 to 9/30)

1L Set net sites (6/11 to 7/25)

Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.

AGENCY CONTACT PERSON: ADF&G James Brady 424-3212

2M Herring spawning (4/1 to 6/15)

Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to unopened intertidal and subtidal algae and seagrass. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.

AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235

3N, 3P Harbor seal and sea lion pupping (5/15 to 7/1)

3O, 3Q Harbor seal and sea lion molting (8/15 to 9/15)

Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of Inipol within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.

AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235

ADF&G Don Calkins 267-2403

5R Seabird colony (5/1 to 9/1)

Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

5S Shorebird/waterfowl concentration (4/1 to 5/15)

Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

ADF&G Tom Roth 267-2206

5T All Bald Eagle nests (3/1 to 6/1)

Active Bald Eagle nests (3/1 to 9/1)

Restrict air traffic and all disturbance to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

6U Recreation: Tent sites (6/1 to 9/15)

6V Anchorage (6/1 to 9/15)

6W Forest Service cabins (6/1 to 9/15)

6X Lodge (6/1 to 9/15)

6Y Special use destination

6Z Sport Fishing

7A Substance area: Salmon harvesting (5/1 to 9/30)

7B Finfish harvesting

7C Deer harvesting (8/15 to 2/28)

7D Invertebrate harvesting

Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic and beach disturbance to essential minimum. If plans for treatment include methods such as hot water wash or application of Inipol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.

AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2359

FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ TB-5 SUBDIVISION: B DATE 04/27/90NOAA
USFWS

NAME

STEPHEN STURM

SIGNATURE

Stephen Sturm☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS - Subdivision B consists of 3 pebble-to cobble veneered vfg substrate 'beaches' located inside a relatively small tidal basin with very poor circulation - resulting in anaerobic conditions. Two of these beaches were bioremediated prior to the winter of 89-90 with little success as a result of very poor flushing and low permeable substrates.

It is recommended that sediments should be mechanically tilled, plowed or otherwise disrupted to improve the exposure of subsurface oil to natural removal processes. Tilling may be combined with nutrient addition to speed microbial degradation. Mechanical mixing of the sediments will increase physical and chemical weathering, as the oil is brought to the surface and it will prevent the formation of tar mats. This procedure can be combined with either hot H₂O header washing or physical removal of oiled sediments.

ADEC

NAME

Wesley Ghormley

SIGNATURE

Wesley Ghormley☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

- Segment TB-5 consists of a long channel w/ vertical bedrocks w/oil coverage consisting of coat/cover. At the end of the channel are 3 low angle (10-15% grade) pebble beaches. Locations #1 & #2 both have warning signs due to bioremediation in progress, while location #3 has ADEC transect. The entire area gives you an eerie feeling for no wildlife is visible & dead bull kelp is floating in the water along w/ silver sheen. The area is also extremely sheltered w/ very little wave action.

Treatment Suggested

Location #1 - Suggested clean-up consists of using a Hot H₂O Header system to flush oil to water to be retrieved. I also recommend tilling area before the use of the header system, all 3 beaches have extremely tight sediment & if not tilled the Hot H₂O will not penetrate thru the surface to flush oil. The slope of the beach is ideal for the Hot H₂O to flow gradually & to penetrate the tilled sediment there for flushing oil as it flows to the Lit. Biota is very rare on the Lit so work could be done.

LAND MANAGER

NAME

J. David McMahon (ADU)

SIGNATURE

J. David McMahon☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

Segment TB-5B consists of 3 small beaches within a protected lagoon at the east end of Long Is. This is within Kachemak State Wilderness Park and a high public-use area. Subsurface oil was present at varying depths on all beaches but was lighter on the southern beach (beach #3). Biota on all beaches especially #1 & #2 (which had been bioremediated) seems sparse relative to others in the area. Clean is recommended, perhaps by warm water flushing.

FIELD SHORELINE COMMENT SHEET

SEGMENT ST / TB-5 SUBDIVISION: B DATE 4/27/90

USCG

NAME _____ SIGNATURE _____

☐ NO TREATMENT RECOMMENDED
COMMENTS

☐ TREATMENT SUGGESTED

ADEC

NAME Wesley Ghormley SIGNATURE Wesley Ghormley

☐ NO TREATMENT RECOMMENDED
COMMENTS

☐ TREATMENT SUGGESTED

at any tide height. I also suggest stringing boom in the entrance of cove to catch any oil that escapes primary boom. There will be a large amount of oil flushed from these beaches.

Location #2 - Treat as above but oil on this beach is up to 14 cm in depth. There is some shiny black oil on surface & when pits were dug a very strong petroleum smell was present in pit, also it would fill with jet black oil mixed w/water. You can possibly remove a top layer of this beach & bring in clean sediment & gravel after flushing & tilling removed oil.

Location #3 - Manually remove tar patches & asphalt pavement. Also vertical bedrock cliffs need to be treated w/ hot H₂O to remove coats/cover.

- After observation of the 2 bioremediation beaches I do believe one would come to the conclusion that bioremediation has been a complete failure.

- I also recommend tag team evaluate area!

LAND MANAGER

NAME _____ SIGNATURE _____

☐ NO TREATMENT RECOMMENDED
COMMENTS

☐ TREATMENT SUGGESTED

2/2

12/17.

SHORELINE OILING SUMMARY

REVISION NO. 06-13-90

OG K. DEBOSSCHER USCG SEGMENT ST/ TB-5
 BIO DREED LAND REP J. David McMahon SUBDIVISION B (2 OF 2)
 EXXON T. DIF2 ADEC Wesley Gormanley TIME 15:45 to 20:20
 TEAM NO. 9 TIDE LEVEL 4 TO 3 DATE 4/27/90
 ST. SUBDIVISION LENGTH: 240 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: NW to SE
 SURFACE SEDIMENTS: R 8 % B 2 % C 5 % P 85 % G 0 % S 0 % M 0 % V 0 %
 SLOPE: Long 95 % Hang 5 % Vert 0 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High
 OIL CATEGORY LENGTH: W 170 m M 70 m N 0 m VL 0 m NO 0 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR					IMPACTED ZONES			
	10	15	17	18	19	20	21	22	23	SU	U	M	U
ASPHALT PAVEMENT			X			X					X		
POOLED													
COVER				X		X					X		
COAT		X				X					X		
STAIN													
MOUSSE													
PATTIES													
TARBALLS													
LM			X			X						X	
NO OIL										X			X

PAVEMENT, H F S 9 sq. m by 1 cmPATTIES / TARBALLS 0 BAGSNEAR SHORE SHEEN? NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

DID YOU COLLECT DEBRIS?

YES ☐ NO ☒TYPE 0#BAGS 0

Photographs:

Roll No. ST-9-4Frames 5, 6, 7

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM)	BELOW		OIL / FILM COLOR										PIT ZONE				A N A	SHEEN (VNI)	↓	SURFACE - SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		VO	UG	19	20	21	22	23	24	25	26	27	28	SU	U	M	U				
1	20		X				2-5		X	X										X				-	N	18	P-PaS
*2	50					X	.													X				-	N	-	P-PaGAS
3	20		X				2-5		X	X										X				-	N	-	P-PaS
4	20		X				0-14		X	X										X				-	Y	10	P-PaS
5	15		X				2-8	X		X											X			-	Y	8	P-PaS
6	30		X				0-15		X	X										X				-	Y	20	P-PaS

COMMENTS PIT #2 WAS IN HIGH VE

- SUBDIVISION IS A LOW ENERGY ENVIRONMENT. SHORELINE CONSISTS OF A SERIES OF 3 LOW ANGLE PEBBLE BEACHES CONNECTED BY ROCK OUTCROP

- LOCATIONS ① & ② HAD MARKERS ON THE BEACH INDICATING BIOREMEDIATION TREATMENT IN PROCESS.

THE SURFACES OF THESE TWO BEACHES APPEARED CLEAN.

IN LOC ① OILING EXTENDED TO 5CM - NO SUBSURFACE

REVIEWED SAI DATE 1 May 90

2/17

SHORELINE OILING SUMMARY (PAGE 2)

REVISION 04/13/90

SEGMENT ST/ VB-5 SUBDIVISION B (2 OF 2)

SUBSURFACE OIL (CONTINUED)

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-GS)	BELOW		OIL / FILM COLOR							PIT ZONE				A N A	SHEEN (Y/N)	↓	SURFACE - SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UC	SP	BR	GR	WH	OR	BL	LR	SU	U	M	U				
7	20		X				0-10		X	X								X			-	Y	5	P-P&S
8	20					X	.										X				-	H	-	P-P&S
9	25		X				1-2		X	X							X				-	N	-	P-P&S
			X				4-5		X	X														
10	20		X				0-1		X	X							X				-	N	-	P-P
11	25		X				1-2		X	X							X				-	N	-	P-P&S
			X				4-5		X	X							X				-	N	-	
							.																	
							.																	
							.																	
							.																	
							.																	
							.																	
							.																	

COMMENTS R PIT#10 0-1CM OF RP

IN LOC ② SUBSURFACE OIL EXTENDS TO 14 CM

- LOCATION ③ HAD NO BIOREMEDIATION. SURFACE OIL CONSISTED OF FILM AND ASPHALT PAVEMENT

OIL WAS PRESENT (± CONTINUOUS) UNDER A THIN SURFACE PEBBLE LAYER - SUBSURFACE OIL WAS ONLY OBSERVED ON WEST-END OF BEACH

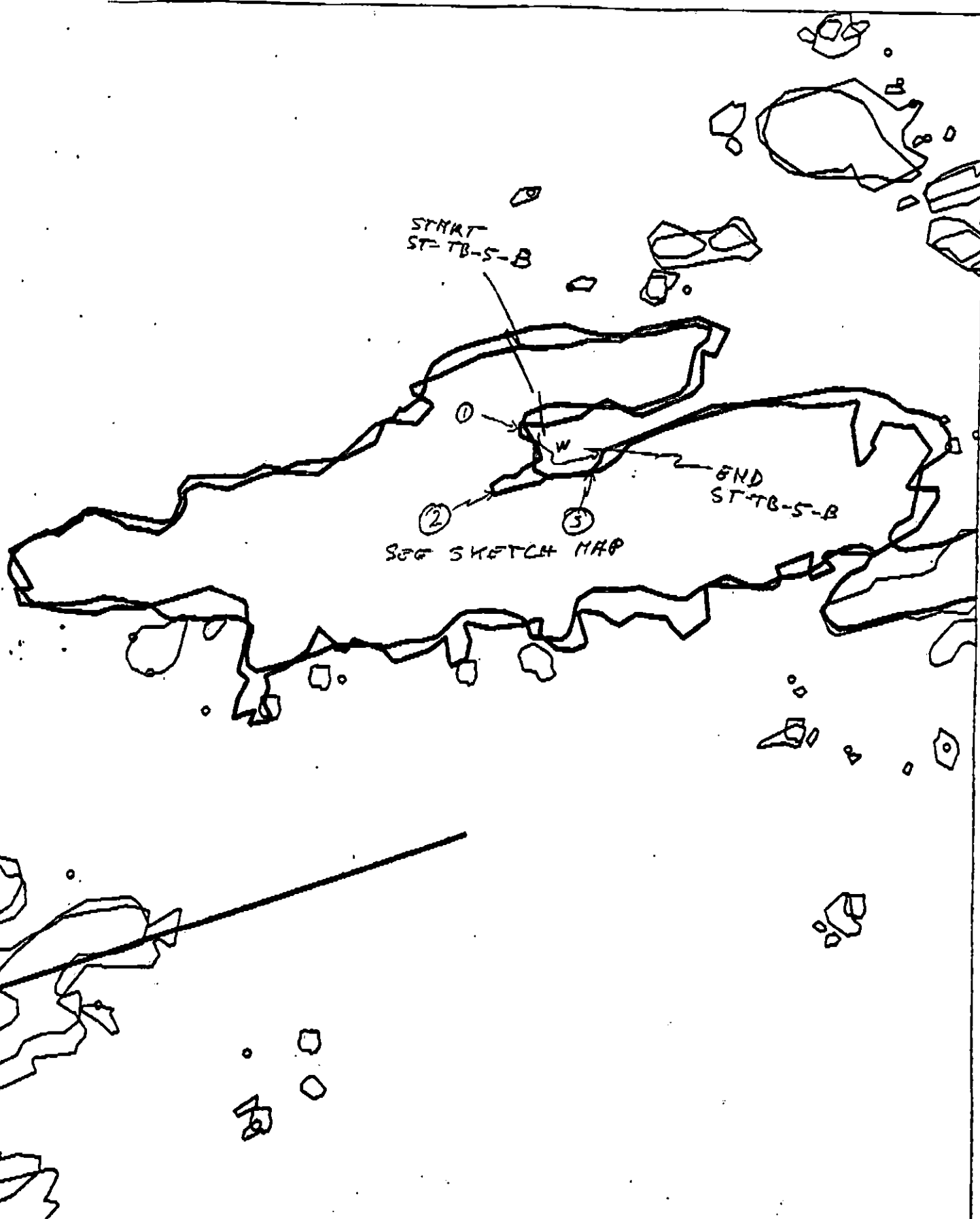
- CORRT/B & COVER/S OCCURRED ON BEDROCK B/W BEACHES
NOTE !!

① OIL CATEGORY IS BASED ON PRESENCE OF OIL SURFACE OR SUBSURFACE (SURFACE APPEARED PREDOMINANTLY CLEAN)

② OIL CATEGORY LENGTHS ARE BASED ON DISTANCE ON GIS MAP WHICH APPARENTLY IS AT HIGH TIDE. THE ACTUAL LENGTH OF BEACHES AT LOCATIONS ① & ② IS EACH ± 20 M ACROSS (COULD NO DISTINGUISH ADRC FROM EXXON LINE)

REVIEWED BA7 DATE 1 May 90

3/17



XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

OOOO No Oil

ST-TB-5-B

Approx. Segment Length: 3911

0 5 100 200 300

Map Key: KEN-TB-5b

Name: K. DEBUSSCHERE

Date: 4/27/90

Data Entered:

OG K. DEBUSSCHERE

SEGMENT ST-B-5

SUBDIVISION B

DATE 4/27/90

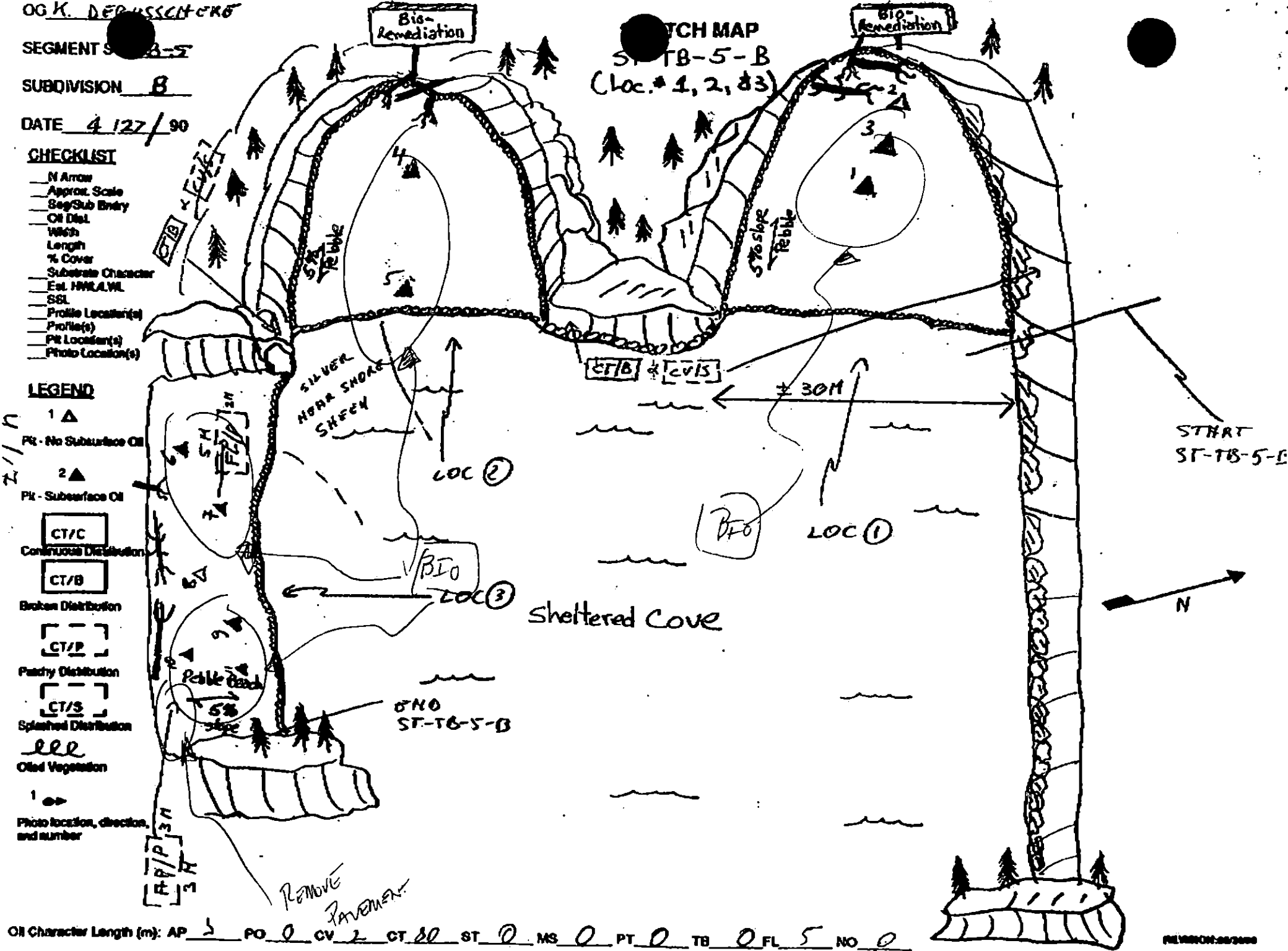
CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWA/VL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pk Location(s)
- ☐ Photo Location(s)

LEGEND

- 1 ▲
Pk - No Subsurface Oil
- 2 ▲
Pk - Subsurface Oil
- CT/C
Continuous Distribution
- CT/B
Broken Distribution
- CT/P
Patchy Distribution
- CT/S
Splashed Distribution
- lll
Oiled Vegetation
- 1 ●
Photo location, direction, and number

ATCH MAP
ST-B-5-B
(Loc. # 1, 2, & 3)



Oil Character Length (m): AP 5 PO 0 CV 2 CT 20 ST 0 MS 0 PT 0 TB 0 FL 5 NO 0

5 BEACH SURFACE IS CLEAN BUT SUBSURFACE OIL

REVISION: 02/2000

SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/22/90

Segment ST/ TB-5 Subdivision B Date (mo / day / yr) 04/27/90Time (24 hr) 1945-2020 Biologist D. REED(A) Substrate type and % of segments:
(1) Bedrock 8 (2) Boulder 2 (3) Cobble 5 (4) Pebble 85 (5) Sand 0 (6) Silt 0(B) Overall % cover of biota (% of segment): Dense 0 Moderate 10 Low 90

(C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (O)

Photographs: ST-9-4
Roll No. 5, 6, 7Frames 5, 6, 7

BARNACLES

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

MYTILUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

GASTROPODS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

FUCUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

Wildlife Observations/ General Comments:

VERY small subdivision, consisting of 3 pocket beaches with subsurface oil located in a protected back bay. Biota rare on pebble beach and sparse to moderate on bedrock.

Ecological Considerations:

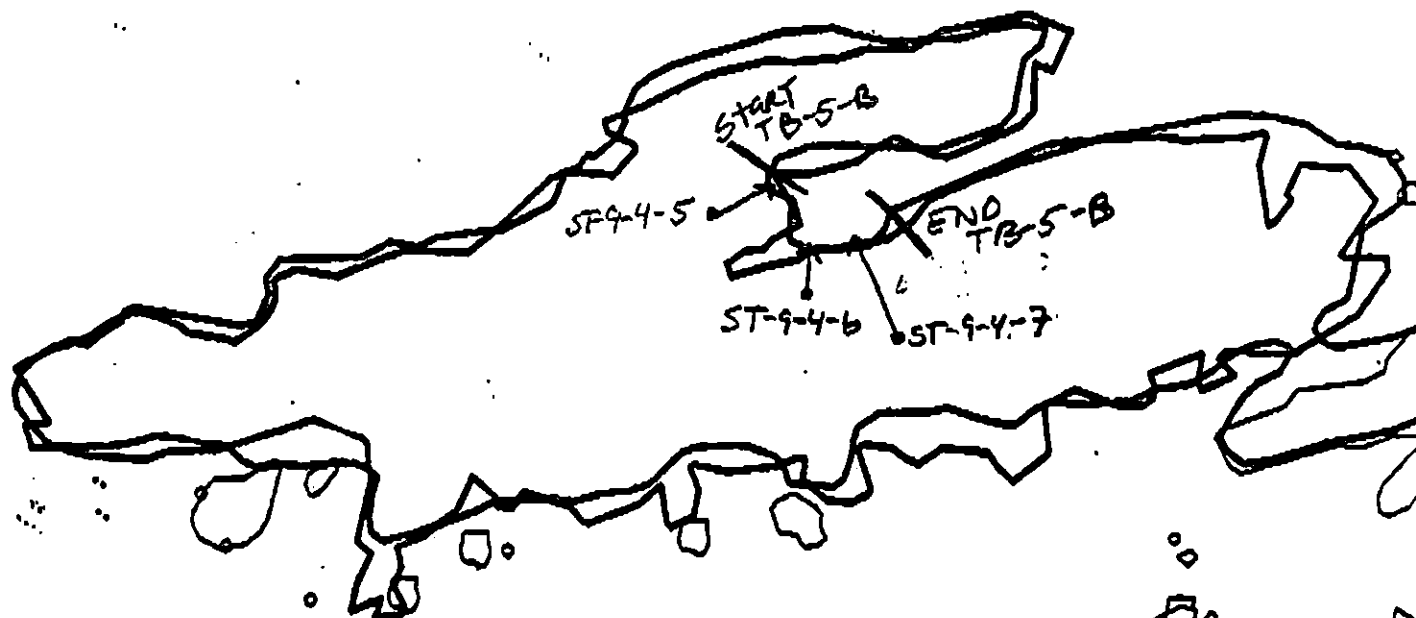
AS FAR AS I CAN TELL THERE ARE FEW ECOLOGICAL CONSIDERATIONS IN THIS AREA. SOME SALMON FRY WERE OBSERVED IN THE QUIET WATERS NEAR SHORE. OTHER THAN THAT INTERIOR BIOTA AND WILDLIFE ARE RATHER SPARSE IN THIS SMALL SUBDIVISION (240 m).

X/IT

ECOLOGY MAP

RESOURCE CODES FOR SUBDIVISION

NONE



XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No

ST-TB-5-B

Approx. Segment Length: 3840m



Map Key: KEN-TB-5b

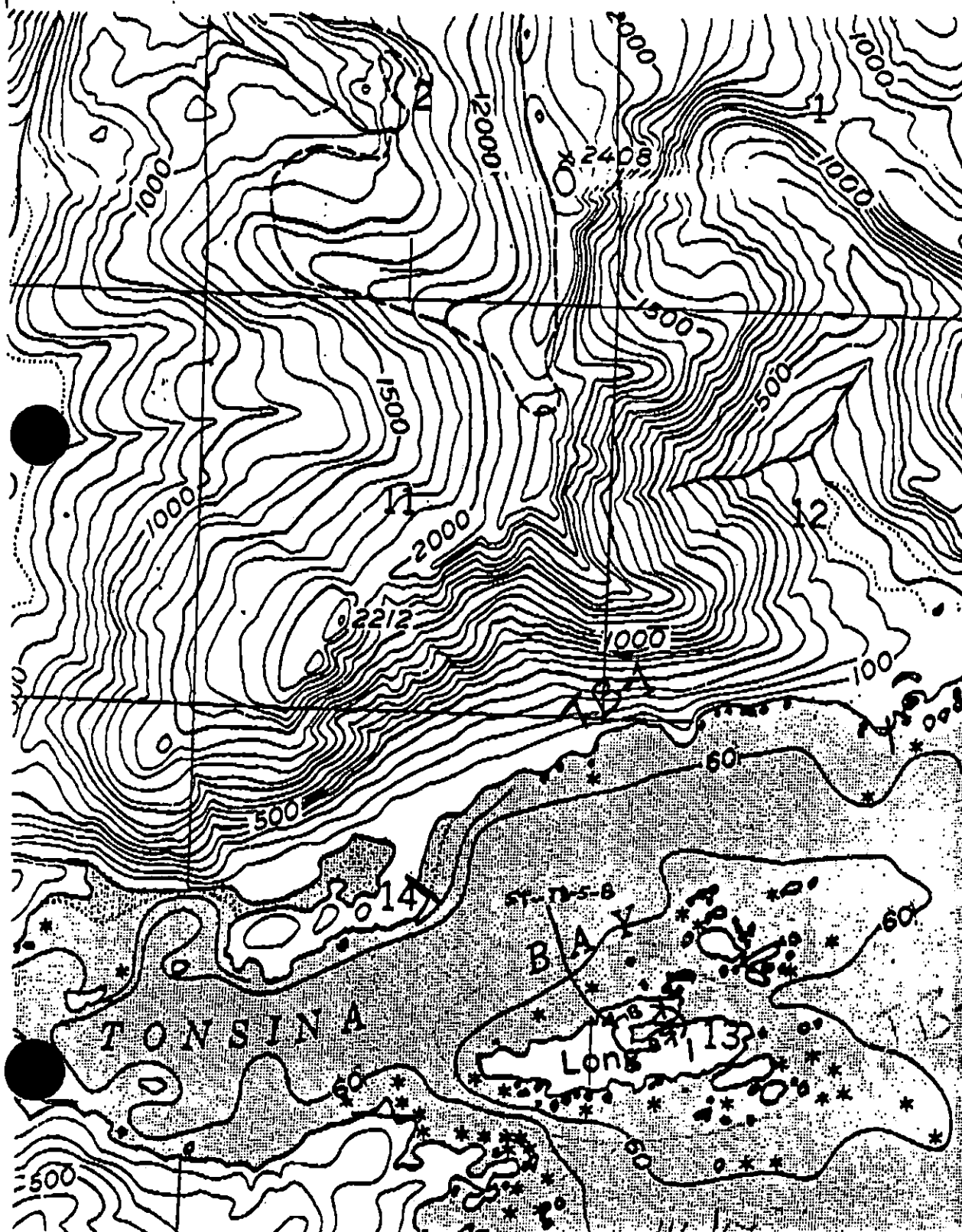
Name: Dan Reed

Date: 04/27/90

Data Entered:

(240 m)

- Small sheltered cove, low energy w/ three pocket beaches.
- Bio-remediation test site. Surface clean, but subsurface oil still present.
- Recommend further TAG evaluation as to proper treatment method.



START
ST-TB-5-B

SUBDIV A
REVC.

SUBDIV A
REVC.

ST-TB-5-B

ST-TB-5-B

394

Approx. Segment Length: ~~340~~ 394m

Map Key: KEM-TB-5b

Name: K. DEBUSSCHERE

Date: 4/27/90

Not Entered.

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0 100 200 300

SHORELINE EVALUATION

SEGMENT ST/ TB-05 SUBDIVISION B (2 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Park
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3274 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: J. Daniel McManis DATE: 5/11/90

OILING CATEGORIZATION:

Wide 91 m: Medium 94 m: Narrow 0 m: V.Light 0 m: No Oil 0 m
Subsurface Oil Observed: Yes X No Maximum Depth 15 cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u> </u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u>X</u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmat and 2) bioremediation of areas shown on attached sketch map. Work should be conducted between 6/15 and 7/10 based on herring spawning and purse seine area with approval of USFWS regarding eagle nest.

TAG COMMENTS: MANUALLY RAKE THE SURFACE TO BREAK UP/EXPOSE THE SURFACE OIL PRIOR TO BIOREMEDIATION IN AREAS 2 + 3

TAG APPROVAL DATE: 5/11/90

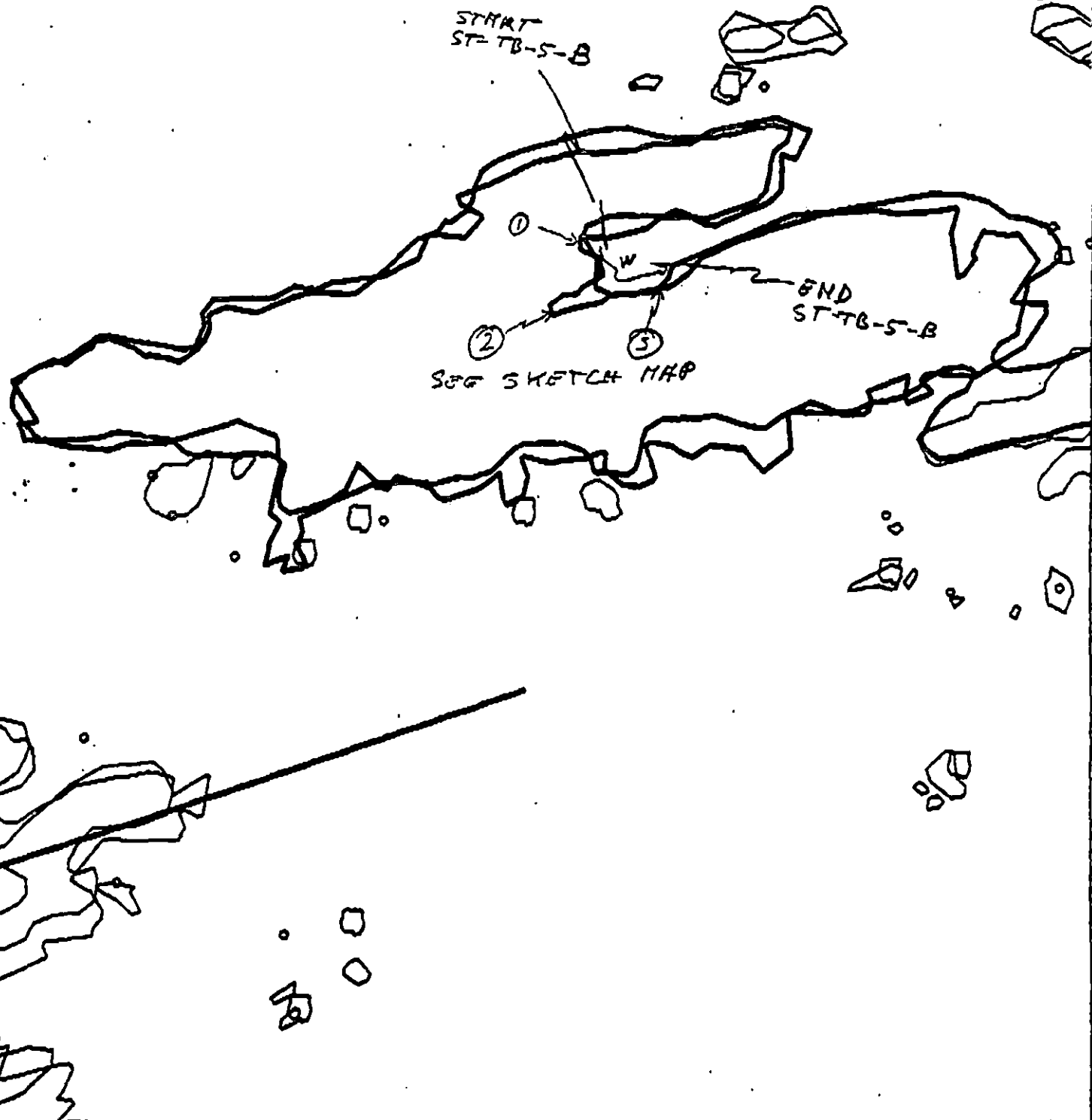
ADEC ART WENGER Art Wenger

EXXON ANDY TELL Andy Tell

NOAA JOSIE Josie

USCG D.T. ROME D.T. Rome

FOSC: [Signature] DATE: 6/1/90



XXXX Wide

ST-TB-5-B

/// Medium

Approx. Segment Length: ³⁹¹¹~~3910~~m

Map Key: KEN-TB-5b

Name: K. DEBUSSCHERE

--- Narrow

Date: 4/27/90

TTTT Very Light

0 5 100 200 300
METERS

Data Entered:

0000 No Oil

OG K. 100 USSCH-CR6

SEGMENT W/TB-5

SUBDIVISION B

DATE 4/27/90

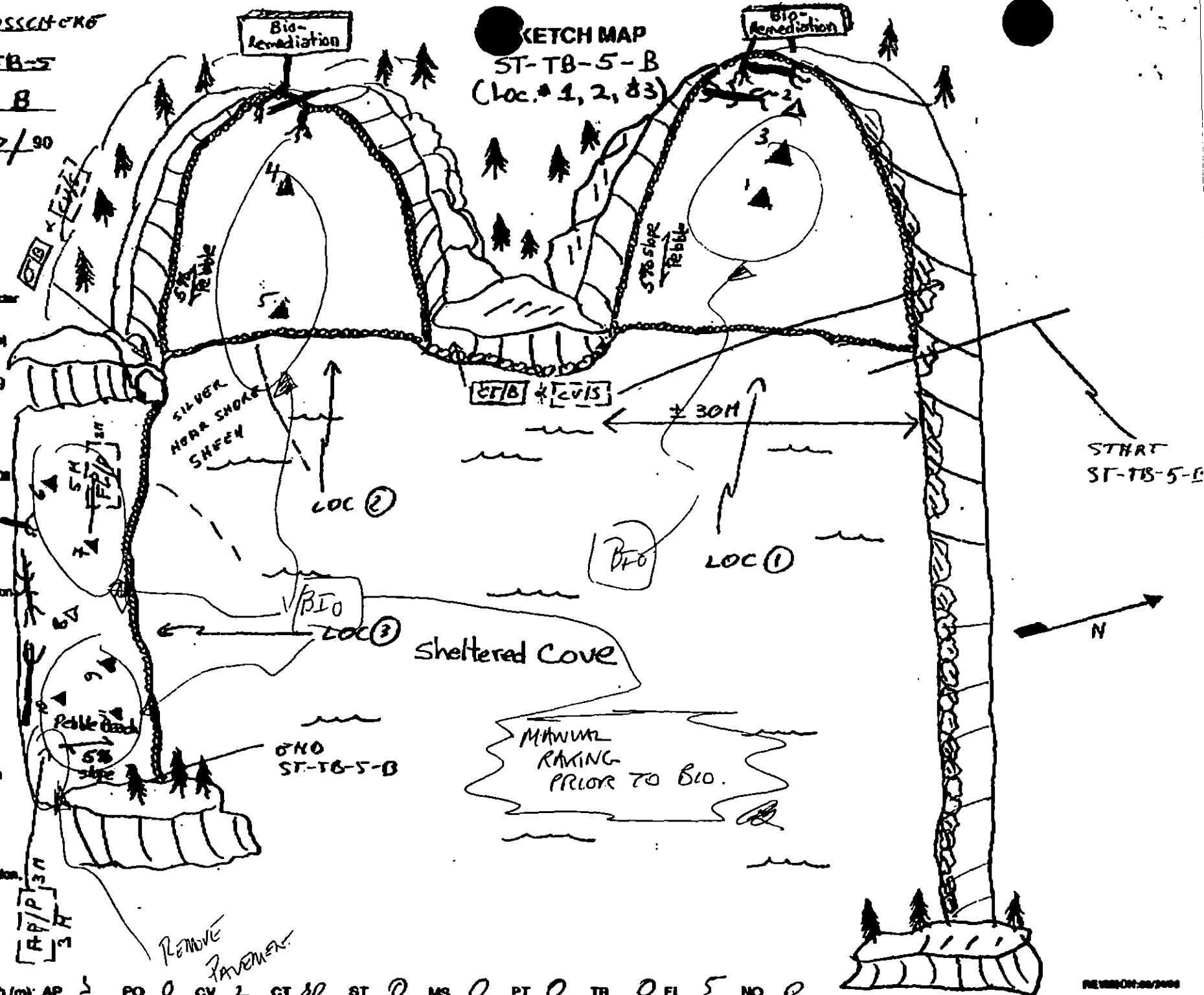
CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. INSLAWL
- ☐ SGL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pt Location(s)
- ☐ Photo Location(s)

LEGEND

- 1 Δ
Pt - No Subsurface Oil
- 2 Δ
Pt - Subsurface Oil
- $\boxed{CT/C}$
Continuous Distribution
- $\boxed{CT/B}$
Broken Distribution
- $\boxed{CT/P}$
Patchy Distribution
- $\boxed{CT/S}$
Splashed Distribution
- $\lll$
Oiled Vegetation
- 1 $\Rightarrow$
Photo location, direction, and number

SKETCH MAP ST-TB-5-B (Loc. # 1, 2, 83)



Oil Character Length (m): AP 5 PO 0 CV 2 CT 80 ST 0 MS 0 PT 0 TB 0 FL 5 NO 0

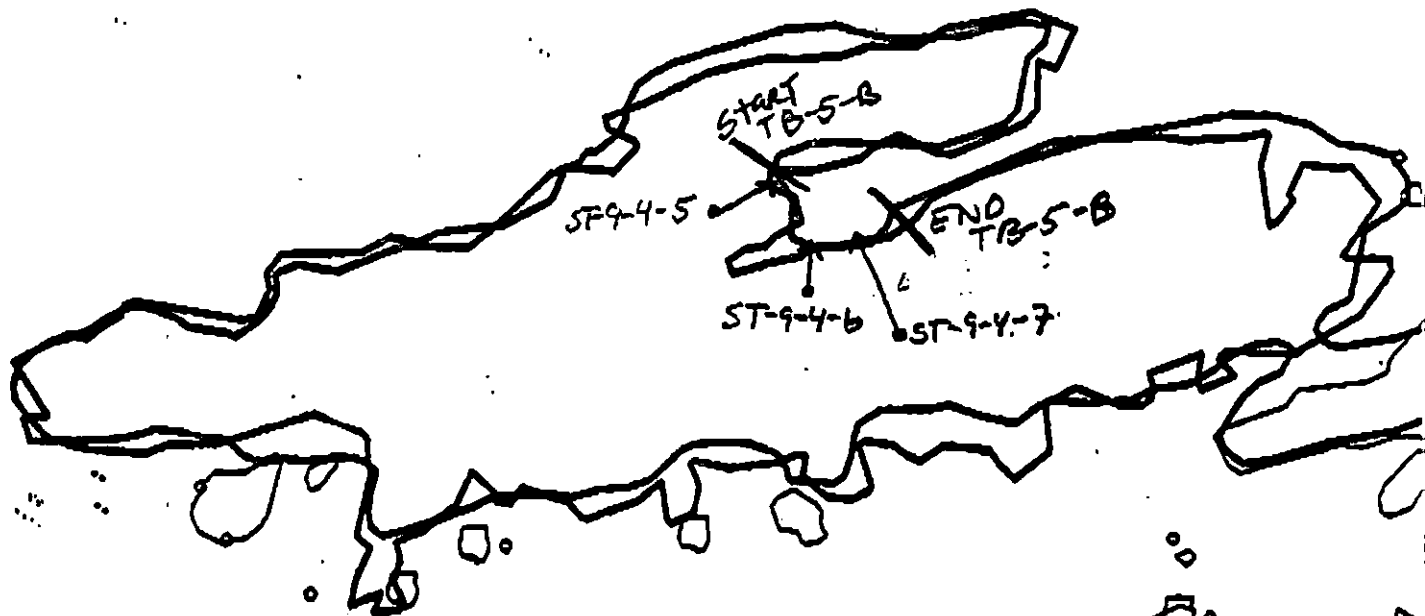
5 BORCH SURFACE IS 16 CM H
OUT SUBSURFACE OIL

REVISION: 00/0000

ECOLOGY MAP

RESOURCE CODES FOR SUBDIVISION

NONE



XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-B

Approx. Segment Length: 3840m



Map Key: KEN-TB-5b

Name: Dan Reed

Date: 04/27/90

Date Entered:

ST-TB-5-B

(240 m)

- Small sheltered cove, low energy w/ three pocket beaches.
- Bio-remediation test site. Surface clean, but subsurface oil still present.
- Recommend further TAG evaluation as to proper treatment method.



START
ST-TB-5-B

SUBDIV A
REC.

SUBDIV A
REC.

ST-TB-5-B

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-B

Approx. Segment Length: ³⁹¹¹~~3440~~m

10/17 100 200 300
METERS

Map Key: KEN-TB-5b

Name: K. DEBUSSIERE

Date: 4/27/90

Data Entered:

SHORELINE EVALUATION

SEGMENT ST/ TB-05 SUBDIVISION A (1 OF 2) DATE 4/27/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1J Purse seine area (7/10 to 8/10)
2M Herring spawning (4/1 to 6/15)
4GA Alaska State Wilderness Park
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6NN Recreation: Sportfishing

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINT: If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3274 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Richard Dan Dale DATE: 5/25/90

OILING CATEGORIZATION:

Wide 0 m: Medium 54 m: Narrow 723 m: V.Light 987 m: No Oil 1689 m
Subsurface Oil Observed: Yes X No Maximum Depth 17 cm

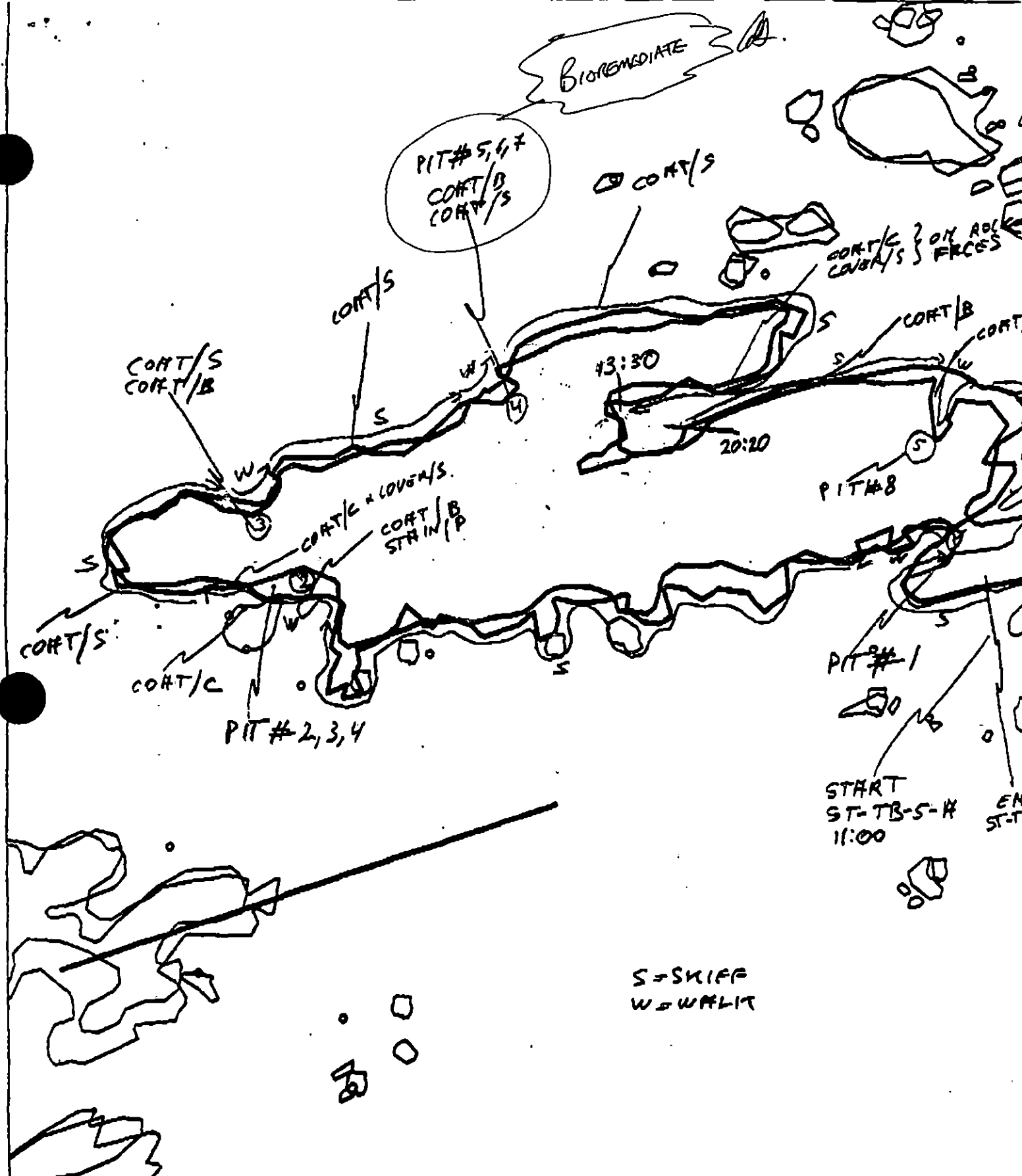
RECOMMENDATIONS:

☒ No Treatment Recommended	☐ Snare/Absorbent Booms
☐ Treatment Recommended	☐ Oil Snares (pom poms)
☐ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☒ Bioremediation	☐ Spot Washing: <u> </u> Wands
☐ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS:

TAG COMMENTS: BIOREMEDIATE AREA INDICATED ON SKETCH

TAG APPROVAL DATE: 5/11/90
ADEC Art Weimer Art Weimer
EXXON AMY TERN FOSC: [Signature] DATE: 5/31/90
NOAA Joseph C. Tuller
USCG D. D. ROME [Signature]



XXXX Wide	ST-TB-5-H	3911	Map Key: KEN-TB-5b
/// Medium	Approx. Segment Length: 300m		Name: <u>K. DERUSS CHENE</u>
--- Narrow			Date: <u>4/27/90</u>
TTT Very Light			Data Entered:
0000 No Oil			

S = SKIFF
W = WALK

TB-O

XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-A

Approx. Segment Length: ~~300~~ 3911

5/17 100 200 300
METERS

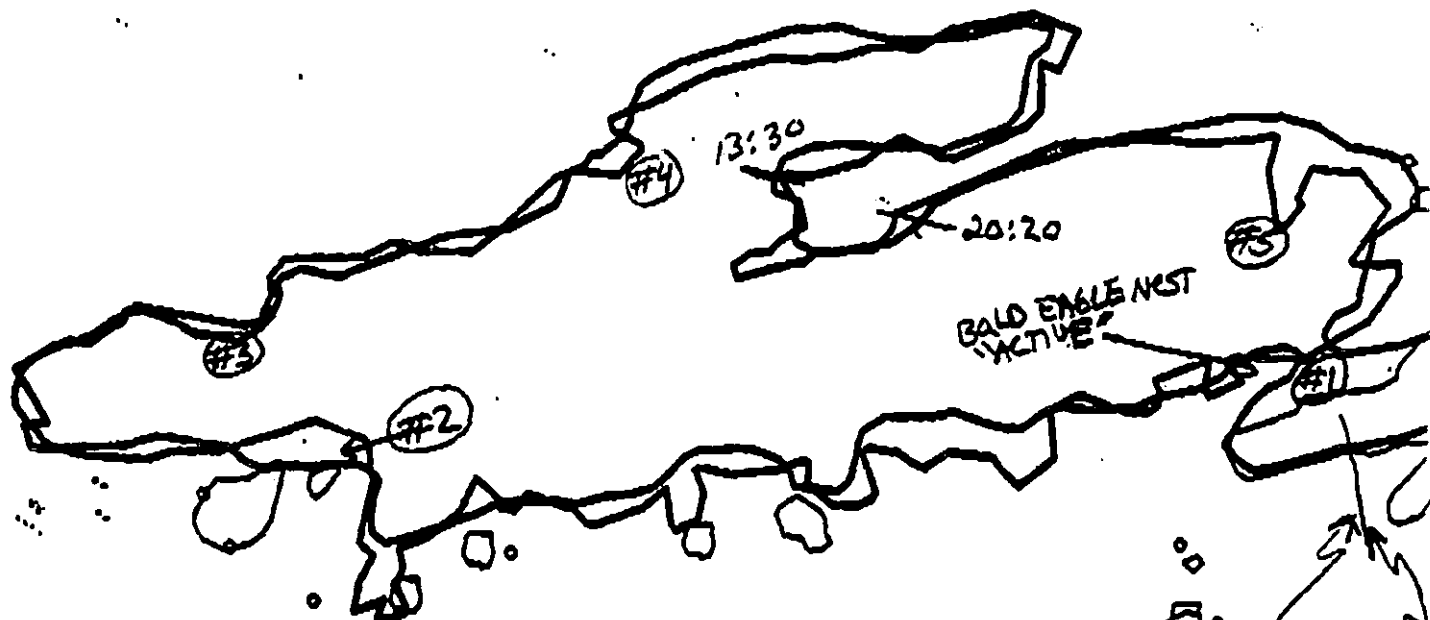
Map Key: KEN-TB-5c

Name: K. DERUSSCHOW

Date: 4/27/90

Data Entered:

ECOLOGY MAP
RESOURCE CODES FOR SUBDIVISION
1-5T



XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-A

Approx. Segment Length: 3840m

9/17 100 200 300
METERS

Map Key: KEN-TB-5b

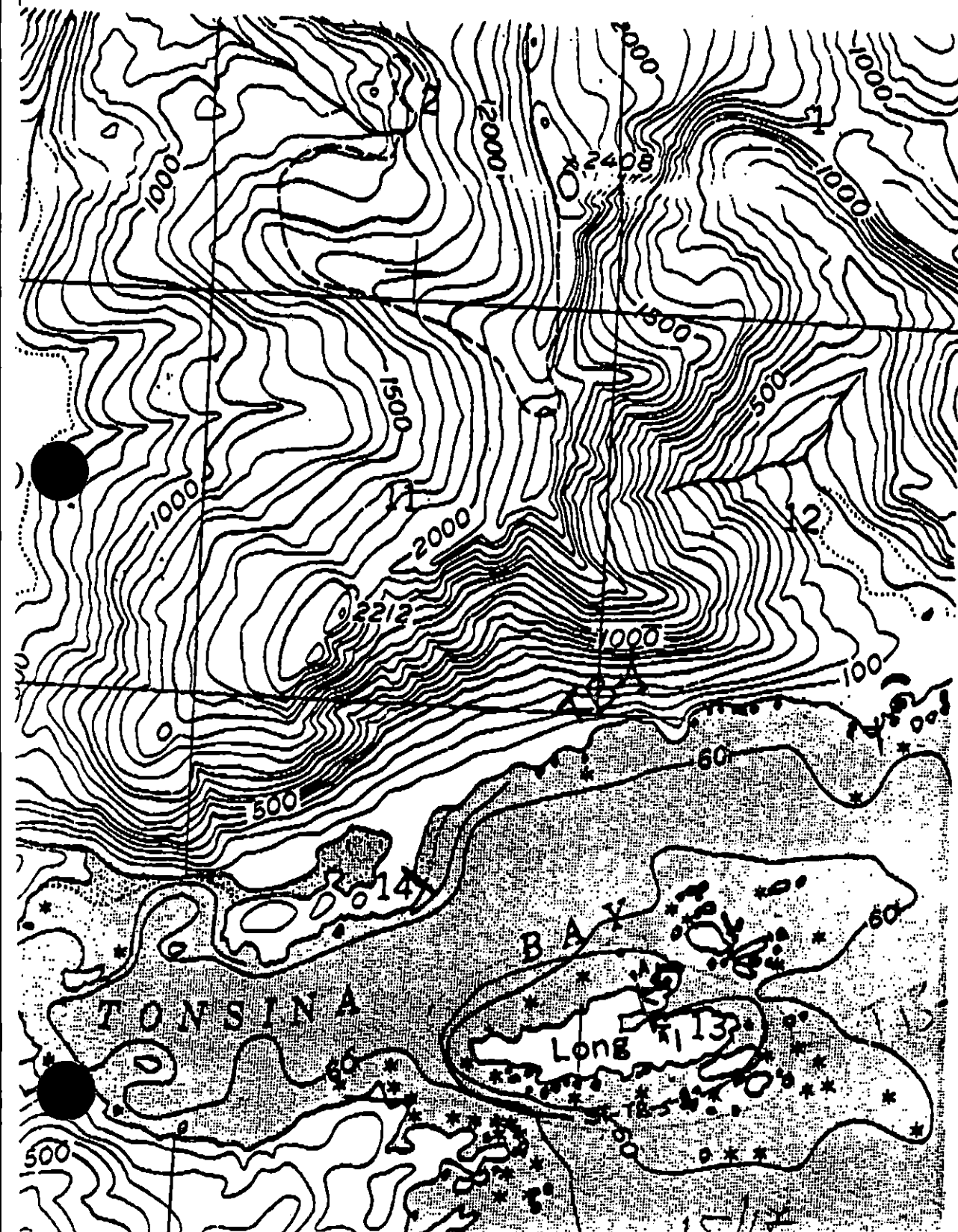
Name: DAN REED

Date: 04/27/90

Date Entered:

ST-TB-5-A
(3671 meters)

- Mostly vertical bedrock w/many rock outcrops. - Difficult Access
- Only oil is on vertical bedrock faces. Very weathered and baked
- NO TREATMENT RECOMMENDED



OIL MAP

TB-O

XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

ST-TB-5-A

Approx. Segment Length: ³⁹¹¹~~5000~~m

0 100 200 300
13/17 METERS

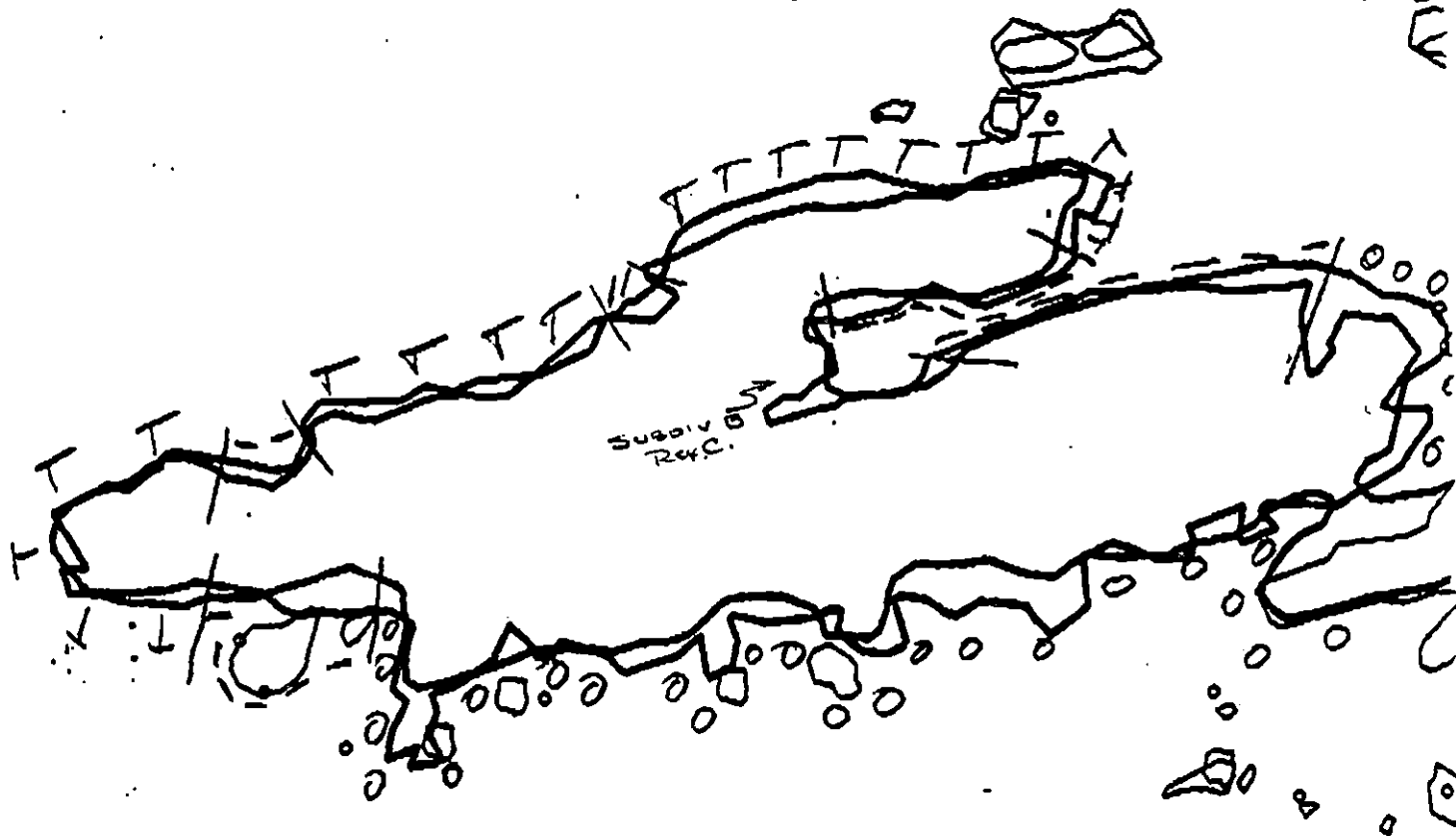
Map Key: KEN-TB-5c

Name: K. DEBUSSCHERE

Date: 4/27/90

Data Entered:

OIL MAP



XXXX Wide

ST-TB-5-H

/// Medium

3911

---- Narrow

Approx. Segment Length: ~~3450m~~

TTTT Very Light

0000 No Oil



Map Key: KEN-TB-5b

Name: K. DEBUSSCHER

Date: 4/27/90

Data Entered:

1991 MAYSAP EVALUATION

SEGMENT: TB 005 SUB: B REGION: KEN SURVEY DATE: 5/19/91ENVIRONMENTAL SENSITIVITIES:Work Window(s) RESTRICTED 3/1 - 9/1Ecological/Constraints (see page two for details) Eagle nest,
Herring spawning, Fish harvest areaARCHAEOLOGICAL CONSTRAINTS:If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____

FOSC APPROVAL DATE: _____

ADEC

FOSC

EXXON

USCG

NOAA

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

ADEC

NAME Clara S Crosby

SIGNATURE Clara S. Crosby

☒ NTR

Fairly light oiling within segment - This area was washed, Bioremediated & manually worked in the past. Oiling which remains is not readily accessible or too weathered & thin ~~the~~ ^{at} ~~near~~ ^{about} - Kachemak Bay State Wilderness Park.

EXXON

NAME George P. Stiles

SIGNATURE George P. Stiles 5/23/91

☒ NTR

Very little oil remains.

LANDMANAGER

NAME Jeff Johnson

OF ADNR

SIGNATURE [Signature]

☒ NTR

Not much oil remains in this segment, + most is well weathered and scattered. Concur w/ DEC

USCG/NOAA

NAME John McMichael

SIGNATURE [Signature]

☒ NTR

Some EOR, Mousse found and picked up very little remains

SEGMENT T3005
SUBDIVISION 8
DATE MAY 1 19 191

TIME 14:30 to 16:01

TIDE LEVEL ⁺2.0 ft. to ⁺5.6 ft.

ENERGY LEVEL: ☐ H ☐ M ☒ L

SURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELO

WEATHER: ☒ SUN ☐ CLOUDS ☐ FOG ☐ RAIN ☐ SNOW

TOTAL LENGTH SHORELINE SURVEYED: 125 m

NEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONE

EST. OIL CATEGORY LENGTH: W_____m M_____m N_____m VL 105 m NO 20 m US_____m

[illegible]

DISTRIBUTION: C = 91-100%; B = 61-80%; P = 11-50%; S = 1-10%; T = <1%

SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE PHOTO ROLL # MAYSAP-_____ - _____ FRAMES

[illegible]

GHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

OG COMMENTS:

See map.

REVISED: F.W. 5/25/91

Location Map.

B

TB005 B

Subdivision Field Map

Map Key: KENTB005Ba

Name: for sample

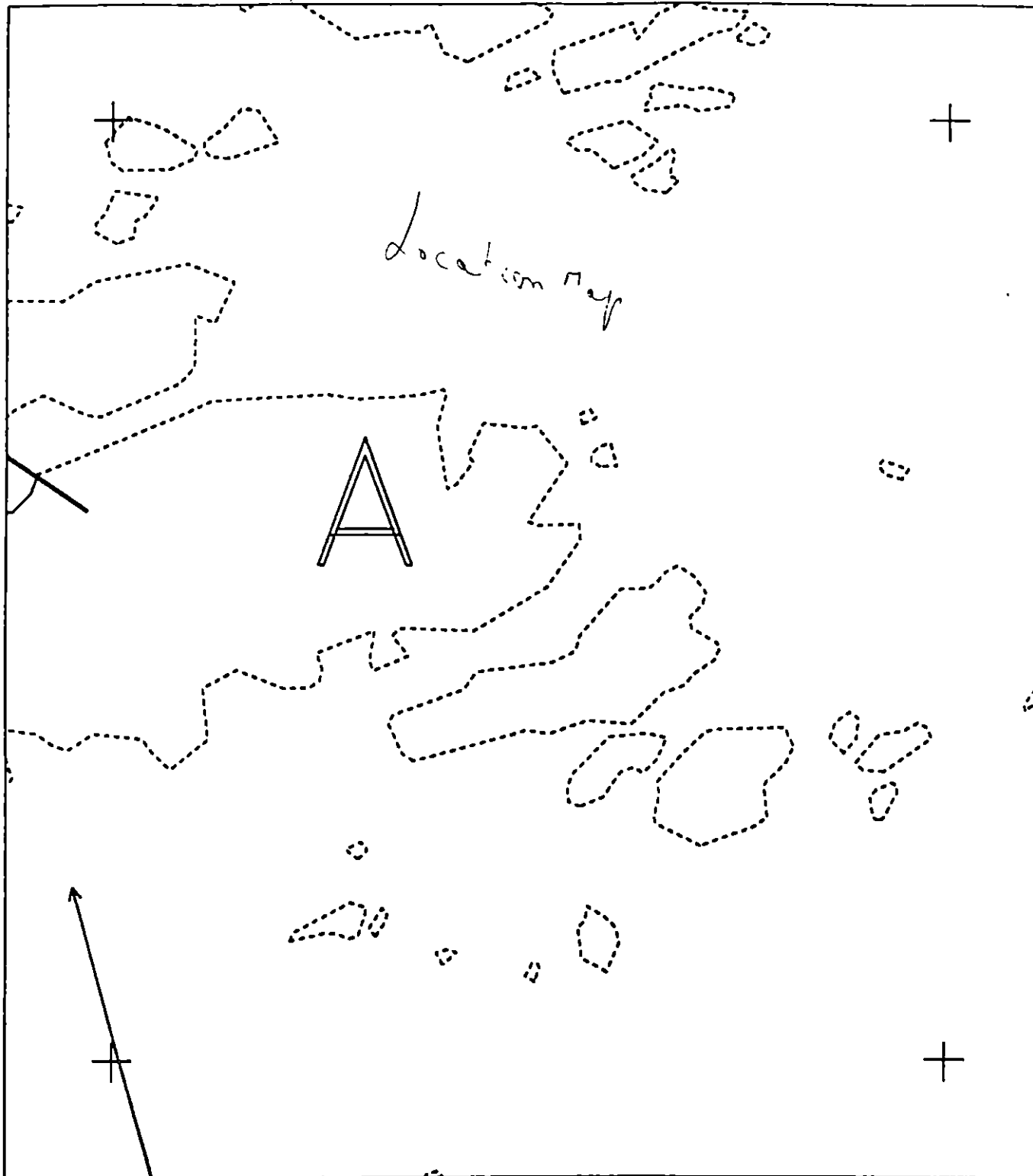
Date: May 14/91



METERS
0 100 200

AK State Plane Zone 4
NAD83

REVIEWED: PM. 5/25/91



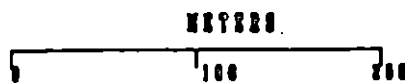
TB005 B

Subdivision Field Map

Map Key: KENTB005Bb

Name: J. M. Sample

Date: May 19/81



AS State Plane Zone 4
NAD83

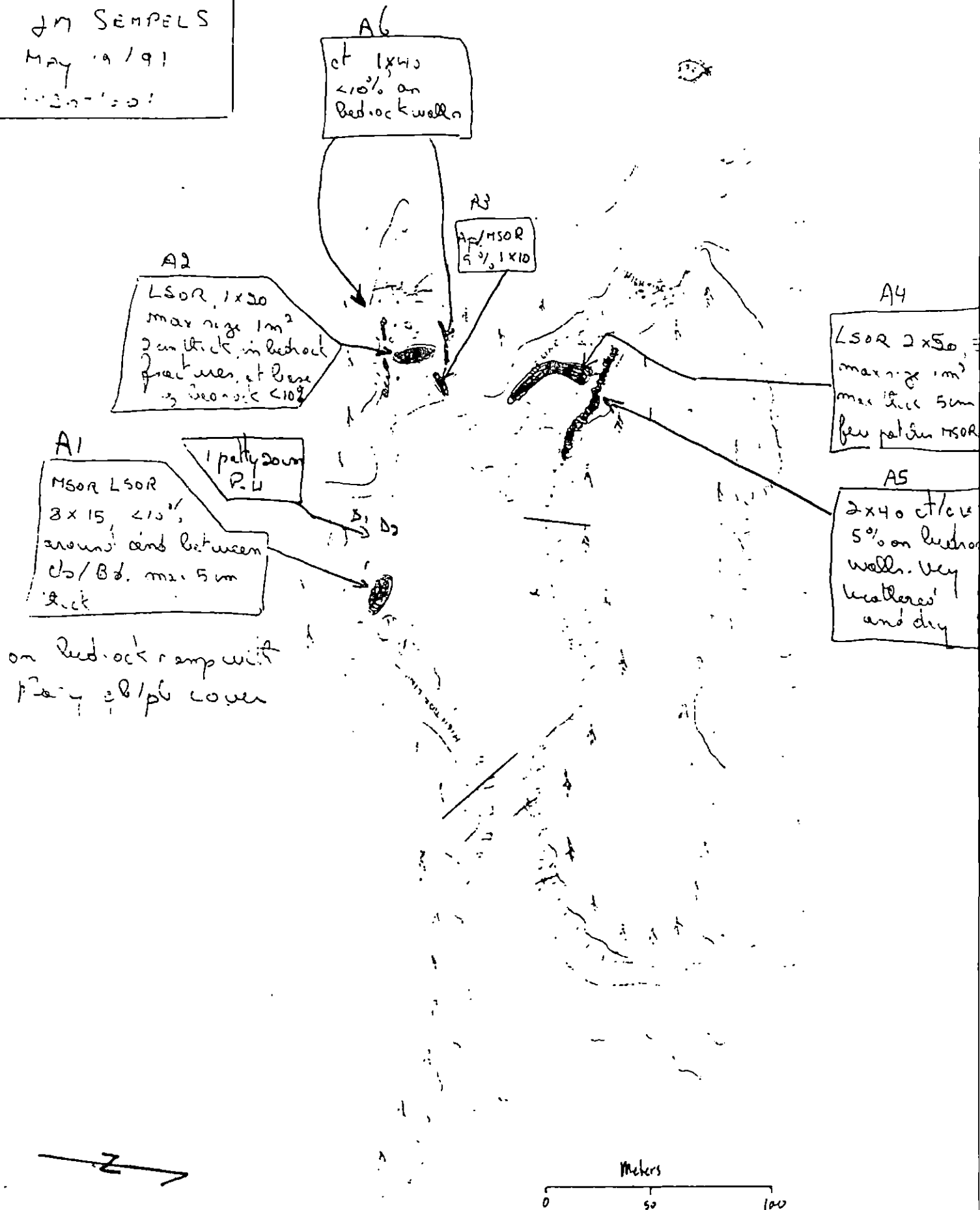
REVIEWED: F.W. S/25/81

TB005-B

JM SEMPERS

May 19/91

1:30-1:50



REVIEWED: F.W. 5/25/91

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 19, 1991 1512 - 1603
SEGMENT #	TB005	TIDAL HEIGHT (Range)	↑ 2.0 => 5.6
SUBDIVISION	B	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Calm, CLEAR!

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

- A1 Oil (MSOR/LSOR) is present under cobble in the upper to middle intertidal zone. Littorine snails are moderately abundant in this area, with numerous egg masses. Limpets and barnacles also are moderate in density. Mussels are most abundant in the middle zone, with moderate densities of adults and juveniles. Amphipods, isopods, and oligochaete worms are common under cobble.
- A2 Oil (LSOR) occurs in the pebble beach along the middle to high zone. Green filamentous algae forms a green film on this beach. Amphipods are occasionally found in the beach pebbles. Barnacles can be found under some beach pebbles. Few other species are present.
- A3 Oil (AP/MSOR) is found along the high zone of the cobble talus bordering this small beach. Few biota are present at this level. Barnacles, limpets, littorines, a few mussels, and Fucus are fairly common in the middle intertidal below the oiled area.
- A4 Oil (LSOR) is located on bedrock and cobble talus in the upper zone, as well as on or amongst the beach pebble/cobble. Biota are more abundant near the bedrock and talus, with moderate densities of barnacles, than on the beach pebble. Filamentous green algae is abundant, as are littorine snails. Amphipods, isopods, and oligochaete worms also are present. Beach drift algae and debris are common.

(continued)

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1	Salmon Fry
Seabirds			
Waterfowl			
Gulls/Kittiwakes			
Shorebirds	1	2	
Corvids	1	3	
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

Card attached.

A5,A6 An oil coat was found on the bedrock in the upper zone at these sites. Biota are generally sparse at this tidal level. Barnacles, limpets, and littorine snails are occasional to common. Fucus and mussels are present in crevices where the CT extends lower towards the middle intertidal zone. Green filamentous algae is the most common alga, but is nowhere dense at this level. Juveniles of barnacles, limpets, littorines, Fucus, and mussels are present, but sparse.

Cleanup Considerations

Extensive cleanup has been performed at this site. Additional cleanup, if recommended, will probably not have further adverse effects on the biota of the site.

General Characteristics of TB005-B

This subdivision is a very small protected cove. Its shores are mostly angular pebbles and cobble, and some bedrock outcrops. This area was heavily oiled and has been treated extensively. An eel grass bed is found at the central portion of the cove. The shores have sparse to moderate densities of mussels, with juveniles and adults present. The middle to upper shores have moderate cover of rockweed (Fucus). The abundances of the other key species (barnacles, littorine snails) vary considerably, but are generally moderate to high. Filamentous algae form a film over much of the low zone. Cobble and pebble shores have less biota than bedrock outcrops at the site. Some oil is present in beach pebbles and along the talus or bedrock shore. In some cases, biota are found within the oiled sediments. In areas where the oil content of the sediments is high, few or no species are found in direct contact with these sediments. Evidence of cleanup is apparent, from the 'disturbed' appearance of some mussel beds, and the absence of adult Fucus on some bedrock outcrops. Recovery from these disturbances is evident from the recruitment of mussels and Fucus in several parts of the cove.

General Zonation Pattern (Bedrock Outcrops)

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal

Oil Distribution			-----			
Bare Rock		-- --				
Green Filamentous Algae			- - - -+***+			
Rockweed (Fucus)				-+ + + + + + + + + + - -		
Barnacles (Balanus)			- - + + - + - - + - - - - -			
Littorine Snails			- - - -+* * * * + - - - - -			
Limpets			- - + + - + + + + + + - - - -			
Other Red Algae					---+***+-+---+***	
Green Algae (Ulva/other)				- - -+ - - + + - - - - + + +		
Mussels (Mytilus)				- - + + - + - + - + - -		
Crustose Brown Algae (Hildenbrandia)				- - + + + - + - + -		
Upright Brown Algae (not Fucus)					-- - + +***+***+***	
Eel Grass						---+*
Clams						- - - + - -

Legend: (-) Sparse to rare, (+) Moderate, (*) Abundant

Common Species on TB005-B

A. Marine Plants

1. Diatoms, Blue Greens
2. Green Algae - Chlorophyta
Enteromorpha sp., Ulva sp., Urospora sp.
3. Brown Algae - Phaeophyta
Ectocarpus spp., Fucus distichus, Hildenbrandia sp., Ralfsia sp.,
Syctosiphon lomentaria
4. Red Algae - Rhodophyta
Cryptosiphonia woodii, Endocladia muricata, Halosaccion glandiforme,
Iridaea sp., Mastocarpus sp., Odonthalia floccosa, Petrocelis sp.,
Porphyra sp., Rhodomela larix
5. Higher Plants - Zostera marina (eel grass), Leymus mollis (beach rye
grass)

II. Marine Animals

1. Sponges - Porifera - Halichondria bowerbanki?
2. Anemones - Anthopleura artemesia
3. Hydroids - Sertulariidae
5. Flatworms - Platyhelminthes - Polyclads
6. Nemertean Worms - Ribbon Worms - Emplectonema gracile
8. Polychaete Worms
Nereidae - Nereis spp.
Serpulidae - Serpula sp., Crucigera sp., Eudistylia polymorpha
Spiorbidae - Spiorbis sp.
10. Crustaceans
 - a. Amphipods - Traskorchestia sp.
 - b. Barnacles - Balanus glandula
 - c. Crabs - Paguridae (hermit crabs)
 - d. Isopods - Cirdana harfordi, Idotea wosnesenskii, Gnorimorsphaeroma
oregonensis
11. Mollusca
 - a. Chitons - Tonicella lineata.
 - b. Snails - Gastropods
Littorina sitkana, L. keenae, Natica clausa, Nucella lima,
Searlesia dira
 - c. Limpets - Lottia limatula, L. persona, Tectura persona, T. scutum.
 - e. Bivalves - Chlamys hastata, Clinocardium sp., C. nuttalli, Hiatella
arctica, Macoma nasuta, Modiolus modiolus, Mytilus
edulis, Pododesmus cepio, Prototheca staminea, Saxidomus
giganteus
12. Echinoderms
 - b. Sea stars - Dermasterias imbricata, Leptasterias hexactis, Pycnopoda
helianthoides
 - d. Urchins - Strongylocentrotus droebachiensis
13. Bryozoans - Membranipora sp., Schizoporella sp.
15. Fishes
Cottidae -
Stichaeidae - Xiphister atropurpureus, X. mucosus

III. Birds - Western Sandpiper (2), Bald Eagle (1), Crows (3)

TB005-B
BIO SKETCH MAP

J P BARRY

17 MAY 1991

1435-1601

MSR/AP in HIGH ZONE COBBLE
TALUS. FEW BIOTA AT THIS LEVEL
BARNACLES, LIMPETS, LITTORINE
SNAILS, A FEW MUSSELS, AND
FUCUS ARE FAIRLY COMMON
IN MIDDLE ZONE BELOW SILT
AREA

Green filamentous algae on pebbles
beach. Amphipods and isopods
occasional. Barnacles under
some beach cobbles

Upper to middle zone.
Littorine snails, limpets, barnacles
are moderate to abundant. Mussels
most abundant in middle zone.
(adults, juveniles), amphipods,
isopods common under cobbles.

Legend

 mussel beds

 Eel grass beds
Clam beds

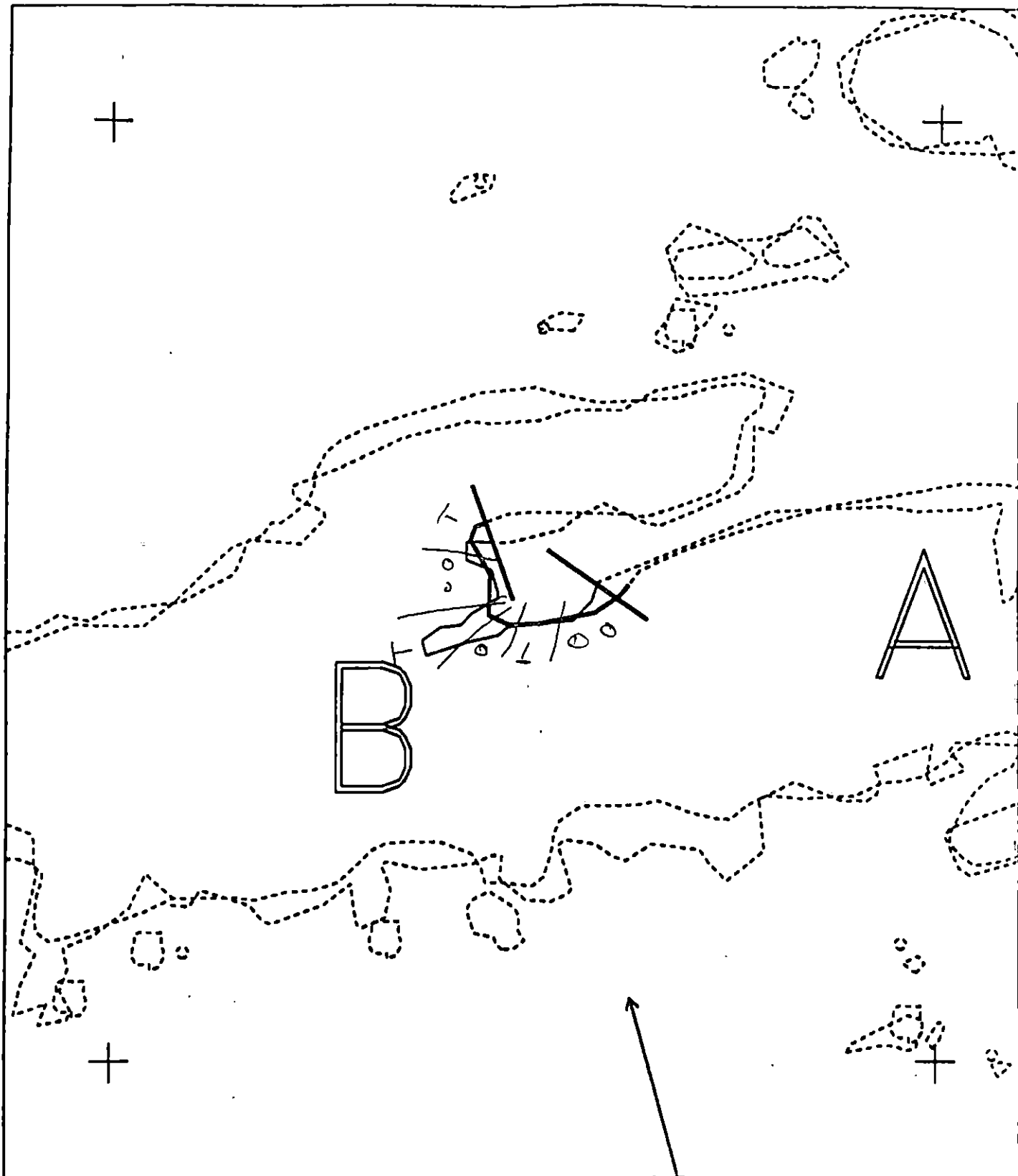
Eagle nest mapped,
but not sighted

LSOR on bedrock &
cobble talus in upper
zone. Biota are more
abundant on bedrock
where barnacles,
limpets, and littorine
snails are present.
Moderate densities
Filamentous algae
abundant

A5, A6

CT on bedrock - W
Sparse biota. Bar-
limpets, littorine
common. Fucus &
mussels common
green. Green
filamentous algae
moderate

Meters
0 50 100



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB005 B
 ADEC Subsegment Length: 185m
 METERS

5 100 200
 AK State Plane Zone 4
 115005b



Subdivision Field Map
 Map Key: KENTB005B
 Name: J. J. English
 Date: May 19/91
 Date Entered:

REVIEWED: F.W. 5/25/91

1991 MAYSAP EVALUATION

SEGMENT: TB 005 SUB: A REGION: KEN SURVEY DATE: 5/19/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest,
Herring spawning, Fish harvest area

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

<u>RECOMMENDATIONS:</u>	<u>INITIAL</u>	<u>TAG</u>	<u>FOSC</u>
TREATMENT REQUIRED (Y or N)	<u>N</u>	_____	_____
Manual Pickup (Check as Req.)	_____	_____	_____
Spot Washing	_____	_____	_____
Bio-Customblen Only	_____	_____	_____
Bio-Inipol/Customblen	_____	_____	_____
Other _____	_____	_____	_____
Other _____	_____	_____	_____

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____ FOSC APPROVAL DATE: _____

ADEC _____ FOSC _____

EXXON _____

USCG _____

NOAA _____

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

TEAM NO. 4SEGMENT T B - 005SUBDIVISION ADATE MAY 19 1991

ADEC

NAME

Clara S. Crosby

SIGNATURE

Clara S. Crosby

NTR

No treatment recommended -

EXXON

NAME

George P. Stiles

SIGNATURE

George P. Stiles 5/22/91

NTR

No appreciable oil found.

LANDMANAGER

NAME

Jeff Johnson OF ADUR

SIGNATURE

[Signature]

NTR

Concur with other reps - - - Very little oil found. Coat would be difficult to remove, oil very light and scattered.

USCG/NOAA

NAME

John McMeekin/McDonald

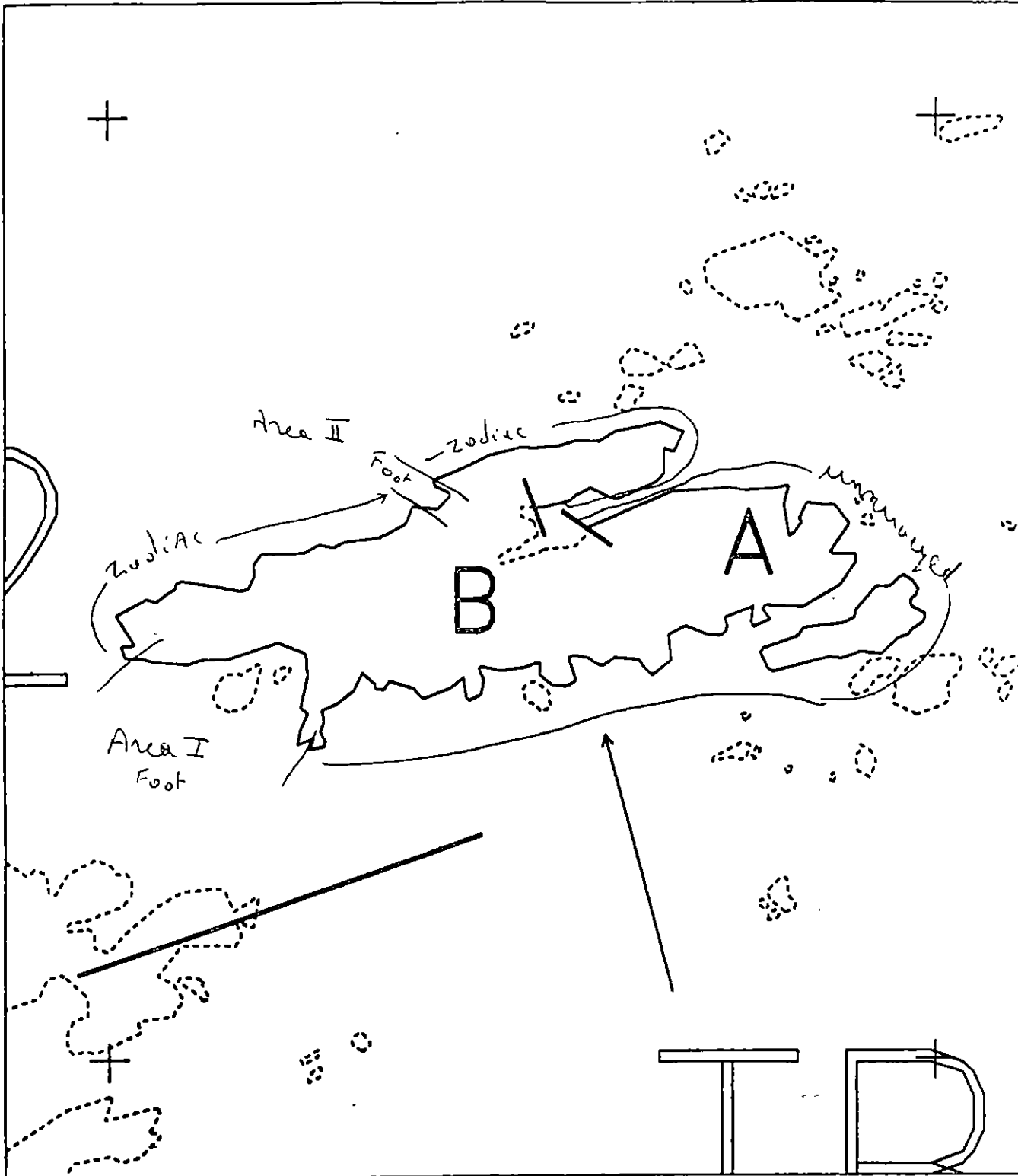
SIGNATURE

[Signature]

NTR

No Oil![Signature]

REVIEWED: F.W. 5/25/91



TB005 A

Subdivision Field Map

Map Key: KENTB005A

Name: J. N. Sempel

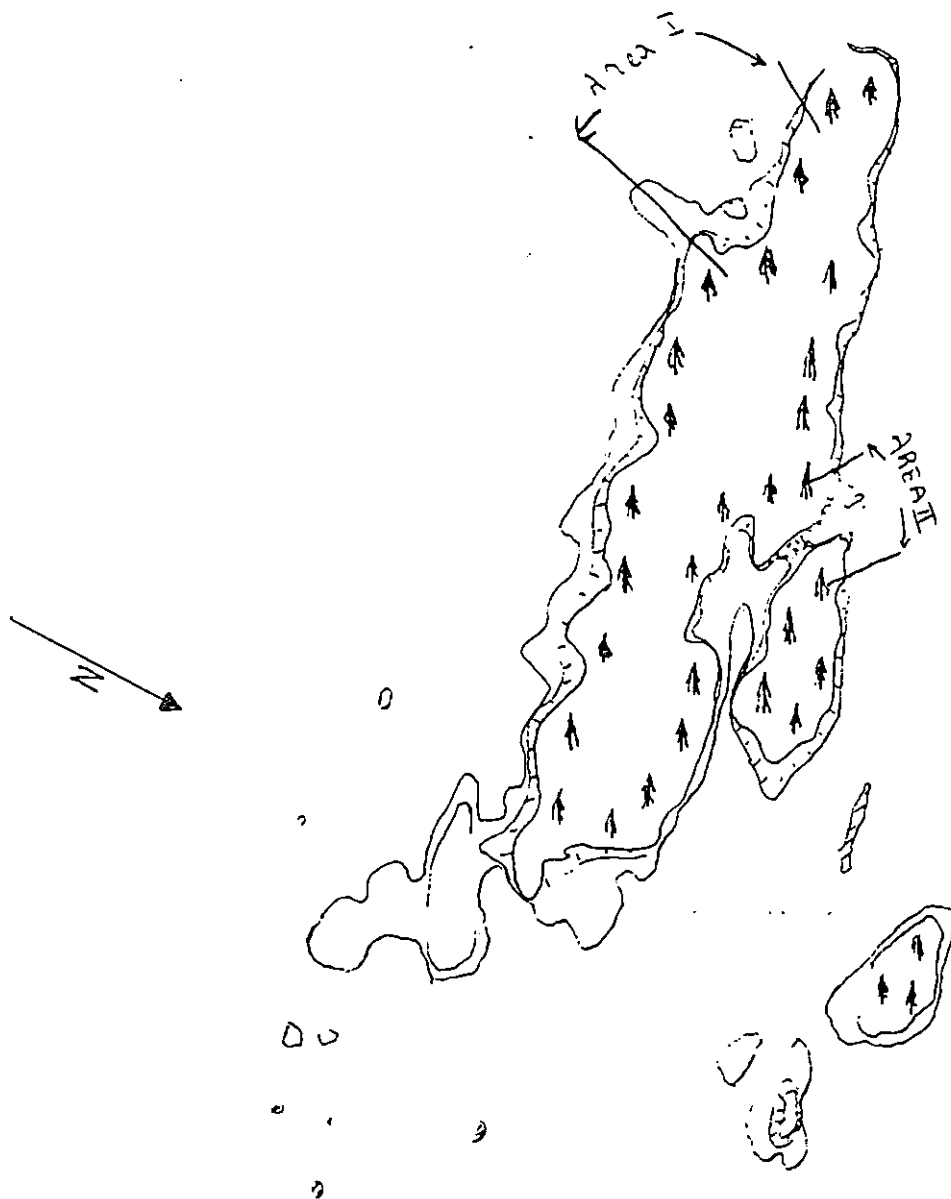
Date: MAY 19

AK State Plane Zone 4
NAD83

REVIEWED: F.W. 5/25/91

Og Sketch Map:
dm Samples

Location for TB-005-A - Area 1

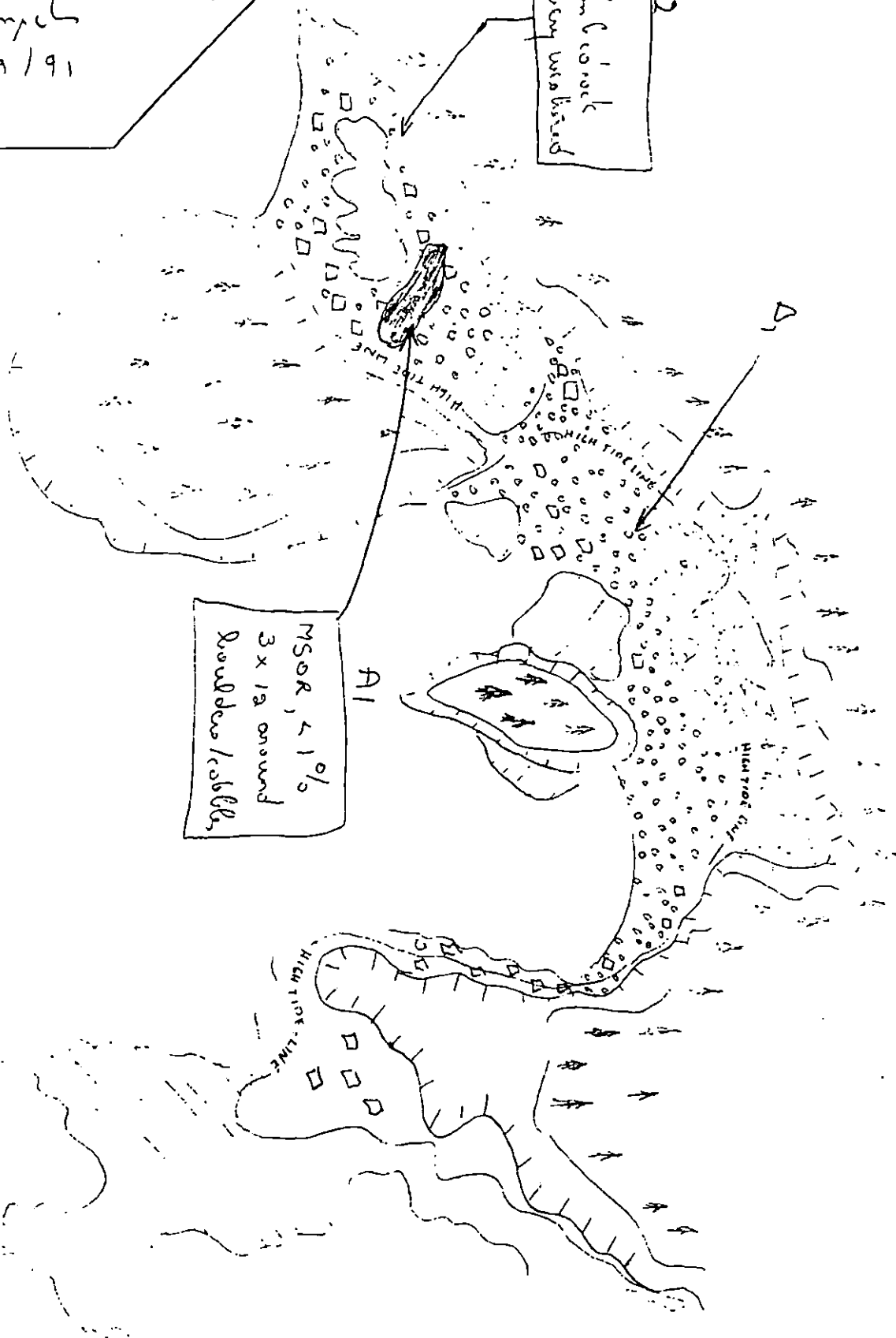


0 200 400
meters

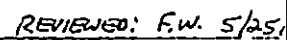
TB005-A. Area I

LM Sample
MAY 19/91

A2
1.5%
x 10. on 6.0 rock
diff. very weak



47 Samples
May 19/20/91



HAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 19/20, 1991
SEGMENT #	TB005	TIDAL HEIGHT (Range)	+1.6 - +4.4
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Variable, 5 kt., clear

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

The survey concentrated on two or three pocket beaches, with a cursory inspection of the bedrock shore from the skiff.

A1,A4 This pocket beach has spatters of oil (MSOR) amongst the high cobble of the high intertidal zone. Macroalgae are mostly absent or very sparse, and the dominant species at the site are barnacles (moderate densities), littorine snails (moderate/dense), and limpets (sparse/moderate). Nearby pools have some algae (*Odonthalia*, *Fucus*, *Scytosiphon*). Mussels are patchy, but generally sparse. Amphipods, oligochaetes, and hermit crabs are sparse amongst the cobble. This oiled area extends slightly lower in the intertidal, where the densities of these species increases. Mussels and *Fucus* are moderately abundant in this lower area.

A2,A3 A coat of oil is located on the vertical bedrock slightly above the zone of barnacles in the upper intertidal zone. Biota are sparse at this level. Barnacles are sparse in the oiled zone, but much denser below. Spat and juvenile barnacles are common and often present directly on the oil coat. Littorines are also abundant and found on the oil. The middle zone has a fairly dense cover of barnacles, and moderately abundant littorines and limpets. Mussels are sparse to moderate in patches. Macroalgae is rare to sparse.

(continued)

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1	
Seabirds	3	17	
Waterfowl	3	27	
Gulls/Kittiwakes	3	35	
Shorebirds	2	8	
Corvids	1	6	
Other Birds	1	2	

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

Bound 51-510 1991

Some manual cleanup was performed during the survey of the site. Additional treatment, if recommended, will have minor or no impacts on the biota at these sites.

Three pocket beaches were visited and closely inspected and the remainder of the island was either un-surveyed, or surveyed from the skiff. These beaches were composed of cobble and pebbles, and bordered by bedrock outcrops.

The bedrock cliffs and talus surrounding much of the island has higher cover of both *Fucus* and mussels. The subtidal habitats also have dense cover of brown and red algae, particularly on the more exposed headlands of the island.

General Zonation Pattern

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal
Oil Distribution		- - -	----			
Black Lichen		---+++++---				
Bare Rock		- - - - -				
Filamentous Green Algae			-- -++++--	- - ---- - -		
Rockweed (Fucus)			-----+*+*	*++++--+-	- -	
Barnacles (Balanus)			- - +++++*	----	- - -	
Mussels (Mytilus)			- - -++-+-++-+-	+-+-	- -	
Other Red Algae					-----+*+*+-+-++*+*	
Green Algae (Ulva/other)					-+ + - ---- -	+++
Crustose Brown Algae (Hildenbrandia)					---+-+*+*+-+-	
Upright Brown Algae (not Fucus)					- -+++++*****	

Legend: (-) Sparse to rare, (+) Moderate, (*) Abundant

A. Marine Plants

1. Diatoms, Blue Greens
2. Green Algae - Chlorophyta
Enteromorpha sp., Ulva sp., Urospora sp.

3. Brown Algae - Phaeophyta
Alaria marginata, *Agarum fimbriatum*, *Costaria costata*, *Ectocarpus* spp., *Fucus distichus*, *Hildenbrandia* sp., *Laminaria groenlandica*, *L. saccharina*, *Nereocystis leutkeana*, *Ralfsia* sp., *Syctosiphon lomentaria*
4. Red Algae - Rhodophyta
Bossiella sp., *Calliarthron* sp., *Corallina* sp., *Cryptosiphonia woodii*, *Cumagloia andersonii*, *Endocladia muricata*, *Halosaccion glandiforme*, *Lithothamnion* sp., *Mastocarpus* sp., *Odonthalia floccosa*, *Palmaria palmata*, *Petrocelis* sp., *Porphyra* sp., *Ptilota filicina*, *Rhodomela larix*
5. Higher Plants - *Zostera marina* (eel grass), *Leymus mollis* (beach rye grass)

II. Marine Animals

1. Sponges - Porifera - *Halichondria bowerbanki*?
2. Anemones - *Anthopleura artemesia*, *Epiactis ritteri*, *Metridium senile*, *Urticina crassicornis*.
3. Hydroids - Sertulariidae, *Aglaophenia* sp., *Abietinaria* sp.
5. Flatworms - Platyhelminthes - Polyclads
6. Nemertean Worms - Ribbon Worms - *Emplectonema gracile*
8. Polychaete Worms
Nepthyidae
Nereidae - *Nereis* spp.
Serpulidae - *Serpula* sp., *Crucigera* sp., *Eudistylia polymorpha*
Spiorbidae - *Spirorbis* sp.
9. Peanut worms - Sipunculids - *Phascolosoma agassizii*
10. Crustaceans
 - a. Amphipods - *Traskorchestia* sp.?
 - b. Barnacles - *Balanus glandula*, *Chthamalus dalli*, *Semibalanus cariosus*
 - c. Crabs - *Haplogaster* sp., *Paguridae* (hermit crabs), *Oregonia gracilis*, *Pugettia* sp.,
 - d. Isopods - *Cirrana harfordi*, *Idotea wosnesenskii*, *Gnorimorsphaeroma oregonensis*, *Ligia pallasii*
11. Mollusca
 - a. Chitons - *Mopalia mucosa*, *Katharina tunicata*, *Tonicella lineata*,
 - b. Snails - Gastropods
Amphissa columbiana, *Littorina sitkana*, *L. keenae*, *Nucella lamellosa*, *N. lima*, *Searlesia dira*
 - c. Limpets - *Lottia digitalis*, *L. limatula*, *L. persona*, *Tectura fenestrata*, *T. persona*, *T. scutum*, *Siphonaria thersites*.
 - d. Nudibranches - *Lamellidoris fusca*, *Onchidella borealis*
 - e. Bivalves - *Modiolus modiolus*, *Mytilus edulis*, *Pododesmus cepio*, *Prototheca staminea*
12. Echinoderms
 - a. Brittle Stars - *Ophiolus aculeatus*?, *Ophiothrix spiculata*?, *Amphipholis*?
 - b. Sea stars - *Dermasterias imbricata*, *Henricia sanguinolenta*, *Leptasterias hexactis*, *Pycnopoda helianthoides*, *Solaster dawsoni*,
 - c. Sea Cucumbers - Holothurians - *Eupentacta* sp.
 - d. Urchins - *Strongylocentrotus droebachiensis*
13. Bryozoans - *Membranipora* sp., *Microporina borealis*, *Phidolopora pacifica*, *Schizoporella* sp.
14. Ascidians - *Synocium*? sp., *Aplidium*?

16. Fishes

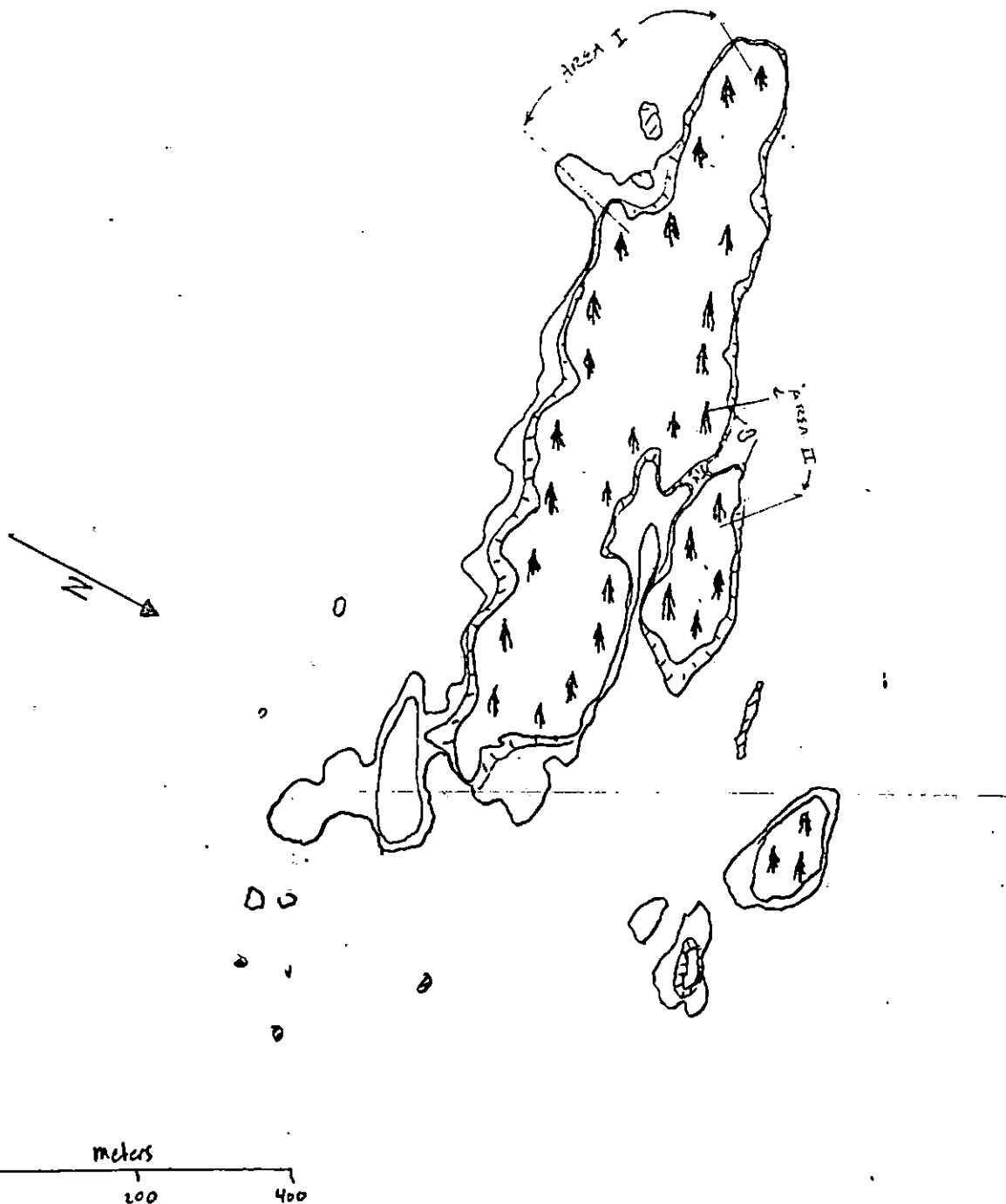
Cottidae - tide pool sculpins

Stichaeidae - *Xiphister atropurpureus*, *X. mucosus*

III Birds -

Black-legged Kittiwake (5), Bonaparte's Gull (10), Glaucous-winged Gull (20), Greater? Yellowlegs (2), Surf Scoter (5), Whimbrel (6), Lesser Scaup (20), Crow (6), Pigeon Guillemot (5), Marbled Murrelet (2), Cormorant (10), Harlequin Duck (2), Bald Eagle (1), Fox Sparrow (2)

TBQ05 - A
19/20 MAY, 1991
J.P. Barry



TB005-A

AREA I

J.P. BARNY

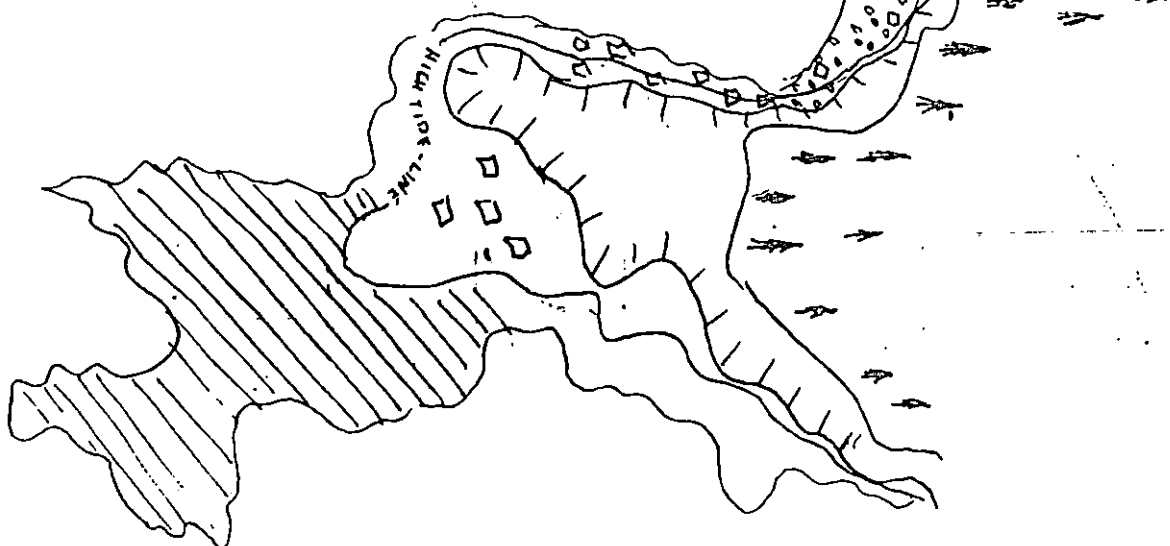
19/20 MAY/1991

A2

CT on bedrock, weathered
Biota scarce at this level (UNIT)
Barnacles sparse in oiled zone, but
much denser below. Spat & juveniles
common and present directly on oil
middle zone: dense barnacles, moderate
litherns, limpets. Mussels sparse to
moderate, and patchy. Algae rare

A1

Scattered more in HIGH to
MID ZONE. MACROALGAE SPARSE OR ABSENT.
BARNACLES, LITORNATES, LIMPETS MODERATE.
POOLS HAVE MODERATE COVER OF ALGAE
AMPHIPODS, ISOPODS, OLIGOCHAETES,
HERMIT CRABS SPARSE. LOWER
AREAS HAVE MODERATE MUSSEL
AND FOCUS COVER.



meters

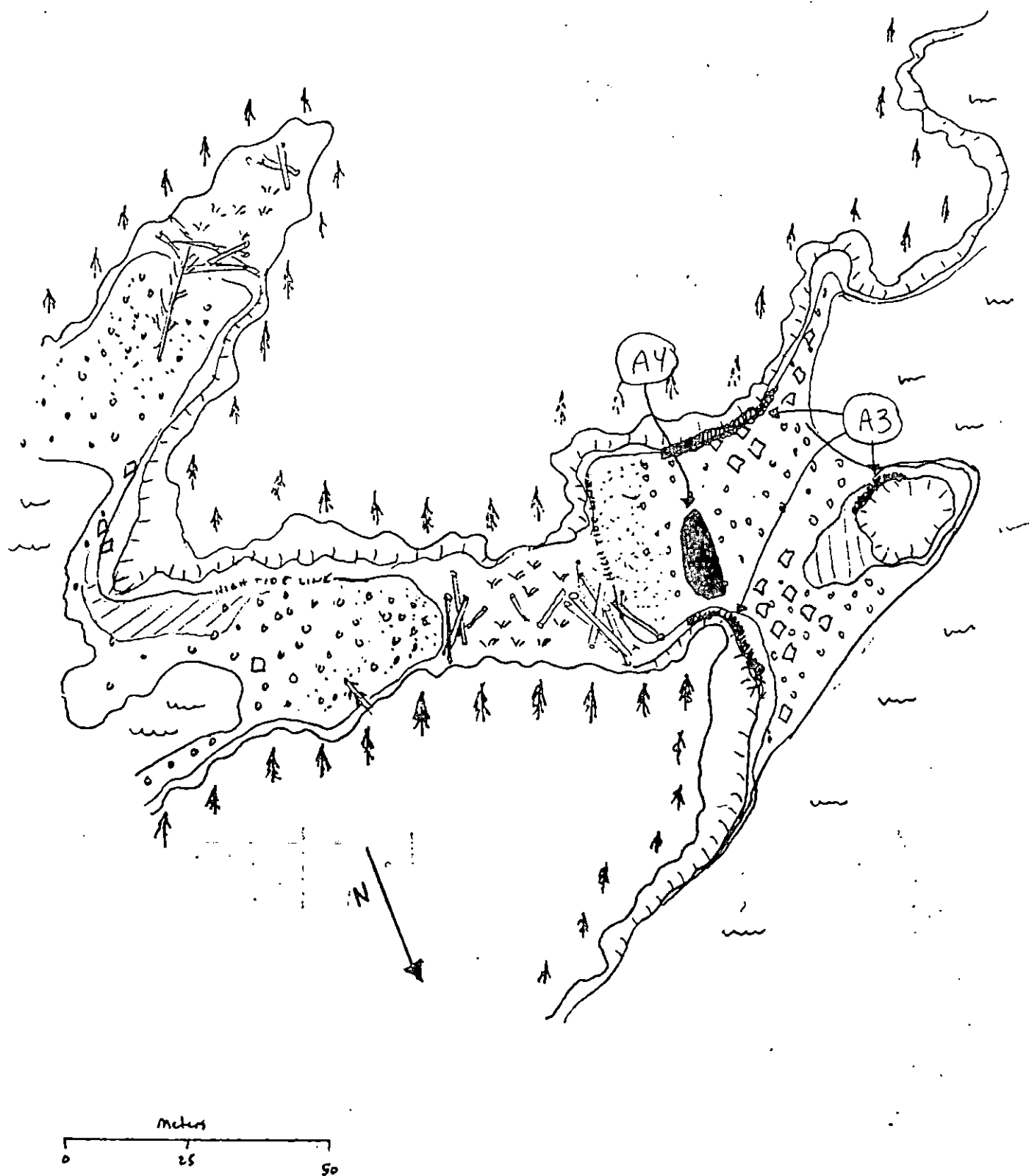
25

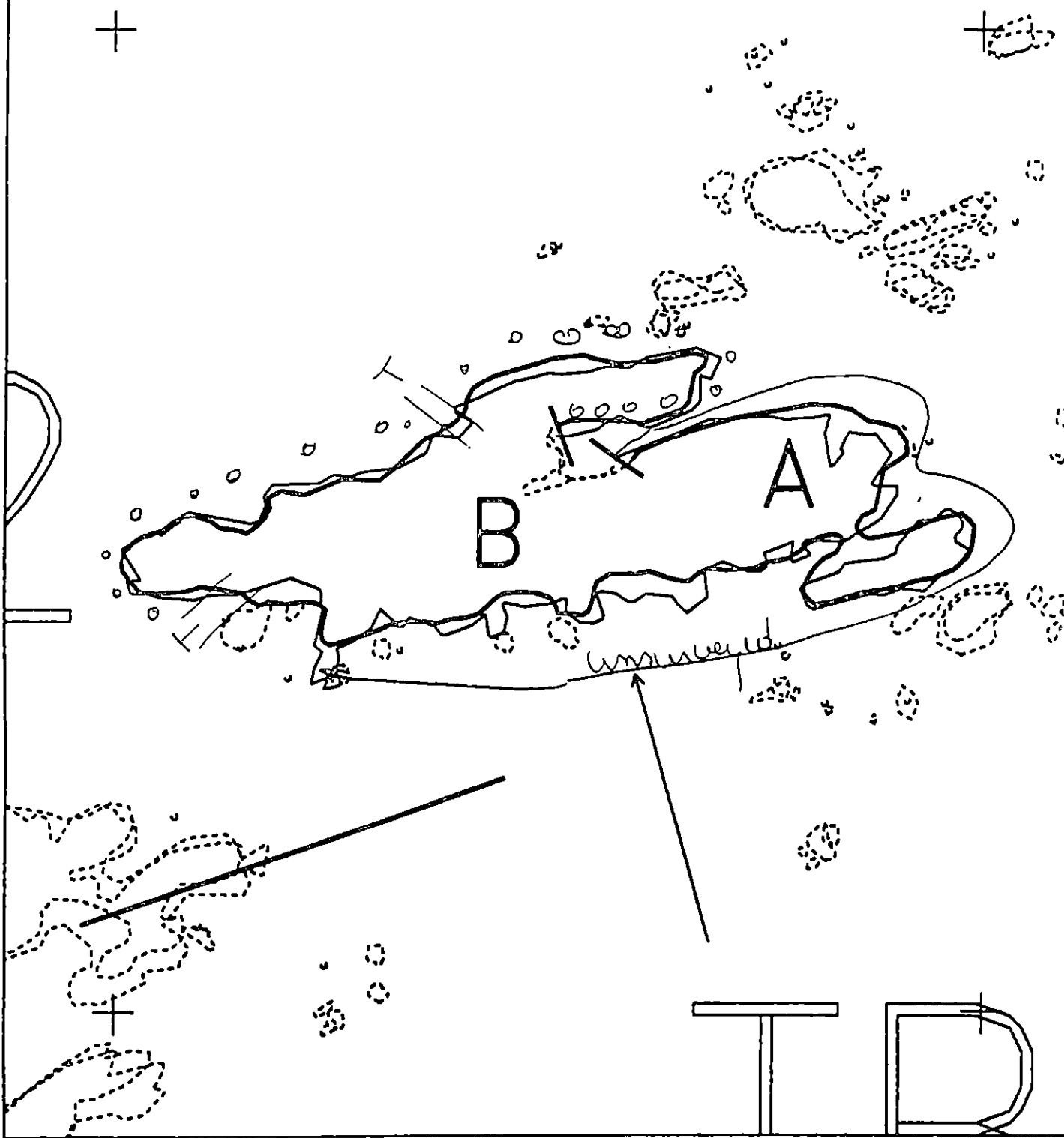
N

TBOOS -A

AREA II

19/20 MAY 1991





XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB005 A
 ADEC Subsegment Length: 3453m
 METERS
 0 200 400
 AK State Plane Zone 4
 0160050

Subdivision Field Map
 Map Key: KENTB005A
 Name: in Sample
 Date: MAY 19/91
 Data Entered:

REVIEWED: F.W. 5/25/91
 WAC 5/29/91

1991 MAYSAP EVALUATION

SEGMENT: TB 005 SUB: B REGION: KEN SURVEY DATE: 5/19/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest, Herring spawning, Fish harvest area

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: [Signature] Date: 6/04/91

RECOMMENDATIONS:

	INITIAL	TAG	FOSC
TREATMENT REQUIRED (Y or N)	<u>N</u>	<u>✓</u>	<u>N</u>
Manual Pickup (Check as Req.)	<u> </u>	<u> </u>	<u> </u>
Spot Washing	<u> </u>	<u> </u>	<u> </u>
Bio-Customblen Only	<u> </u>	<u> </u>	<u> </u>
Bio-Inipol/Customblen	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: JUNE 4 1991 FOSC APPROVAL DATE: 6/7/91

ADEC [Signature]

FOSC

EXXON [Signature]

E. E. PAGE, CDR, USCG
CHIEF OF STAFF, FOSC

USCG [Signature]

NOAA [Signature]

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

MAYSAP FIELD SHORELINE COMMENT SHEET

15005-B

1/10

TEAM NO. 4 SEGMENT TB co 5 SUBDIVISION B DATE May 19 1991

ADEC

NAME Clara S Crosby

SIGNATURE Clara S. Crosby

☒ NTR Fairly light oiling within segment - This area was washed, bioremediated & manually worked in the past. Oiling which remains is not readily accessible or too weathered & thin ~~the~~ ^{at} ~~near~~ ^{at} ~~most~~ - Kachemak Bay State Wilderness Park.

EXXON

NAME George P. Stiles

SIGNATURE George P. Stiles 5/23/91

☒ NTR Very little oil remains.

LANDMANAGER

NAME Jeff Johnson

OF ADNR

SIGNATURE [Signature]

☒ NTR Not much oil remains in the segment, + most is well weathered and scattered. Concur w/ DEC

USCG/NOAA

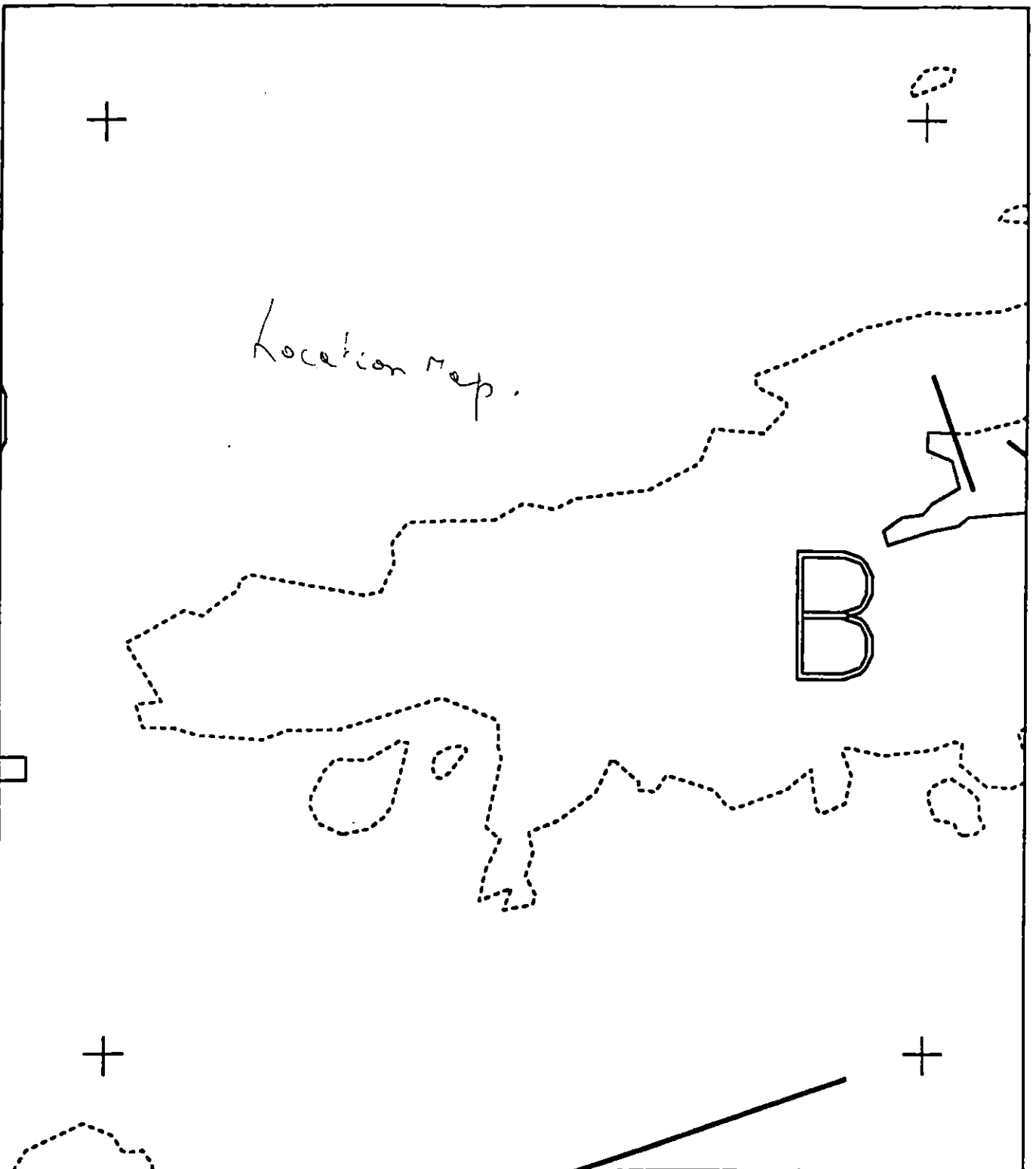
NAME John McMichael McDonald

SIGNATURE [Signature]

☒ NTR Some EOR, Mousse found and picked up very little remains

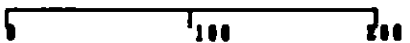
PAGE 2 OF 0

REVISED: F.W. 5/25/91

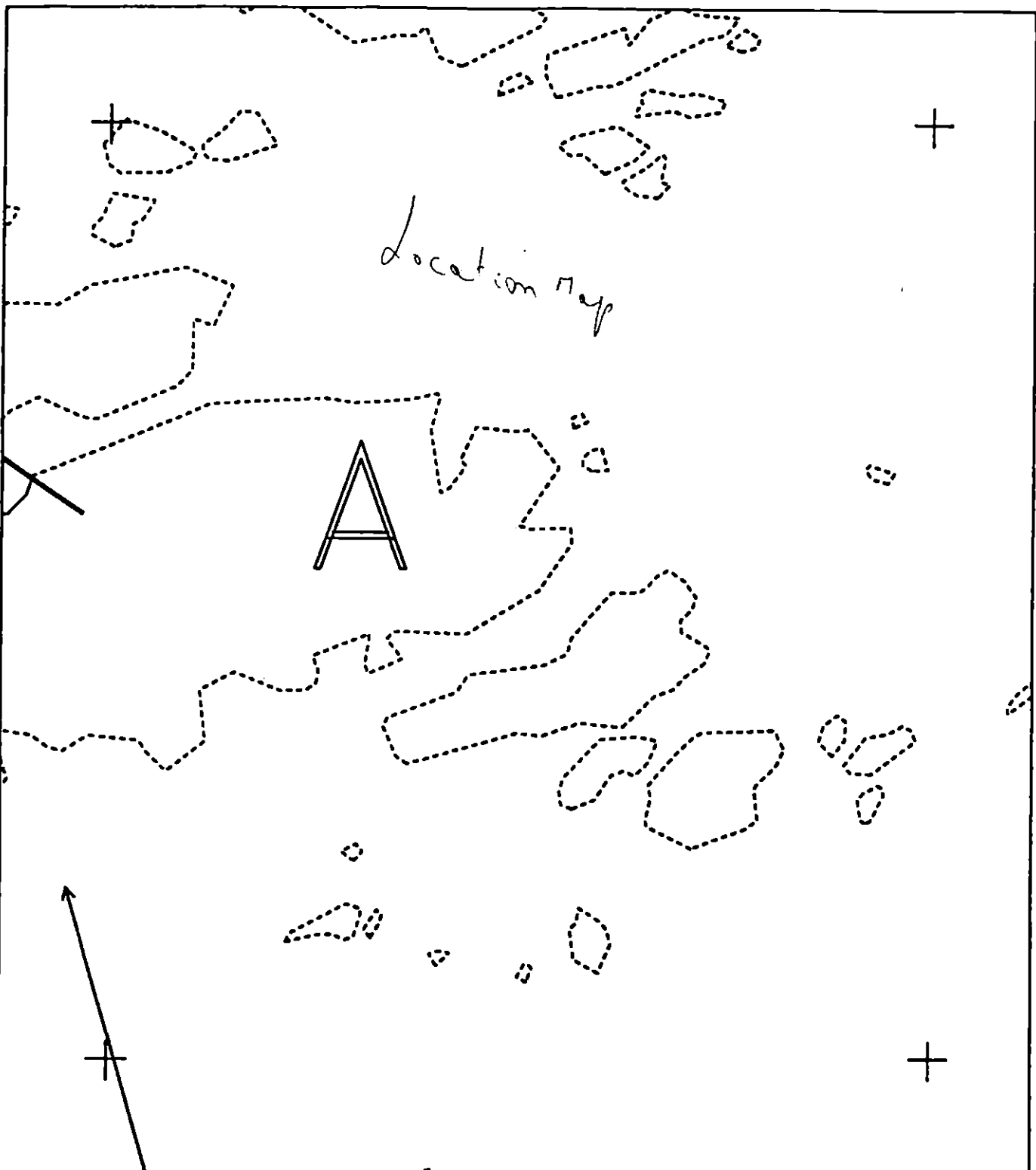


Location Map.

B

	TB005 B	Subdivision Field Map
	NET228	Map Key: KENT005Ba
		Name: <u>for Samples</u>
	AK State Plane Zone 4 NAD83	Date: <u>May 14 / 91</u>

REVIEWED: P.O. 5/25/91



TB005 B

METERS



AK State Plane Zone 4
51100500

Subdivision Field Map
Map Key: KENTB00506
Name: Jm Semple
Date: May 19/81

REVIEWED: F.W. 5/25/81

TB005-B

27 SAMPLES

MAY 19/91

130-150'

A6

ct 1x40
 $<10\%$ on
 bedrock walls

A3

Ap/MSOR
 5% 1x10

A2

LSOR, 1x20
 max size 1m²
 2cm thick, in bedrock
 fractures, at base
 of bedrock $<10\%$

A4

LSOR 2x50, 5%
 max size 1m²
 max thick 5cm
 few patches MSOR

A1

MSOR, LSOR
 8x15, $<10\%$
 around and between
 cl/bd. max 5cm
 thick

1 patch down
 P.U

B1 B2

A5

2x40 ct/cv
 5% on bedrock
 walls. Very
 weathered
 and dry

on bedrock ramp with
 platy cl/pl cover

Z

Meters

0 50 100

REVIEWED: F.W. 5/25/91

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 19, 1991 1512 - 1603
SEGMENT #	TB005	TIDAL HEIGHT (Range)	+2.0 => +5.6
SUBDIVISION	B	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Calm, CLEAR!

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

- A1 Oil (MSOR/LSOR) is present under cobble in the upper to middle intertidal zone. Littorine snails are moderately abundant in this area, with numerous egg masses. Limpets and barnacles also are moderate in density. Mussels are most abundant in the middle zone, with moderate densities of adults and juveniles. Amphipods, isopods, and oligochaete worms are common under cobble.
- A2 Oil (LSOR) occurs in the pebble beach along the middle to high zone. Green filamentous algae forms a green film on this beach. Amphipods are occasionally found in the beach pebbles. Barnacles can be found under some beach pebbles. Few other species are present.
- A3 Oil (AP/MSOR) is found along the high zone of the cobble talus bordering this small beach. Few biota are present at this level. Barnacles, limpets, littorines, a few mussels, and Fucus are fairly common in the middle intertidal below the oiled area.
- A4 Oil (LSOR) is located on bedrock and cobble talus in the upper zone, as well as on or amongst the beach pebble/cobble. Biota are more abundant near the bedrock and talus, with moderate densities of barnacles, than on the beach pebble. Filamentous green algae is abundant, as are littorine snails. Amphipods, isopods, and oligochaete worms also are present. Beach drift algae and debris are common.

(continued)

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1	Salmon Fry
Seabirds			
Waterfowl			
Gulls/Kittiwakes			
Shorebirds	1	2	
Corvids	1	3	
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

Printed 6/25/91 nm

A5.A6 An oil coat was found on the bedrock in the upper zone at these sites. Biota are generally sparse at this tidal level. Barnacles, limpets, and littorine snails are occasional to common. Fucus and mussels are present in crevices where the CT extends lower towards the middle intertidal zone. Green filamentous algae is the most common alga, but is nowhere dense at this level. Juveniles of barnacles, limpets, littorines, Fucus, and mussels are present, but sparse.

Cleanup Considerations

Extensive cleanup has been performed at this site. Additional cleanup, if recommended, will probably not have further adverse effects on the biota of the site.

General Characteristics of TB005-B

This subdivision is a very small protected cove. Its shores are mostly angular pebbles and cobble, and some bedrock outcrops. This area was heavily oiled and has been treated extensively. An eel grass bed is found at the central portion of the cove. The shores have sparse to moderate densities of mussels, with juveniles and adults present. The middle to upper shores have moderate cover of rockweed (Fucus). The abundances of the other key species (barnacles, littorine snails) vary considerably, but are generally moderate to high. Filamentous algae form a film over much of the low zone. Cobble and pebble shores have less biota than bedrock outcrops at the site. Some oil is present in beach pebbles and along the talus or bedrock shore. In some cases, biota are found within the oiled sediments. In areas where the oil content of the sediments is high, few or no species are found in direct contact with these sediments. Evidence of cleanup is apparent, from the 'disturbed' appearance of some mussel beds, and the absence of adult Fucus on some bedrock outcrops. Recovery from these disturbances is evident from the recruitment of mussels and Fucus in several parts of the cove.

General Zonation Pattern (Bedrock Outcrops)

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal

Oil Distribution			-----			
Bare Rock		-- --				
Green Filamentous Algae			- - -	++**+--	- - -	- - -
Rockweed (Fucus)				--+ + +	+++++ + + + + +	- -
Barnacles (Balanus)			- -	+++--	-----	- - -
Littorine Snails			- --	++* * * * *	+ - - -	-
Limpets			-	+ + - + + + + + + +	- - - -	
Other Red Algae					-----	++**+--++**
Green Algae (Ulva/other)				- -	---+ - + + - -	- -+++
Mussels (Mytilus)				-	---+---+ - ++- -+-	-
Crustose Brown Algae (Hildenbrandia)				- -	+ + + - +--	
Upright Brown Algae (not Fucus)					--	- + ++**++**++**
Eel Grass						-----
Clams						- - - + - -

Legend: (-) Sparse to rare, (+) Moderate, (*) Abundant

Common Species on TB005-B

A. Marine Plants

1. Diatoms, Blue Greens
2. Green Algae - Chlorophyta
Enteromorpha sp., Ulva sp., Urospora sp.
3. Brown Algae - Phaeophyta
Ectocarpus spp., Fucus distichus, Hildenbrandia sp., Ralfsia sp.,
Syctosiphon lomentaria
4. Red Algae - Rhodophyta
Cryptosiphonia woodii, Endocladia muricata, Halosaccion glandiforme,
Iridaea sp., Mastocarpus sp., Odonthalia floccosa, Petrocelis sp.,
Porphyra sp., Rhodomela larix
5. Higher Plants - Zostera marina (eel grass), Leymus mollis (beach rye
grass)

II. Marine Animals

1. Sponges - Porifera - Halichondria bowerbanki?
2. Anemones - Anthopleura artemesia
3. Hydroids - Sertulariidae
5. Flatworms - Platyhelminthes - Polyclads
6. Nemertean Worms - Ribbon Worms - Emplectonema gracile
8. Polychaete Worms
Nereidae - Nereis spp.
Serpulidae - Serpula sp., Crucigera sp., Eudistylia polymorpha
Spirorbidae - Spirorbis sp.
10. Crustaceans
 - a. Amphipods - Traskorchestia sp.
 - b. Barnacles - Balanus glandula
 - c. Crabs - Paguridae (hermit crabs)
 - d. Isopods - Cirdana harfordi, Idotea wosnesenskii, Gnorimorsphaeroma
oregonensis
11. Mollusca
 - a. Chitons - Tonicella lineata.
 - b. Snails - Gastropods
Littorina sitkana, L. keenae, Natica clausa, Nucella lima,
Searlesia dira
 - c. Limpets - Lottia limatula, L. persona, Tectura persona, T. scutum.
 - e. Bivalves - Chlamys hastata, Clinocardium sp., C. nuttalli, Hiatella
arctica, Macoma nasuta, Modiolus modiolus, Mytilus
edulis, Pododesmus cepio, Prototheca staminea, Saxidomus
giganteus
12. Echinoderms
 - b. Sea stars - Dermasterias imbricata, Leptasterias hexactis, Pycnopoida
helianthoides
 - d. Urchins - Strongylocentrotus droebachiensis
13. Bryozoans - Membranipora sp., Schizoporella sp.
15. Fishes
Cottidae -
Stichaeidae - Xiphister atropurpureus, X. mucosus

III. Birds - Western Sandpiper (2), Bald Eagle (1), Crows (3)

TB005-B
BIO SKETCH MAP

J P BARRY

17 MAY 1991

1430-1601

MSR/AP in HIGH ZONE COBBLE TALUS. FEW BIOTA AT THIS LEVEL. BARNACLES, LIMPETS, LITTORINUS SNAILS. A FEW MUSSELS, AND FUCUS ARE FAIRLY COMMON IN MIDDLE ZONE BELOW SILT AREA

Green filamentous algae on pebble beach, Amphipods and isopods occasional. Barnacles under some beach cobbles

Upper to middle zone. Littorine snails, limpets, barnacles are moderately abundant. Mussels most abundant in mid littoral zone (adults, juveniles). Amphipods, alpheid crabs common under cobbles.

LSOR on bedrock & cobble talus in upper zone. Biota are most abundant on bedrock where barnacles, limpets, and littorine snails in sparse to moderate densities. Filamentous green algae abundant.

AS, AG CT on bedrock - LIT - Sparse biota. Barnacles, limpets, littorines are common. Fucus and mussels common in crevices. Green filamentous algae moderate.

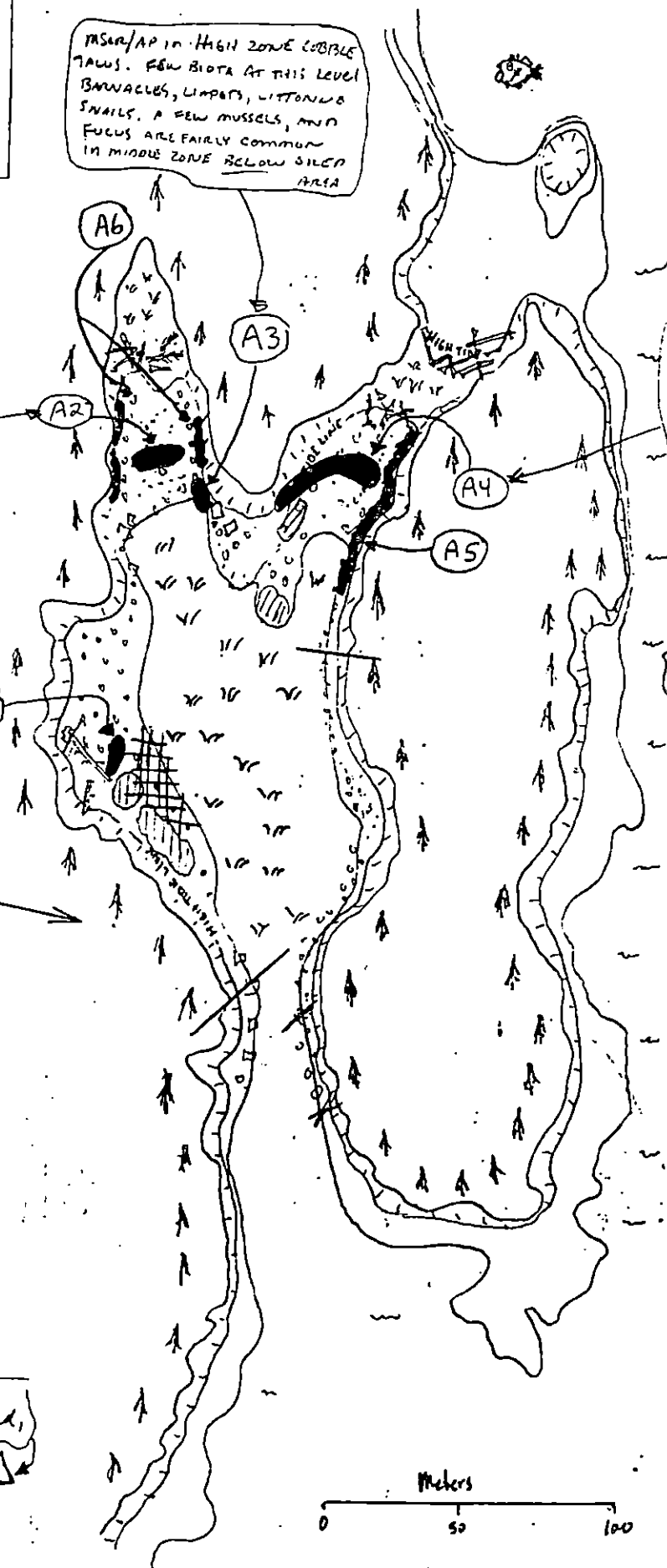
Legend

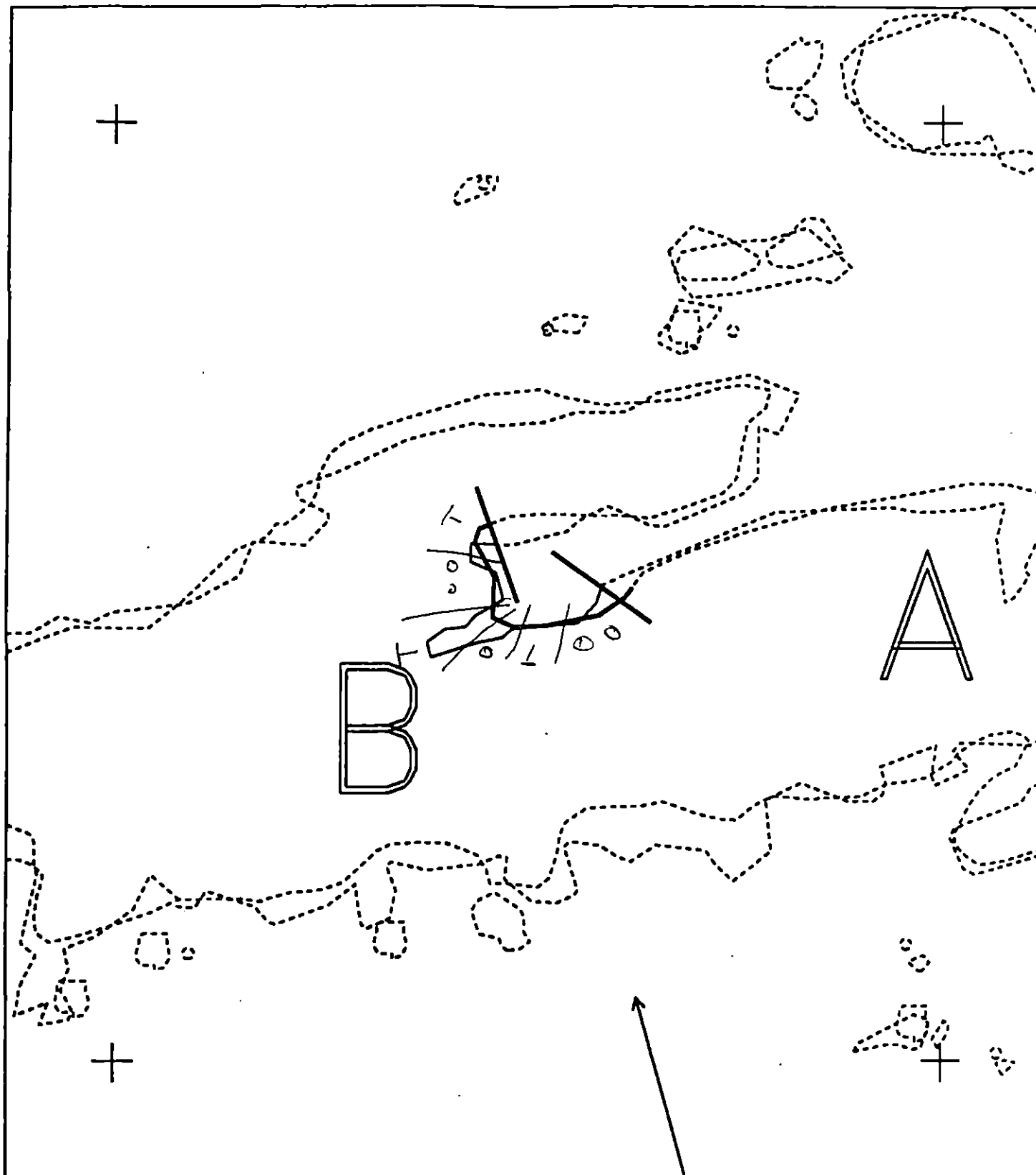
-  mussel beds
-  Eel grass beds
-  Clam beds

Eagle nest mapped, but not sighted

Meters

0 50 100

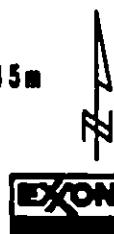




XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB005 B
 ADEC Subsegment Length: 185m
 METERS

0 100 200
 AK State Plane Zone 4
 616005b



Subdivision Field Map
 Map Key: KENTB005B
 Name: J. M. Gough
 Date: May 19/91
 Date Entered:

REVIEWED: F.W. 5/25/91

1991 MAYSAP EVALUATION

SEGMENT: TB 005 SUB: A REGION: KEN SURVEY DATE: 5/19/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details) Eagle nest, Herring spawning, Fish harvest area

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: Timothy A. Smith

Date: 6/04/91

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

N

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: JUNE 4 PM

FOSC APPROVAL DATE: 6/7/91

ADEC

FOSC

EXXON

E. E. PAGE, CDR, USCG
CHIEF OF STAFF, FOSC

USCG

NOAA

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Herring Spawning: No treatment before June 1. Avoid disturbance to kelp and eelgrass.

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.

TEAM NO. 4 SEGMENT T B - 005 SUBDIVISION A DATE MAY 19 1991

ADEC

NAME Clara S. CrosbySIGNATURE Clara S. Crosby☒ NTRNo treatment recommended -

EXXON

NAME George P. StilesSIGNATURE George P. Stiles 5/22/91☒ NTRNo appreciable oil found.

INDMANAGER

NAME Jeff Johnson OF ADNRSIGNATURE [Signature]☒ NTRConcur with other rps - - - very little oil found. Govt would be difficult to remove, oil very light and scattered.

USCG/NOAA

NAME John McMichael/McMichaelSIGNATURE [Signature]☒ NTRno Oil![Signature]

PAGE 2 OF 14

SEGMENT TR-005.

SUBDIVISION A

DATE MAY / 19 / 20 / 91

ENERGY LEVEL: ☐ H ☒ M ☐ L

TOTAL LENGTH SHORELINE SURVEYED: 150 m marsh NEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☐ NONE

EST. OIL CATEGORY LENGTH: W — m M — m N — m VL 102 m NO 448 m US 2903 m

DISTRIBUTION: C = 91-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = <1%

SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE PHOTO ROLL # MAYSAP- 4 (III) - 7 FRAMES 10

SHEEN COLOR: B = BROWN: R = RAINBOW: S = SILVER: N = NONE

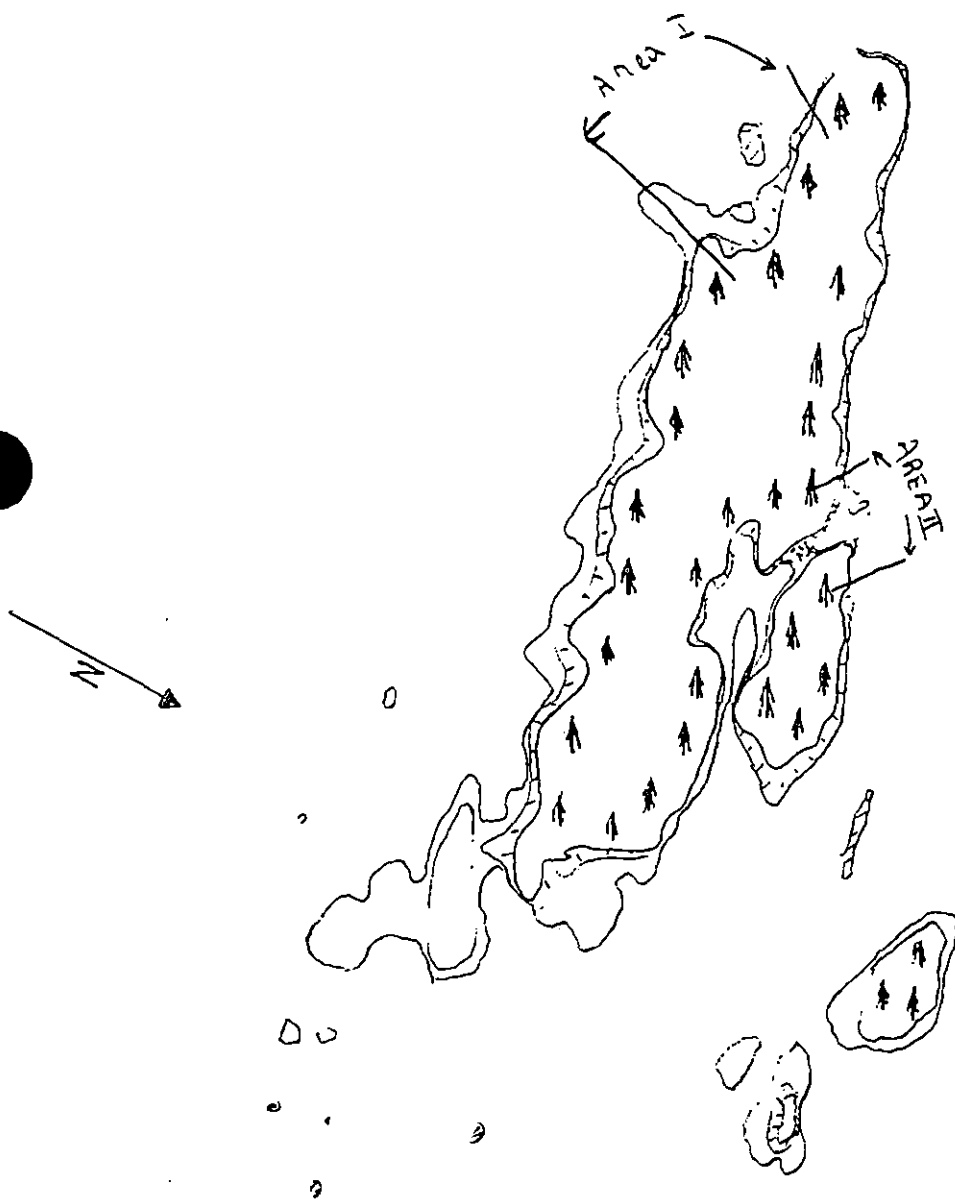
See maps.

REVIEWED: F.W. 5/25/91

Org. Sketch map:

DM Samples

Location for TB-005-A - Area I



meters

0 100 400

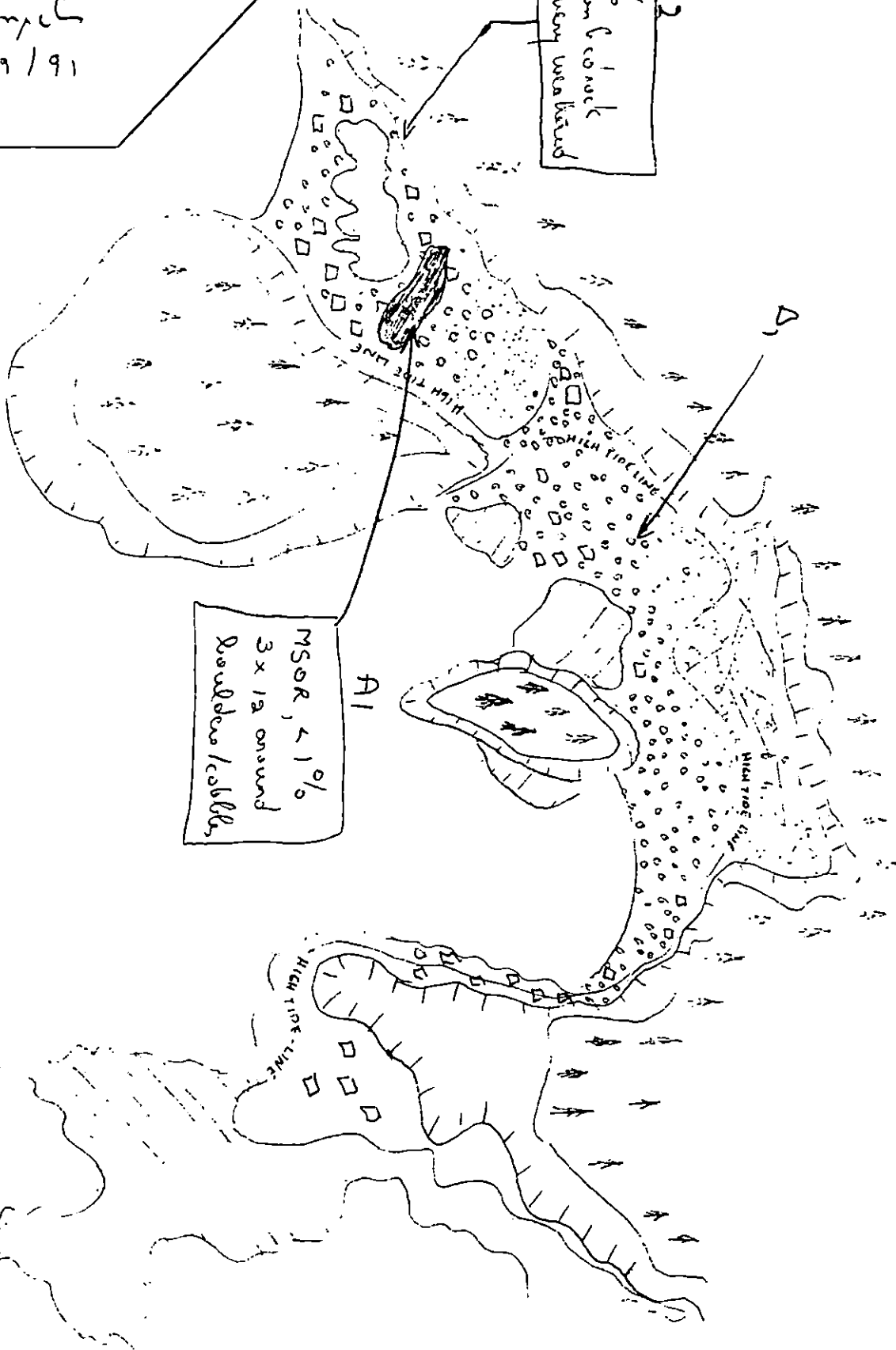
UG Skerd MAP
TBOOS-A. Area I

77 Sample
MAY 19/91

TBOOS-A 5/14

A2
cl, 5%
1x10, on 6 rock
cliffs. very weathered

A1
MSOR, < 1%
3 x 12 around
boulder/cobbles



REVIEWED: F.W. 5/25/91

Og sketch Map.

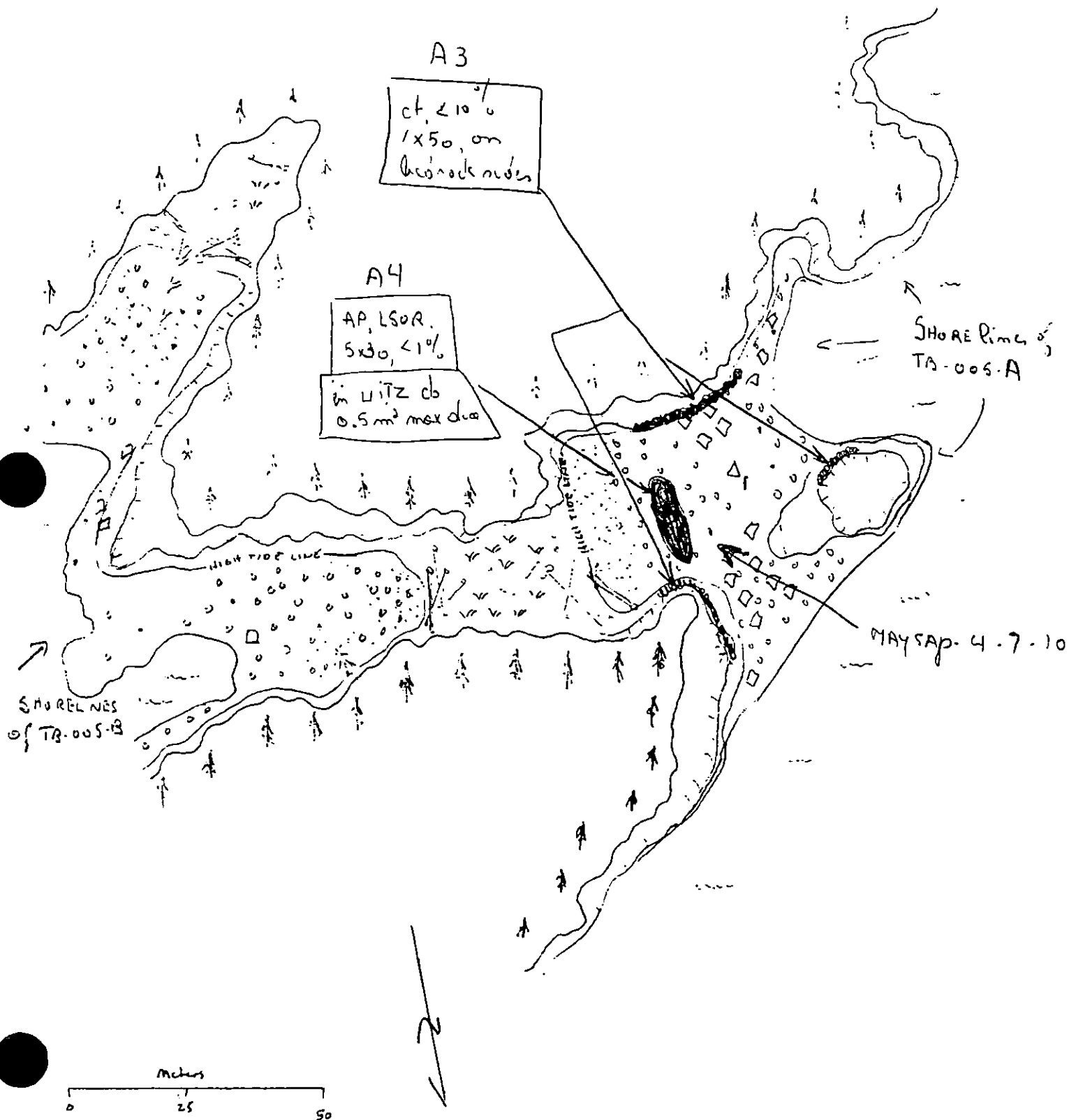
TB005-A, Area II

77 Samples

MAY 19/20/91

TB005-A

6/14



REVIEWED: F.W. 5/25/91

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 19/20, 1991
SEGMENT #	TB005	TIDAL HEIGHT (Range)	+1.6 - +4.4
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Variable, 5 kt., clear

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

The survey concentrated on two or three pocket beaches, with a cursory inspection of the bedrock shore from the skiff.

A1,A4 This pocket beach has spatters of oil (MSOR) amongst the high cobble of the high intertidal zone. Macroalgae are mostly absent or very sparse, and the dominant species at the site are barnacles (moderate densities), littorine snails (moderate/dense), and limpets (sparse/moderate). Nearby pools have some algae (*Odonthalia*, *Fucus*, *Scytosiphon*). Mussels are patchy, but generally sparse. Amphipods, oligochaetes, and hermit crabs are sparse amongst the cobble. This oiled area extends slightly lower in the intertidal, where the densities of these species increases. Mussels and *Fucus* are moderately abundant in this lower area.

A2,A3 A coat of oil is located on the vertical bedrock slightly above the zone of barnacles in the upper intertidal zone. Biota are sparse at this level. Barnacles are sparse in the oiled zone, but much denser below. Spat and juvenile barnacles are common and often present directly on the oil coat. Littorines are also abundant and found on the oil. The middle zone has a fairly dense cover of barnacles, and moderately abundant littorines and limpets. Mussels are sparse to moderate in patches. Macroalgae is rare to sparse.

(continued)

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1	
Seabirds	3	17	
Waterfowl	3	27	
Gulls/Kittiwakes	3	35	
Shorebirds	2	8	
Corvids	1	6	
Other Birds	1	2	

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

P. J. 6/25/91 NM

Cleanup Considerations

Some manual cleanup was performed during the survey of the site. Additional treatment, if recommended, will have minor or no impacts on the biota at these sites.

General Characteristics of TB005-A

Three pocket beaches were visited and closely inspected and the remainder of the island was either un-surveyed, or surveyed from the skiff. These beaches were composed of cobble and pebbles, and bordered by bedrock outcrops.

The upper zones on the cobble and pebble beaches had quite low abundances of species. Biota were somewhat more abundant in the middle and lower zones, but less so than bedrock shores. Barnacles, Fucus, patchy mussel beds, and littorine snails are the most abundant and conspicuous species. The lowest zone and the subtidal have moderate to dense cover of brown algae.

The bedrock cliffs and talus surrounding much of the island has higher cover of both Fucus and mussels. The subtidal habitats also have dense cover of brown and red algae, particularly on the more exposed headlands of the island.

Because the biota on this subdivision appear to be as diverse and abundant as similar unoiled sites, and because most species exhibit recent growth and recruitment, I would consider this beach to have a healthy biotic assemblage.

General Zonation Pattern

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal

Oil Distribution		- - -	----			
Black Lichen		-----				
Bare Rock		- - -	- -			
Filamentous Green Algae			--	++++--	- -	----
Rockweed (Fucus)				-----+*+*	++++--	- -
Barnacles (Balanus)			- -	+++*	----	- -
Mussels (Mytilus)			- -	++	++	++
Other Red Algae					-----+*+*	-----+*+*
Green Algae (Ulva/other)				+	+	+
Crustose Brown Algae (Hildenbrandia)				-----+*+*	----	+++
Upright Brown Algae (not Fucus)					-----+*+*	-----+*+*

Legend: (-) Sparse to rare, (+) Moderate, (*) Abundant

Common Species on TB005-A

A. Marine Plants

1. Diatoms, Blue Greens
2. Green Algae - Chlorophyta
Enteromorpha sp., Ulva sp., Urospora sp.

3. Brown Algae - Phaeophyta
Alaria marginata, *Agarum fimbriatum*, *Costaria costata*, *Ectocarpus* spp., *Fucus distichus*, *Hildenbrandia* sp., *Laminaria groenlandica*, *L. saccharina*, *Nereocystis leutkeana*, *Ralfsia* sp., *Syctosiphon lomentaria*
4. Red Algae - Rhodophyta
Bossiella sp., *Calliarthron* sp., *Corallina* sp., *Cryptosiphonia woodii*, *Cumagloia andersonii*, *Endocladia muricata*, *Halosaccion glandiforme*, *Lithothamnion* sp., *Mastocarpus* sp., *Odonthalia floccosa*, *Palmaria palmata*, *Petrocelis* sp., *Porphyra* sp., *Ptilota filicina*, *Rhodomela larix*
5. Higher Plants - *Zostera marina* (eel grass), *Leymus mollis* (beach rye grass)

II. Marine Animals

1. Sponges - Porifera - *Halichondria bowerbanki*?
2. Anemones - *Anthopleura artemesia*, *Epiactis ritteri*, *Metridium senile*, *Urticina crassicornis*,
3. Hydroids - *Sertulariidae*, *Aglaophenia* sp., *Abietinaria* sp.
5. Flatworms - *Platyhelminthes* - *Polyclads*
6. Nemertean Worms - Ribbon Worms - *Emplectonema gracile*
8. Polychaete Worms
Nepthyidae
Nereidae - *Nereis* spp.
Serpulidae - *Serpula* sp., *Crucigera* sp., *Eudistylia polymorpha*
Spiorbidae - *Spirorbis* sp.
9. Peanut worms - *Sipunculids* - *Phascolosoma agassizii*
10. Crustaceans
 - a. Amphipods - *Traskorchestia* sp.?
 - b. Barnacles - *Balanus glandula*, *Chthamalus dalli*, *Semibalanus cariosus*
 - c. Crabs - *Haplogaster* sp., *Paguridae* (hermit crabs), *Oregonia gracilis*, *Pugettia* sp.,
 - d. Isopods - *Cirrana harfordi*, *Idotea wosnesenskii*, *Gnorimorsphaeroma oregonensis*, *Ligia pallasii*
11. Mollusca
 - a. Chitons - *Mopalia mucosa*, *Katharina tunicata*, *Tonicella lineata*,
 - b. Snails - *Gastropods*
Amphissa columbiana, *Littorina sitkana*, *L. keenae*, *Nucella lamellosa*, *N. lima*, *Searlesia dira*
 - c. Limpets - *Lottia digitalis*, *L. limatula*, *L. persona*, *Tectura fenestrata*, *T. persona*, *T. scutum*, *Siphonaria thersites*,
 - d. Nudibranches - *Lamellidoris fusca*, *Onchidella borealis*
 - e. Bivalves - *Modiolus modiolus*, *Mytilus edulis*, *Pododesmus cepio*, *Prototheca staminea*
12. Echinoderms
 - a. Brittle Stars - *Ophiolus aculeatus*?, *Ophiothrix spiculata*?, *Amphipholis*?
 - b. Sea stars - *Dermasterias imbricata*, *Henricia sanguinolenta*, *Leptasterias hexactis*, *Pycnopoda helianthoides*, *Solaster dawsoni*,
 - c. Sea Cucumbers - *Holothurians* - *Eupentacta* sp.
 - d. Urchins - *Strongylocentrotus droebachiensis*
13. Bryozoans - *Membranipora* sp., *Microporina borealis*, *Phidolopora pacifica*, *Schizoporella* sp.
14. Ascidians - *Synocium*? sp., *Aplidium*?

16. Fishes

Cottidae - tide pool sculpins

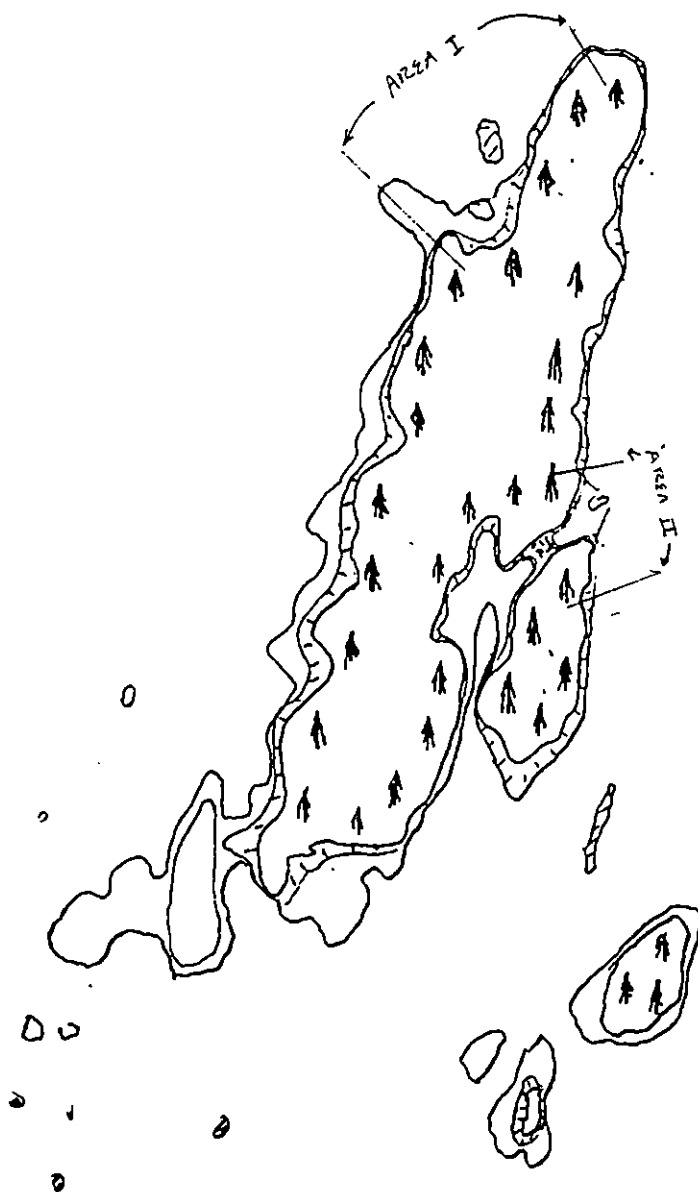
Stichaeidae - *Xiphister atropurpureus*, *X. mucosus*

III Birds -

Black-legged Kittiwake (5), Bonaparte's Gull (10), Glaucous-winged Gull (20), Greater? Yellowlegs (2), Surf Scoter (5), Whimbrel (6), Lesser Scaup (20), Crow (6), Pigeon Guillemot (5), Marbled Murrelet (2), Cormorant (10), Harlequin Duck (2), Bald Eagle (1), Fox Sparrow (2)

BIO SKETCH MAP
TB005 - A
19/20 MAY, 1991
J.P. Bailey

TB005-A 12/14



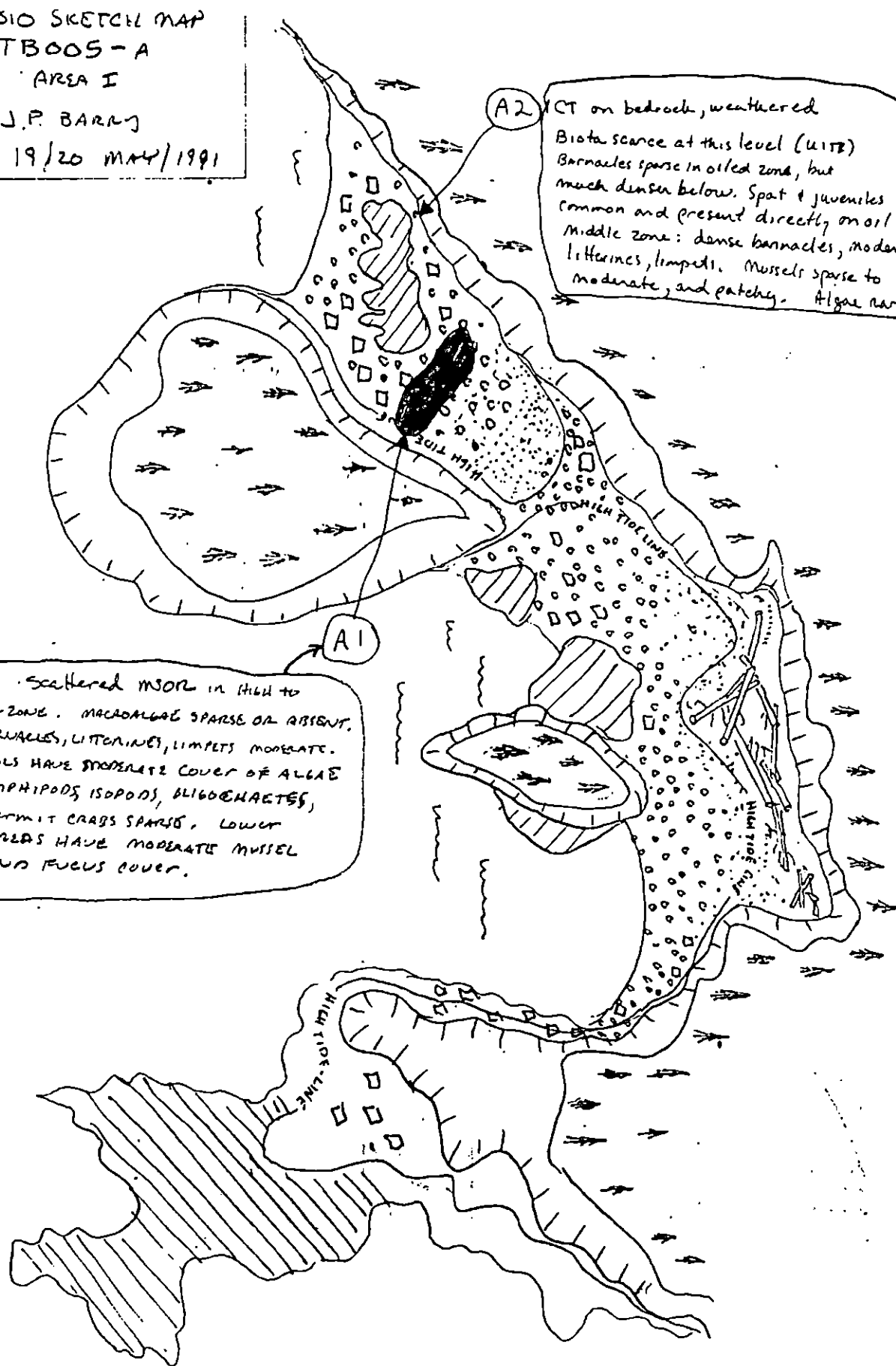
meters

0 200 400

Scattered MSON in HIGH to MID-ZONE. MACROALGAE SPARSE OR ABSENT. BARNACLES, LITTORINIDS, LIMPETS MODERATE. POOLS HAVE MODERATE COVER OF ALGAE AMPHIPODS, ISOPODS, OLIGOCHAETES, HERMIT CRABS SPARSE. LOWER AREAS HAVE MODERATE MUSSEL AND FUCUS COVER.

CT on bedrock, weathered

Biota scarce at this level (LITE)
Barnacles sparse in oiled zone, but much denser below. Spat & juveniles common and present directly on oil
Middle zone: dense barnacles, moderate Littorines, limpets. Mussels sparse to moderate, and patchy. Algae rare



BIO SKETCH MAP

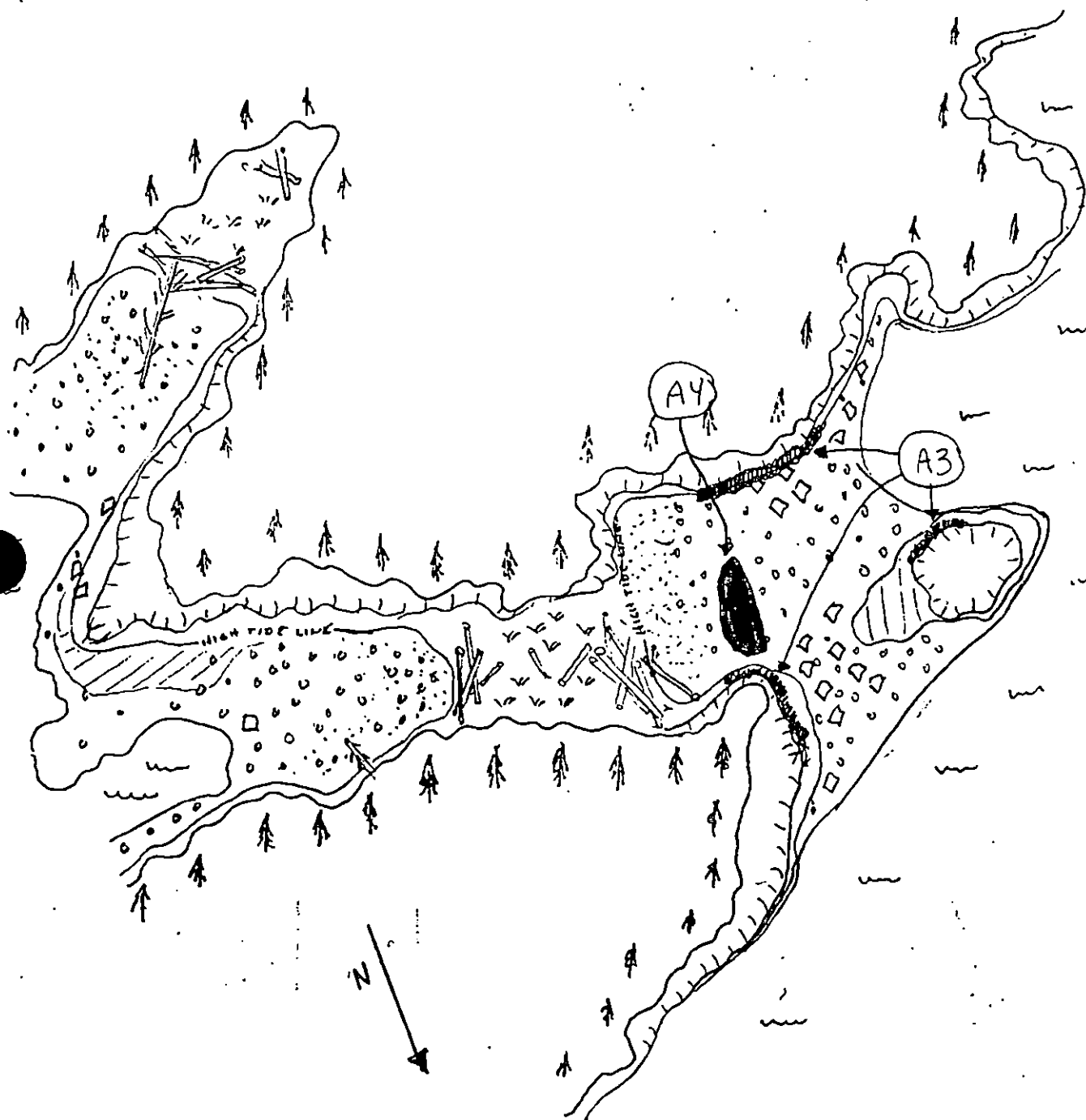
TB005-A

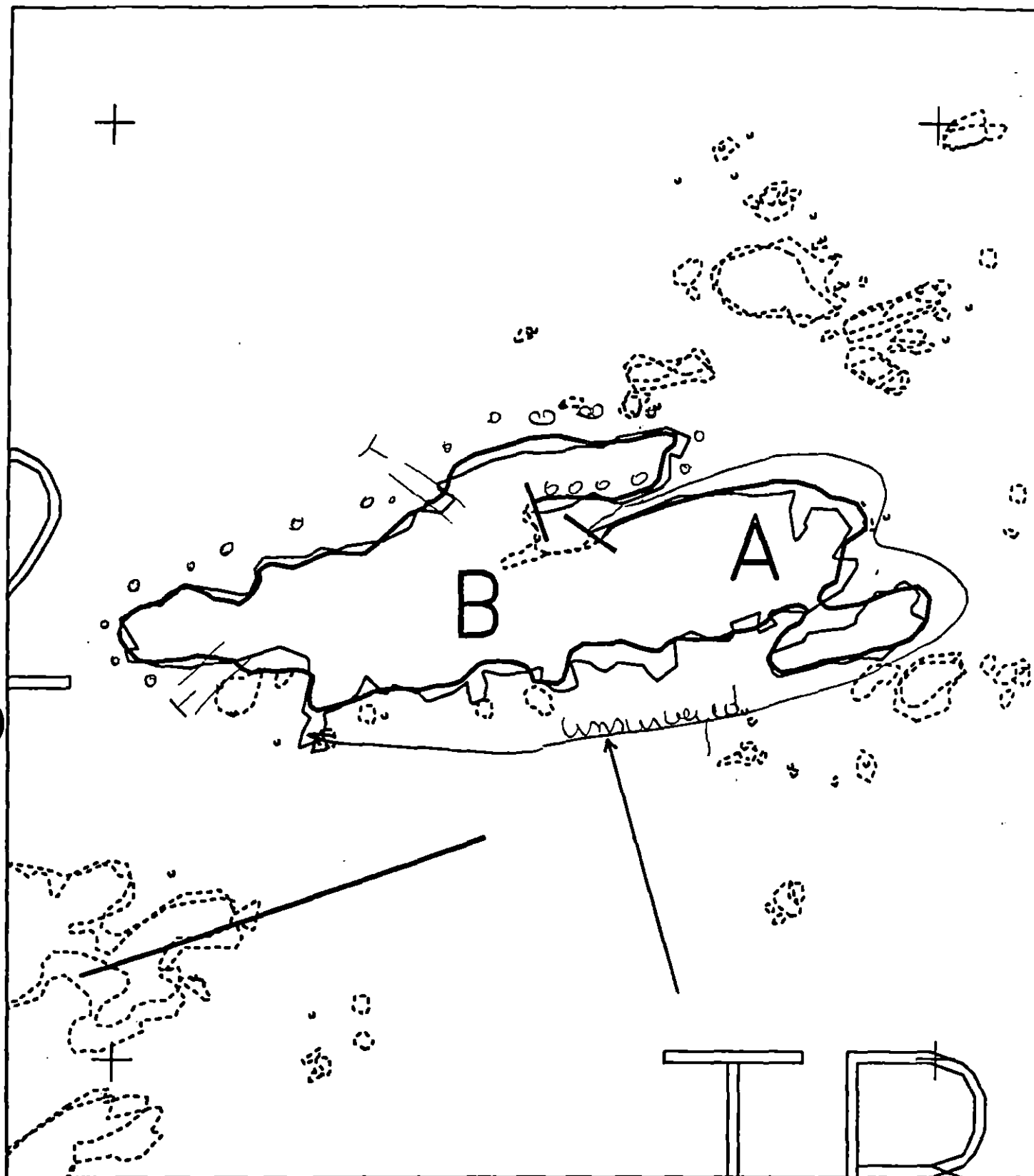
AREA II

19/20 MAY 1991

TB005-A

14/1





XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB005 A
 ADEC Subsegment Length: 3453m
 METERS

0 200 400
 AK State Plane Zone 4
 6150850

Subdivision Field Map
 Map Key: KENTB005A
 Name: In Samples
 Date: MAY 19/91
 Date Entered:



REVIEWED: F.W. 5/25/91
 " WAC 5/29/91

1991 MAYSAP EVALUATION

SEGMENT: TB 007 **SUB:** A **REGION:** KEN **SURVEY DATE:** 5/19/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) OPEN 5/1 - 7/10; RESTRICTED 7/10 - 9/15

Ecological/Constraints (see page two for details) Anadromous stream

ARCHAEOLOGICAL CONSTRAINTS:

An Exxon archaeological monitor is required on-site during shoreline treatment. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.). ^{TAB}

SHPO Signature: Timothy O. Smith ^{for SHPO} Date: 6/04/91

RECOMMENDATIONS:

	INITIAL	TAG	FOSC
TREATMENT REQUIRED (Y or N)	<u>N</u>	<u>Y</u>	<u>Y</u>
Manual Pickup (Check as Req.)	<u> </u>	<u>X</u>	<u>X</u>
Spot Washing	<u> </u>	<u> </u>	<u> </u>
Bio-Customblen Only	<u> </u>	<u>X</u>	<u>X</u>
Bio-Inipol/Customblen	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>

COMMENTS:

INITIAL:

TAG: Manual P/U OF AP/MS/HDR AT LOCATIONS
A, A6 + A7 FOLLOWED BY CUSTOMBLEN APPLICATION.

FOSC:

TAG APPROVAL DATE: JUNE 4 1991

FOSC APPROVAL DATE: 6/5/91

ADEC John Bauer

FOSC E. E. PAGE, CDR, USCG

EXXON Real

CHIEF OF STAFF, FOSC

USCG Ed Mace

NOAA Stuart

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.

TEAM NO. 4 SEGMENT TB-007 SUBDIVISION A DATE 7/1/91

ADEC

NAME

Clara S. Crosby

SIGNATURE

Clara S. Crosby

NTR

☒ Treatment Recommended - A1, A6, A7

Manual Removal at sites A1, A6, & A7 - using hand tools, & shovels - CB/BD rolled when possible to access oiling.
 - A6 - manually access oiling for removal by shoveling surface sediment away (prob pebble, rubble) -
 At Area A1 any oiling not removed should be broken up - weathering - ~~and~~ well.

EXXON

NAME

George P. Stiles

SIGNATURE

George P. Stiles

NTR

Several areas of HSOR / AI exist to much for the survey crew to remove.

LANDMANAGER

NAME

Jeff JohnsonOF ADNR

SIGNATURE

Jeff Johnson

NTR

☒ Treatment Recommended

Concur with DEC comments. Segment is within Kachemak Bay / State Wilderness Park. Oiled as mentioned is obvious, and should be removed by manual means. This site has high recreation and scenic value.

USCG/NOAA

NAME

John McMichael

SIGNATURE

John McMichael

NTR

On this segment light sites were manually cleaned-up on scene. There was no evidence of any further oiling in any quantity.

MAYSAP SHORELINE OILING SUMMARY

PAGE 2 OF 10TEAM NO. 4CG J. SempelsBIO J. BunnaySEGMENT TR-007.AADEC CrosbyLANDMANAGER Johnson for ADNRSUBDIVISION ACOXON George P. Sp. 7.5USCG/NOAA McMahon/McDonaldDATE MAY 1, 1991TIME 12:40 to 1:21TIDE LEVEL -0.88 ft. to +1.6 ft.ENERGY LEVEL: ☐ H ☒ M ☐ LSURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELOWEATHER: ☒ SUN ☐ CLOUDS ☐ FOG ☐ RAIN ☐ SNOWTOTAL LENGTH SHORELINE SURVEYED: 1374 mNEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONEEST. OIL CATEGORY LENGTH: W — m M — m N 10 m VL 19.81 m NO 1065.9 m US — m

L O C	SURFACE OIL CHARACTER										SURFACE SEDIMENT TYPE	SHORE SLOPE VHML	AREA		ZONE				NOTES
	AP	MS	TB	SOF	CV	CT	ST	FL	DB	NO			WIDTH m	LENGTH m	S	UI	MI	LI	
A1	S										Pb/cb	L	20	30			*		See map
A2						S					Red	V	3	120			*		
A3			T								Pb	M	0.1	0.1			*		
A4		T									Pb/cb	M	10	3			*		
A5						S					Red	V	1	20			*		
A6				S							Pb/sd	L	8	25			*		
A7		S		X							Ch/Red	L	2	10			*		

DISTRIBUTION: C = 91-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = <1%

SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE

PHOTO ROLL # MAYSAP-

4(25) - 7

4(14) - 6

FRAMES 1-2

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER							OILED ZONE cm-cm	CLEAN BELOW Y/N	H2O LEVEL (cm)	SHEEN COLOR B R S N	PIT ZONE				SURFACE-SUBSURFACE SEDIMENTS	NOTES
		OP	HOR	MOR	LOR	OF	TR	NO					S	UI	MI	LI		
1	30							-	-	Y	10				*		Pb / sd	See map.
2	25							-	-	Y	-			X			Pb	
3	20							-	-	Y	-			X			Pb	
								-	-									
								-	-									
								-	-									
								-	-									
								-	-									
								-	-									

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

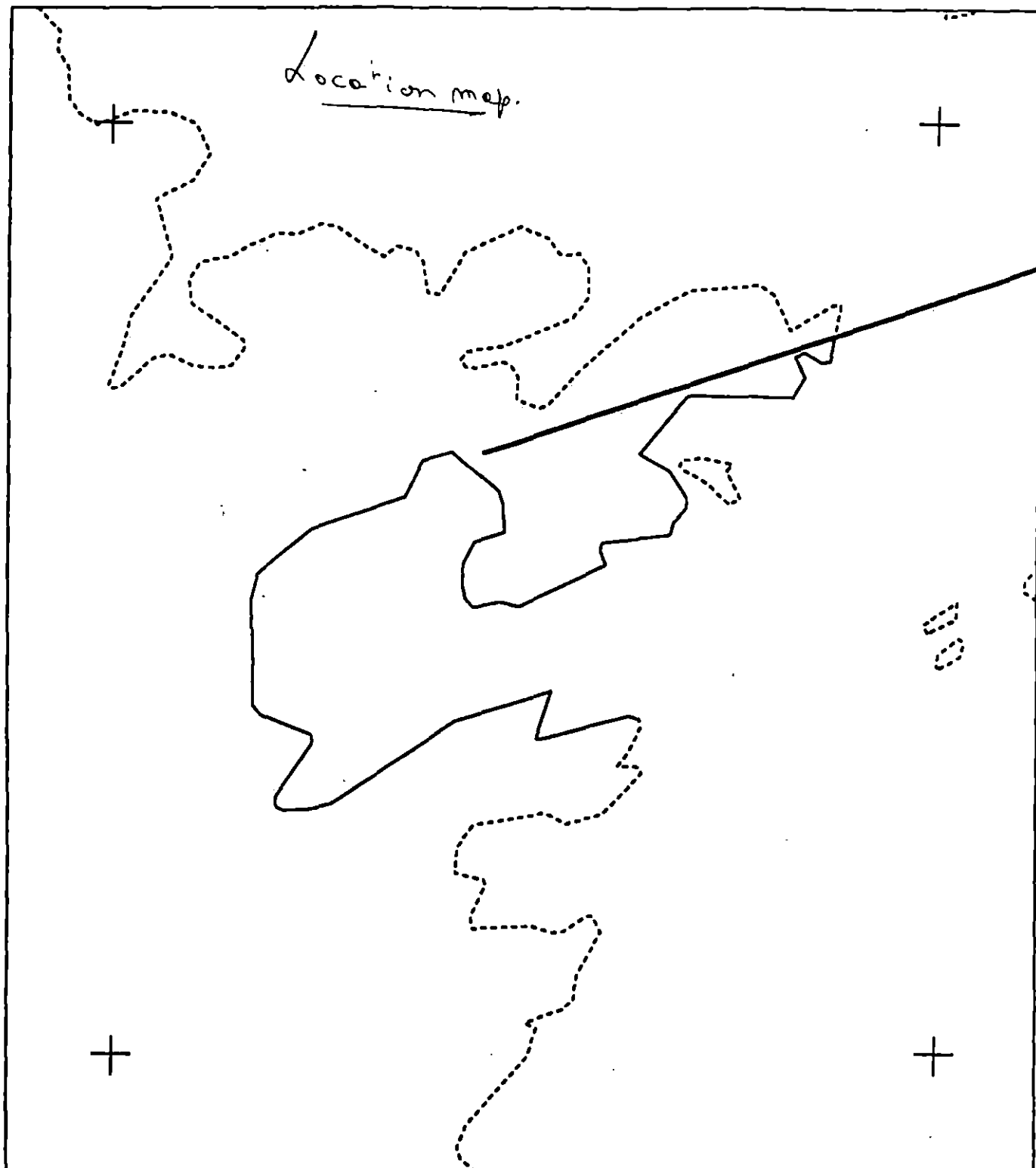
OG COMMENTS:

Complex cove, lots of bedrock outcrops
 boulder/cobbles on ramp. pocket areas of cb/pl. Oiling
 occurs as remnants of asphalt in the north, bands of coals on bedrock walls,
 few splatters. one area of H50R near the stream in the south
 and one area of M5/H50R around boulders/cobbles to the south east.

Reviewed: MC 5/26/91

reviewed 5.25.91

Location map.



TB007 A

Subdivision Field Map

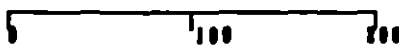
Map Key: KENTB007A

Name: for Sample

Date: May 19/91



METERS



AK State Planning Zone 4
016007A

SKETCH MAP

TB. 007-A

J. A. SEMPELS

MAY 19/91

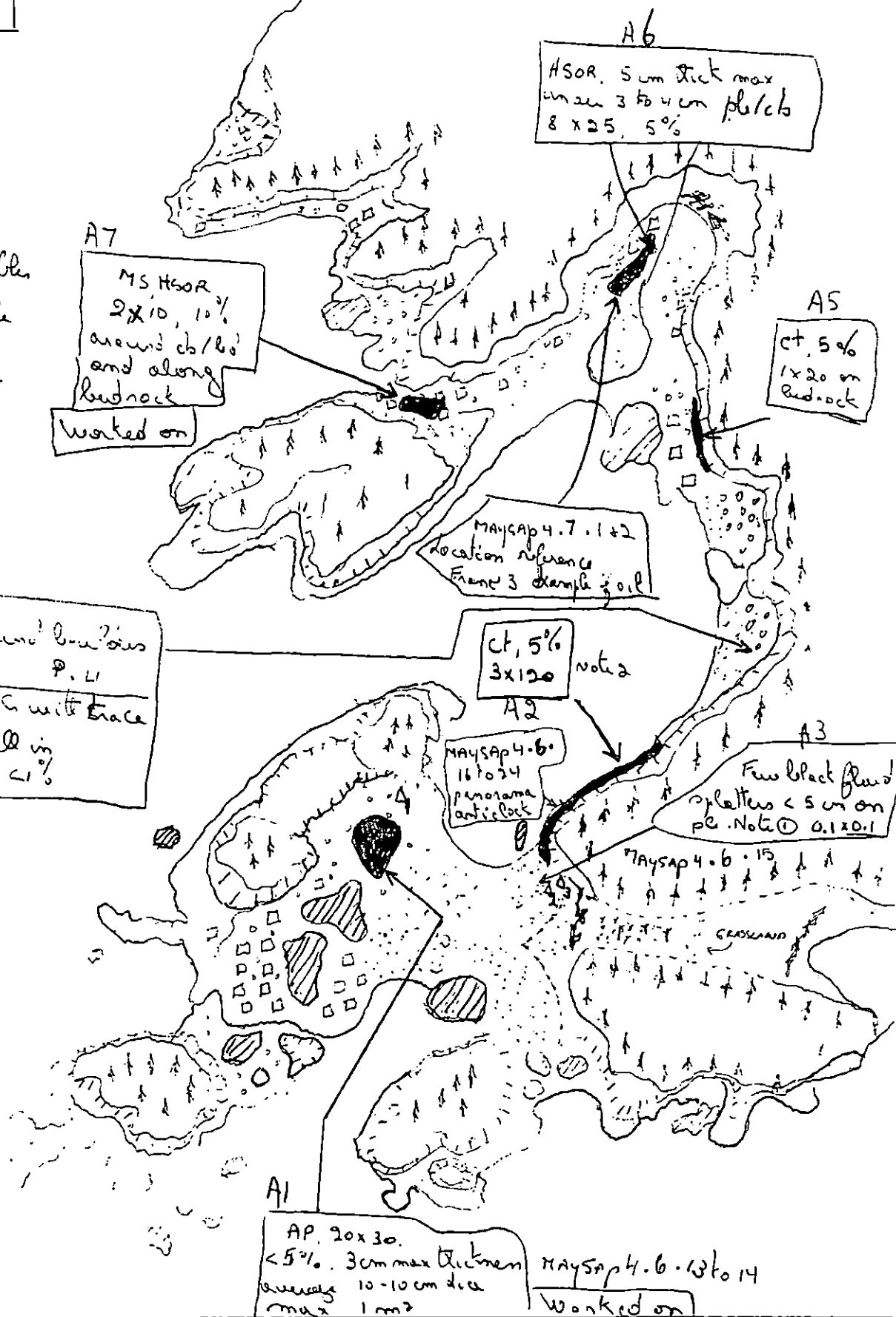
1940 1421

Legend

-  Bedrock cliffs ramp, bluffs
-  Intertidal bedrock
-  Boulders/cobbles
-  Cobble/pebble
-  Pebble/granule

Note ①: black fluid oil on pebbles are due to exposure to sunshine and warm temperature.

Note ②: Very dry and weathered ct, extends over mussels. Thicker where it has collected in bedrock fractures.



REVIEWED: MC 5/26/91 reviewed 5.25.94

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 19, 1991 1240 - 1422
SEGMENT #	TB007	TIDAL HEIGHT (Range)	-0.88 => 1.6
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Calm, clear

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

- A1 Oil (AP) is present in small patches across a large high zone cobble field. Littorine snails are very dense at this location (Adults, juveniles, eggs masses). Barnacles (Balanus), mussels, and limpets are sparse to moderate, but increase in abundance towards the middle intertidal zone. Oligochaete are common within the sparse detritus found under most cobble.
- A2 Oil (CT) is located on cobble talus and bedrock at the corner of small beach (UITZ). Oil is present just above the Fucus zone, with some sparsely distributed Fucus. Barnacles, limpets, and hermit crabs are moderately abundant. Mussels are moderate, to dense in patches, amongst the cobble, and especially on the bedrock outcrop in cracks and crevices. Filamentous green algae are generally sparse, but sometimes dense on cobble.
- Mussels are found in oiled sediments within crevices on the bedrock outcrop. Dead mussels, probably remnants of the initial spill, were found within the most heavily oiled areas. Live mussels, including juveniles, are also found in direct contact with oiled sediments.
- A3 Spatters of oil (CT) occur on a few flat beach pebbles in the upper zone of a beach. This beach is exposed to moderate waves. Little biota exist at this site. Beach drift is present on the berm above the oiled site.

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1	
Seabirds	1	1	
Waterfowl			
Gulls/Kittiwakes	1	40	
Shorebirds	2	26	
Corvids			
Other Birds	1	1	

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	1		
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

REVIEWED: MC 5/26/91
D. J. [unclear] [unclear]

- A4 Oil is present as mousse spatters in the upper to middle zone of the beach cobble and boulders. The fauna and flora of the location are typical of a cobble beach. Littorine snails and limpets are very common. Fucus is patchy, with sparse to moderate cover overall. Mussels are found in small dense patches between cobble and boulders, but are sparse overall. Amphipods, oligochaete worms, and isopods are variable in abundance, and most abundant in the upper zone within the organic detritus under most cobble.
- A5 Splatters of CT on bedrock in the upper zone. Biota are generally scarce at this location. Green algal films form a very thin cover in patches and on some cobble. Littorine snails, limpets, and barnacles are sparse.
- A6 This area has HSOR in the extreme upper zone at the entrance to the anadromous stream. Very little biota were found in this vicinity, regardless of the distribution of oil. Amphipods and isopods are found occasionally under cobble where organic detritus is present. Green filamentous algae are form a sparse film on scattered cobble.
- A7 Spatters of MS in the middle to high zone of boulder and cobble talus. The lower range of this area has a moderately dense mussel bed. Fucus is sparse at the level of the oil, and somewhat denser below. Smaller invertebrates (amphipods, isopods, littorine snails, limpets) are moderately abundant. Filamentous algae are sparse.

Cleanup Considerations

None of the sites listed above require great caution for cleanup activities, providing the activities do not disturb areas such as the low zone mussel beds, eel grass, or clam beds. Because none of these resources is in direct proximity to the oiled sites, it is unlikely that manual pickup will have negative effects on the biota at the site.

General Characteristics of TB007-A

This wonderful little cove is located on a moderately to highly exposed outer coast. Some moderate waves penetrate into the cove through small pocket beaches, giving the cove variable exposure and biotic assemblages. Most shores within the cove slope gently to the center of the cove. The central and peripheral portions of the cove have eel grass and clam beds. The outer portion of the cove has wave surge, as indicated by the presence of a stand of bull kelp. Fucus is generally abundant in the middle zone, and mussels are patchy, but occasionally dense. Littorine snails are very very dense in a wide cobble field at the northern edge of the cove. Limpets, hermit crabs, amphipods, and isopods are not as ubiquitous in high densities as littorine snails, but are generally abundant in the middle to upper zone. A small anadromous stream is present in the southern arm of the cove. The generalized zonation pattern is presented below.

General Zonation Pattern on Bedrock or Boulder/Cobble Shores

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal
Oil Spatters			- ---			
Black Lichen		- - + + --				
Bare Rock		---	---			
Filamentous Green Algae			- - - - -	+ + - -		
Barnacles (Balanus)			- - - *	+ - + - - - -		
Rockweed (Fucus)			-----	+		
Other Red Algae					--- + + + + + * * * + + + + + * *	
Green Algae (Ulva/other)			- - - - -	+ + - - -	- - + + +	
Mussels (Mytilus)			- - + - *	* * * + - - - -		
Crustose Red Algae (Hildenbrandia)			- - - + + - -			
Upright Brown Algae (not Fucus)					--- - - + + * * * * * * * *	
Eel Grass						- + + + + * * * * * * *
Clams						- - + + + - + - + * -

Legend: (-) Sparse to rare. (+) Moderate. (*) Abundant

Common Species on TB007-A

A. Marine Plants

1. Diatoms. Blue Greens
2. Green Algae - Chlorophyta
Enteromorpha sp., Prasiola meridionalis, Ulva sp., Urospora sp.
3. Brown Algae - Phaeophyta
Alaria marginata, Agarum fimbriatum, Costaria costata, Ectocarpus spp., Fucus distichus, Hildenbrandia sp., Laminaria groenlandica, Nereocystis leutkeana, Ralfsia sp., Syctosiphon lomentaria
4. Red Algae - Rhodophyta
Bossiella sp., Calliarthron sp., Corallina sp., Cryptosiphonia woodii, Endocladia muricata, Halosaccion glandiforme, Iridaea sp., Lithothamnion sp., Mastocarpus sp., Membranoptera dimorpha, Odonthalia floccosa, Palmaria palmata, Petrocelis sp., Porphyra sp., Ptilota filicina, Rhodomela larix
5. Higher Plants - Zostera marina (eel grass), Leymus mollis (beach rye grass)

II. Marine Animals

1. Sponges - Porifera - Halichondria bowerbanki?, Ophlitaspongia pennata.
2. Anemones - Anthopleura artemesia, A. elegantissima, A. xanthogrammica, Epiactis ritteri, Metridium senile, Urticina crassicornis.
3. Hydroids - Sertulariidae, Aglaophenia sp., Abietinaria sp.
5. Flatworms - Platyhelminthes - Polyclads
6. Nemertean Worms - Ribbon Worms - Emplectonema gracile
8. Polychaete Worms
Glyceridae
Nepthyidae
Nereidae - Nereis spp.
Serpulidae - Serpula sp., Crucigera sp., Eudistylia polymorpha
Spirorbidae - Spirorbis sp.
9. Peanut worms - Sipunculids - Phascolosoma agassizii

10. Crustaceans
 - a. Amphipods - *Orchestia* sp.?
 - b. Barnacles - *Balanus glandula*, *Chthamalus dalli*, *Semibalanus cariosus*
 - c. Crabs - *Haplogaster* sp., *Hemigrapsus oregonensis*, *Paguridae* (hermit crabs), *Pugettia* sp.,
 - d. Isopods - *Cirrana harfordi*, *Idotea wosnesenskii*, *Gnorimorsphaeroma oregonensis*
11. Mollusca
 - a. Chitons - *Mopalia mucosa*, *Katharina tunicata*, *Tonicella lineata*,
 - b. Snails - Gastropods
Amphissa columbiana, *Littorina sitkana*, *L. keenae*, *Natica clausa*, *Nucella lamellosa*, *N. lima*, *Searlesia dira*,
 - c. Limpets - *Lottia digitalis*, *L. limatula*,
Tectura fenestrata, *T. persona*, *T. scutum*, *Siphonaria thersites*
 - e. Bivalves - *Chlamys hastata*, *Clinocardium* sp., *C. nuttalli*, *Hiatella arctica*, *Macoma nasuta*, *Modiolus modiolus*, *Mya arenaria* (soft-shell clam), *Mytilus edulis*, *Pododesmus cepio*, *Prototheca staminea*, *Saxidomus giganteus*
12. Echinoderms
 - a. Brittle Stars - *Ophiolus aculeatus*?, *Ophiothrix spiculata*?,
Amphipholis?
 - b. Sea stars - *Crossaster papposus*, *Dermasterias imbricata*, *Evasterias truscheli*, *Henricia leviuscula*, *Leptasterias hexactis*, *Orthasterias keohleri*, *Pisaster ochraceus*, *Pycnopoda helianthoides*, *Solaster dawsoni*,
 - c. Sea Cucumbers - Holothurians - *Eupentacta* sp.
 - d. Urchins - *Strongylocentrotus droebachiensis*
13. Bryozoans - *Membranipora* sp., *Microporina borealis*, *Phidolopora pacifica*, *Schizoporella* sp.
14. Ascidians - *Synocium*? sp., *Aplidium*?
15. Fishes
 - Cottidae -
 - Stichaeidae - *Xiphister atropurpureus*, *X. mucosus*

III. Birds - Semipalmated Plover (1), Western Sandpiper (25), Fox Sparrow (1), Bald Eagle (1), Red-faced Cormorant (1), Glaucous-winged Gull (40)

BIO SKETCH MAP

T13007-A

J P BARRY

19 MAY 91

1240-1422

Legend

- Bedrock Cliffs 'Rough'
- Invertebrate Burrows
- Eel Grass/Clam Bed
- Cobble/Granule
- Fucus/Mussels
- MUSSEL BED
- EEL GRASS/CLAM BED
- FUCUS/MUSSELS

MS/HSZ in Cobble/Boulder of UTL. Moderately dense mussel bed in low to middle zone. Fucus sparse at level of A1, but denser below. Amphipods, isopods, limpets, littorines - moderately abundant.

HSZ in sediments. Very little biota. Scattered organic detritus under cobble, occasional amphipods or isopods. Sparse filamentous green filamentous algae

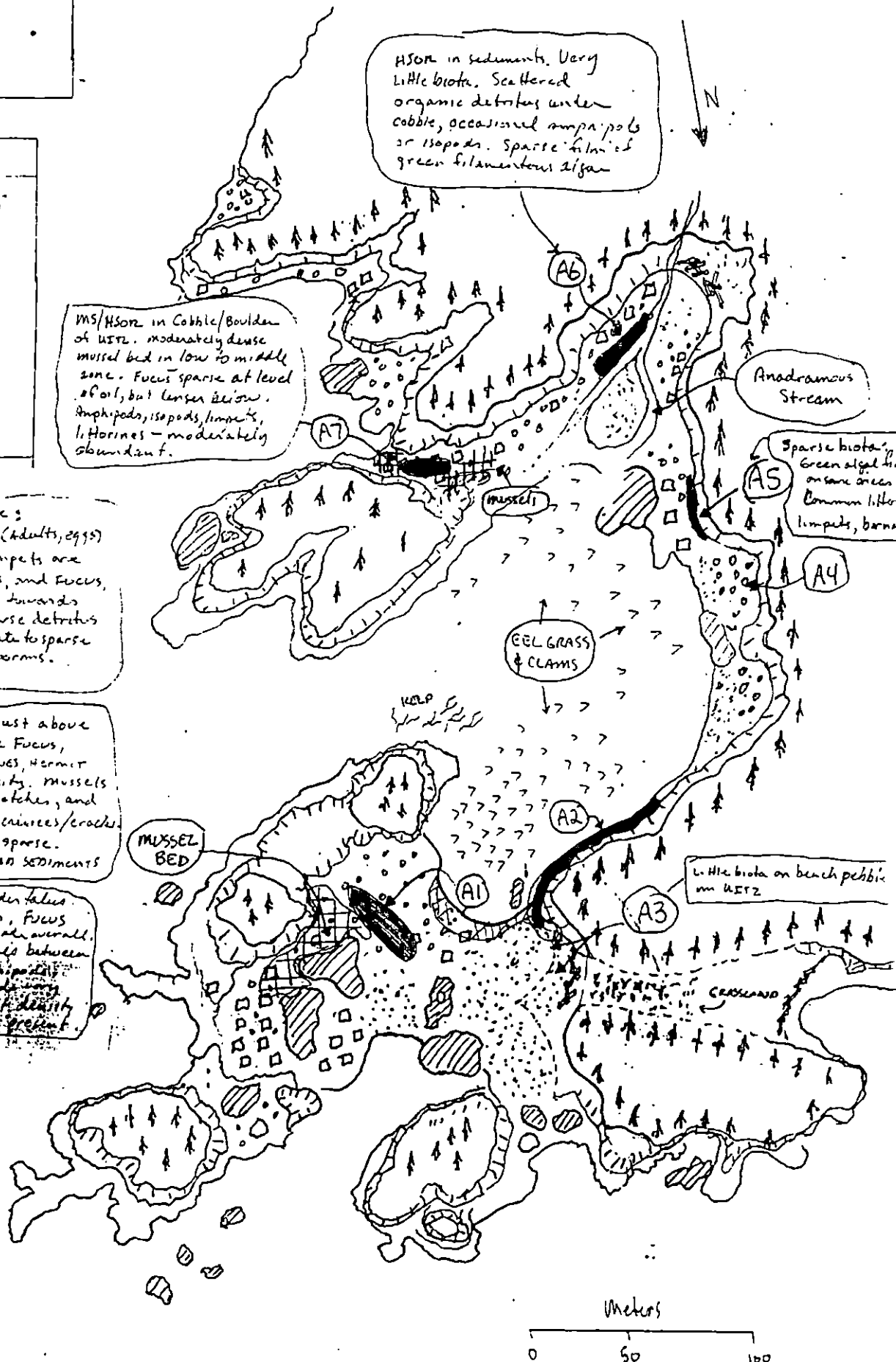
Anadromous Stream

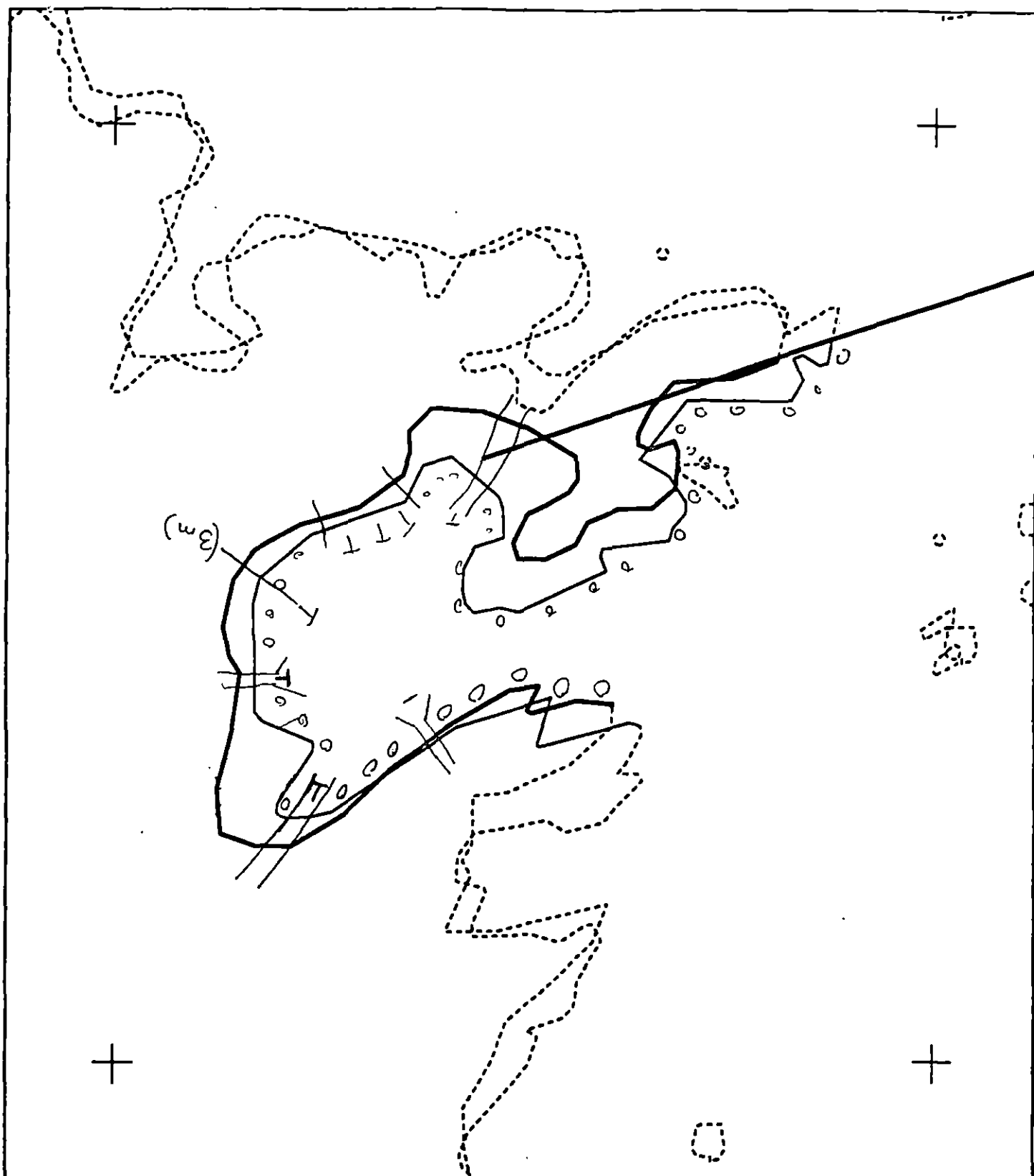
Sparse biota, Green algal H. on bare rocks. Common littorine limpets, barn.

A1 - (AP) - in upper zone. Dense Littorine snails, (adults, eggs) Barnacles, mussels, limpets are sparse. These species, and Fucus, increase in abundance towards the middle zone. Sparse detritus under cobble, with moderate to sparse density of oligochaete worms.

A2 - UTL on upper zone, just above the Fucus zone. Sparse Fucus, Barnacles, limpets, littorines, Hermit crabs are moderate in density. Mussels are moderate to dense in patches, and most abundant in bedrock crevices/cracks. Green filamentous algae sparse. MUSSEL IN CONTACT w/ OILED SEDIMENTS

A4 - MS Spatters in Cobble/Boulder talus. Limpets/Littorines common, Fucus is patchy, and sparse to moderate overall. Mussels in small, dense patches between cobble and boulders. Amphipods, oligochaete worms, isopods are in abundance, with greatest density where organic detritus is present.





XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB007 A

ADEC Subsegment Length: 1274m

METERS

0 100 200

AK State Plane Zone 4
 150070



Subdivision Field Map

Map Key: KENTB007A

Name: 17 Samples

Date: MAY 19/91

Date Entered:

Reviewed: M. S. P. 91
 revised 5.25 91

SEGMENT: TB 007 SUB: A REGION: KEN SURVEY DATE: 5/19/91ENVIRONMENTAL SENSITIVITIES:Work Window(s) OPEN 5/1 - 7/10; RESTRICTED 7/10 - 9/15Ecological/Constraints (see page two for details) Anadromous streamARCHAEOLOGICAL CONSTRAINTS:If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____

FOSC APPROVAL DATE: _____

ADEC _____

FOSC _____

EXXON _____

USCG _____

NOAA _____

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.

ADEC
NAME Clara S. Crosby SIGNATURE Clara S. Crosby

- ☐ NTR ☒ Treatment Recommended - A1, A6, A7
Manual Removal at sites A1, A6, & A7 - using hand trowels,
& shovels - CB/BD rolled when possible to access oiling.
- A6 - manually access oiling for removal by shoveling surface
sediment away (prob pebble, rubble) -
At Area A1 any oiling not removed should be broken up - weathering
well.

EXXON
NAME George P. Skiles SIGNATURE George P. Skiles

- ☐ NTR Several areas of HSOR / AI exist to
much for the survey crew to remove.

LANDMANAGER
NAME Jeff Johnson OF ADNR SIGNATURE Jeff Johnson

- ☐ NTR ☒ Treatment Recommended

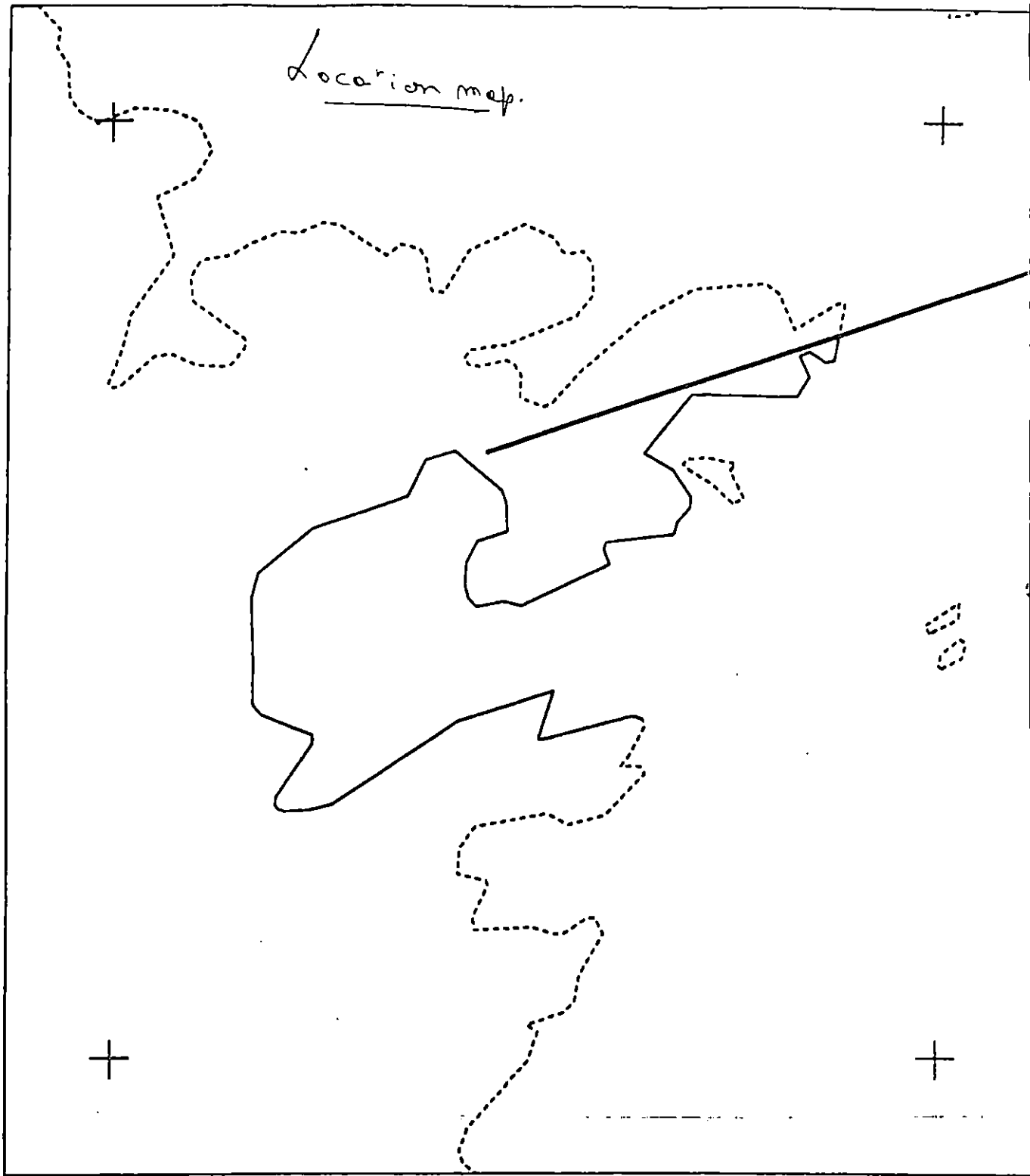
Concur with DEC comments. Segment is within Kachemak Bay/
State Wilderness Park. Oiled or oiled is obvious, and should
be removed by manual means. This site has high recreation and
scenic value.

USCG/NOAA
NAME John McMichael SIGNATURE John McMichael

- ☒ NTR On this segment light sites were manually
cleaned-up on scene. There was no evidence
of any further oiling in any quantity.

Reviewed: MC 5/26/9
reviewed 5.25.9y

Location map.



TB007 A

METERS

0 100 200

AK State Plane Zone 4
NAD83

Subdivision Field Map

Map Key: KENTB007A

Name: for Sample

Date: May 19/91

TB.007.A
 J.H. SEMPELS
 MAY 19/91
 1940 1421

sunshine and warm temperature.
 note ⑤: Very dry and weathered ct, extends over mussels
 thicker where it has collected in bedrock fractures.

Legend

-  Bedrock cliffs
ramp, bluffs
-  Inter. tal
bedrock
-  Boulders/cobbles
-  Cobble/pebble
-  Pebble/granule

A4
 4 MS sp. in around boulders
 30 cm max dia. P.L.U.
 2 small tide pools with trace
 of salmon stem, all in
 overcast area 10x3, <1%

A7
 MS HSOR
 2x10, 10%
 around cb/ls
 and along
 bedrock
 worked on

MAYSAP 4.7.1+2
 location reference
 From 3 sample goil

ct, 5%
 3x120
 note 2

A2
 MAYSAP 4.6.
 16 to 24
 panorama
 anticlock

A3
 Few black fl.
 splatters < 5 cm dia
 pe. Note ① 0.1x0.

A6
 HSOR. 5 cm thick max
 under 3 to 4 cm pl/cb
 8 x 25, 5%

A5
 ct, 5%
 1x20 m
 bedrock

A1
 AP, 20x30.
 <5% 3cm max thickness
 average 10-10 cm dia
 max 1 m²

MAYSAP 4.6.13 to 14
 worked on

0 30 60



MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #	4	DATE/TIME	May 19, 1991 1240 - 1422
SEGMENT #	TB007	TIDAL HEIGHT (Range)	-0.88 => 1.6
SUBDIVISION	A	BIOLOGIST	JIM BARRY
SEA STATE	Calm	WIND SPEED/DIRECTION	Calm, clear

COMMENTS / OBSERVATIONS - OILED SUBDIVISIONS

Oil Related Comments

- A1 Oil (AP) is present in small patches across a large high zone cobble field. Littorine snails are very dense at this location (Adults, juveniles, eggs masses). Barnacles (Balanus), mussels, and limpets are sparse to moderate, but increase in abundance towards the middle intertidal zone. Oligochaete are common within the sparse detritus found under most cobble.
- A2 Oil (CT) is located on cobble talus and bedrock at the corner of small beach (UITZ). Oil is present just above the Fucus zone, with some sparsely distributed Fucus. Barnacles, limpets, and hermit crabs are moderately abundant. Mussels are moderate, to dense in patches, amongst the cobble, and especially on the bedrock outcrop in cracks and crevices. Filamentous green algae are generally sparse, but sometimes dense on cobble.
- Mussels are found in oiled sediments within crevices on the bedrock outcrop. Dead mussels, probably remnants of the initial spill, were found within the most heavily oiled areas. Live mussels, including juveniles, are also found in direct contact with oiled sediments.
- A3 Spatters of oil (CT) occur on a few flat beach pebbles in the upper zone of a beach. This beach is exposed to moderate waves. Little biota exist at this site. Beach drift is present on the berm above the oiled site.

WILDLIFE OBSERVATIONS - Completed on all subdivisions

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1	
Seabirds	1	1	
Waterfowl			
Gulls/Kittiwakes	1	40	
Shorebirds	2	26	
Corvids			
Other Birds	1	1	

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	1		
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

REVIEWED: MC 5/26/91
Rev'd 5/25/91 Lm

- A4 Oil is present as mousse spatters in the upper to middle zone of the beach cobble and boulders. The fauna and flora of the location are typical of a cobble beach. Littorine snails and limpets are very common. Fucus is patchy, with sparse to moderate cover overall. Mussels are found in small dense patches between cobble and boulders, but are sparse overall. Amphipods, oligochaete worms, and isopods are variable in abundance, and most abundant in the upper zone within the organic detritus under most cobble.
- A5 Splatters of CT on bedrock in the upper zone. Biota are generally scarce at this location. Green algal films form a very thin cover in patches and on some cobble. Littorine snails, limpets, and barnacles are sparse.
- A6 This area has HSOR in the extreme upper zone at the entrance to the anadromous stream. Very little biota were found in this vicinity, regardless of the distribution of oil. Amphipods and isopods are found occasionally under cobble where organic detritus is present. Green filamentous algae are form a sparse film on scattered cobble.
- A7 Spatters of MS in the middle to high zone of boulder and cobble talus. The lower range of this area has a moderately dense mussel bed. Fucus is sparse at the level of the oil, and somewhat denser below. Smaller invertebrates (amphipods, isopods, littorine snails, limpets) are moderately abundant. Filamentous algae are sparse.

Cleanup Considerations

None of the sites listed above require great caution for cleanup activities, providing the activities do not disturb areas such as the low zone mussel beds, eel grass, or clam beds. Because none of these resources is in direct proximity to the oiled sites, it is unlikely that manual pickup will have negative effects on the biota at the site.

General Characteristics of TB007-A

This wonderful little cove is located on a moderately to highly exposed outer coast. Some moderate waves penetrate into the cove through small pocket beaches, giving the cove variable exposure and biotic assemblages. Most shores within the cove slope gently to the center of the cove. The central and peripheral portions of the cove have eel grass and clam beds. The outer portion of the cove has wave surge, as indicated by the presence of a stand of bull kelp. Fucus is generally abundant in the middle zone, and mussels are patchy, but occasionally dense. Littorine snails are very very dense in a wide cobble field at the northern edge of the cove. Limpets, hermit crabs, amphipods, and isopods are not as ubiquitous in high densities as littorine snails, but are generally abundant in the middle to upper zone. A small anadromous stream is present in the southern arm of the cove. The generalized zonation pattern is presented below.

General Zonation Pattern on Bedrock or Boulder/Cobble Shores

Biota:	Tide Level	SupraTidal	Upper	Middle	Low	Subtidal
Oil Spatters			- - -			
Black Lichen		- - + + - -				
Bare Rock		- - - - - - - -				
Filamentous Green Algae			- - - - - - + + - -			
Barnacles (Balanus)			- - - * - + - + - - - -			
Rockweed (Fucus)			- - + + - + - + - - - -			
Other Red Algae				- - - + - + + * + - + + + * *		
Green Algae (Ulva/other)			- - - - - + - - - - - - + + +			
Mussels (Mytilus)			- - + - * * * + - - - -			
Crustose Red Algae (Hildenbrandia)			- - - + + - - -			
Upright Brown Algae (not Fucus)				- - - - + * * * * * * * *		
Eel Grass					- + + + + * * * * *	
Clams					- - + + + - + * + -	

Legend: (-) Sparse to rare. (+) Moderate. (*) Abundant

Common Species on TB007-A

A. Marine Plants

1. Diatoms. Blue Greens
2. Green Algae - Chlorophyta
Enteromorpha sp., Prasiola meridionalis, Ulva sp., Urospora sp.
3. Brown Algae - Phaeophyta
Alaria marginata, Agarum fimbriatum, Costaria costata, Ectocarpus spp., Fucus distichus, Hildenbrandia sp., Laminaria groenlandica, Nereocystis leutkeana, Ralfsia sp., Syctosiphon lomentaria
4. Red Algae - Rhodophyta
Bossiella sp., Calliarthron sp., Corallina sp., Cryptosiphonia woodii, Endocladia muricata, Halosaccion glandiforme, Iridaea sp., Lithothamnion sp., Mastocarpus sp., Membranoptera dimorpha, Odonthalia floccosa, Palmaria palmata, Petrocelis sp., Porphyra sp., Ptilota filicina, Rhodomela larix
5. Higher Plants - Zostera marina (eel grass), Leymus mollis (beach rye grass)

II. Marine Animals

1. Sponges - Porifera - Halichondria bowerbanki?, Ophlitaspongia pennata.
2. Anemones - Anthopleura artemesia, A. elegantissima, A. xanthogrammica, Epiactis ritteri, Metridium senile, Urticina crassicornis.
3. Hydroids - Sertulariidae, Aglaophenia sp., Abietinaria sp.
5. Flatworms - Platyhelminthes - Polyclads
6. Nemertean Worms - Ribbon Worms - Emplectonema gracile
8. Polychaete Worms
Glyceridae
Nepthyidae
Nereidae - Nereis spp.
Serpulidae - Serpula sp., Crucigera sp., Eudistylia polymorpha
Spirorbidae - Spirorbis sp.
9. Peanut worms - Sipunculids - Phascolosoma agassizii

10. Crustaceans
 - a. Amphipods - *Orchestia* sp.?
 - b. Barnacles - *Balanus glandula*, *Chthamalus dalli*, *Semibalanus cariosus*
 - c. Crabs - *Haplogaster* sp., *Hemigrapsus oregonensis*, *Paguridae* (hermit crabs), *Pugettia* sp.,
 - d. Isopods - *Cirrana harfordi*, *Idotea wosnesenskii*, *Gnorimorsphaeroma oregonensis*
 11. Mollusca
 - a. Chitons - *Mopalia mucosa*, *Katharina tunicata*, *Tonicella lineata*,
 - b. Snails - *Gastropods*
Amphissa columbiana, *Littorina sitkana*, *L. keenae*, *Natica clausa*, *Nucella lamellosa*, *N. lima*, *Searlesia dira*,
 - c. Limpets - *Lottia digitalis*, *L. limatula*,
Tectura fenestrata, *T. persona*, *T. scutum*, *Siphonaria thersites*
 - e. Bivalves - *Chlamys hastata*, *Clinocardium* sp., *C. nuttalli*, *Hiatella arctica*, *Macoma nasuta*, *Modiolus modiolus*, *Mya arenaria* (soft-shell clam), *Mytilus edulis*, *Pododesmus cepio*, *Prototheca staminea*, *Saxidomus giganteus*
 12. Echinoderms
 - a. Brittle Stars - *Ophiolus aculeatus*?, *Ophiothrix spiculata*?,
Amphipholis?
 - b. Sea stars - *Crossaster papposus*, *Dermasterias imbricata*, *Evasterias truscheli*, *Henricia leviuscula*, *Leptasterias hexactis*,
Orthasterias keohleri, *Pisaster ochraceus*, *Pycnopoda helianthoides*, *Solaster dawsoni*,
 - c. Sea Cucumbers - *Holothurians* - *Eupentacta* sp.
 - d. Urchins - *Strongylocentrotus droebachiensis*
 13. Bryozoans - *Membranipora* sp., *Microporina borealis*, *Phidolopora pacifica*, *Schizoporella* sp.
 14. Ascidians - *Synocium*? sp., *Aplidium*?
 15. Fishes
 - Cottidae -
 - Stichaeidae - *Xiphister atropurpureus*, *X. mucosus*
- III. Birds - *Semipalmated Plover* (1), *Western Sandpiper* (25), *Fox Sparrow* (1),
Bald Eagle (1), *Red-faced Cormorant* (1), *Glaucous-winged Gull* (40)

BIO SKETCH MAP

TB007-A

J P BARRY

19 MAY 91

1240 - 1422

Legend

- Bedrock Cliff Face
- Emergent Surface
- Sand
- Mud
- Fucus/Mussels
- MUSSEL BED
- EEL GRASS/CLAM BED
- FUCUS/MUSSELS

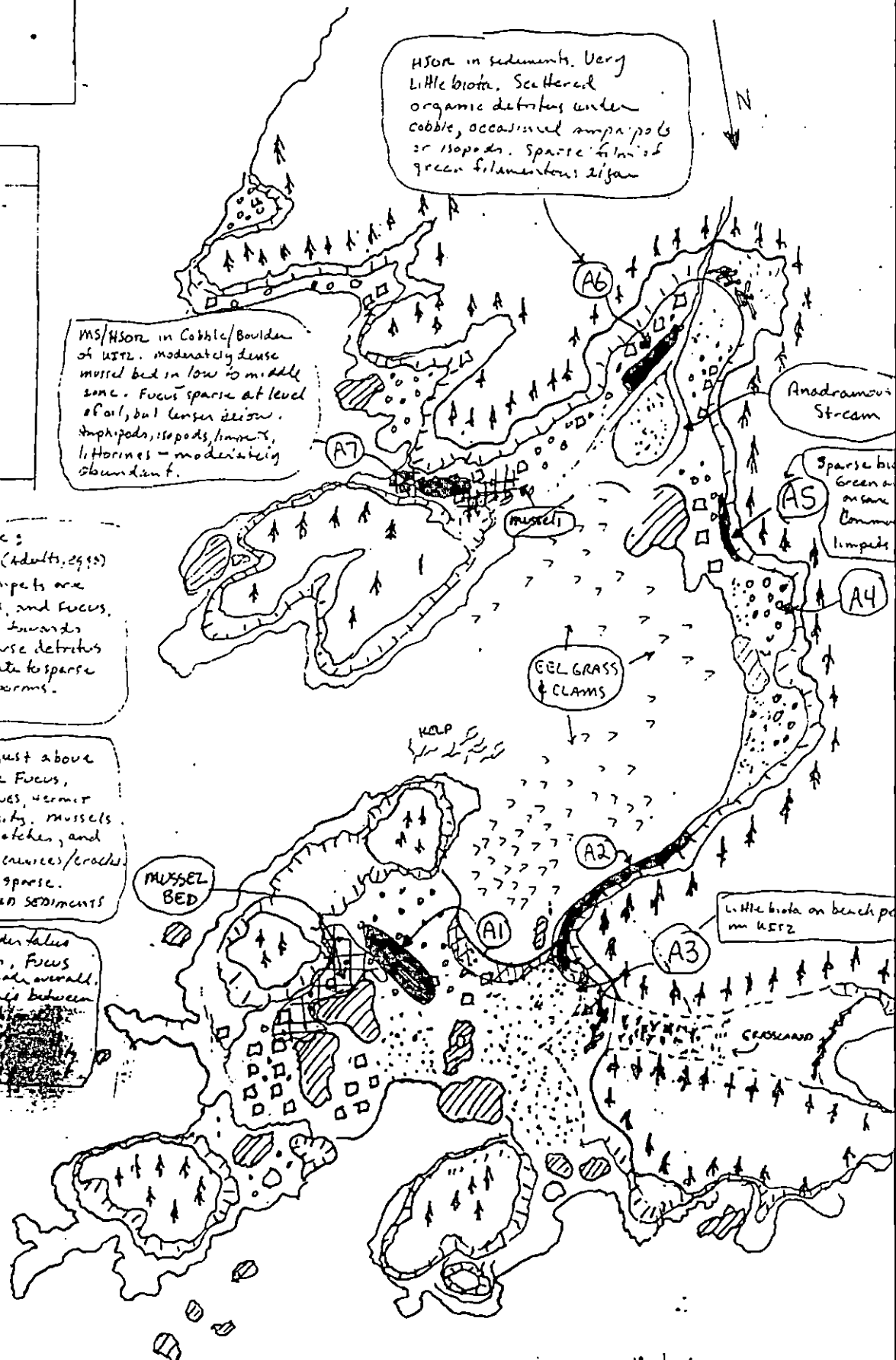
MS/HSOR in Cobble/Boulder of USZ. Moderately dense mussel bed in low to middle zone. Fucus sparse at level of oil, but denser below. Amphipods, isopods, limpets, Littorines - moderately abundant.

HSOR in sediments. Very little biota. Scattered organic detritus under cobble, occasional amphipods or isopods. Sparse film of green filamentous alga.

A1 - (AP) - in upper zone: Dense Littorine snails, (adults, eggs) Barnacles, mussels, limpets are sparse. These species, and Fucus, increase in abundance towards the middle zone. Sparse detritus under cobble, with moderate to sparse density of oligochaete worms.

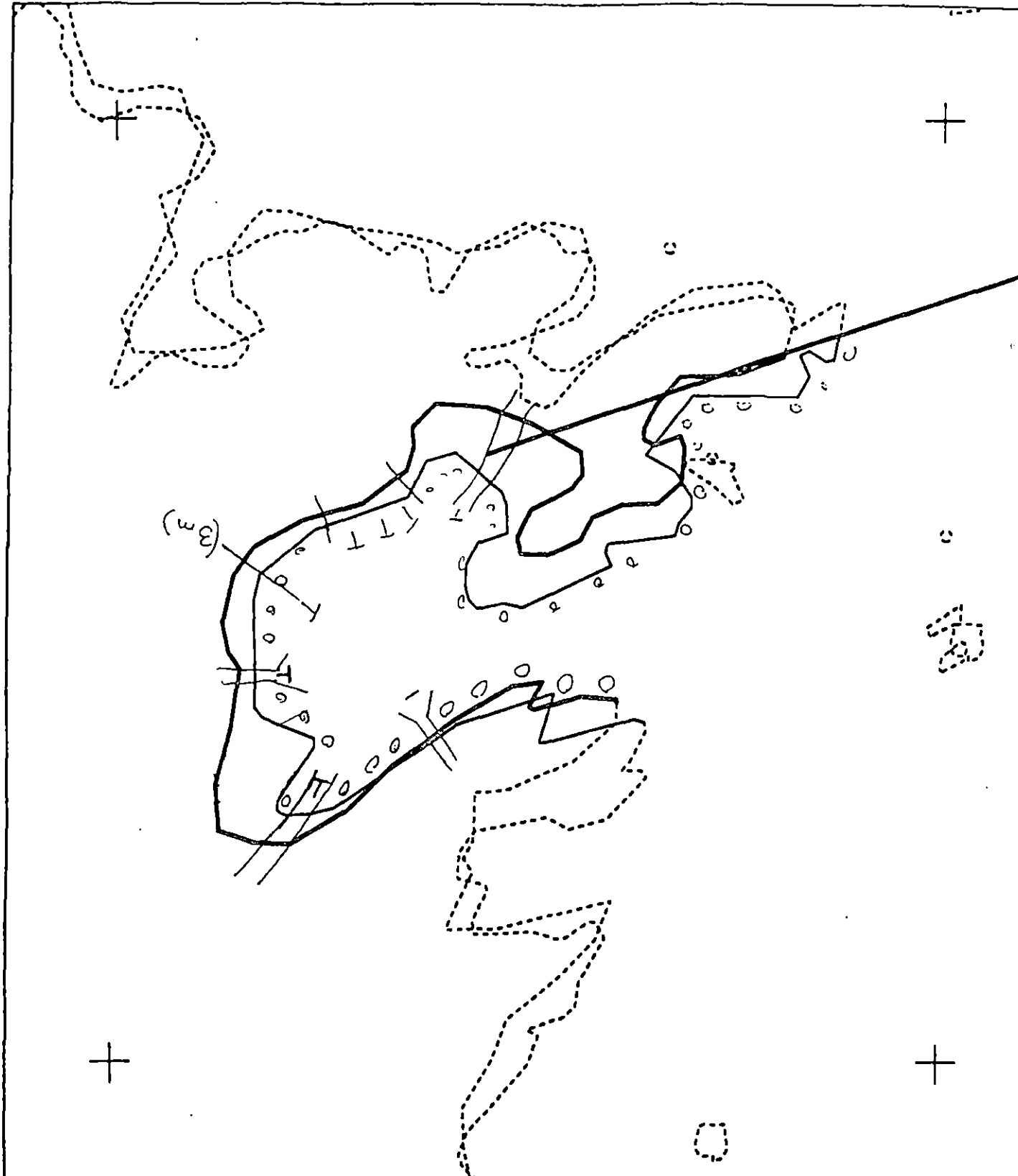
A2 - LIE CT on upper zone, just above the Fucus zone. Sparse Fucus, Barnacles, limpets, Littorines, hermit crabs are moderate in density. Mussels are moderate to dense in patches, and most abundant in bedrock crevices/cracks. Green filamentous algae sparse. Mussel in contact w/ oiled sediments.

A4 - MS spatters in Cobble/Boulder talus. Limpets/Littorines common, Fucus is patchy, and sparse to moderate overall. Mussels in small, dense patches between cobble and boulders. Amphipods, oligochaete worms, etc. are moderate in abundance, with green algae and white organic detritus.



Meters

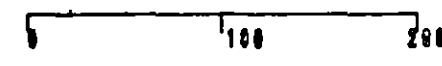
0 50 100



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

TB007 A

ADEC Subsegment Length: 1274m
 METERS



AK State Plane Zone 4
 16007a



Subdivision Field Map
 Map Key: KENTB007A
 Memo: 17 Samples
 Date: MAY 19/91
 Data Entered:

Reviewed: MC SP/19
 Revised 5.25 C

REGION: KENAI

SEGMENT: ST/US-01

SUBDIVISIONS: A (1 OF 1)

SHORELINE EVALUATION

SEGMENT ST/ US-01 SUBDIVISION A (1 OF 1) DATE 4/10/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Possible Seabird colony 5R (5/1 to 9/1)

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 0 m: Medium 297 m: Narrow 362 m: V.Light 185 m: No Oil 143 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 30+ cm

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☒ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☒ Bioremediation	☐ Spot Washing: _____ Wands
☐ Tarmat: _____ Breakup	☐ Beach Cleaner
☐ Removal	☒ Other (see comments)

COMMENTS: Recommend (a) manual pick up of mousse, pooled oil, and oil-
ed debris (debris, trash and vegetation), (b) burning of oiled logs
with more than 10% coverage and splash impact, and (c) bioremediation
as noted on sketch map. Work should be conducted only with permission
of ADF&G and USFWS due to seabird colony constraint.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

KODIAK ECOLOGICAL CONSTRAINTS

- 1A Salmon stream mouth - fry outmigration (4/15 to 7/31)
 1B Salmon stream mouth - spawning (7/15 to 9/10; PEAK 8/15)
 No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.
- 1C Salmon fry nursery area (4/31 to 7/31)
- 1D Kotai Bay Hatchery release
 Pink salmon - late May, early June; Chum salmon - June; Sockeye salmon - early July.
- 1H Remote release site
- 1I Gill net area
- 1J Purse seine area
 Mainland, West side Kodiak, Shuyak & Moser/Olga Bay - 6/9 to 10/1.
 East side Kodiak, East side Afognak - 7/4 to 10/1.
- 1K Purse seine hook-off
- 1L Set net sites
 USFWS setnet uplands permit 5/15 to 9/15.
- For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.
- 2M Herring spawning (4/15 to 6/30)
 Restrict boat traffic to essential minimum. Avoid damage to unholed intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.
- 3N, 3P Harbor seal and sea lion pupping (5/10 to 6/30)
 Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.
- 3O, 3Q Harbor seal and sea lion molting (8/15 to 9/15)
 Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.
- 5R Seabird colony (5/1 to 8/31)
 Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.
- 5S Shorebird/waterfowl concentration (4/1 to 5/15)
 Restrict all activity to essential minimum, especially air traffic.
- 5T All Bald Eagle nests (3/1 to 6/1)
 Active Bald Eagle nests (3/1 to 9/1)
 Restrict air traffic to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
- 6U Recreation: Tent sites (6/1 to 9/15)
- 6V Anchorages (6/1 to 9/15)
- 6W Forest Service cabins (6/1 to 9/15)
- 6X Lodge (6/1 to 9/15)
- 6Y Special use destination
- 7Z Subsistence area: Salmon harvesting (6/1 to 9/30)
- 7HH Finfish harvesting
- 7II Deer harvesting (8/1 to 1/7)
- 7JJ Invertebrate harvesting
- 7KK Bear harvesting (4/1 to 5/15 and 10/25 to 11/30)
 For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.

FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ US-01 SUBDIVISION: A DATE 4/10/90NOAA
1996
NAMEJohn Naughton

SIGNATURE

John J. Naughton☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

This segment has substantial oil, particularly along the western portion of the shoreline. The cliff faces have coating and splashes he up in supra-littoral. Logs and marine debris coated and stained. Cobble beach under debris contains oil subsurface to at least 30 cm. depth. Most of oil in upper and supra tidal indicating oil came ashore (at least during one period) during storm surf conditions. Manual removal of subsurface oil difficult because of huge logs covering much of area. Bioremediation could possibly be applied to appropriate areas of this segment.

ADEC
NAMEScott Shelton

SIGNATURE

Scott Shelton☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

US-01 Sub. A

25-30 Meter Coating on Bedrock in the Upper to Supratidal Level. Coating 5 meters wide extends from W to EAST. 677 Meter Drift from winter storms up to 2 meters coverage on oil sand in western region of this segment. Drift would need to be removed for clean up access of the impact area.

Clean Manual Type recommended.

Debris oiled in this segment (Marine type) should be picked up/access limited, High energy beach.

LAND MANAGER

NAME

LINDA M. HAGEN

SIGNATURE

Linda M. Hagen USFWS☐ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

(Attachments + 2)

Barren Islands contain the largest and most diverse population of seabirds in the Northern Gulf of Alaska and are the most important nesting location in the Region. Due to the amount and wide coverage of oiled surface and the wildlife sensitivity within this location, I recommend treatment as high priority within

FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ US-1 SUBDIVISION: A DATE 4/10/90**SCG**
NAME _____

SIGNATURE _____

☐ NO TREATMENT RECOMMENDED
COMMENTS☐ TREATMENT SUGGESTED**ADEC**
NAME _____

SIGNATURE _____

☐ NO TREATMENT RECOMMENDED
COMMENTS☐ TREATMENT SUGGESTED^{2nd}
LAND MANAGERNAME Ray Burger ADNR SIGNATURE Ray Burger☐ NO TREATMENT RECOMMENDED
COMMENTS☒ TREATMENT SUGGESTED

High energy beach so impact went high into supratidal.
Logs + debris accumulated here have coating of oil that easily
contaminates on contact - while this area lacks recreationists (due to access)
Some seabird flocks seen in far offshore areas. - wildlife is in danger
No sign of mammals on beach or uplands except for some small rodent
burrows - one songbird observed - no eagles or gulls
Band of coat goes at least 30 cm into subsurface

4/10/90

Attachment 2

U.S. Fish and Wildlife Service Shoreline Cleanup Disclaimer

This comment sheet is based on current observations and is solely for the purpose of planning and scheduling of 1990 response treatment actions. It in no way implies that the State or Federal government will not in the future determine that further restoration or other treatment, or compensation is warranted regarding this area, or that the area is considered by the Federal or State government to be adequately "clean" or "restored" for the purpose of any claim which the State or Federal government has brought or may bring against Exxon, Incorporated or any other potentially responsible party.

REVISED

SHORELINE OILING SUMMARY

REVISION NO. 03/22/90

OG Shelton ^{NOAA} USCG Naughton SEGMENT ST/ US-01
 BIO Sight LAND REP Hagan/Burger SUBDIVISION A
 EXXON THOMAS ADEC Shelton TIME 10:16 to 11:05
 TEAM NO.: 19 TIDE LEVEL: -1 to +2 DATE 4/10/90
 ST. SUBDIVISION LENGTH: 1232 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☒ Grass ☐ Forest ☒ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: W to E
 SURFACE SEDIMENTS: R 70 % B 20 % C 10 % P 0 % G 0 % S 0 % M 0 % V 0 %
 SLOPE: Long 65 % Hang 15 % Vert 20 % WAVE EXPOSURE: ☐ Low ☐ Med ☒ High
 OIL CATEGORY LENGTH: W 0 m M 242 m N 435 m VL 295 m NO 260 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR								IMPACTED ZONES			
	C	S	P	B	1	2	3	4	5	6	7	8	SU	U	M	L
ASPHALT PAVEMENT																
POOLED				X						X			X			
COVER																
COAT	X		X	X						X			X	X		
STAIN			X	X					X				X	X		
MOUSSE			X	X						X			X	X		
PATTIES																
TARBALLS																
FILM																
NO OIL															X	X

PAVEMENT: H F S 0 sq. m by 0 cm

PATTIES / TARBALLS 0 BAGS

NEAR SHORE SHEEN? (NO) BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs		X	
Vegetation	X		
Trash			X
Debris			X

DEBRIS COLLECTED
☒ YES ☐ NO

TYPE NETS/LINES

#BAGS AD-200

Photographs:

Roll No. 19-8 / 19-7

Frames 1-13 / 26-36

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CM)	BELOW	OIL / FILM COLOR								PIT ZONE	A N A	SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO			1	2	3	4	5	6	7	8	SU	U	
1	30					X											X		Cobble/gravel
2	30					X												X	Cobble/gravel
3	30		X				0-30	X					X	X					Cobble/gravel
4	30		X				0-30	X					X	X					Cobble/gravel
5	30		X				0-30	X					X	X					Cobble/gravel
6	30		X				0-30	X					X	X					Cobble/gravel

COMMENTS Storm Drift coverage on oil Band in the western section of this Segment is several meters in depth with up to 2 meters built up causing oil impact. Drift is from winter storms and would need to be removed for any clean up of impacted area. Continuous/Western portion of this Segment Area is High debris oiled/And Sub surface oiling.

SUBSURFACE OIL (CONTINUED)

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-DM)	BELOW		OIL / FILM COLOR						PIT ZONE				A N A	SUBSURFACE SEDIMENTS
		OF	OR	OL	OF	NO		DO	DC	1	2	3	4	5	6	SO	LI	MI	U		
7	30	X					0-30	X					X	X		X					Boulder / pebbles
							.														
							.														
							.														
							.														
							.														
							.														
							.														
							.														
							.														
							.														
							.														
							.														
							.														
							.														

COMMENTS Beyond Pit 7 Bedrock / Boulder subsurface conditions

REVIEWED 3A1 DATE 12 Apr 90

SHORELINE ECOLOGICAL SUMMARY

REVISION: 02/22/90

Segment ST / US-1 Subdivision A Date (mo / day / yr) 4 / 10 / 90Time (24 hr) 9:00 Biologist SPIGHT

A) Substrate type and % of segments:

(1) Bedrock 60 (2) Boulder 30 (3) Cobble 10 (4) Pebble (5) Sand (6) Silt (B) Overall % cover of biota (% of segment): Dense 35 Moderate 35 Low 30

(C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs:

Roll No. Frames

BARNACLES

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	X	2	2	2	2	X	2	X	2	2	2
3	X	3	3	3	3	X	3	X	3	3	3
4	X		4	4	4	X	4	X	4	4	4
5			5	5	5	5	5	5	5	5	5
6	6		6	6	6	6	6	6	6	6	6

NOT PRESENT

MYTILUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	X	X	X
3	3	3	3	3	3	3	3	3	X	X	X
4	4	4	4	4	4	4	4	4	X	X	X
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

GASTROPODS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
X	X	2	X	2	2	2	2	X	2	2	2
X	X	3	3	3	3	3	3	X	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

FUCUS

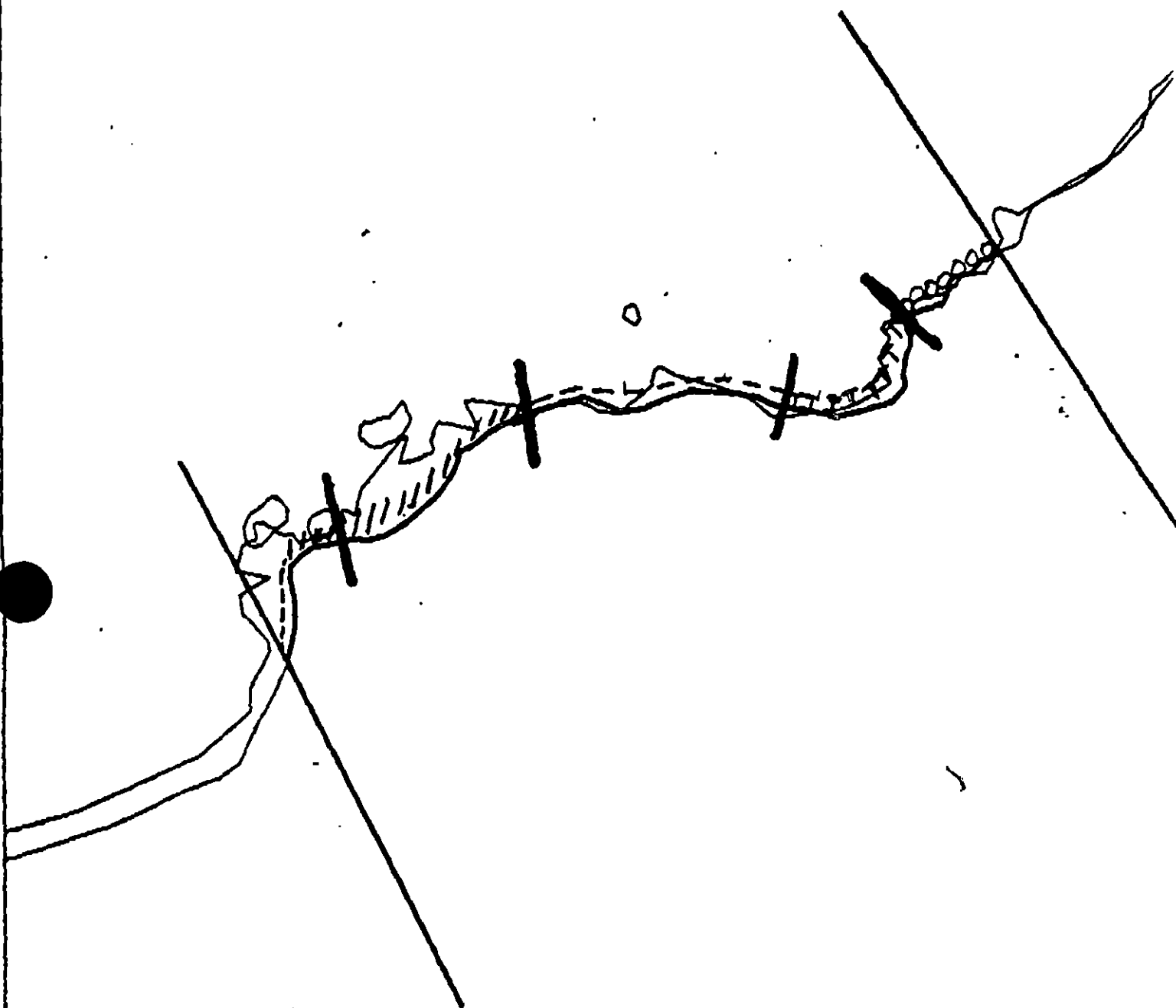
Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	X	X	2	2	2	2	2	2	X
3	3	3	3	3	3	X	X	3	3	3	X
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

Wildlife Observations/ General Comments:

Ecological Considerations:

Extremely diverse area in types of habitats. Tide pools with eelgrass. Lower levels of seaward face covered with "little kelp"



XXXX Wide

US-1

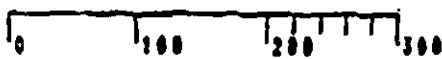
/// Medium

--- Narrow

ADEC Segment Length: 987m

TTTT Very Light

OOOO No Oil



Map Key: KEN-132

Name: Sherton

Date: 4/10/90

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT US-1 SUBDIVISION A (1 of 1)

WORK WINDOW	
Manual Pickup Oiled Log Burning	OPEN
Bioremediation	OPEN

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

5R Seabird Colony

NO CONSTRAINT. The work area is more than 800m from the nearest seabird colony.

OTHER ECOLOGICAL CONSIDERATIONS

Avoid any unnecessary disturbance or damage to unrolled biota and substrate.

TAG APPROVAL DATE 6/01/90

ADEC Ray Manna's Ray Manna

EXXON Amey GAO

NOAA G.H. Baker

USCG G.H. Baker

FOSC

D.D. Horne, CD, USCG
Acting

DATE

6/2/90

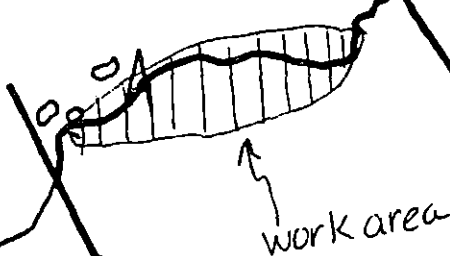
Prepared By: Anda Manna W.K.

Date

5/31/90

US-1

US-2



work area



Exxon Company, USA
Map Kait KEN-US-1



ECOLOGY MAP
SEGMENT US-1
SUBDIVISION A (1 of 1)
METERS



Seabird Colony



Eagle Nest

SHORELINE EVALUATION

SEGMENT ST/ US-01 SUBDIVISION A (1 OF 1) DATE 4/10/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Possible Seabird colony 5R (5/1 to 9/1)

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: Charles E. Homan

DATE: 4/20/90

OILING CATEGORIZATION:

Wide 0 m: Medium 297 m: Narrow 362 m: V.Light 185 m: No Oil 143 m
Subsurface Oil Observed: Yes X No Maximum Depth 30+ cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat: <u> </u> Breakup	<u> </u> Beach Cleaner
<u> </u> Removal	<u>X*</u> Other (see comments)

COMMENTS: Recommend (a) manual pick up of mousse, pooled oil, and oil-
ed debris (debris, trash and vegetation), (b) burning of oiled logs
with more than 10% coverage and splash impact, and (c) bioremediation
as noted on sketch map. Work should be conducted only with permission
of ADF&G and USFWS due to seabird colony constraint.

TAG COMMENTS: MONITORS TO RE-EVALUATE THE NEED TO BURN
THE LOGS AT TIME OF TREATMENT.

TAG APPROVAL DATE: 4/20/90

ADEC ART WEINER
EXXON ANDY TEELE
NOAA Bruce Werrett
USCG KENNETH KEANE

FOSC: WJL

DATE: 4-28-90

Use least intrusive method possible on this
high energy beach before resorting to highly
intrusive method - may have to let next winter's
storm actively mitigate problem and attack next

SHORELINE EVALUATION

SEGMENT ST/ US-01 SUBDIVISION A (1 OF 1) DATE 4/10/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Possible Seabird colony 5R (5/1 to 9/1)

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE [Signature]

DATE: 4/20/90

OILING CATEGORIZATION:

Wide 0 m: Medium 297 m: Narrow 362 m: V.Light 185 m: No Oil 143 m
Subsurface Oil Observed: Yes X No Maximum Depth 30+ cm

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☒ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☒ Bioremediation	☐ Spot Washing: <u> </u> Wands
☐ Tarmat: ☐ Breakup	☐ Beach Cleaner
☐ Removal	☒ Other (see comments)

COMMENTS: Recommend (a) manual pick up of mousse, pooled oil, and oil-
ed debris (debris, trash and vegetation), (b) burning of oiled logs
with more than 10% coverage and splash impact, and (c) bioremediation
as noted on sketch map. Work should be conducted only with permission
of ADF&G and USFWS due to seabird colony constraint.

TAG COMMENTS: MONITORS TO RE-EVALUATE THE NEED TO BURN
THE LOGS AT TIME OF TREATMENT.

TAG APPROVAL DATE: 4/20/90

ADEC ART WEINER

EXXON ANDY TGAZ

NOAA Burl Wescott

USCG KENNETH KEANE

FOSC: [Signature]

DATE: 4-28-90

Use least intrusive method possible on this
high energy beach before resorting to highly
intrusive method - may have to let next event
storm actively mitigate problem and attack next
spring.

OG StationSEGMENT ST/ US-1SUBDIVISION ADATE 4/10/80

CHECKLIST

- ☒ N Arrow
- ☒ Approx. Scale
- ☒ Seg/Sub Bndry
- ☒ Oil Dist.
- ☒ Width
- ☒ Length
- ☒ % Cover
- ☒ Substrate Character
- ☒ Est. HWA/LWT
- ☒ SSI
- ☒ Profile Location(s)
- ☒ Photo Location(s)
- ☒ Photo Location(s)

LEGEND

1 Δ
P1 - No Subsurface Oil2 Δ
P1 - Subsurface OilCT/C
Continuous DistributionCT/B
Broken DistributionCT/P
Patched DistributionCT/S
Splashed Distribution

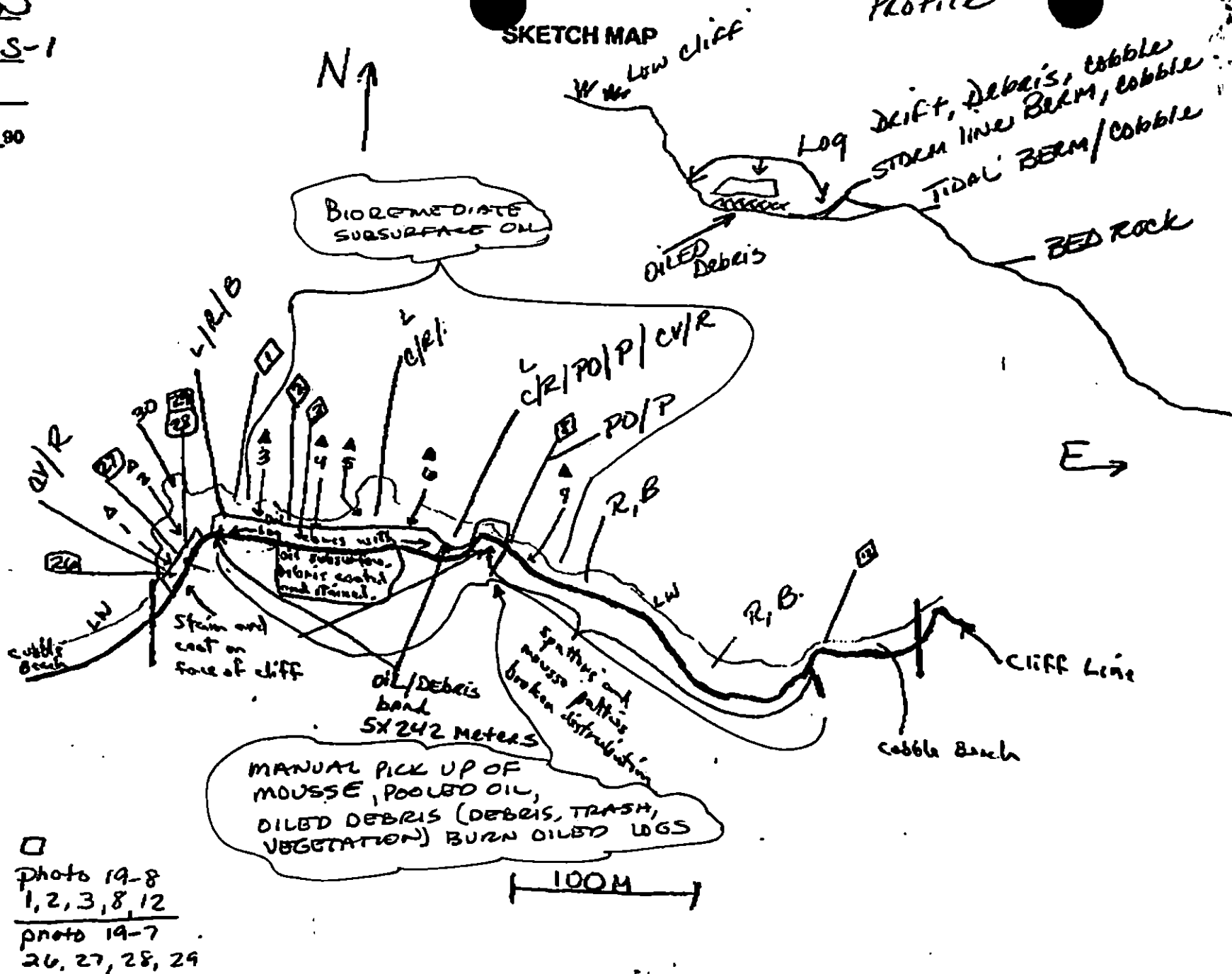
Oiled Vegetation

1 $\Rightarrow$
Photo location, direction,
and number

$\square$
photo 19-8
1, 2, 3, 8, 12
photo 19-7
26, 27, 28, 29

SKETCH MAP

Profile

Oil Character Length (m): AP 0 PO 100 CV 20 CT 400 ST 800 MS 400 PT 0 TB 0 FL 1000 NO 200

REVISED 10/24/79

APR-10-1980

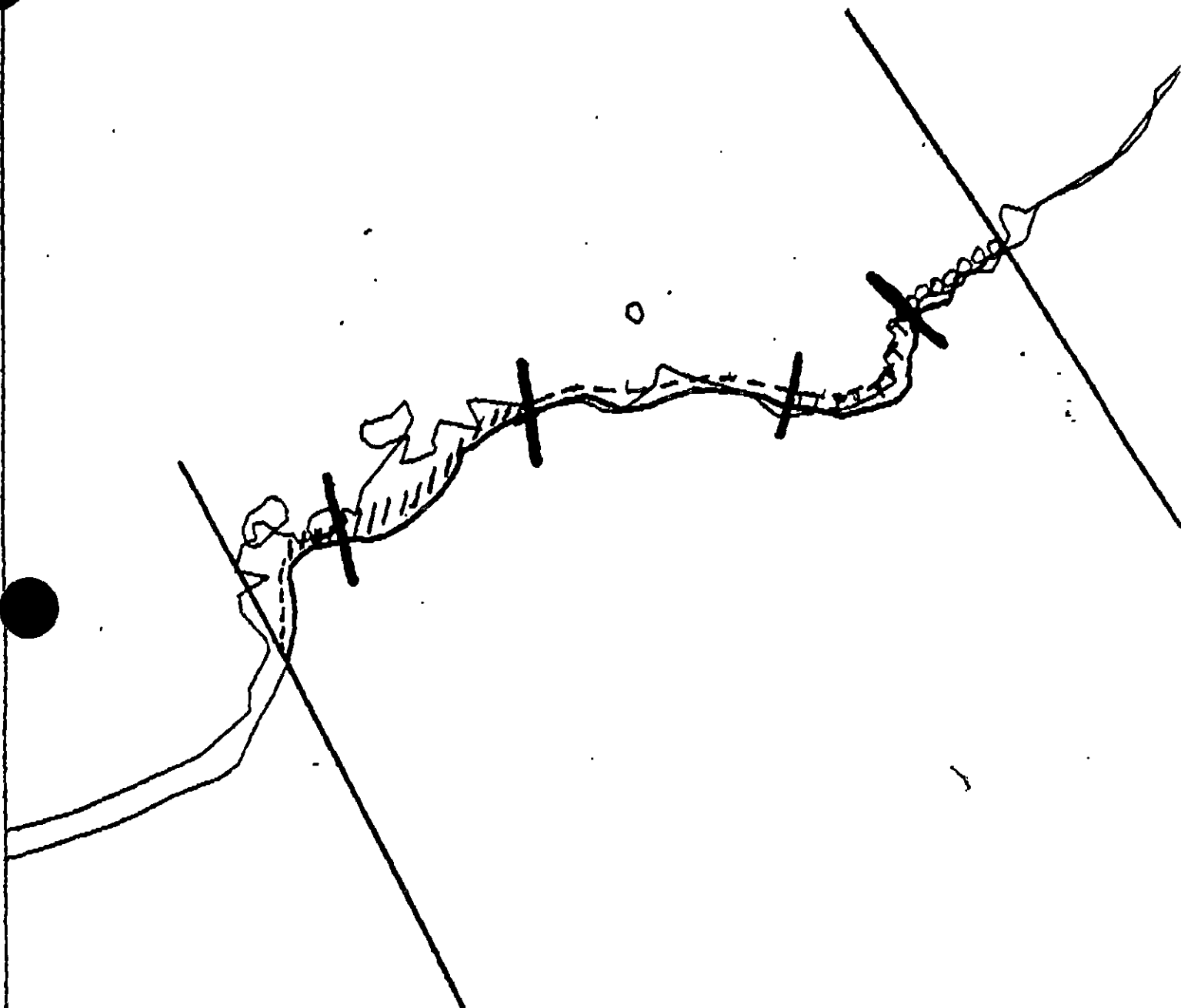
15:24 FROM

EXXON KODIAK

TO

15643771

P.03



XXXX Wide

US-1

Map Key: KEN-132

/// Medium

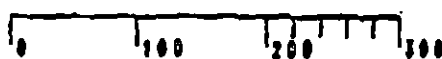
Name: Shelton

--- Narrow

ADEC Segment Length: 987m

Date: 4/10/90

TTTT Very Light



OOOO No Oil



WORK PLAN ADDENDUM

Segment US-001 Subdivision A Dated 5/16/90

MODIFICATION

1. REASON FOR MODIFICATION

- FOSC requirement.
- Landowner recommendation.

2. ADJUSTMENT TO WORK PLAN

- A USFWS representative must be onsite for treatment.
- Access after May 1 permitted with special instructions from the Refuge. Manager of the Alaska Maritime National Wildlife Refuge.
- Customblen may be used in the ITZ only.

SHPO. APPROVAL NEEDED YES _____ SHPO SIGNATURE _____
NO X

TAG APPROVAL DATE 5/18/90.
ADEC Art Weiner Art Weiner
EXXON AMOY TOL Deal
NOAA Gary Petrac Gary Petrac
USCG G.A. Deiter G.A. Deiter

FOSC DATE 5-18-90

1991 MAYSAP EVALUATION

SEGMENT: US 001 SUB: A REGION: PWS ^{KEN} SURVEY DATE: 5/6/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 5/15 - 9/1

Ecological/Constraints (see page two for details) Seabird colony

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: Rebel Sam Dan Date: 5/22/91

RECOMMENDATIONS:

	INITIAL	TAG	FOSC
TREATMENT REQUIRED (Y or N)	<u>N</u>	<u>N</u>	<u>N</u>
Manual Pickup (Check as Req.)	<u> </u>	<u> </u>	<u> </u>
Spot Washing	<u> </u>	<u> </u>	<u> </u>
Bio-Customblen Only	<u> </u>	<u> </u>	<u> </u>
Bio-Inipol/Customblen	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>	<u> </u>

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: MAY 22 1991 FOSC APPROVAL DATE: 6/1/91

ADEC [Signature] FOSC [Signature]

EXXON [Signature] E. E. PAGE, CDR, USCG
CHIEF OF STAFF, FOSC

USCG [Signature]

NOAA [Signature]

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Seabird Colony: Access restricted. USF&WS authorization required after 5/15. Maintain 1000' vertical and 1/2 mile horizontal buffer.

ADEC

NAME Steve Ferguson SIGNATURE _____

☒ NTR ☐ TREATMENT RECOMMENDED

NO TREATMENT RECOMMENDED ON US-1A. A THOROUGH SURVEY WAS CONDUCTED OVER THE ENTIRE SEGMENT. THE OH MAPS OF SURVEY ARE REPRESENTATIONAL OF WHAT WAS OBSERVED. SITES (C), (F), (G), (I) OF SKETCH MAP ARE THE AREAS VECO CLEAN UP WORKERS ADDRESSED (PICKED UP APPROX. 80 LBS OF OILED SEDIMENTS). DUE TO REMOTE LOCATION, HIGH ENERGY BEACH/ROCKY HEADLANDS, IT WOULD NOT BE PRACTICAL TO RETURN TO US-1A FOR 2-4 HOURS WORK. [MOST OF THE EFFORT WOULD BE GETTING TO AND OUT OF OILED AREAS]

EXXON

NAME George Stiles SIGNATURE George P. Stiles 5/7/91

☒ NTR

The oil remaining is located in the high MZ zone with splash/trace distribution in the bed rock cracks, around edges of the large boulders. The high energy wave action is cleaning the beach nicely. Also, the area would be difficult to access with a Zodiac type boat due to the numerous submerged boulders and the strong wave action.

LANDMANAGER

NAME John Hardister OF USFWS SIGNATURE John P. Hardister 5/7/91

☒ NTR

Remaining oil located in cracks, crevices and interstices of protected rocks ... high energy coastline ... these two factors are paramount to conclusion that no treatment would be meaningful in terms of environmental improvement or from an economic standpoint.

USCG/NOAA

NAME CWO SPURR/R. Hoff SIGNATURE R. Hoff / Rebecca Hoff

☒ NTR

Remaining oil is inaccessible + in very small amounts. Some oil in between boulders was picked up. High energy wave action should weather the remaining oil.

TEAM NO. 6OG D. F. T. GERALDBIO H. DAVISSEGMENT US-1ADEC S. FERGUSONLANDMANAGER J. Hardister for USFWSSUBDIVISION AEXXON G. StilesCWO SPURK
USCG/NOAA R. HoffDATE 6 May 1991TIME 12:20 to 14:15TIDE LEVEL 6 ft. to 3 ft.ENERGY LEVEL: ☒ H ☐ M ☐ LSURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELOWEATHER: ☐ SUN ☒ CLOUDS ☐ FOG ☒ RAIN ☐ SNOWTOTAL LENGTH SHORELINE SURVEYED: 990 mNEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONEEST. OIL CATEGORY LENGTH: W - m M - m N 36 m VL 195 m NO 659 m US 110 m

L O C	SURFACE OIL CHARACTER										SURFACE SEDIMENT TYPE	SHORE SLOPE V H M L	AREA		ZONE				NOTES
	AP	MS	TB	SOR	CV	CT	ST	FL	DB	NO			WIDTH m	LENGTH m	S	UI	MI	LI	
A						P	P				BR	M	2	3		X			Sheltered side of bedrock
B						T	T				BR, B	M	2	100		X			Back side of BR + B
C				S							CPB	M	1	2		X			Light (some removed)
D		T				T	T				BR, B	M	1	30		X			weathered mounds in cracks
E		T				T	T				BR, B	M	1	40		X			
F		P		P							BR, B	M	1	1		X			Light, backside of B, some removed
G		T				T	T				BR, B	M	2	15		X			
H		S				S	S				B	M	2	10		X			Cracks in BR, betw Boud.
I		S		S							B, C, BR	M	2	5			X		Mod to heavy in pockets
J						P	P				BR	M	2	30		X			on bedrock wall

DISTRIBUTION: C = 91-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = <1%

SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE PHOTO ROLL # MAYSAP- 6 - 08 FRAMES 2-6

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER							OILED ZONE cm-cm	CLEAN BELOW Y/N	H2O LEVEL (cm)	SHEEN COLOR B R S N	PIT ZONE				SURFACE-SUBSURFACE SEDIMENTS	NOTES
		OP	HOR	MOR	LOR	OF	TR	NO					S	UI	MI	LI		
1	20							X	-					X			C/P	Adj. to SOR area
2	25							X	-					X			C/P	Adj. to SOR area
3	10			X					0 - 7	Y	4	B			X		C/P	Pocket in BR
4	20				X				0 - 10	Y	10			X			C/P	Interstitial
5	40							X	-					X			CPGS	
									-									
									-									
									-									
									-									

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

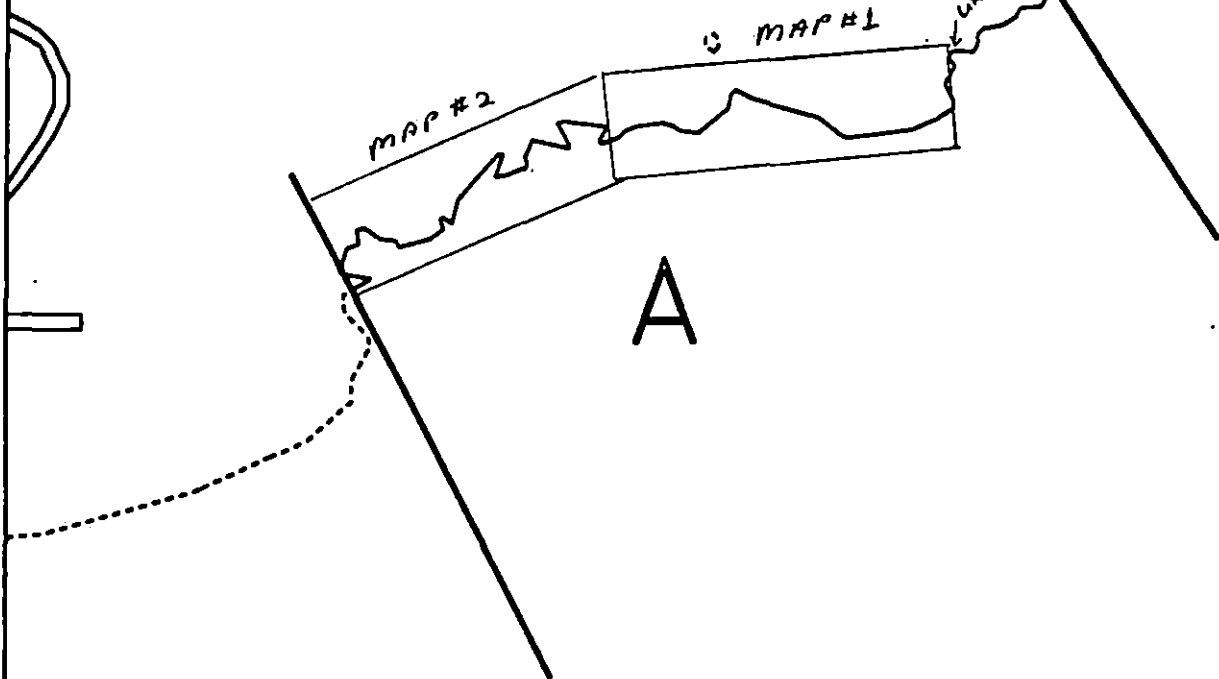
OG COMMENTS: This segment consists of two small, pocket gravel (Cobble/Boulder) beaches separated by a narrow to moderately wide, wavecut bedrock platform with an overlying discontinuous carpet (0-30 cm) of boulders, cobbles, and some finer-grained sediment. Can-sized isolated boulders and bedrock outcrops front many areas of the shoreline. The oil is found along southwestern two thirds of the segment occurring mostly in trace amounts as CT/ST on protected sides of boulders and bedrock outcrops and in isolated pockets of MS/SOR in cracks of the bedrock and between boulders. Depth of the oil is limit by the underlying bedrock platform. The large wave energy and existence of sizeable boulders make boot landing of this beach extremely difficult.

2 Bags of oily sediments retrieved from beach.

revised 5/1/91 XG

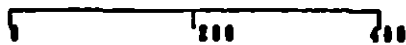
REVIEWED CB 12 MAY

S-1



US001 A

METERS



AK State Plane Zone 4
NAD83

Subdivision Field Map

Map Key: KENUS001A

Name: Fitzgerald

Date: 6 May 1991

x x Bedrock
 v v - Grass
 // - LOGS
 ↑ - PHOTOS

SKETCH MAP (OG)
 US-1A
 (MAP 1 of 2)
 DUNCAN M. FITZGERALD
 6 MAY 1991
 1220 - 1415

MAP # 2
 MAP # 1

Gulf of ALASKA

C.
 SOR at UETZ
 1 x 2m 10%
 IN large crevice
 (Collected 1/2 bag)

Bedrock Platform
w/ overlying boulders

Oil Net
Pickup

A.
 CT-ST at UETZ
 2 by 3m, 20%
 Sheltered side
 of Bedrock

B.
 CT-ST, WITH
 2 by 100m
 < 1% backside
 of boulders

D.
 CT-ST, < 1%
 MS, < 1%
 1 x 30m at UETZ
 IN cracks of bedrock

ISOLATED CAR-SIZED
Boulders

EAST
END OF
SEGMENT

Assume
 east end of
 surveyed
 portion of
 segment

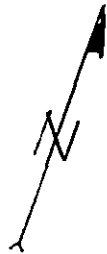
WATERFALL

Cobble-Boulder
Beach

CLIFFS

Waterfalls

Grass-covered
uplands



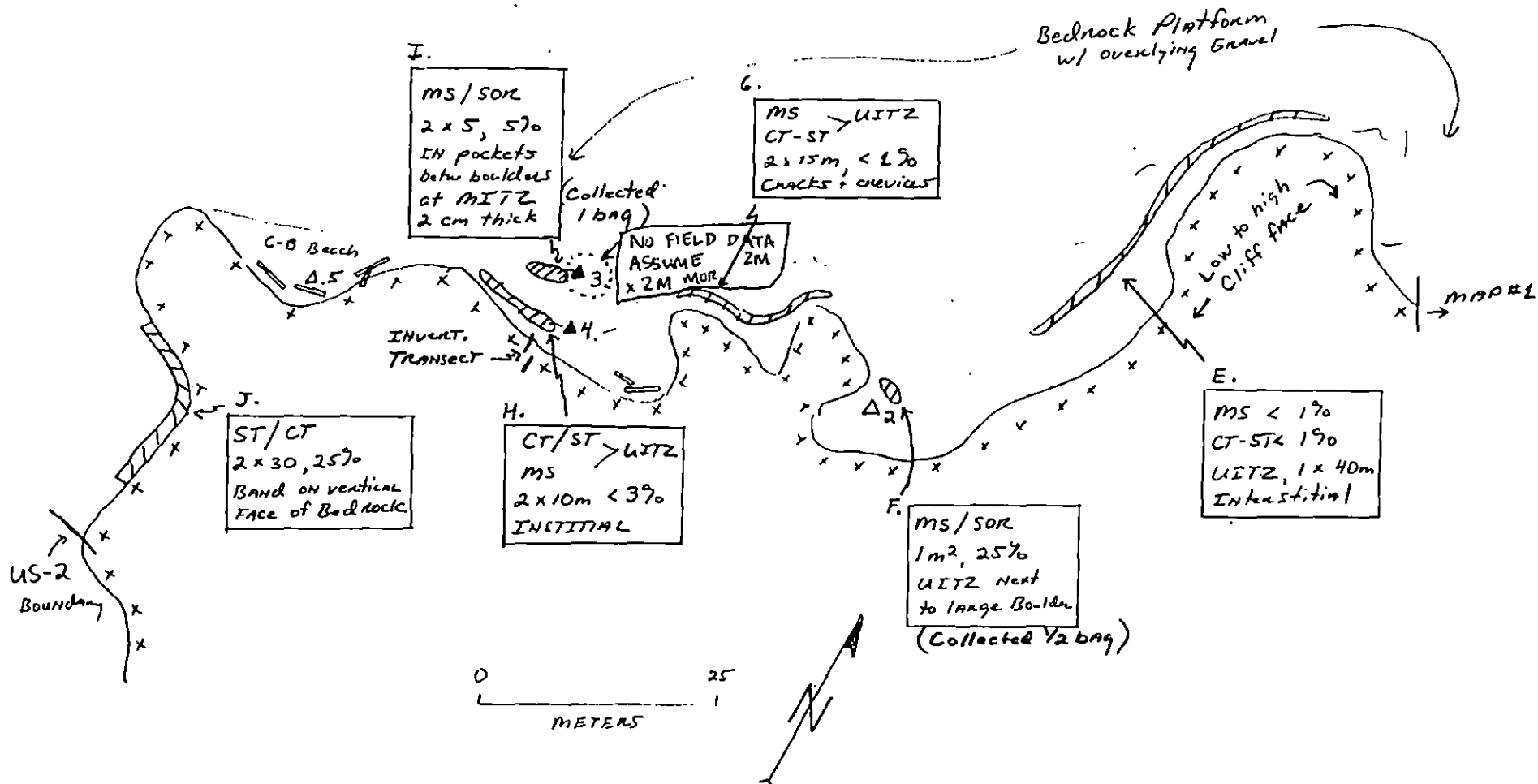
0 50
 METERS

revised 5/19/91 KG
 REVIEWED CB 12 MAY

- Bedrock
- vvv Grassy uplands
- Log
- ★ PHOTO LOCATION

Sketch MAP (06)
 US-1A
 MAP 2 of 2
 6 MAY 1991
 1220 - 1415
 DUNCAN M. FITZGERALD

GULF OF ALASKA



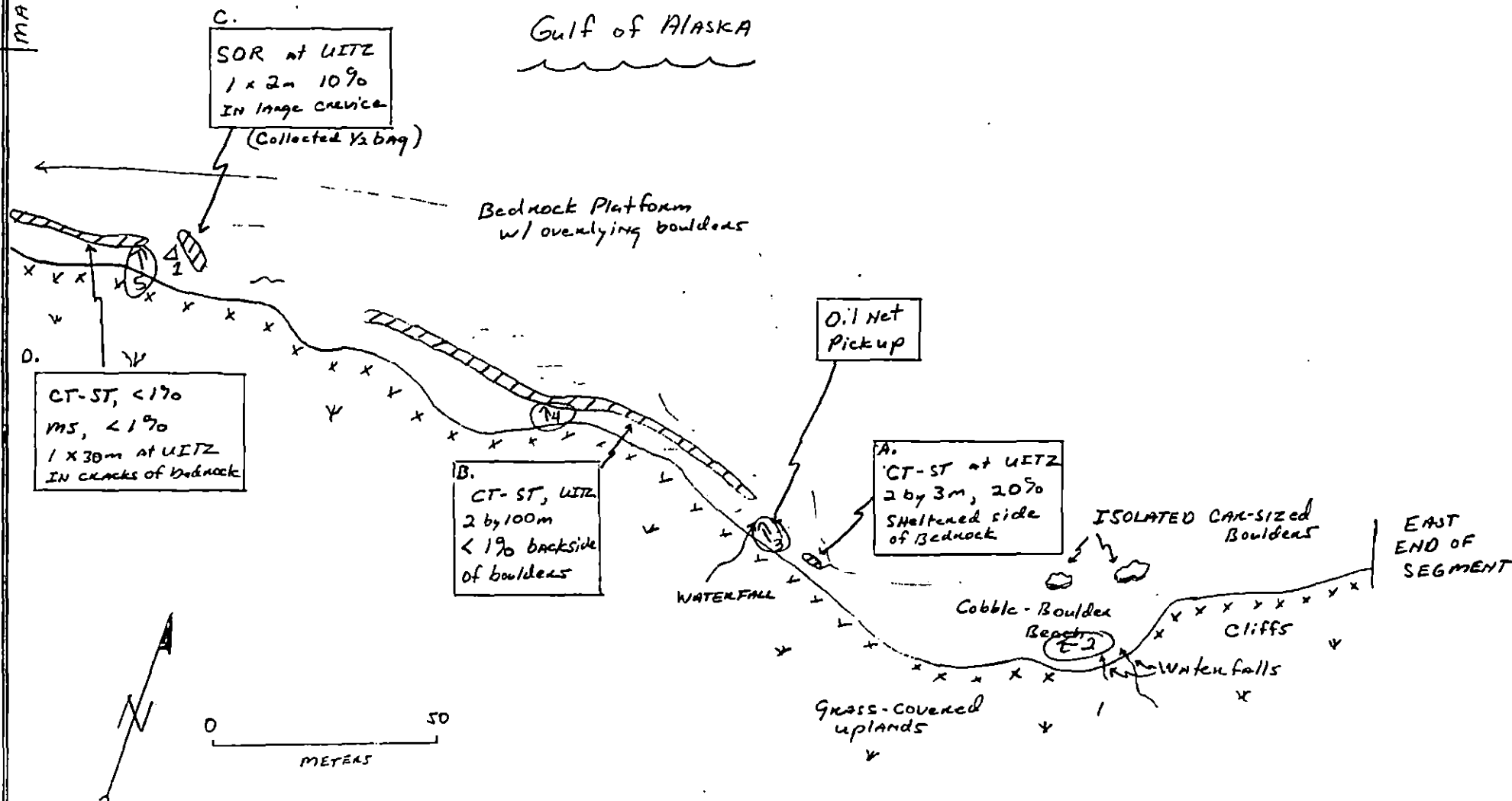
Reviewed SP191 KC
 REVIEWED CB 12 MAY

x Bedrock
 VII - Grass
 LOGS
 PHOTOS

Photo locations Mapap 08
 #2-6

SKETCH MAP (06)
 US-1A
 (MAP 1 OF 2)
 DUNCAN M. FITZGERALD
 6 MAY 1991
 1220 - 1415

MAP #2
 MAP #1

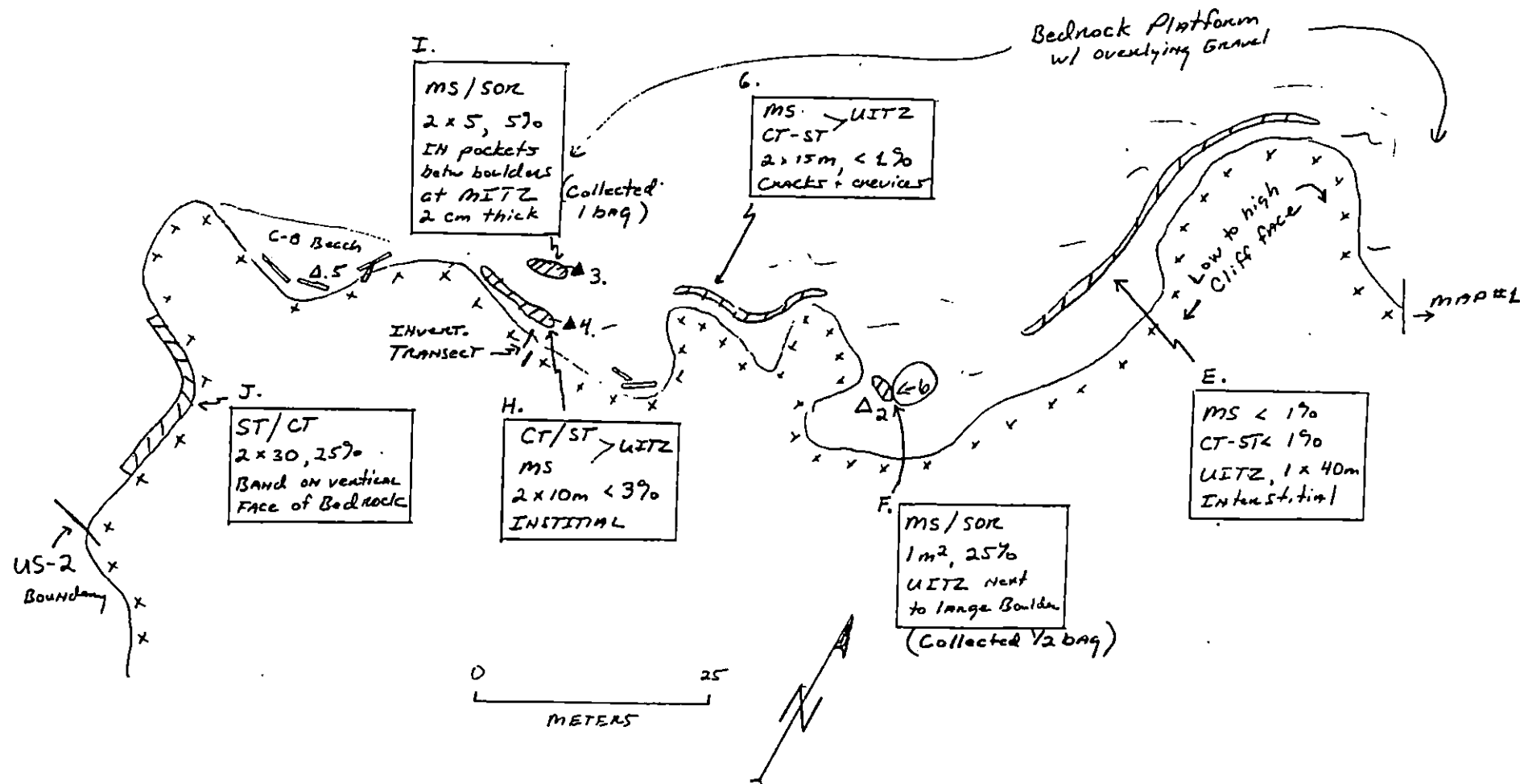


- Bedrock
- ~ Grassly uplands
- ⚡ Log 5
- ➔ PHOTO LOCATION

Photo locations (cont.)

Sketch map (OG)
 05-1A
 MAP 2 of 2
 6 MAY 1991
 1220 - 1415
 DUNCAN M. FITZGERALD

GULF OF ALASKA



MAYSAP BIOLOGICAL SUMMARY FORM

TEAM #6

DATE May 6 1991

SEGMENT # US-1

TIDAL HEIGHT(Range) 6ft to 3ft (1220-1400)

SUBDIVISION A

BIOLOGIST H. Davis

SEA STATE 3'

WIND SPEED/DIRECTION Gusty N/NE

PHOTOGRAPHS: ROLL #6-08

FRAME #2-6

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

A, F Oil well above intertidal biota some Verrucaria (sp?)
 B, D, E, G Filamentous greens, a few barnacles and littorines are in the oiled area. Where oil had stained Verrucaria (sp?) covered rocks, the oil appears to have weathered away leaving a negative of the oil stain i.e. clean spots outlined by the fichen. These negatives are being colonized by filamentous greens and porphyra.
 C. Littorines, Filamentous greens at the lower end of this area.
 H. Oiling started at the bottom of the verrucaria band and extended in patches down to the MLTZ. Littorines, Barnacles, Mussels, Pagurus species common. Porphyra, Filamentous greens, Petricolus and Fucus also growing around oil. In one area live mussels had grown in cracks with mousse.
 I. Mussels, Fucus, Petricolus, coralline algae, and littorines in scattered patches among scattered patches of oil.
 J. Stain and Coat at Verrucaria level. In some places oil has worn away leaving a verrucaria silhouette. Below the Bedrock face are surge channels with Gigartina (Mastocarpus) / Dradaca assemblage.
 This segment had a moderately diverse, low density rocky intertidal community. A lot of patchiness occurred possibly due to winter storm damage. There was a lot of new algal growth. No barnacle recruitment seen and very few barnacles are present.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1 immature	tid pool sculpins
Seabirds Loon, cormorants	2	4	Monkey faced eel (?)
Waterfowl Duck	1	2	
Gulls/Kittiwakes	3	20	
Shorebirds	4	20	
Corvids Ravens	1	5	
Other Birds Hawker (Noddy)	1	1	

Hawk over the uplands.

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	0	0	
Pinnipeds (specify)	0	0	
les (specify)	0	0	

Shoreline subdivision map showing important biological features attached.

REVIEWED CB 12 MAY
 Reviewed M.B. 5/10/91

xx - Bedrock
 /// - Grassy
 <- LOGS
 ↑ - PHOTOS

Bio Map
 Heather Davis

SKETCH MAP (06)
 U5-1A
 (MAP 1 of 2)
 DUNCAN M. FITZGERALD
 6 MAY 1991
 1220 - 1415

MAP #2
 MAP #1

Gulf of ALASKA

C.
 SOR at UETZ
 1 x 2m 10%
 IN large crevice

Bedrock Platform
 w/ overlying boulders

High Energy Rocky intertidal community (mostly continuous) The community is moderately diverse. Scleractinian green + lithoines in UETZ, Fuus some Mussels Odonthalia, encrusting corallines in MTZ, Red algae blades and laminarias in LTZ. Nereocystis beds off shore In areas with larger rocks for protection Density of plants and animals increase.

Oil Net
 Pickup

Cobble/Boulder Beach with some barnacles, Fuus and lithoines Low Density populations.

D.
 CT-ST, <1%
 ms, <1%
 1 x 30m at UETZ
 IN cracks of Bedrock

B.
 CT-ST, WITH
 2 by 100m
 <1% backside
 of boulders

A.
 CT-ST at UETZ
 2 by 3m, 20%
 Shaded side
 of Bedrock

ISOLATED CAR-SIZED
 Boulders

Nereocystis Bed
 EAST
 END OF
 SEGMENT

WATERFALL

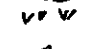
Cobble-Boulder
 Beach

Waterfalls

Grass-covered
 uplands

0 50
 METERS

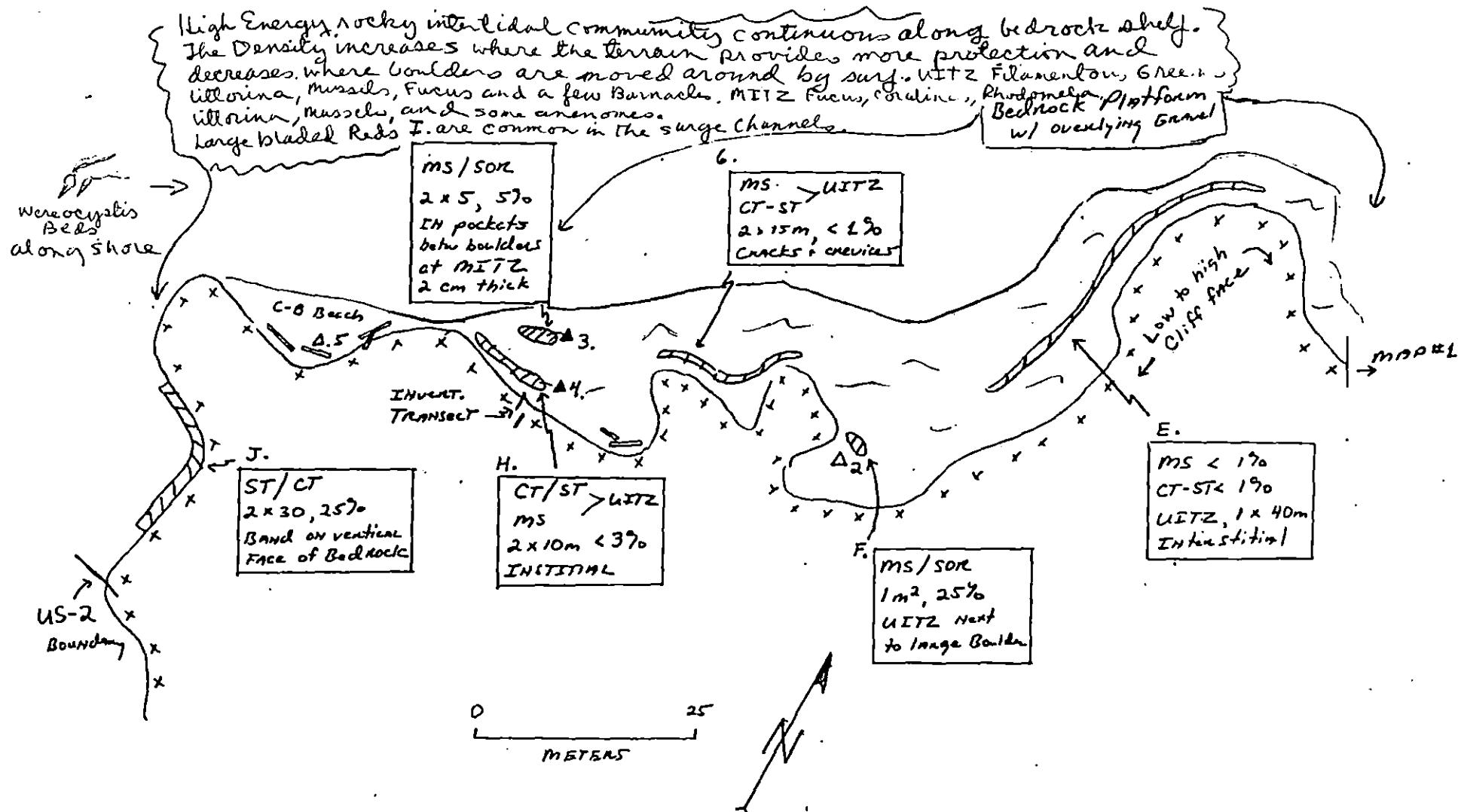
Reviews M.B. 5/10/91

 Bedrock
 Grassy uplands
 Log 5
 PHOTO Location

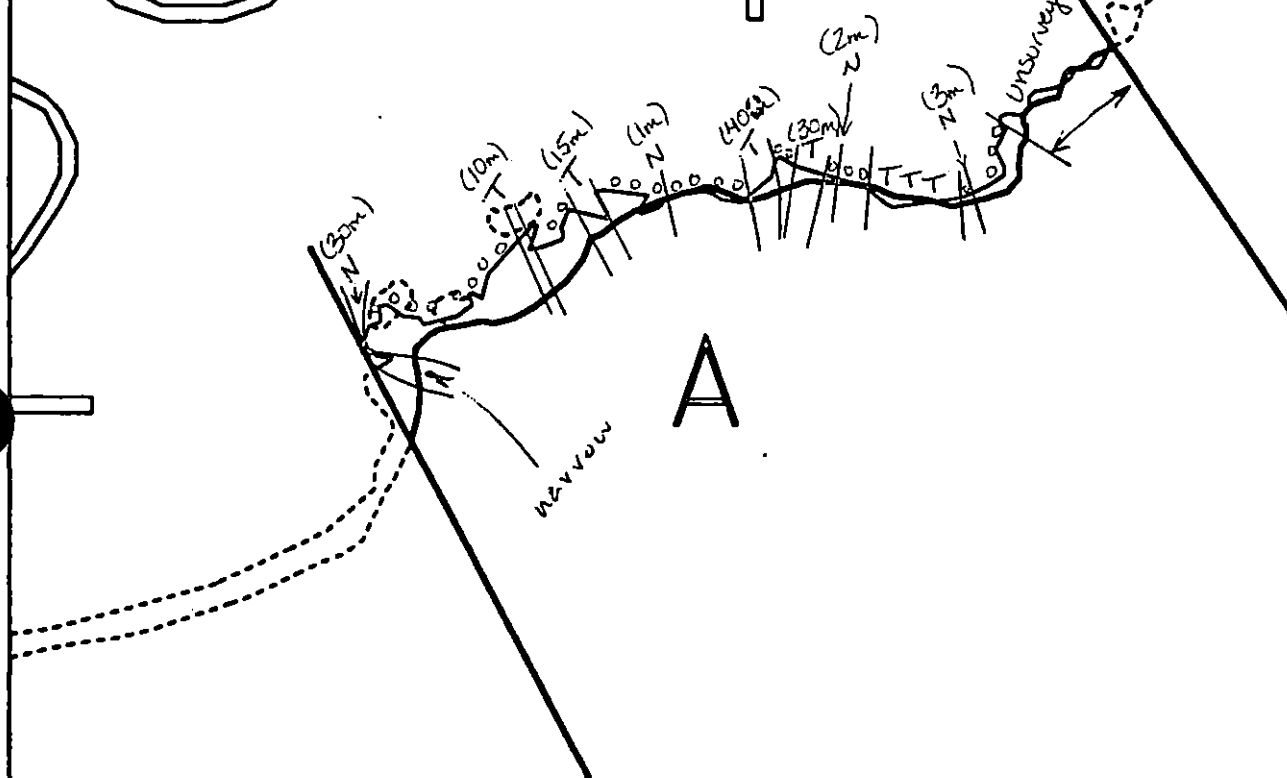
Bio Map
 Heather Davis

Sketch MAP (OC)
 US-1A
 MAP 2 of 2
 6 MAY 1991
 1220 - 1415
 DUNCAN M. FITZGERALD

GULF OF ALASKA



S-1



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

US001 A
 ADEC Subsegment Length: 987m
 METERS
 0 200 400
 AK State Plane Zone 4
 480010

Subdivision Field Map
 Map Key: KENUS001A
 Name: D. Fitzgerald
 Date: 16 May 1971
 Date Entered:

revised 5/19/71 KG
 REVISSED 05 17 MAY

REGION: KENAI

SEGMENT: ST/US-02

SUBDIVISIONS: A (1 OF 1)

SHORELINE EVALUATION

SEGMENT ST/ US-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

No specific constraints identified.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time.

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 0 m: Medium 187 m: Narrow 1174 m: V.Light 0 m: No Oil 0 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 30+ cm

RECOMMENDATIONS:

☐ No Treatment Recommended	☐ Snare/Absorbent Booms
☒ Treatment Recommended	☐ Oil Snares (pom poms)
☒ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☒ Bioremediation	☐ Spot Washing: _____ Wands
☐ Tarmat: ☐ Breakup	☐ Beach Cleaner
☐ Removal	☒ Other (see comments)

COMMENTS: Recommend manual pick up of mousse, oiled debris, and oiled trash, and burn oiled logs if more than 10% coverage and splash impact as indicated on sketch map. Also recommend relocation of 150m x 30m x 30cm material (pits 12, 13, and 14 on sketch map) from SUTZ to MITZ and bioremediate; a bobcat-type vehicle with high flotation tires/tracks is recommended for relocation of materials.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

FIELD SHORELINE COMMENT SHEET

SEGMENT ST / US-2 SUBDIVISION: A DATE 4-9-90NOAA
1500

NAME

John Naughton

SIGNATURE

John J. Naughton☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

This area appeared to have been mainly oiled last year and then oil covered by beach cobbles during storm. Also much oiled debris pushed into a storm berm, much oil mixed with rotting kelp and seaweed. Oil subsurface in area at east end of segm approximately 150m x 40m. Bay for greatest impacts east of head in middle of segment. In subsurface zone pits dug indicate oil at least 30 cm deep.

ADEC

NAME

Scott Whelan

SIGNATURE

Scott Whelan☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

US-2USHA CAT I.1355 METERS WALKED

BY TEAM MEMBERS. STAIN/COATING OBSERVED ALONG THIS SEGMENT IN THE STORM TIDE DRIFT AREAS. ORGANICS MIX WITH OIL IMPACT FORMS A 200 METER BAND AT THE SUPRA-TIDAL TO UPPER TIDAL LEVELS.

150 x 30 METER ZONE OF BURIED OIL CAN BE LOCATED IN THE EASTERN MOST SECTION OF THIS SEGMENT. 3 PITS TO 30 CM OBSERVE OIL IN THE RESIDUAL FORMATS SATURATED/PENETRATION BEYOND 30 CM CAN BE SEEN. SCATTERED TALL KELP OBSERVED ALONG SEGMENT GRANULAR BE. MANUAL CLEANUP RECOMMENDED AT THIS DATE. HIGH SEAS 9:45 AM OBSERVE ON BEACH / MARINE DEBRIS HEAVY

LAND MANAGER

NAME

LINDA M. Hagen

SIGNATURE

Linda M. HagenUSFWS☐ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

Clean up is suggested for this area.

SHORELINE OILING SUMMARY

REVISION NO. 03/22/90

OG Penland ~~NOBA~~ 0000 Naughton SEGMENT ST/ US-2
 BIO Spight LAND REP Hagan SUBDIVISION A
 EXXON Byam ADEC Shelton TIME 10:45 to 10:12:00
 TEAM NO.: 19 TIDE LEVEL: +2.5 ft to +6 ft DATE 4/9/90
 EST. SUBDIVISION LENGTH: 1383 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☒ Grass ☐ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: W to E
 SURFACE SEDIMENTS: R 10 % B 10 % C 60 % P 10 % G 10 % S 0 % M 0 % V 0 %
 SLOPE: Long 70 % Hang 15 % Vert 15 % WAVE EXPOSURE: ☐ Low ☐ Med ☒ High
 OIL CATEGORY LENGTH: W 0 m M 200 m N 1135 m VL 0 m NO 0 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR						IMPACTED ZONES			
	IC	IM	IR	IS	SEL	DBL	GY	DER	TL	LR	SU	U	M	L
ASPHALT PAVEMENT														
POOLED														
COVER														
COAT			X	X										
STAIN			X	X										
MOUSSE			X	X										
PATTIES														
TARBALLS														
FILM														
NO OIL											X	X	X	

PAVEMENT: H F S 0 sq. m by 0 cmPATTIES / TARBALLS 0 BAGSNEAR SHORE SHEEN? ☒ NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs		X	
Vegetation			
Trash		X	
Debris		X	

DEBRIS COLLECTED

☐ YES ☒ NOTYPE NETS ROPE
FLUATS LINE#BAGS 25

Photographs:

Roll No. ST-19-7Frames 17-23

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CM)	BELOW		OIL / FILM COLOR						PIT ZONE				A N A	SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UC	SEL	DBL	GY	DER	TL	LR	SU	U	M	L		
1	30					X	.									X					Gravel
2	30					X	.									X					Gravel
3	30					X	.									X					Gravel
4	30					X	.									X					Gravel
5	30					X	.									X					Gravel
6	30					X	.									X					Gravel

COMMENTS

- stain and coat is observed in all of the log and debris line
- the central headland is coated and stain above the surficial line
- zone of buried oil in the eastern part of the beach 150 x 30m, depth of burial is 30cm and greater

SHORELINE OILING SUMMARY (PAGE 2 of 1)

REVISION 03/22/93

SEGMENT ST/ VS - 2 SUBDIVISION A

SUBSURFACE OIL (CONTINUED)

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CM)	BELOW		OIL / FILM COLOR								PIT ZONE				A N A	SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UG	UC	SL	OR	BL	RM	GF	BL	TL	LR	SU	UX	MI	LI		
7	30					X	-											X					Gravel
8	30					X	-											X					"
9	30					X	-											X					"
10	30					X	-											X					"
11	30					X	-											X					"
12	30		X				0 - 30	X			X							X					"
13	30		X				0 - 30	X			X							X					"
14	30		X				0 - 30	X			X							X					"
							.																"
							.																
							.																
							.																
							.																
							.																

COMMENTS

REVIEWED

BATDATE 12 Apr 90

OG Per

SEGMENT ST/ US-2

SUBDIVISION A

DATE 4 / 9 90

CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Bndry
- ☐ Oil Dist
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HVL/LVL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pli Location(s)
- ☐ Photo Location(s)

LEGEND

1 Δ

Pli - No Subsurface Oil

2 Δ

Pli - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

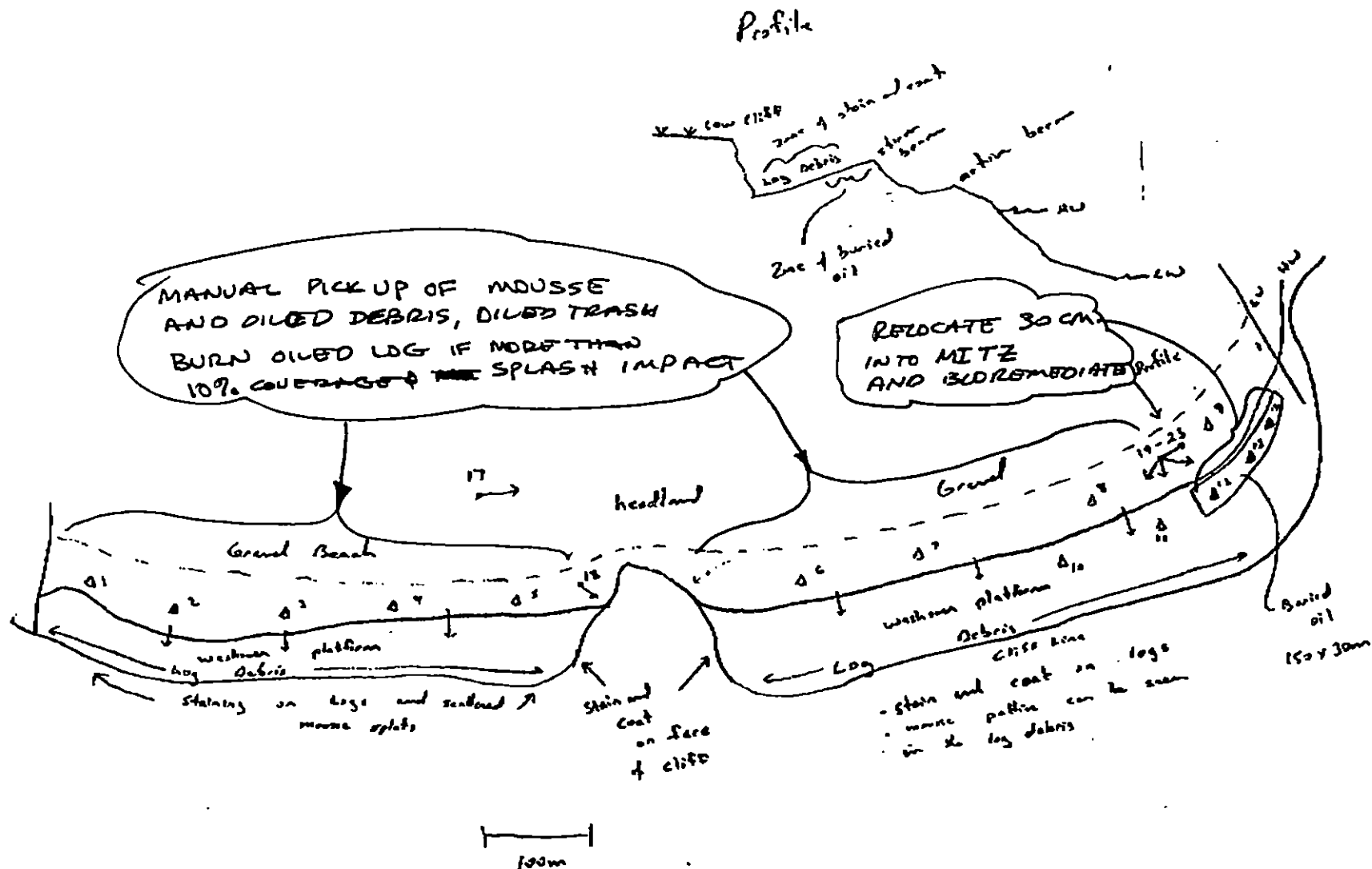
Splashed Distribution

Oiled Vegetation

1 →

Photo location, direction, and number

ETCH MAP



Oil Character Length (m): AP 0 PO 0 CV 0 CT 1355 ST 1355 MS 1355 PT 0 TB 0 FL 0 NO 0

REVISION 8/24/90

SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/22

Segment ST / US-2 Subdivision A Date (mo / day / yr) 4/9/90Time (24 hr) 10:44 Biologist SP/6HT(A) Substrate type and % of segments:
(1) Bedrock _____ (2) Boulder _____ (3) Cobble _____ (4) Pebble _____ (5) Sand _____ (6) Silt _____(B) Overall % cover of biota (% of segment): Dense _____ Moderate _____ Low 100

(C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs:
Roll No. _____

Frames _____

BARNACLES

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESEN

MYTILUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESEN

GASTROPODS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESEN

FUCUS

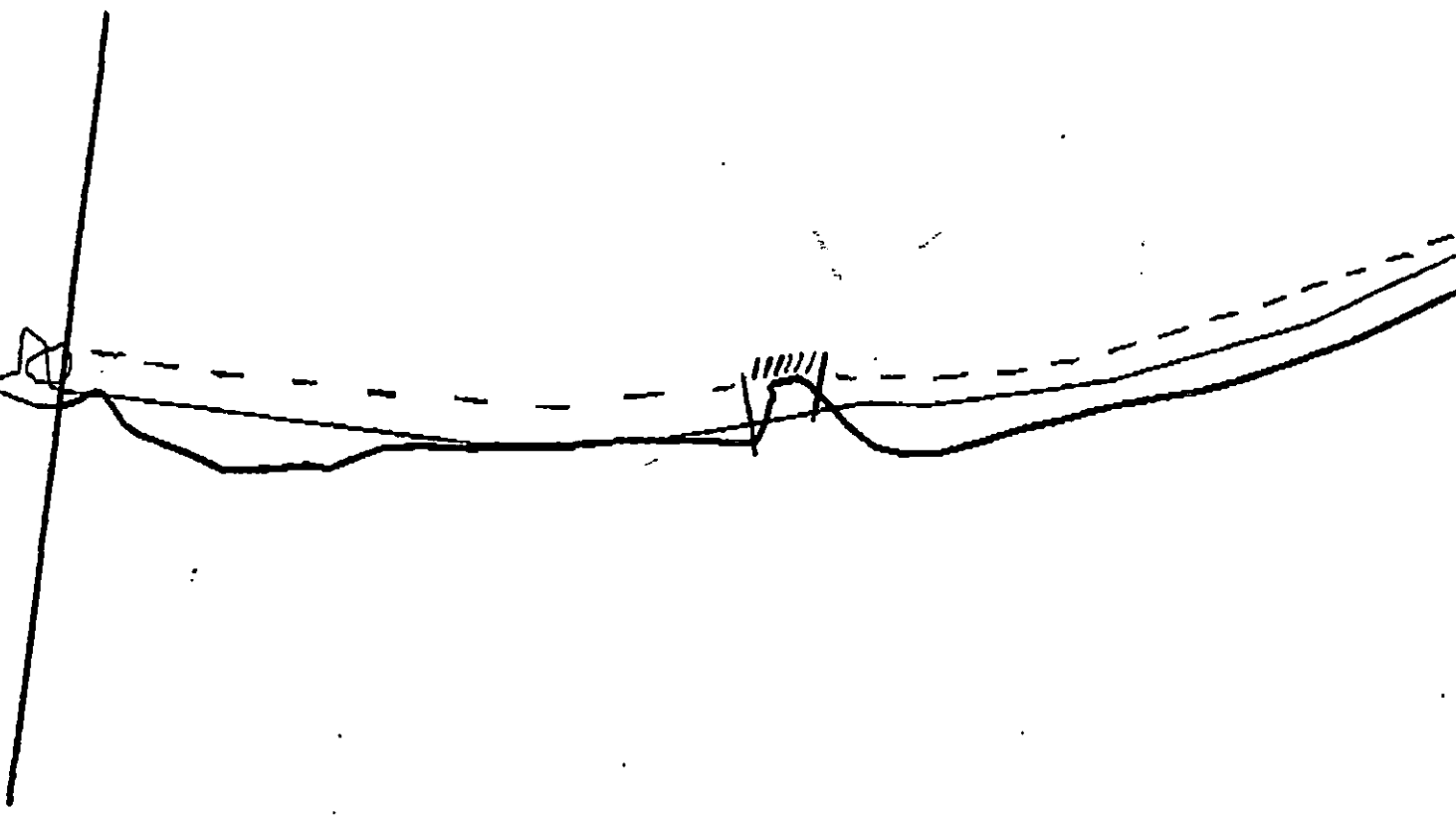
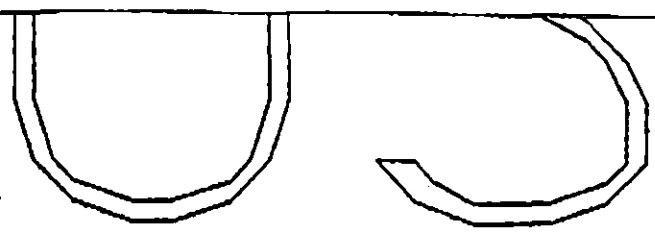
Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESEN

Wildlife Observations/ General Comments:

Ecological Considerations:

Normal fucus on headlands.
Outcrops at waterline and in mid-beach all scoured;
a few red algae + slime of greens; Stuck offshore in
mid-bay looks to have normal barnacles, etc.



400
1368 →

XXXX Wide

//// Medium

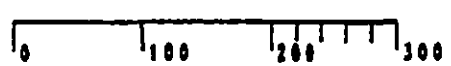
--- Narrow

TTTT Very Light

0000 No Oil

US-2

ADEC Segment Length: 1361m



METERS

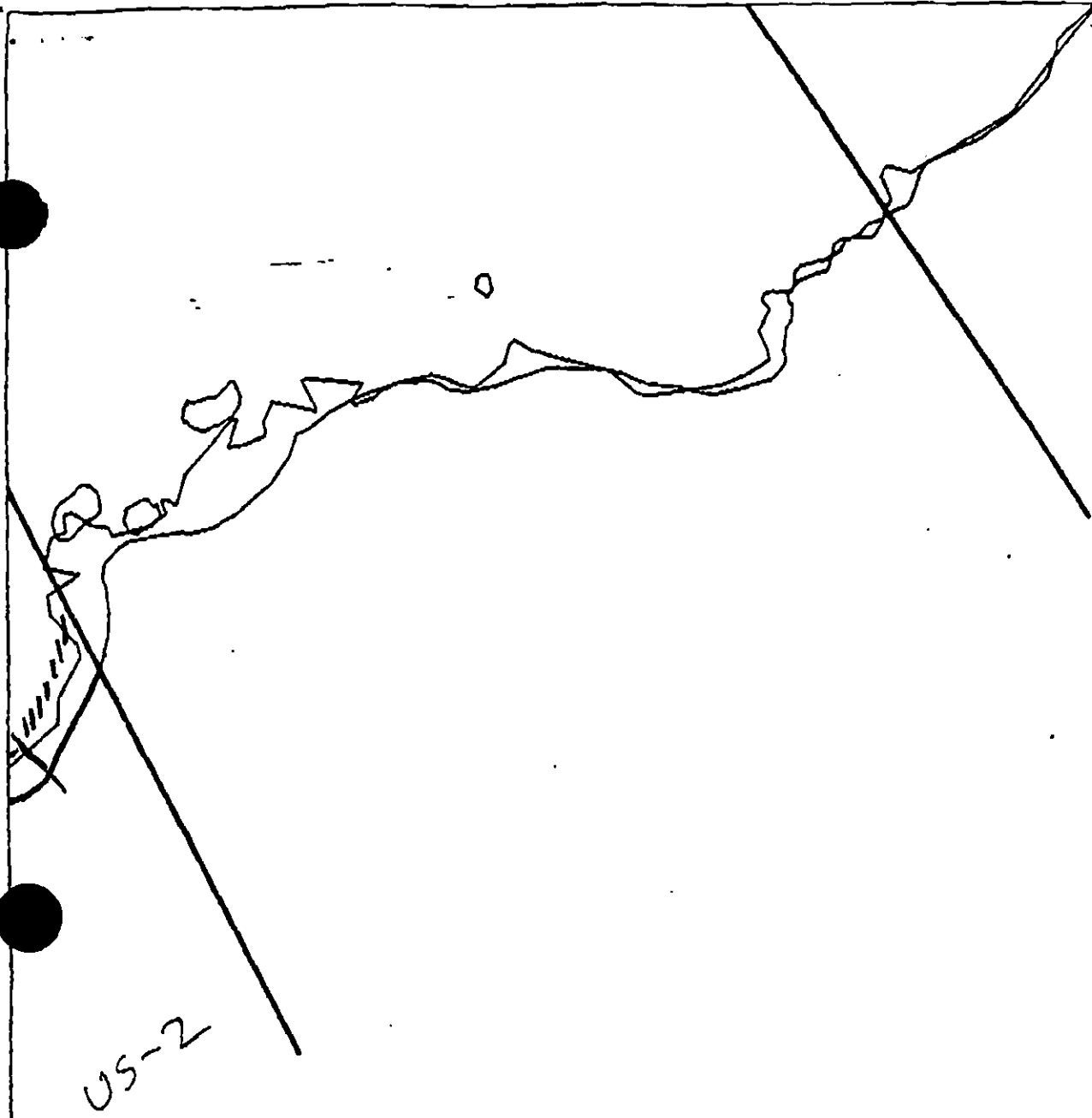


Map Key: KEN-1360

Name: Penland

Date: 4-9-90

Data Entered:



US-2

← KOD
136A

XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

US-2

ADEC Segment Length: 1361m



Map Key: KEN-136b

Name: Penland

Date: 4-9-90

Data Entered:

ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT US-02 SUBDIVISION A (1 of 1)

WORK WINDOW	
Manual Pickup	
Oiled Log Burning	OPEN
Bioremediation	OPEN
Mechanical Relocation (Bobcat)	

ARCHAEOLOGICAL MONITOR REQUIRED ON SITE.

>>> PHONE 564-3274 (Anchorage) OR 229-1508 (24 hrs.) <<<

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

No ecological time constraints.

OTHER ECOLOGICAL CONSIDERATIONS

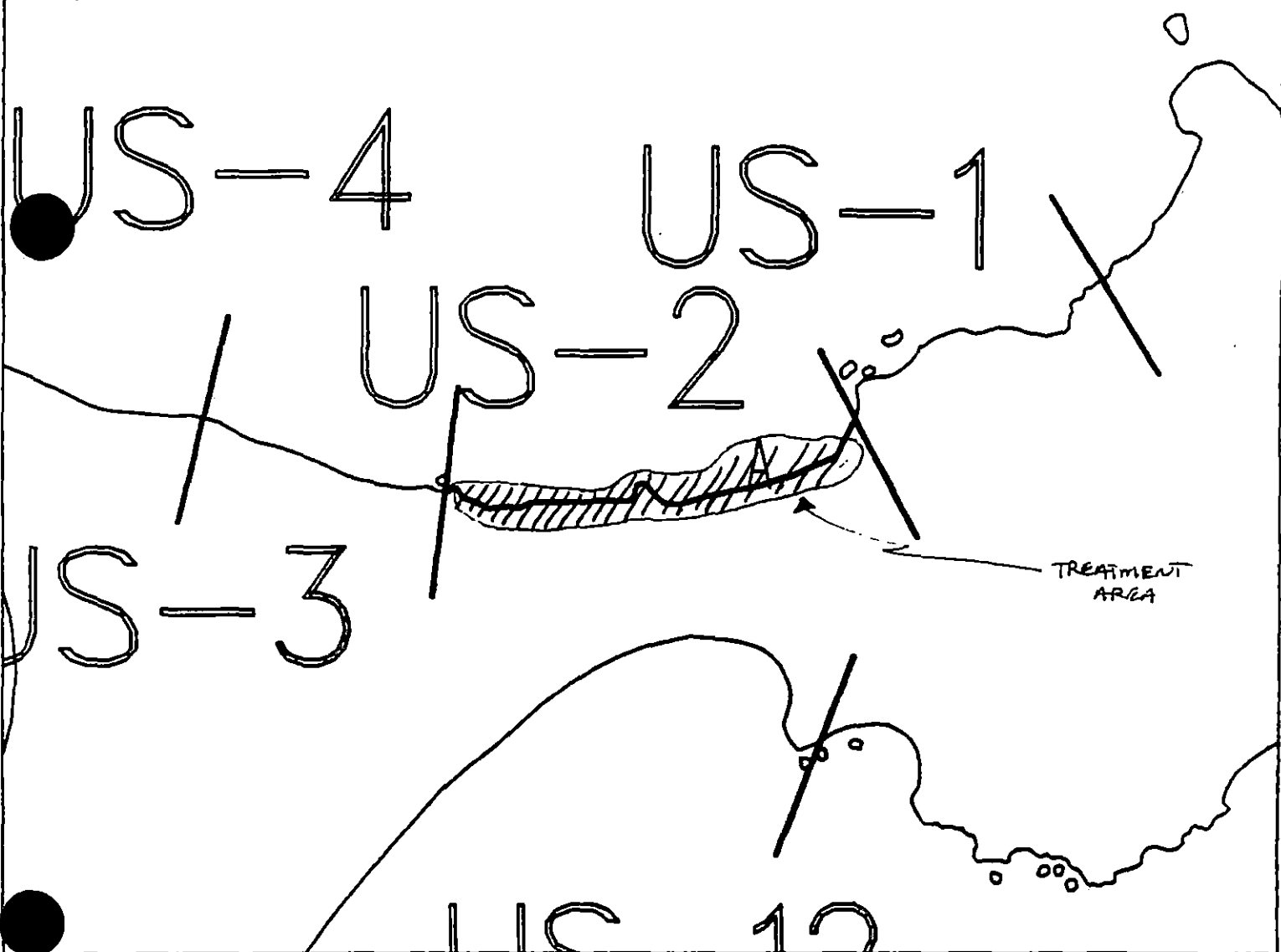
Avoid any unnecessary disturbance or damage to unrolled biota and substrate.

TAG ADDENDUM DATE 5/21/90
ADEC Art Weiler
EXXON Art Weiler
NOAA Joseph Talbot
USCG Mr. J. Hall

FOSC [Signature] DATE 5-21-90

Prepared by: Andrew Meyer

Date: 5/19/90



Exxon Company, USA

ECOLOGY MAP
SEGMENT US-2
SUBDIVISION A (1 of 1)

- ★ Seabird Colony
- ▲ Eagle Nest

SHORELINE EVALUATION

SEGMENT ST/ US-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
No specific constraints identified.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to uncoiled biota and substrate.

^{eff}
ARCHAEOLOGICAL CONSTRAINTS: An Exxon archaeological ~~monitor~~ ^{monitor} is required on-site during shoreline treatment. ~~its will be determined at that time.~~ ^{equipped prior}

SHPO SIGNATURE: Charles E. Hoffme DATE: 4/20/90

OILING CATEGORIZATION:

Wide 0 m: Medium 187 m: Narrow 1174 m: V. Light 0 m: No Oil 0 m
Subsurface Oil Observed: Yes X No Maximum Depth 30+ cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat: <u> </u> Breakup	<u> </u> Beach Cleaner
<u> </u> Removal	<u>X</u> Other (see comments)

COMMENTS: Recommend manual pick up of mousse, oiled debris, and oiled trash, and burn oiled logs if more than 10% coverage and splash impact as indicated on sketch map. Also recommend relocation of 150m x 30m x 30cm material (pits 12, 13, and 14 on sketch map) from SUTZ to MITZ and bioremediate; a bobcat-type vehicle with high flotation tires/tracks is recommended for relocation of materials.

SEE APPENDUM DATED 5-19-90

TAG COMMENTS: C.DASH

TAG APPROVAL DATE: 4/19/90
ADEC JOHN BAUER
EXXON ANDY TON
NOAA Earl Wescott
USCG KENNETH KEANE

FOSC: DATE: 4-25-90

Provide Adec logs for burning Jan

SHORELINE EVALUATION

SEGMENT ST/ US-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

No specific constraints identified.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

^{eff}
A ARCHAEOLOGICAL CONSTRAINTS: An Exxon archaeological ~~required~~ prior
C monitor is required on-site during shoreline treatment. ~~its~~ will be
t determined at that time.

SHPO SIGNATURE: Charles E. Hume DATE: 4/20/90

OILING CATEGORIZATION:

Wide 0 m: Medium 187 m: Narrow 1174 m: V.Light 0 m: No Oil 0 m
Subsurface Oil Observed: Yes X No Maximum Depth 30+ cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> </u> Tarmat: <u> </u> Breakup	<u> </u> Beach Cleaner
<u> </u> Removal	<u>X</u> Other (see comments)

COMMENTS: Recommend manual pick up of mousse, oiled debris, and oiled trash, and burn oiled logs if more than 10% coverage and splash impact as indicated on sketch map. Also recommend relocation of 150m x 30m x 30cm material (pits 12, 13, and 14 on sketch map) from SUTZ to MITZ and bioremediate; a bobcat-type vehicle with high flotation tires/tracks is recommended for relocation of materials.

TAG COMMENTS:

TAG APPROVAL DATE: 4/19/90
ADEC JOHN BAUER
EXXON ANDY TOL
NOAA Bruce Warratt
USCG KENNETH KEANE

FOSC: DATE: 4-25-90
Provide Adec info log burning Jan

UG Per

SEGMENT ST/ US-2

SUBDIVISION A

DATE 4 / 9 90

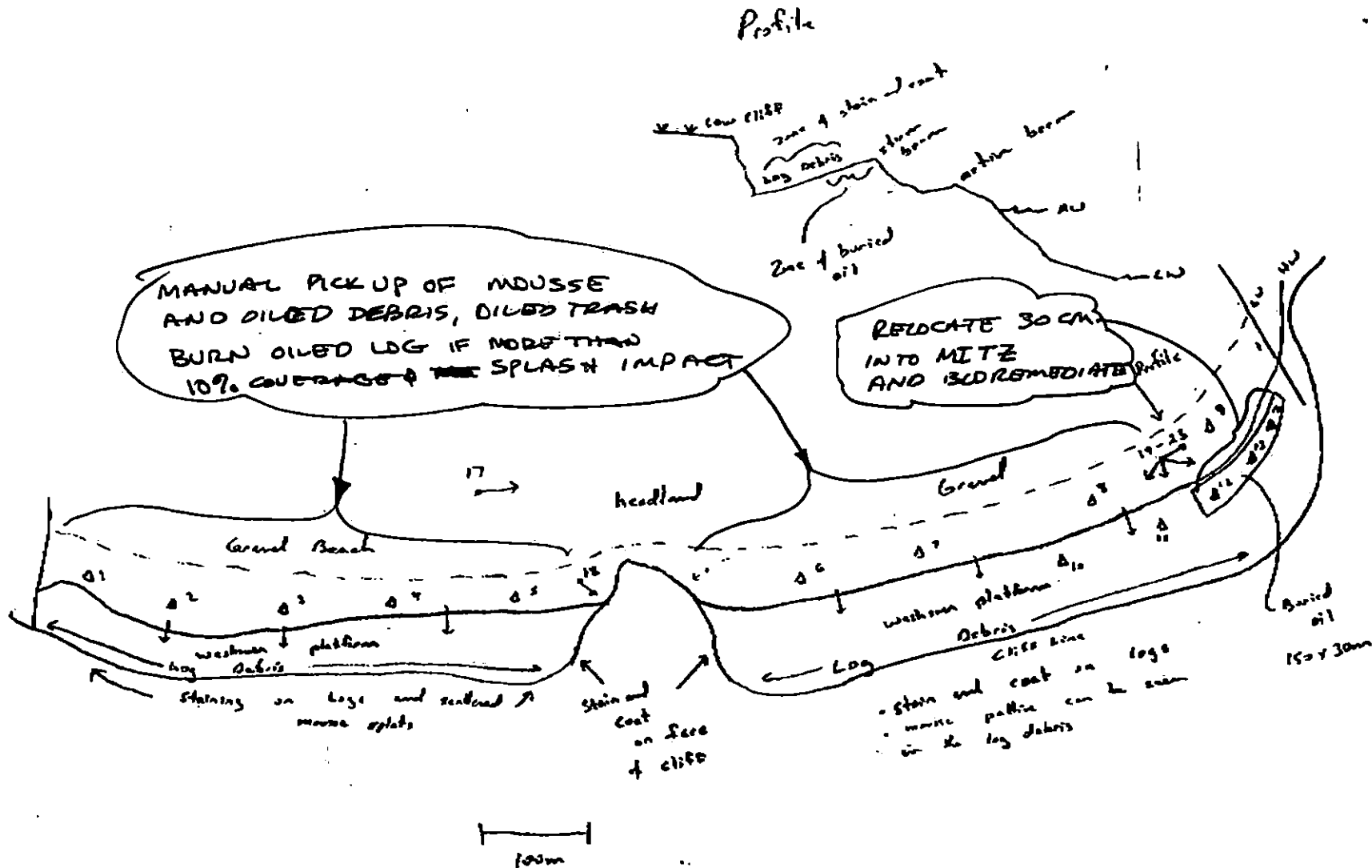
TCH MAP

CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Bndry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWL/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ PII Location(s)
- ☐ Photo Location(s)

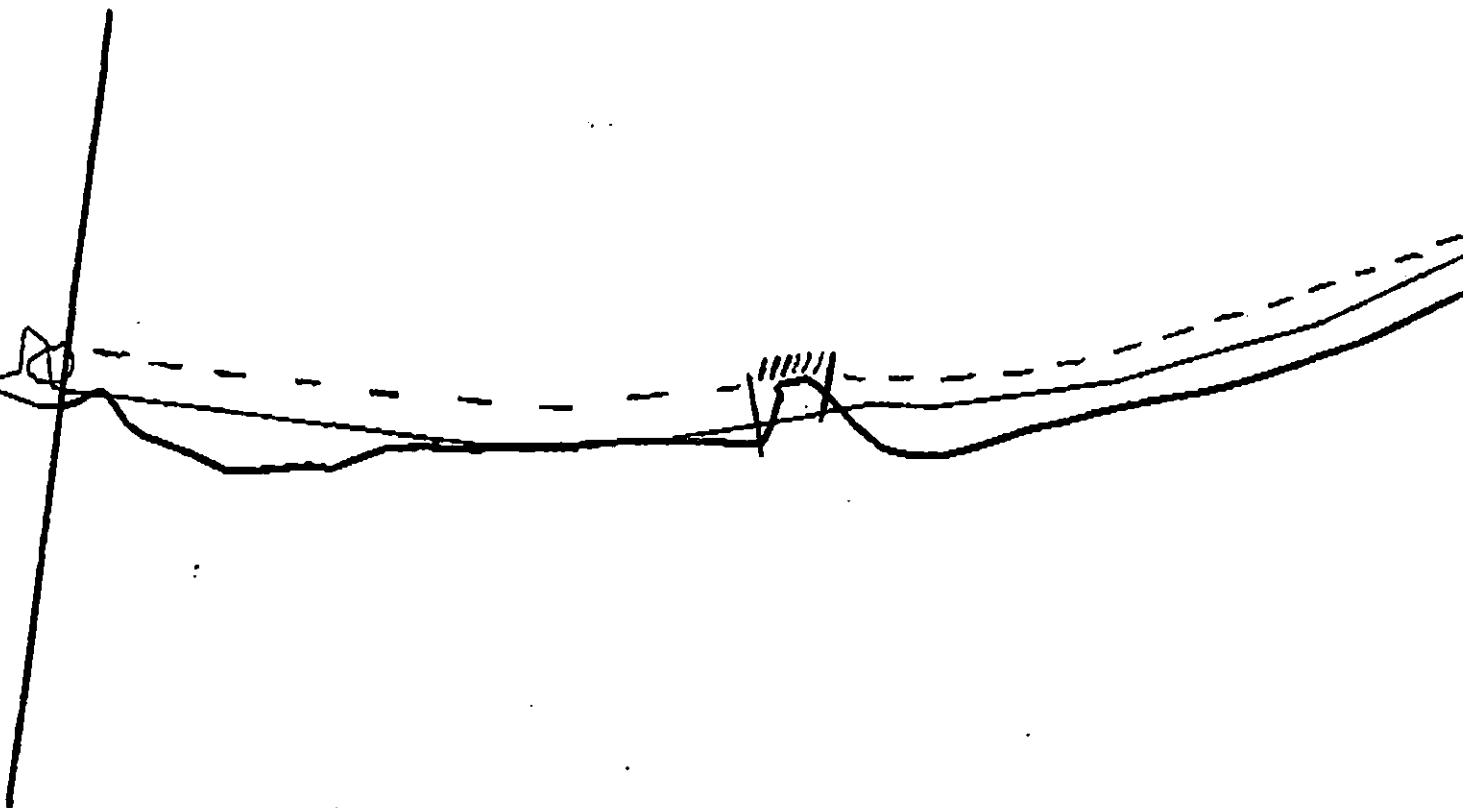
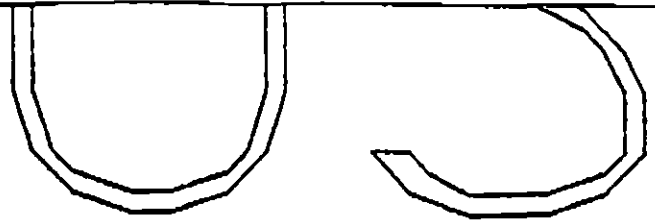
LEGEND

- 1 Δ
PII - No Subsurface Oil
- 2 Δ
PII - Subsurface Oil
- CT/C
Continuous Distribution
- CT/B
Broken Distribution
- CT/P
Patched Distribution
- CT/S
Splashed Distribution
- Oiled Vegetation
- 1 $\Rightarrow$
Photo location, direction, and number



Oil Character Length (m): AP 0 PO 0 CV 0 CT 1355 ST 1355 MS 1355 PT 0 TB 0 FL 0 NO 0

REVISION: 08/24/90



KOD
1368 →

XXXX Wide
//// Medium
---- Narrow
TTTT Very Light
0000 No Oil

US-2

ADEC Segment Length: 1361m

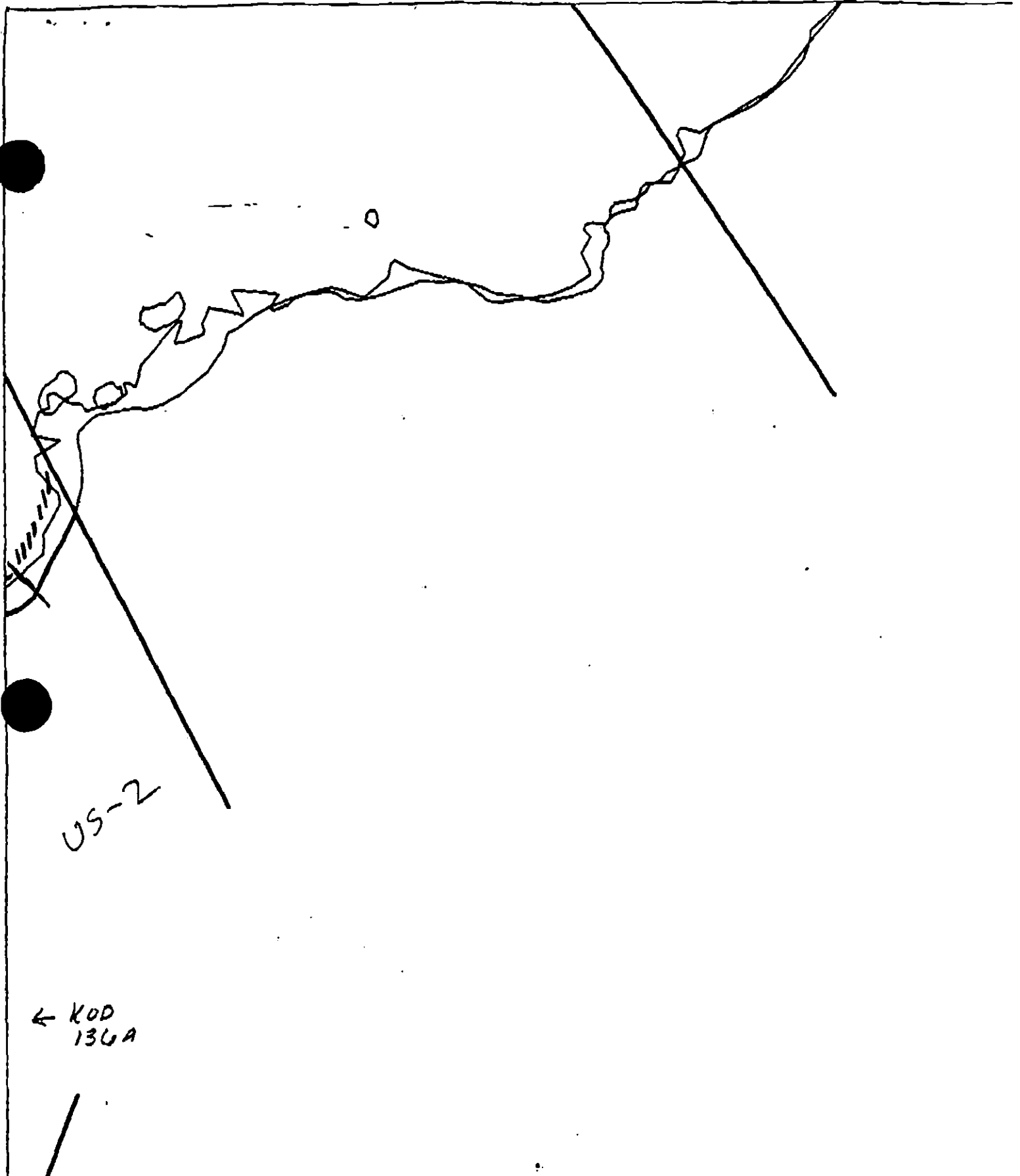


Map Key: KEN-136a

Name: Penland

Date: 4-9-90

Data Entered:



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

US-2

ADEC Segment Length: 1361m



Map Key: KEN-136b

Name: Penland

Date: 4-5-90

Data Entered:

1991 MAYSAP EVALUATION

SEGMENT: US 002 SUB: A REGION: KEN SURVEY DATE: 5/6/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 5/15 - 9/1

Ecological/Constraints (see page two for details) Seabird colony

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: Rachel San On Date: 5/22/91

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N



Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: MAY 22 1991

ADEC

EXXON

USCG

NOAA

FOSC APPROVAL DATE:

FOSC

E. E. PAGE, CDR, USCG
CHIEF OF STAFF, FOSC

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Seabird Colony: Access restricted. USF&WS authorization required after 5/15. Maintain 1000' vertical and 1/2 mile horizontal buffer.

TEAM NO. 6-Helo SEGMENT US-2 SUBDIVISION A DATE 6/17/91

~~EXXON~~ Exxon
NAME B. Stiles

SIGNATURE George P. Stiles 5/7/91

- ☒ NTR Pits were dug in the areas oil had been previously located from other surveys. No trace of oil was noted.

~~EXXON~~ ADEC
NAME S. Ferguson

SIGNATURE S. Ferguson

- ☒ NTR ☐ TREATMENT RECOMMENDED

NO TREATMENT RECOMMENDED AT US-2A. SUBSURFACE OIL (EASTERN END OF SKETCH MAP) FROM 1990 SEAT REPORT - WAS MECHANICALLY TILLED AND BACK FILLED IN SUMMER OF 1990. PITS DUG AT SITE WHERE MECHANICAL WORK HAD TAKEN PLACE IN 1990 EXPOSED NO SUBSURFACE OIL. THIS IS A HIGH ENERGY BEACH WITH VERY LARGE SPRING BERMS. LOGS HAD ST/CT, TRACE OILING.

LANDMANAGER

NAME J. HANDBSTER

OF USFWS

SIGNATURE

John P. Handster

- ☒ NTR

concur with OG comments -- no oil observed.

USCG/NOAA

NAME CWO Spurr / R. Hoff

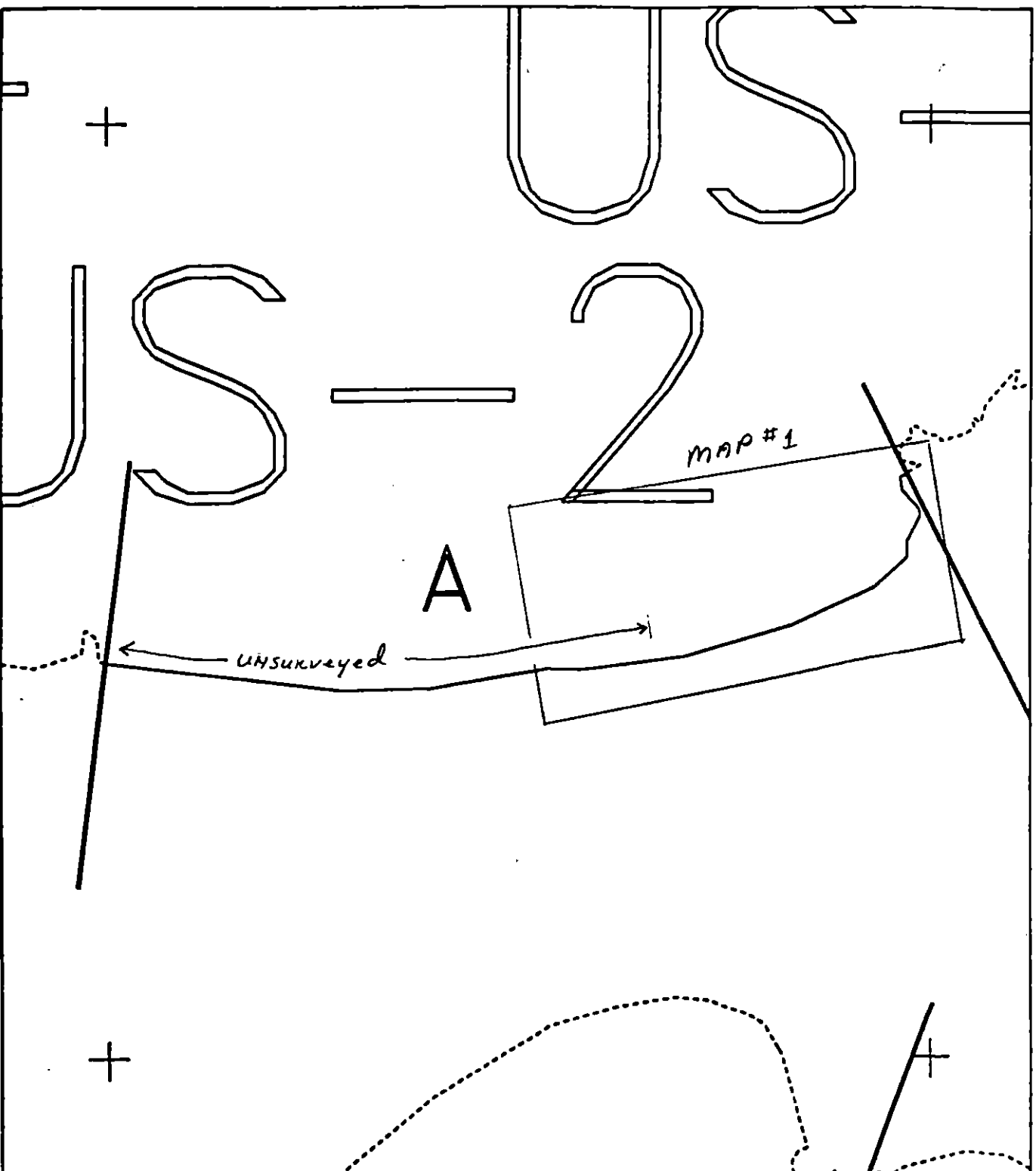
SIGNATURE

R. Hoff

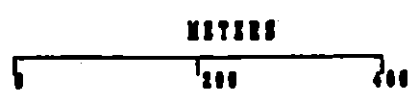
Rebecca Hoff

- ☒ NTR Pits were dug in area previously mapped as showing oil, but none was found.

revised 5/9/91 KG
KG reviewed 5/12



US002 A



AK State Plane Zone 4
NAD83

Subdivision Field Map
Map Key: KENUS002A
Name: FITZGELD
Date: 6 May 1991

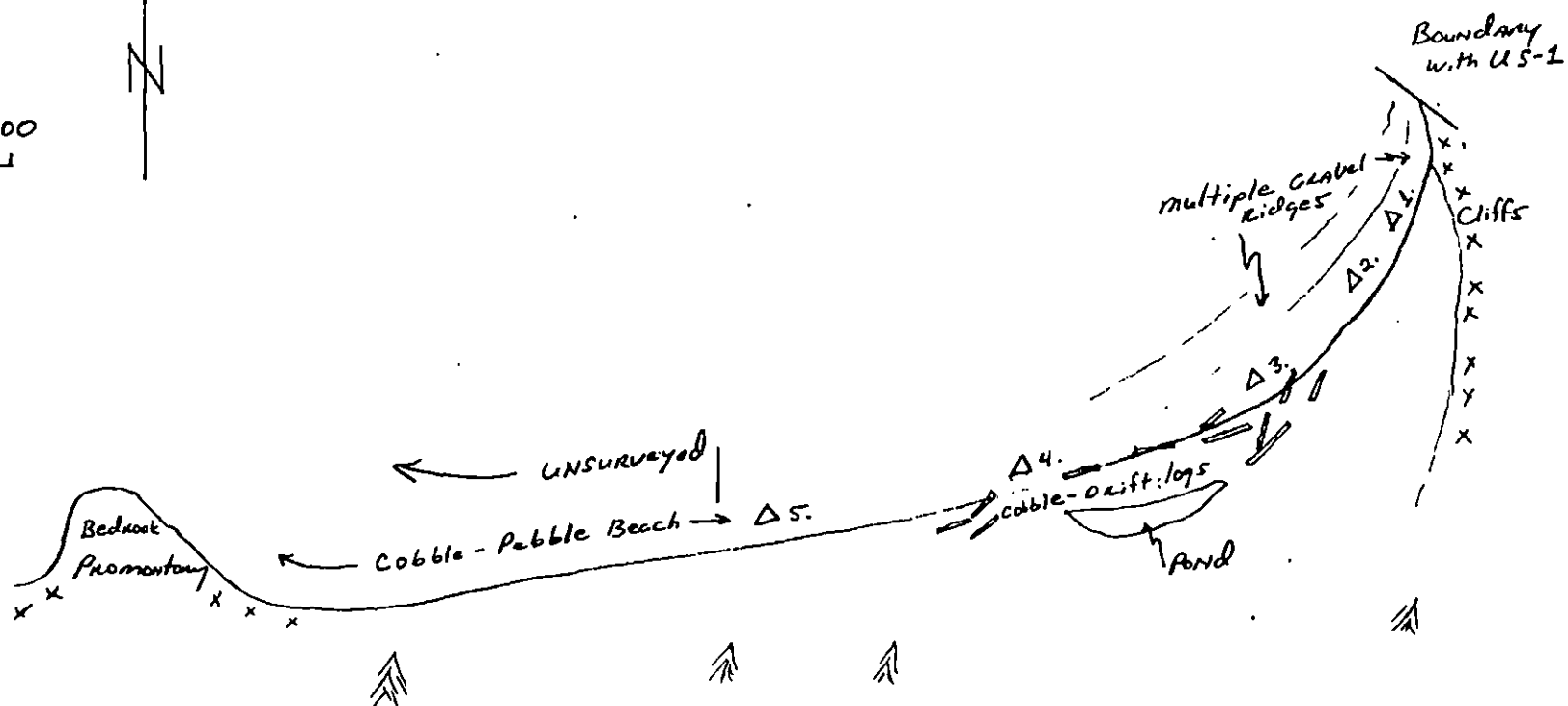
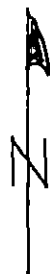
26 revised 5/12

- bedrock
- EVERGREEN TREES
- LOGS
- PHOTO LOCATIONS

Sketch MAP (DG)
 US-2 A
 D. FITZGERALD
 6 MAY 1991
 1430 - 1515

GULF OF ALASKA

0 100
 METERS



revised 5/9/91 KG
 SJ revised 5/12

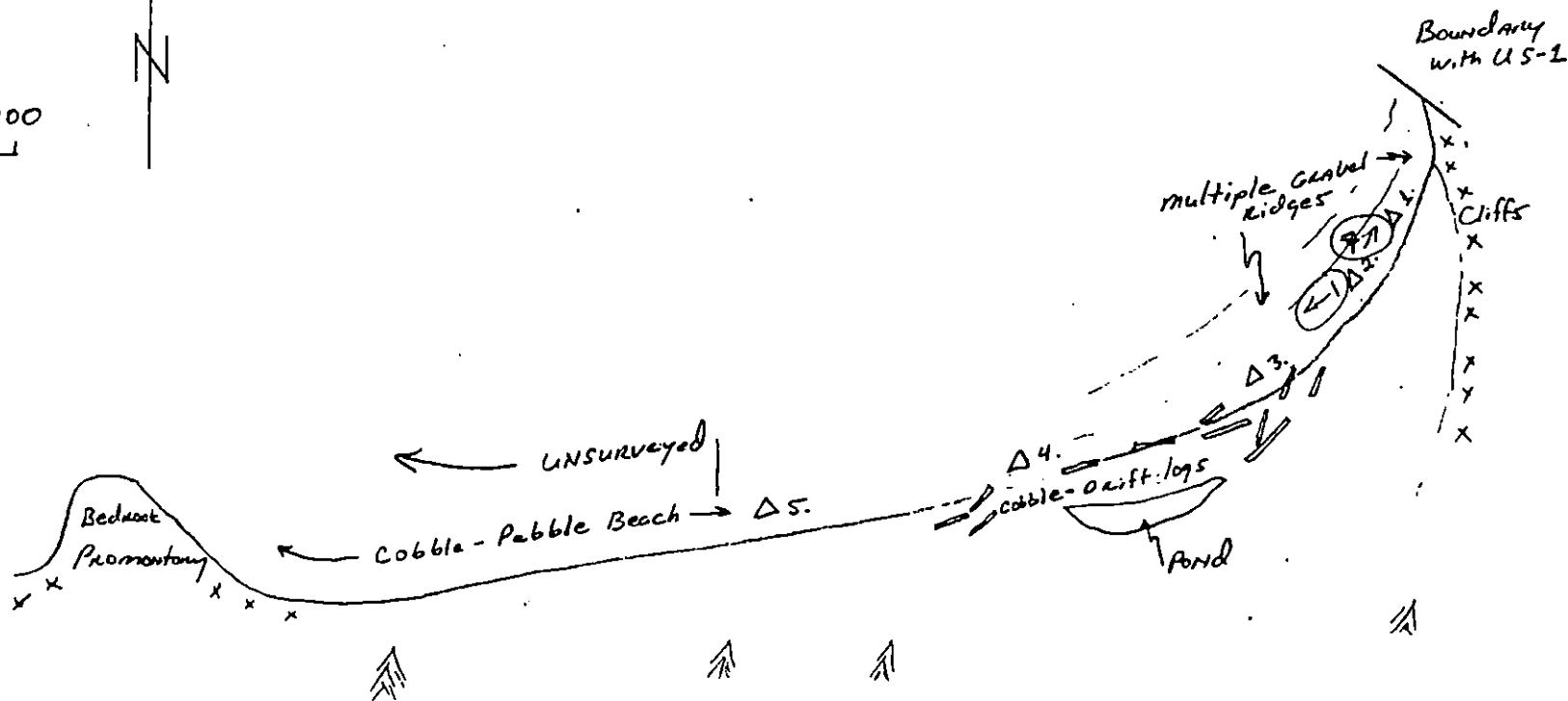
- xxx Bedrock
- Evergreen Trees
- Logs
- Photo locations

Photo locations
Mapap 6-08
#1, 7

Sketch map (06)
US-1A
D. FitzGerald
6 May 1991
1430 - 1515

GULF OF ALASKA

0 100
METERS



MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6

DATE Mar 6 1991

SEGMENT # 45-2

TIDAL HEIGHT (Range) 3 ft to 4 ft (1430-1500)

SUBDIVISION A

BIOLOGIST H. Davis

SEA STATE 4'

WIND SPEED/DIRECTION Very Gusty N/NE

PHOTOGRAPHS: ROLL # 6-08

FRAME # 147

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

No oil was found on this segment

No live biota on cobble/gravel, high energy beach.

Two adult eagles were soaring over the cliffs and upland areas. An immature eagle was also seen near the eastern cliff. There may be a nest in the area.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS

OF SPECIES

TOTAL BIRDS

FISH OBSERVED
SPECIES PRESENT

Eagles	1	2 Adults 1 Immature	
Seabirds	0		
Waterfowl	0		
Gulls/Kittiwakes	2 Glaucous winged M.W.	6	
Shorebirds	0		
Corvids Raven	1	1	
Other Birds	0		

MARINE MAMMALS

OBSERVED

LAND MAMMALS

SPECIES

‡ OBSERVED

Sea Otters			
Pinnipeds (specify)			
Birds (specify)			
Mammals (specify)			

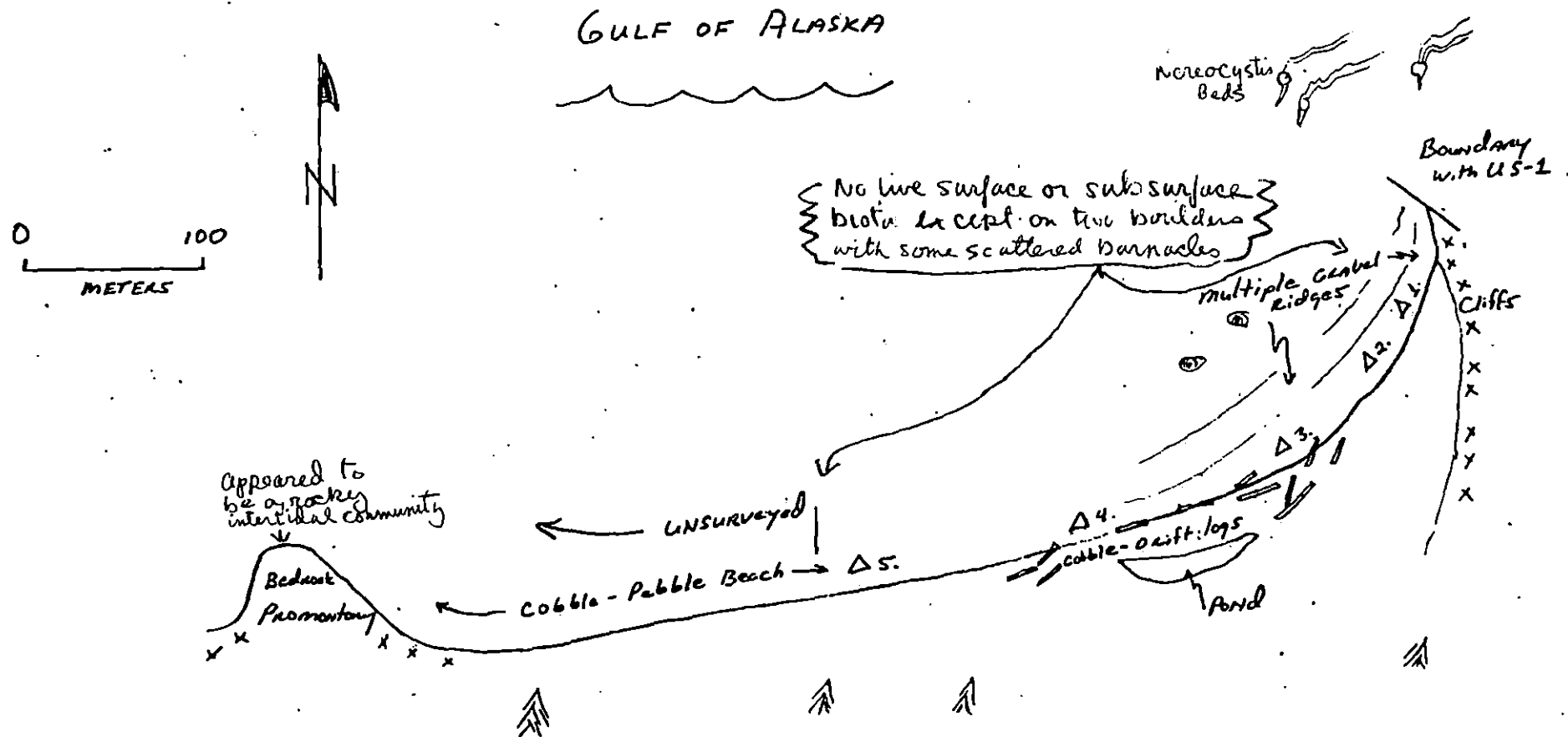
Shoreline subdivision map showing important biological features attached.

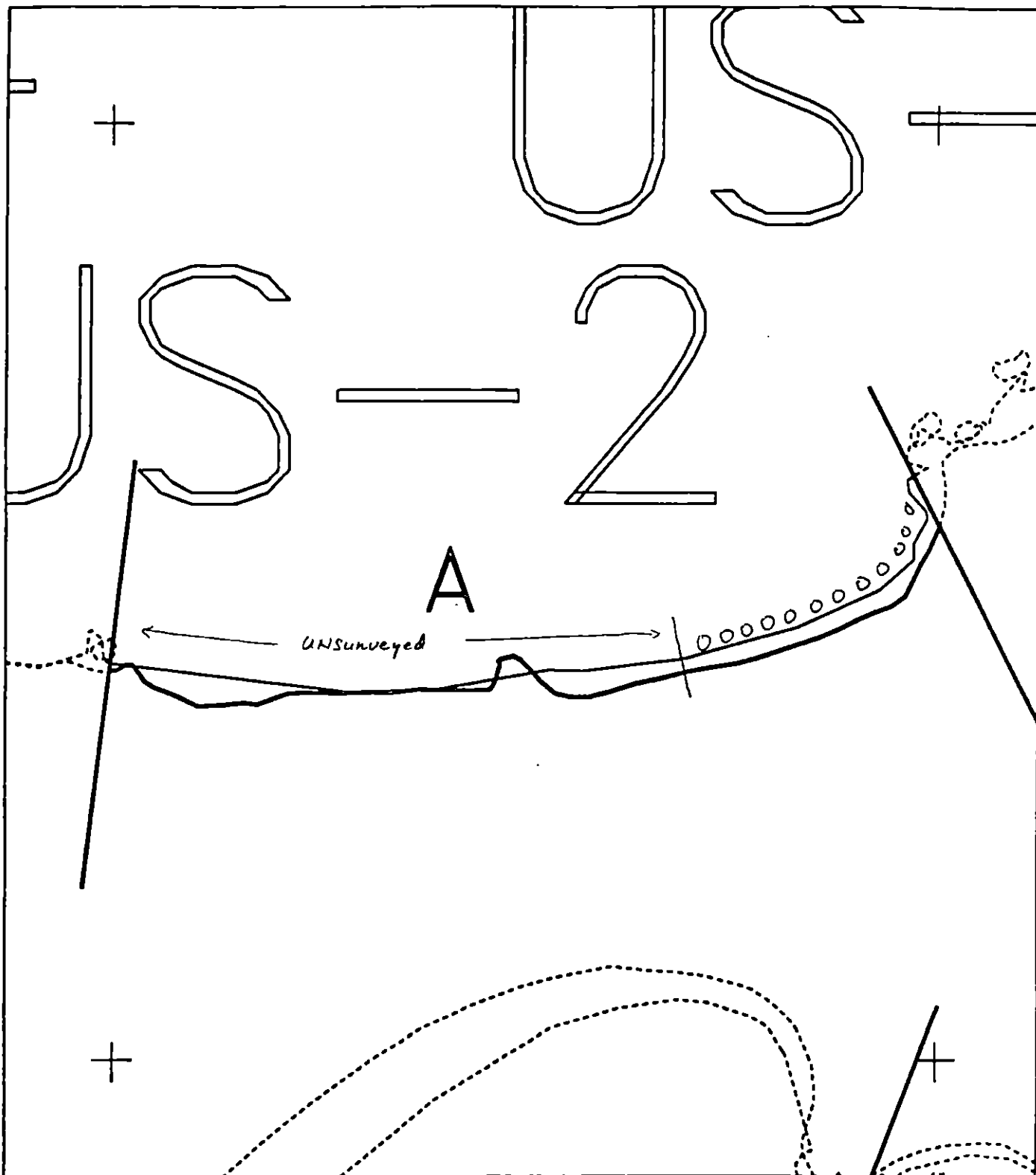
P. 1. 1. 1. 1.

-  dock
-  EVERGREEN TREES
-  LOGS
-  PHOTO LOCATIONS

Bio Map
Heather Davis

Sketch Map (06)
US-2 A
~~D. Fitzgerald~~
6 May 1991
1430 - 15





XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

US002 A

ADEC Subsegment Length: 1381m
 METERS

AK State Plane Zone 4
 500020



Subdivision Field Map

Map Key: KENUS002A

Name: Fitzgerald

Date: 6 May 1991

Date Entered:

reviewed 5/9/91 KLG
 25 reviewed 5/12

1991 MAYSAP EVALUATION

SEGMENT: US 002 SUB: A REGION: KEN SURVEY DATE: 5/6/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 5/15 - 9/1

Ecological/Constraints (see page two for details) Seabird colony

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

INITIAL: _____

TAG: _____

FOSC: _____

TAG APPROVAL DATE: _____

FOSC APPROVAL DATE: _____

ADEC

FOSC

EXXON

USCG

NOAA

ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

Seabird Colony: Access restricted. USF&WS authorization required after 5/15. Maintain 1000' vertical and 1/2 mile horizontal buffer.

~~EXAM~~ Exam
NAME E. Styles SIGNATURE George P. Luba 5/7/91

☒ NTR Pits were dug in the areas oil had been previously located from other surveys. No trace of oil was noted.

~~EXAM~~ ADEC

NAME S. Ferguson

SIGNATURE [Signature]

☒ NTR ☐ TREATMENT RECOMMENDED

NO TREATMENT RECOMMENDED AT US-2A. SUBSURFACE OIL (EASTERN END OF SKETCH MAP) FROM 1990 SEAT REPORT - WAS MECHANICALLY TILLED AND BACK FILLED IN SUMMER OF 1990. PITS DUG AT SITE WHERE MECHANICAL WORK HAD TAKEN PLACE IN 1990 EXPOSED NO SUBSURFACE OIL. THIS IS A HIGH ENERGY BEACH WITH VERY LARGE SPRING BERMS. LOGS HAD ST/CT, TRACE OILING.

~~EXAM~~ ANDMANAGER

NAME J. HRODITEK

OF USFWS

SIGNATURE [Signature]

☒ NTR Concur with OC comments -- no oil observed.

~~EXAM~~ USCG/NOAA

NAME CWO Spurr / R. Hoff

SIGNATURE [Signature]

☒ NTR Pits were dug in area previously mapped as showing oil, but none was found.

SEGMENT 45-2

SUBDIVISION A

DATE 6 / May / 91

ENERGY LEVEL: ☒ H ☐ M ☐ L

WEATHER: ☐ SUN ☒ CLOUDS ☐ FOG ☒ RAIN ☐ SNOW

NEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONE

EST. OIL CATEGORY LENGTH: W m M m N m VL m NO 400 m US 96d m

[illegible]

DISTRIBUTION: C = 91-100%; D = 51-90%; P = 11-50%; S = 1-10%; T = <1%

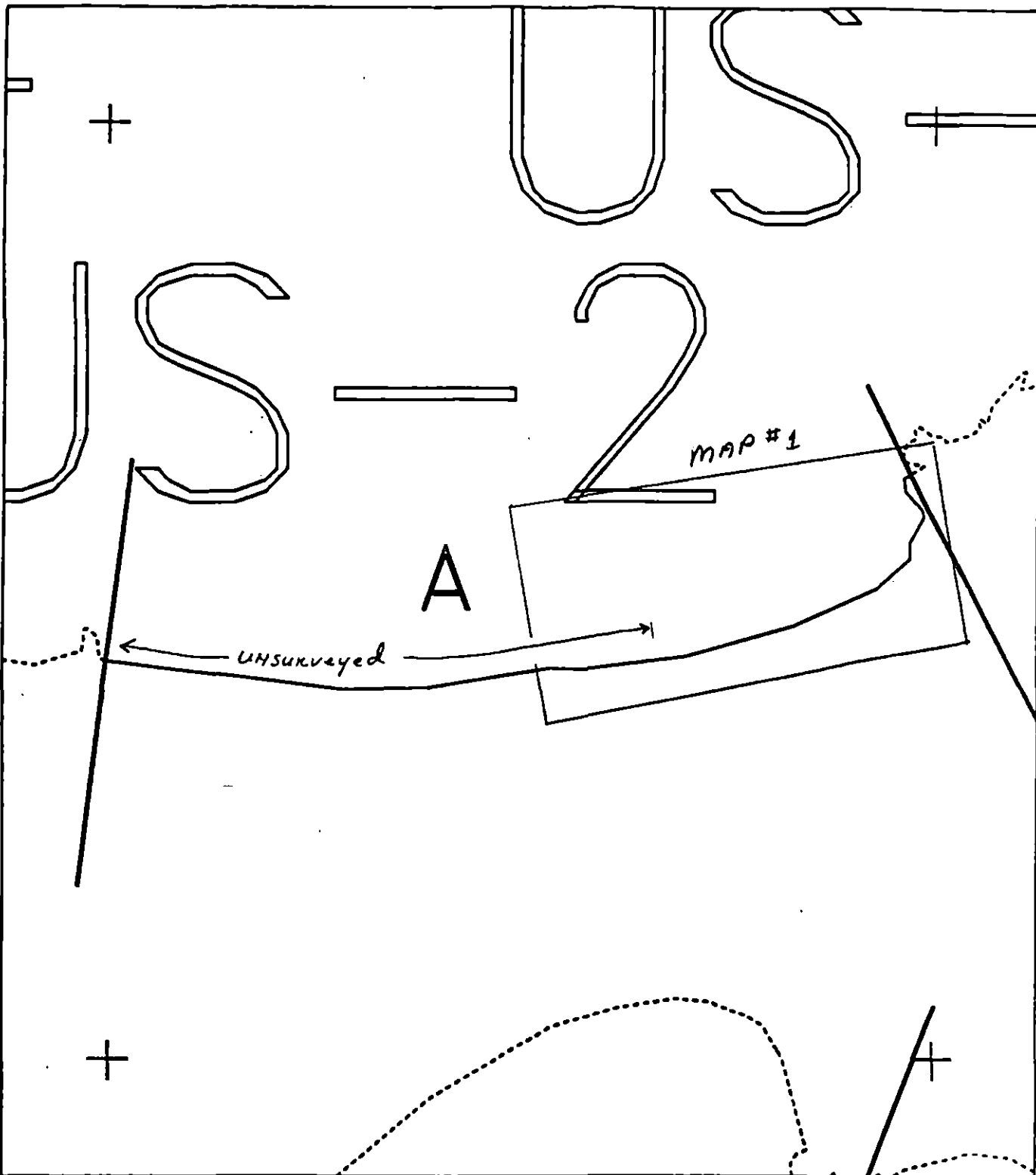
SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE PHOTO ROLL # MAYSAP- 6 - 08 FRAMES 1-2

[illegible]

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

OG COMMENTS: The previous surveys of this beach indicated that the major oiling of this beach consisted of subsurface oil at the eastern end of the beach adjacent to bedrock cliffs in the SUTZ (15 x 30 m). Minor oiling occurred also as CT/ST on logs. After digging five pits and finding no subsurface oil and finding no oil on logs or debris, it was decided in consultation with USCG, local response, land manager and other agency personnel that it was unnecessary to survey the rest of the segment.

revised 5/9/71
26 reviewed 5/12



US002 A

METERS

0 100 200

AK State Planning Zone 4
400020

Subdivision Field Map

Map Key: KENUS002A

Name: FITZGELAND

Date: 6 May 1991

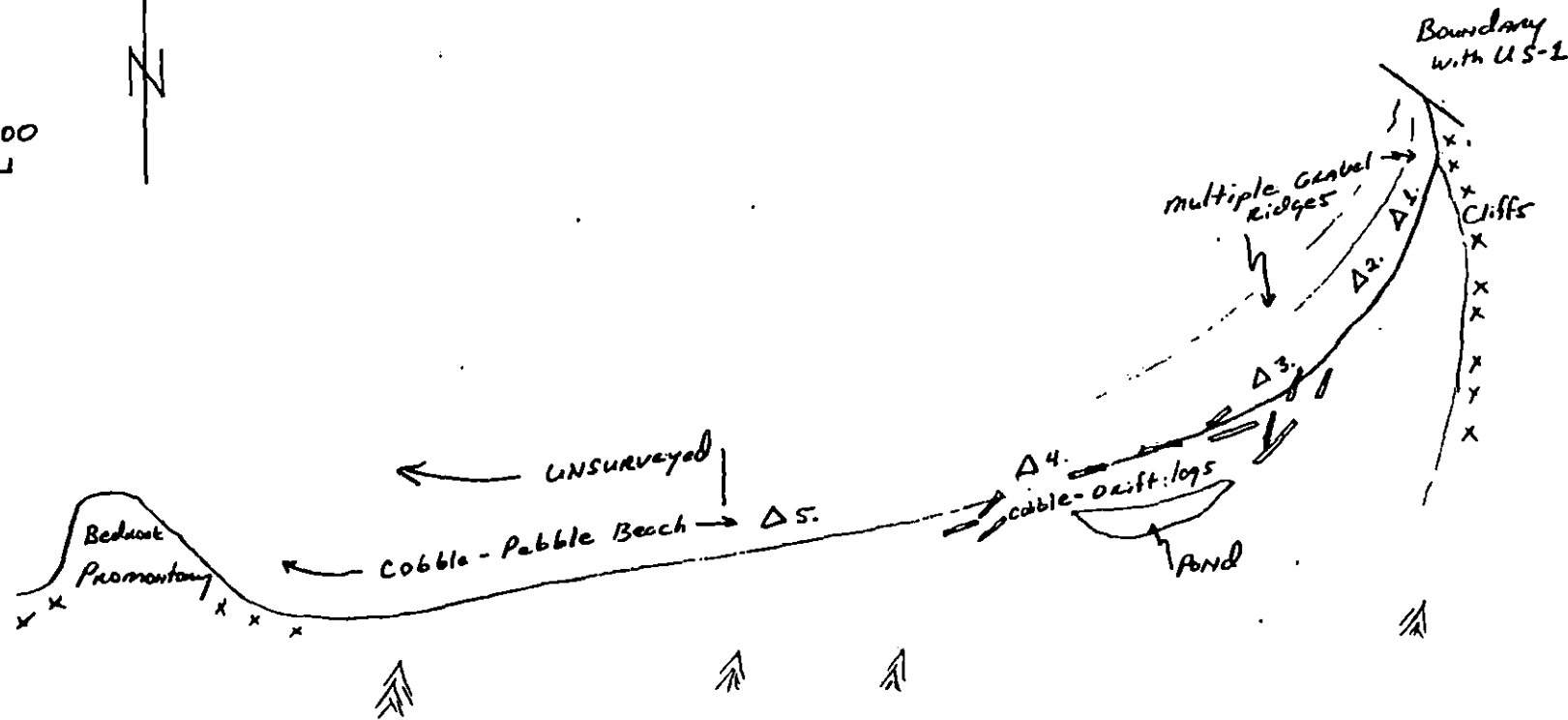
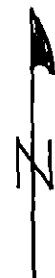
26 reviewed 5/12

- xxx rock
- Evergreen Trees
- Logs
- Photo locations

Sketch map (06)
 US-2 A
 D. Fitzgerald
 6 May 1991
 1430 - 1515

GULF OF ALASKA

0 100
 METERS



revised 5/19/91
 SI revised 5/12

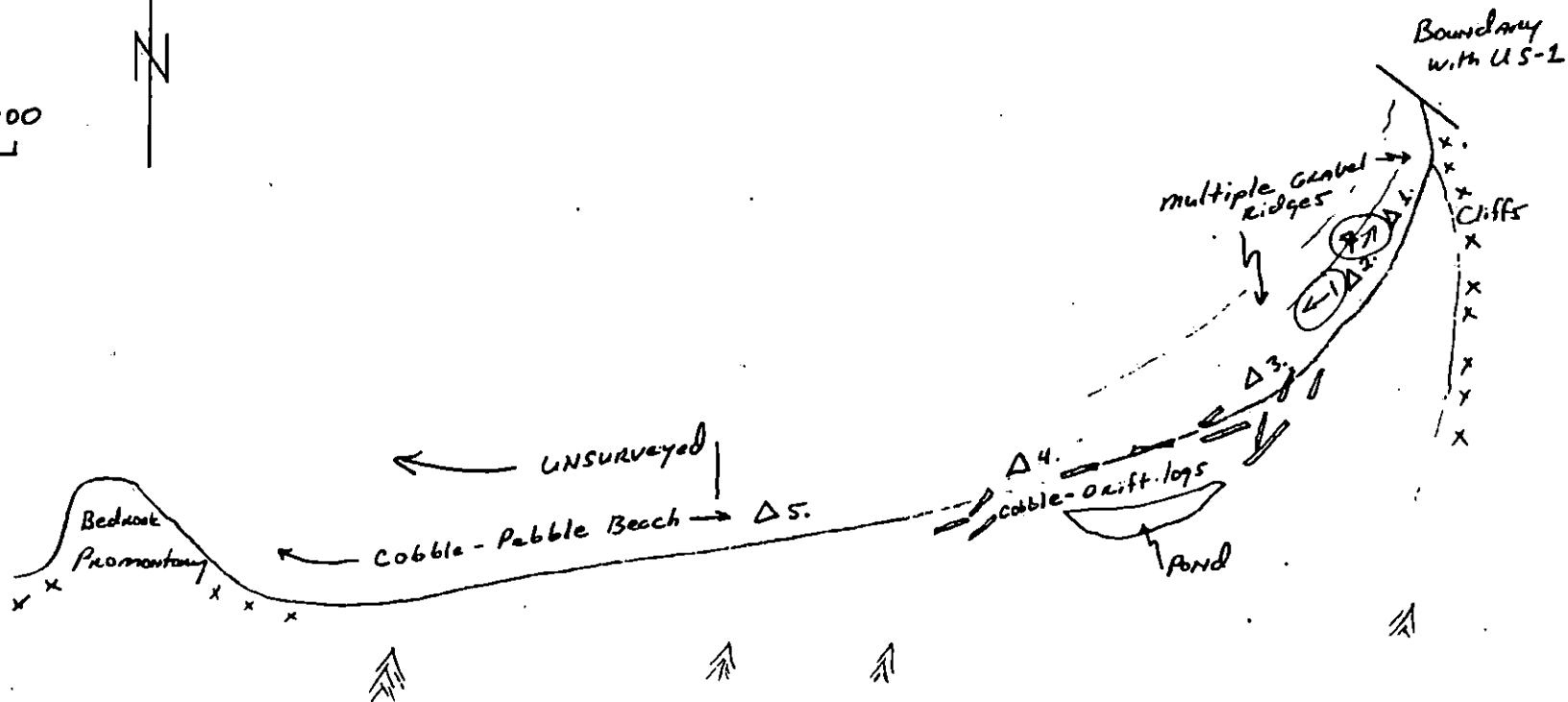
- xxx Rock
- Evergreen Trees
- Logs
- Photo locations

Photo locations
Mapap 6-08
#1, 7

Sketch Map (06)
US-1A
D. Fitzgerald
6 May 1991
14.30 - 1515

GULF OF ALASKA

0 100
METERS



MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6

DATE May 6 1991

SEGMENT # US-2

TIDAL HEIGHT(Range) 3 ft to 4 ft (1430-1500)

SUBDIVISION A

BIOLOGIST H. Davis

SEA STATE 4'

WIND SPEED/DIRECTION Very Gustly N/NE

PHOTOGRAPHS: ROLL # 6-08

FRAME # 147

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

No oil was found on this segment

No live biota on cobble/gravel, high energy beach.

Two adult eagles were soaring over the cliffs and upland areas. An immature eagle was also seen near the eastern cliff. There may be a nest in the area.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	2 adults 1 immature	
Seabirds	0		
Waterfowl	0		
Gulls/Kittiwakes	2 Glaucous winged Gull	6	
Shorebirds	0		
Corvids Raven	1	1	
Other Birds	0		

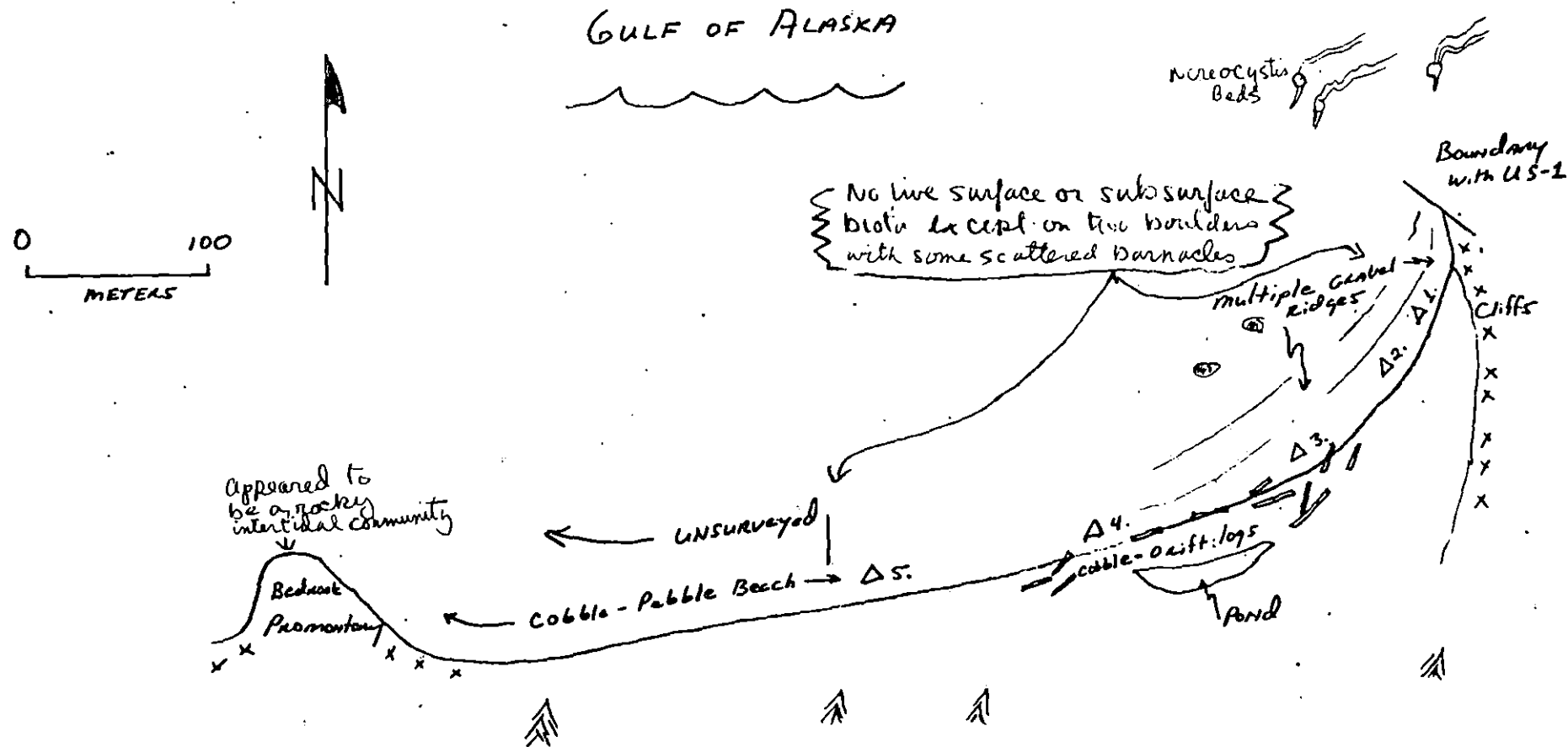
MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	0	0	
Pinnipeds (specify)	0	0	
les (specify)	0	0	

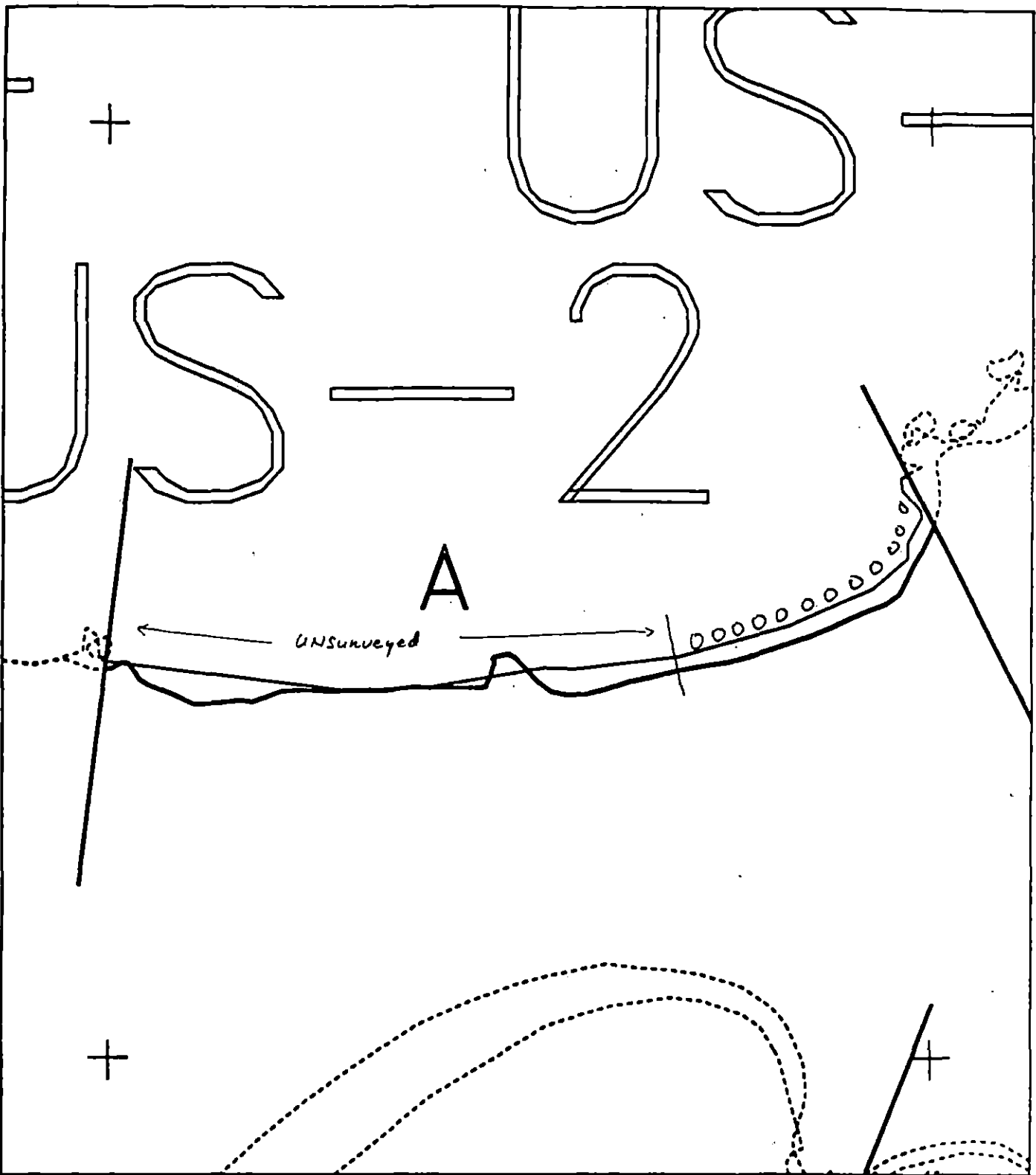
Shoreline subdivision map showing important biological features attached.

- xxx ● drack
- ▲ EVERGREEN TREES
- ≡ LOGS
- ➔ PHOTO LOCATIONS

Bio Map
Heather Davis

Sketch Map (06)
US-2 A
D. FITZGERALD
6 May 1991
1430 - 15





reviewed 5/19/91 KC
 25 reviewed 5/12

REGION: KENAI

SEGMENT: ST/US-03

SUBDIVISIONS: A (1 OF 1)

SHORELINE EVALUATION

SEGMENT ST/ US-03 SUBDIVISION A (1 OF 1) DATE 4/24/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
USFWS property.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO SIGNATURE: _____ DATE: _____

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 0 m: No Oil 610 m
Subsurface Oil Observed: Yes _____ No X Maximum Depth _____

RECOMMENDATIONS:

<u>X</u> No Treatment Recommended	_____ Snare/Absorbent Booms
_____ Treatment Recommended	_____ Oil Snares (pom poms)
_____ Manual Pickup	_____ Absorbents (pads, rolls, etc)
_____ Bioremediation	_____ Spot Washing: _____ Wands
_____ Tarmat Removal	_____ Beach Cleaner
	_____ Other (see comments)

COMMENTS: _____

TAG COMMENTS: _____

TAG APPROVAL DATE: _____
ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

- 1A** Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
 No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream without authorization from ADF&G. No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore oil or toxicity levels, such as manual removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.
 AGENCY CONTACT PERSON: ADF&G John Morison 267-2324
- 1C** Salmon fry nursery area (4/31 to 7/31)
 No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.
 AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214
- 1D** Esther Hatchery release (4/15 to 6/15)
1E Main Bay Hatchery release (4/20 to 6/15)
1F Sawmill Bay Hatchery release (4/15 to 6/1)
1G Cannery Creek Hatchery release (4/21 to 6/1)
1H Remote release site
 No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G or PWS Aquaculture Association for confirmation and authorization.
 AGENCY CONTACT PERSON: 1E ADF&G Larry Peltz 424-3214
 1D 1F 1G PWS Aquaculture Association John McMillan or Bruce Suzumoto 424-7511
- 1I** Gill net area (6/7 to 8/31)
1J Purse seine area (7/20 to 9/30)
1K Purse seine hook-off (7/20 to 9/30)
1L Set net sites (8/11 to 7/25)
 Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
 AGENCY CONTACT PERSON: ADF&G James Brady 424-3212
- 2M** Herring spawning (4/1 to 6/15)
 Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to unopened intertidal and subtidal algae and seagrass. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
 AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235
- 3N, 3O, 3Q** Harbor seal and sea lion pupping (5/15 to 7/1)
 Harbor seal and sea lion molting (8/15 to 9/15)
 Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of Inipol within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.
 AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235
 ADF&G Don Calkins 267-2403
- 5R** Seabird colony (5/1 to 9/1)
 Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
- 5S** Shorebird/waterfowl concentration (4/1 to 5/15)
 Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
 ADF&G Tom Rothy 267-2206
- 5T** All Bald Eagle nests (3/1 to 6/1)
 Active Bald Eagle nests (3/1 to 9/1)
 Restrict air traffic and all disturbance to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
 AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
- 6U** Recreation: Tent sites (8/1 to 9/15)
6V Anchorages (8/1 to 9/15)
6W Forest Service cabins (8/1 to 9/15)
6X Lodge (8/1 to 9/15)
6Y Special use destination
- 7Z** Subsistence area: Salmon harvesting (5/1 to 9/30)
7-HH Finfish harvesting
 Deer harvesting (8/15 to 2/26)
 Invertebrate harvesting
 Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic and beach disturbance to essential minimum. If plans for treatment include methods such as hot water wash or application of Inipol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.
 AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2359

SEGMENT ST 145-003 SUBDIVISION: A DATE 4/20/80

SCG NOAA

NAME Miles D. Hayes SIGNATURE [Signature]

☒ NO TREATMENT RECOMMENDED
COMMENTS

☐ TREATMENT SUGGESTED

area subject to intense wave action, as evidenced
by eroded bedrock platform
Agree with Obo and OIO comments.
No cleanup required.

ADEC

NAME Russell Kunihe SIGNATURE Russell Kunihe

☒ NO TREATMENT RECOMMENDED
COMMENTS

☐ TREATMENT SUGGESTED

There was only one small area where we observed splashing of water on
the bedrock.

LAND MANAGER

NAME Gerald M. Nugent SIGNATURE Gerald M. Nugent (USFWS)

☒ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED
COMMENTS

No treatment recommended other than if
a work crew is nearby, the oiled floats and
line could be picked-up. See segment map.

SHORELINE OILING SUMMARY

REVISION NO. 04/13/90

OG N. BIGGAR USCG MILES HAYES (NOAA) SEGMENT ST/ US-803
 BIO DAN BAIDER LAND REP JERRY NUGENT (FIW) SUBDIVISION A (1 OF 1)
 EXXON JOHN DEAN ADEC RUSSELL KUNIOE TIME 11:00 to 11:15 4/23
 TEAM NO. 17 TIDE LEVEL -3 to -2.5 DATE 4/24/90 -7:20-8:30
 EST. SUBDIVISION LENGTH: 683 m 4/23 ☒ Sun ☐ Clouds ☐ Fog ☒ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☒ Grass ☐ Forest ☒ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: W to E
 SURFACE SEDIMENTS: R 25 % B 35 % C 30 % P 10 % G — % S — % M — % V — %
 SLOPE: Lang 100 % Hang — % Vert — % WAVE EXPOSURE: ☐ Low ☐ Med ☒ High
 OIL CATEGORY LENGTH: W — m M — m N — m VL 3 m NO 680 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR						IMPACTED ZONES			
	C	B	P	S	DEL TH	DEL FW	OL PL	COAT TL	LOH	SU	UI	ME	LI	
ASPHALT PAVEMENT														
POOLED														
COVER														
COAT				X		X				X				
STAIN														
MOUSSE														
PATTIES														
TARBALLS														
FILM														
NO OIL											X	X	X	

PAVEMENT H F S — sq. m by — cmPATTIES / TARBALLS — BAGSNEAR SHORE SHEEN? ☒ NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash	X		
Debris			

DID YOU COLLECT DEBRIS?

YES ☐ NO ☒TYPE —#BAGS —

Photographs:

Roll No. 4Frames 4+5

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM)	BELOW		OIL / FILM COLOR								PIT ZONE				A	N	A	SHEEN (Y/N)	↓	SURFACE-SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UC	SL	SP	SV	ST	TL	UL	SU	UI	ME	LI								
1	45					X	—		X								X								N		g.p.c.
2	35					X	—		X								X										g.p.c.
3	55					X	—		X								X										g.p. some
4	35					X	—		X								X										g.p.
5	48					X	—		X								X										g.p.c.
6	30					X	—		X								X										g.p.

COMMENTS

Only oil observed was ~3 m of spatter on rock face. Could not survey western end of segment due to impassible cliff. High energy beach, with sculpted / scoured bedrock. High tide goes to base of cliff

REVIEWED BAT DATE 1 MAY 90

OG N. BIGGAR

SEGMENT US-003

SUBDIVISION A

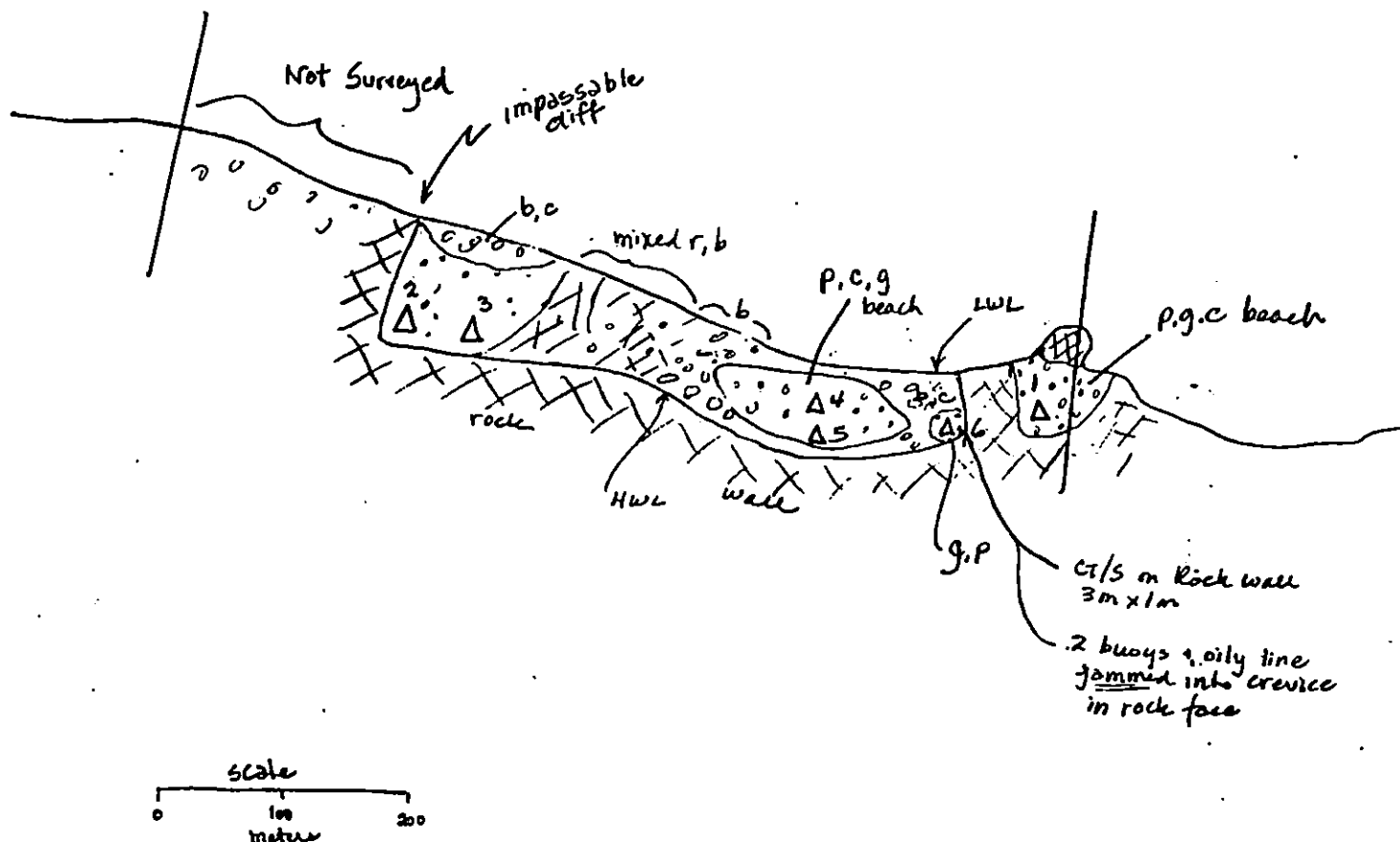
DATE 4/24/90

CHECKLIST

- ☒ N Arrow
- ☒ Approx. Scale
- ☒ Seg/Sub Bndry ←
- ☒ Oil Dist.
- ☒ Width
- ☒ Length
- ☒ % Cover
- ☒ Substrate Character
- ☒ Est. HWL/LWL
- ☒ SSL
- ☒ Profile Location(s)
- ☒ Profile(s)
- ☒ Pht Location(s)
- ☒ Photo Location(s)

LEGEND

- 1 Δ
Pht - No Subsurface Oil
- 2 Δ
Pht - Subsurface Oil
- $\boxed{CT/C}$
Continuous Distribution
- $\boxed{CT/B}$
Broken Distribution
- $\boxed{CT/P}$
Patchy Distribution
- $\boxed{CT/S}$
Splashed Distribution
- lll
Oiled Vegetation
- 1 $\Rightarrow$
Photo location, direction, and number



Oil Character Length (m): AP PO CV CT 3 ST MS PT TB FL NO 680

REVISION: 02/24/90 (C)

SHORELINE ECOLOGICAL SUMMARY

Segment ST / US-003 Subdivision A Date (mo / day / yr) 4 / 24 / 90Time (24 hr) 10:40 Biologist DANIEL RAIDER

- (A) Substrate type and % of segments:
 (1) Bedrock 25 (2) Boulder 35 (3) Cobble 30 (4) Pebble 10 (5) Sand 0 (6) Silt 0
- (B) Overall % cover of biota (% of segment): Dense 35 Moderate 20 Low 45
 ↳ to none
- (C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)

Photographs:
Roll No. 4Frames 4 + 5

BARNACLES

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

MYTILUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

GASTROPODS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

FUCUS

Dense			Moderate			Sparse			Rare		
1U	1M	1L	1U	1M	1L	1U	1M	1L	1U	1M	1L
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6

NOT PRESENT

Wildlife Observations/ General Comments:

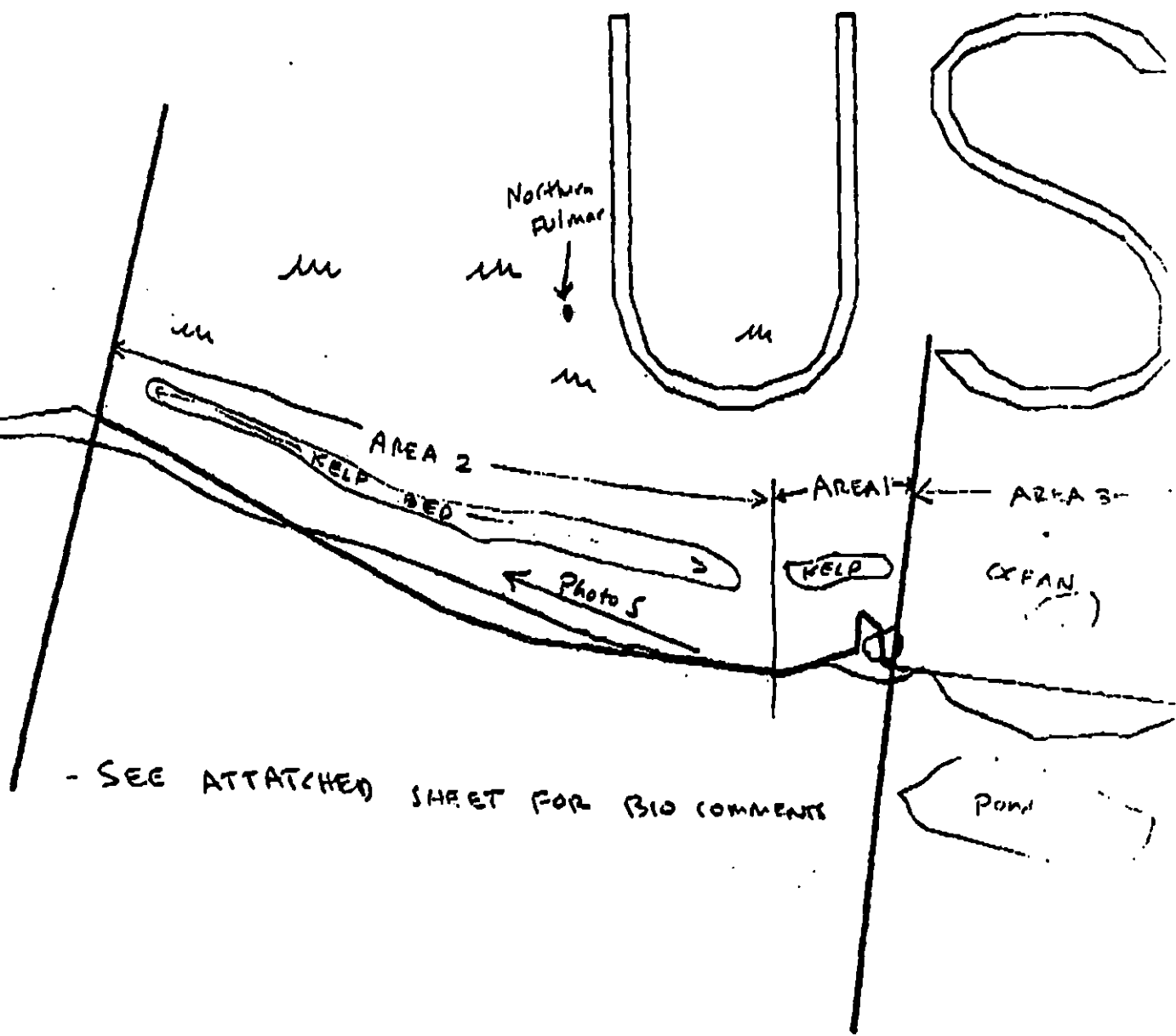
See attached wildlife sightings sheet

WATER TIDE POOLS OF GREAT ECOLOGICAL SENSITIVITY / IMPORTANT
Ecological Considerations:

NONE INDICATED ON DATA SHEET

BIRDS SITED AT US-003

DATE	NAME	NUMBERS	COMMENTS
23 APRIL '90	1) Black-legged Kittiwake	300 ±	Feeding in tight cluster on pond in twin lumbale and on Ocean
	2) Trumpeter Swan	<1	Scattered feathers of at least one. Sited 11 days prior to start survey
	3) Northern Fulmar	1	
	4) Glaucous-winged Gull	10 ±	
	5) Common Merganser	1	Male in pond
	6) Mallard	12 ±	
24 APRIL '90	1) Mallard	8	
	2) Glaucous-winged Gull	8	
	3) Song Sparrow	1	
	4) Black-cyst Catcher	3	



XXXX Wide
// Medium
--- Narrow
TTTT Very Light
0000 No Oil

US-3

Approx. Segment Length: 406m



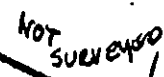
Map Key: KEN-US-3

Name: D. RAICER

Date: 4/24/90

Date Entered:

US



Date Entered:

SHORELINE EVALUATION

SEGMENT ST/ US-03 SUBDIVISION A (1 OF 1) DATE 4/24/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
USFWS property.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to uncoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO SIGNATURE: J. L. Davis / M. Moran DATE: 5/10/90

OILING CATEGORIZATION:

Wide_0_m: Medium_0_m: Narrow_0_m: V.Light_0_m: No Oil_610_m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

☒ No Treatment Recommended	☐ Snare/Absorbent Booms
☐ Treatment Recommended	☐ Oil Snares (pom poms)
☐ Manual Pickup	☐ Absorbents (pads, rolls, etc)
☐ Bioremediation	☐ Spot Washing: ☐ Wands
☐ Tarmat Removal	☐ Beach Cleaner
	☐ Other (see comments)

COMMENTS: _____

TAG COMMENTS: _____

TAG APPROVAL DATE: 5/10/90
 ADEC ART WEINER Art Weiner
 EXXON AMOTH TEAL Amoth Teal
 NOAA Basil Werneck Basil Werneck
 USCG D.D. ROME DD Rome

FOSC: M L DATE: 5-15-80

OG N. BIGGAR

SEGMENT US-003

SUBDIVISION A

DATE 4 124 / 90

CHECKLIST

- ☒ N Arrow
- ☒ Approx. Scale
- ☒ Seg/Sub Bndry ←
- ☒ Oil Dist.
- ☒ Width
- ☒ Length
- ☒ % Cover
- ☒ Substrate Character
- ☒ Est. HWL/LWL
- ☒ SSL
- ☒ Profile Location(s)
- ☒ Profile(s)
- ☒ Pk Location(s)
- ☒ Photo Location(s)

LEGEND

1 Δ

Plt - No Subsurface Oil

2 Δ

Plt - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

Splashed Distribution

lll

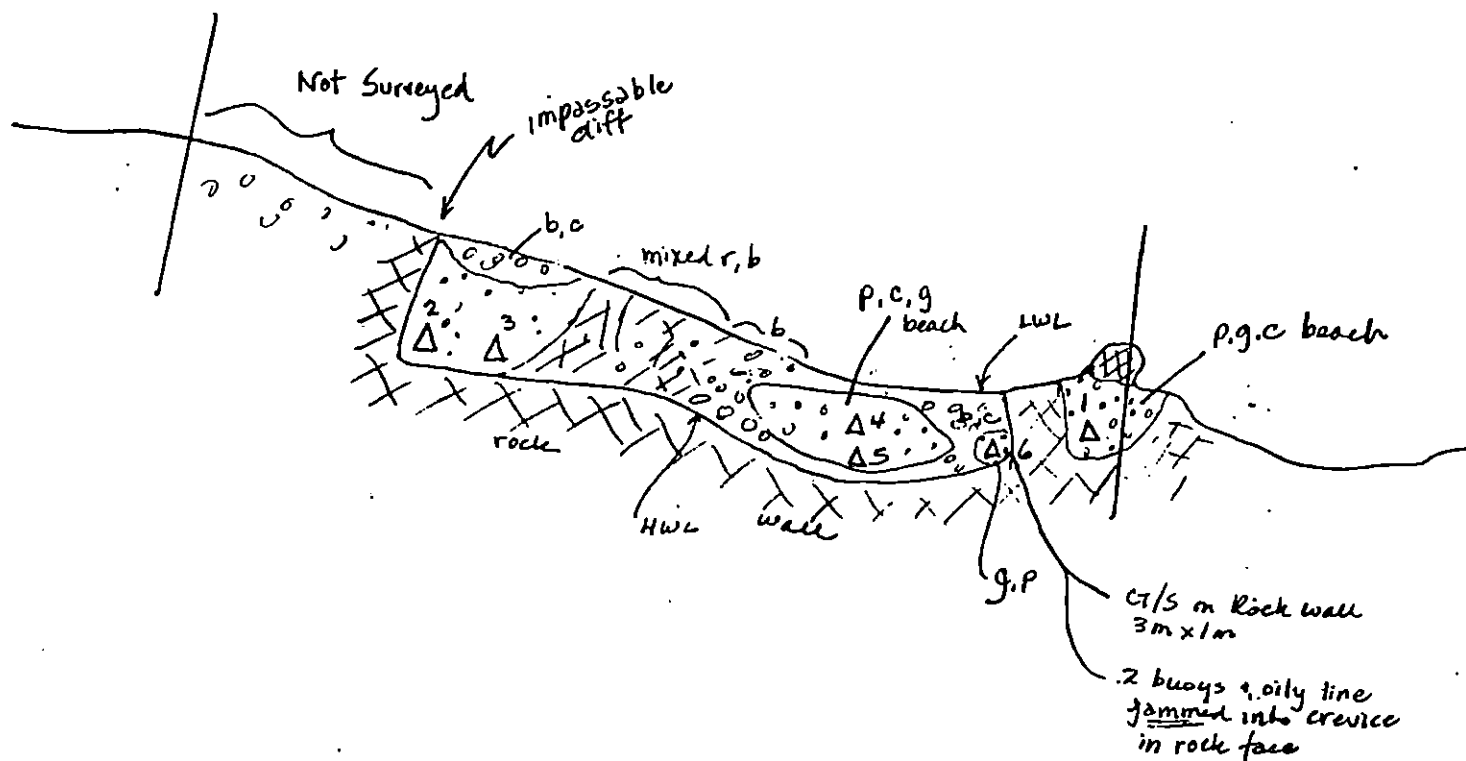
Oiled Vegetation

1 →

Photo location, direction, and number

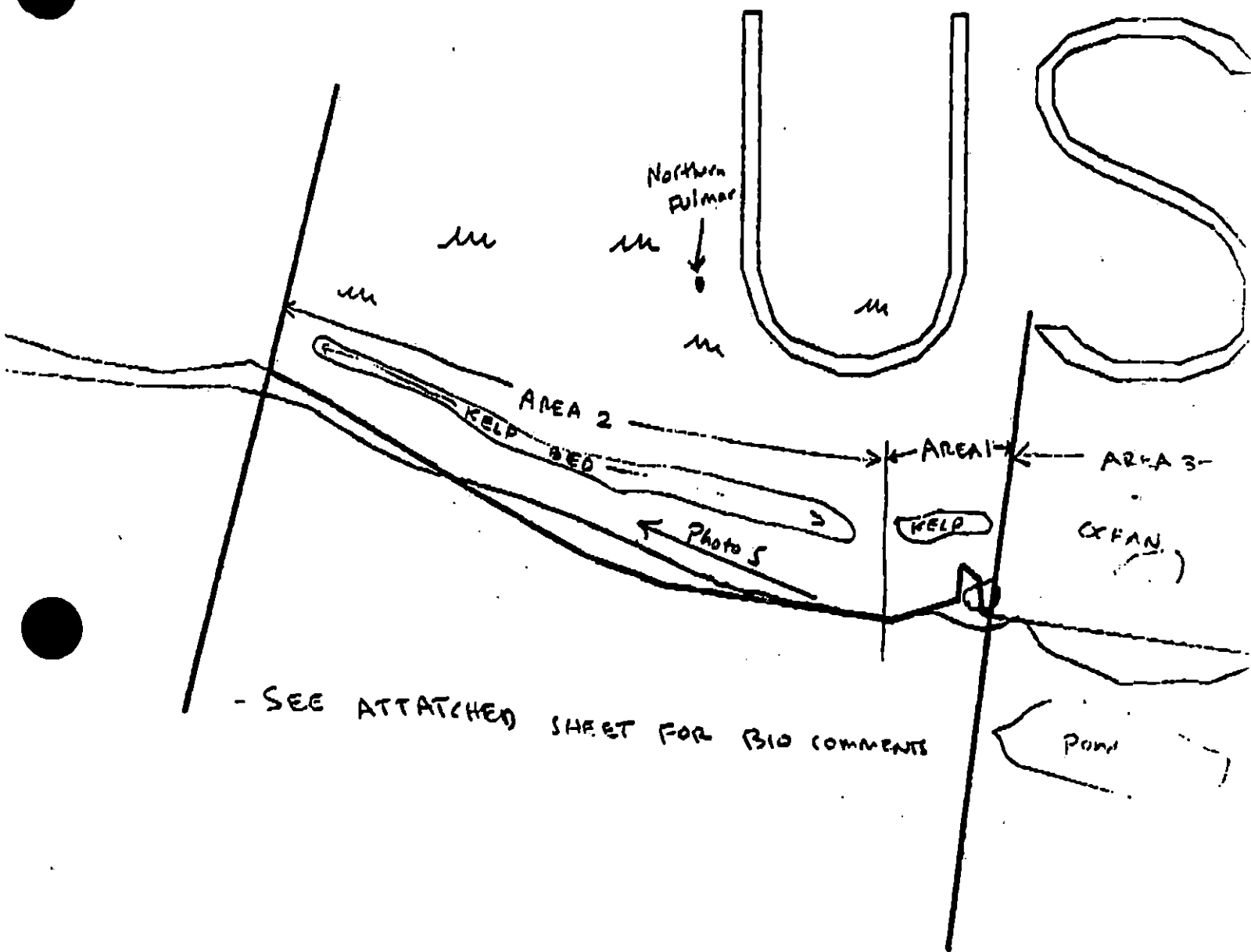
scale
0 100 200
metres

SKETCH MAP



Oil Character Length (m): AP PO CV CT 3 ST MS PT TB FL NO 680

REVISION 62-04-00 (C)



- SEE ATTACHED SHEET FOR BIO COMMENTS

XXXX Wide

● / / Medium

--- Narrow Approx. Segment Length: 406m

TTTT Very Light

0000 No Oil

US-3

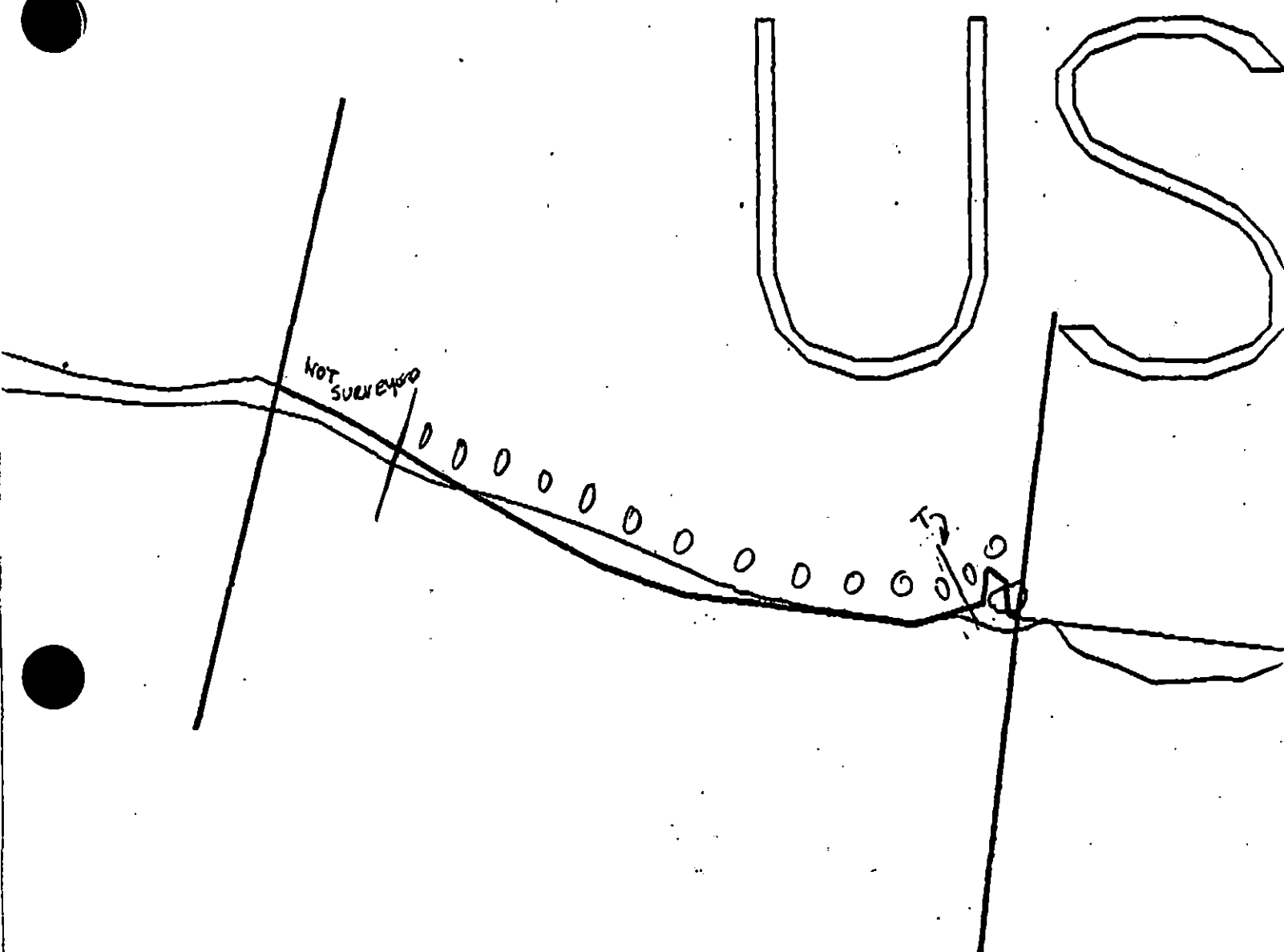


Map Key: KEN-US-3

Name: D. RAIDER

Date: 4/24/80

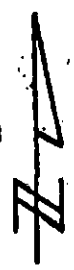
Data Released.



XXXX Wide
/// Medium
-- Narrow
TTTT Very Light
OOOO No Oil

US-3

Approx. Segment Length: 406m



Map Key: KEN-US-3.

Name: N. BIGGAR

Date: 4/24

Date Entered:

ARLIS
Alaska Resources
Library & Information Services
Anchorage, AK