

KN-132 B ASC: 226-10-16982
West side Herring Bay

ork

DOCUMENTS IN STREAM FILES

ASC# _____ Segment # _____

____ '89 Intertidal Assessment Survey, Sport/Com. Fish
____ '89 Shoreline Clean-Up Program (SAT)
____ '89 Anadromous Fish Stream Authorization, for instream work
____ '89 Stream Treatment Reports
____ '89 Demobilization Reports ____ Bioremediation ____ other
____ '89 RLS Sheet ____ Oil sed. sample ____ Egg sample
____ '89 Fall Walk-a-thon Survey, ADEC
____ '89 Winter Assess. Study Site ____ Winter Stream Survey Form
____ '89 Other Documents _____

____ '90 Pre-Anadscat Survey, multi-assessment form
____ '90 Anadscat Survey
____ '90 Anadromous Fish Stream Evaluation (work order)
____ '90 Anadromous Fish Stream Addendum to work order
____ '90 Shoreline Evaluation, SAT and work order for segment
____ '90 Anadromous Fish Stream Authorization, Title 16 permit
____ '90 Stream Treatment Report
____ '90 ADEC Demobilization Report for Bio
____ '90 ADF&G Oiling Condition Survey, for ASAP use (Aug. Surv.)
____ '90 ASAP Survey ____ ASAP Rec. ____ ADEC Rec. (Feb.)
____ '90 Other Documents _____

KN132

05611-10982

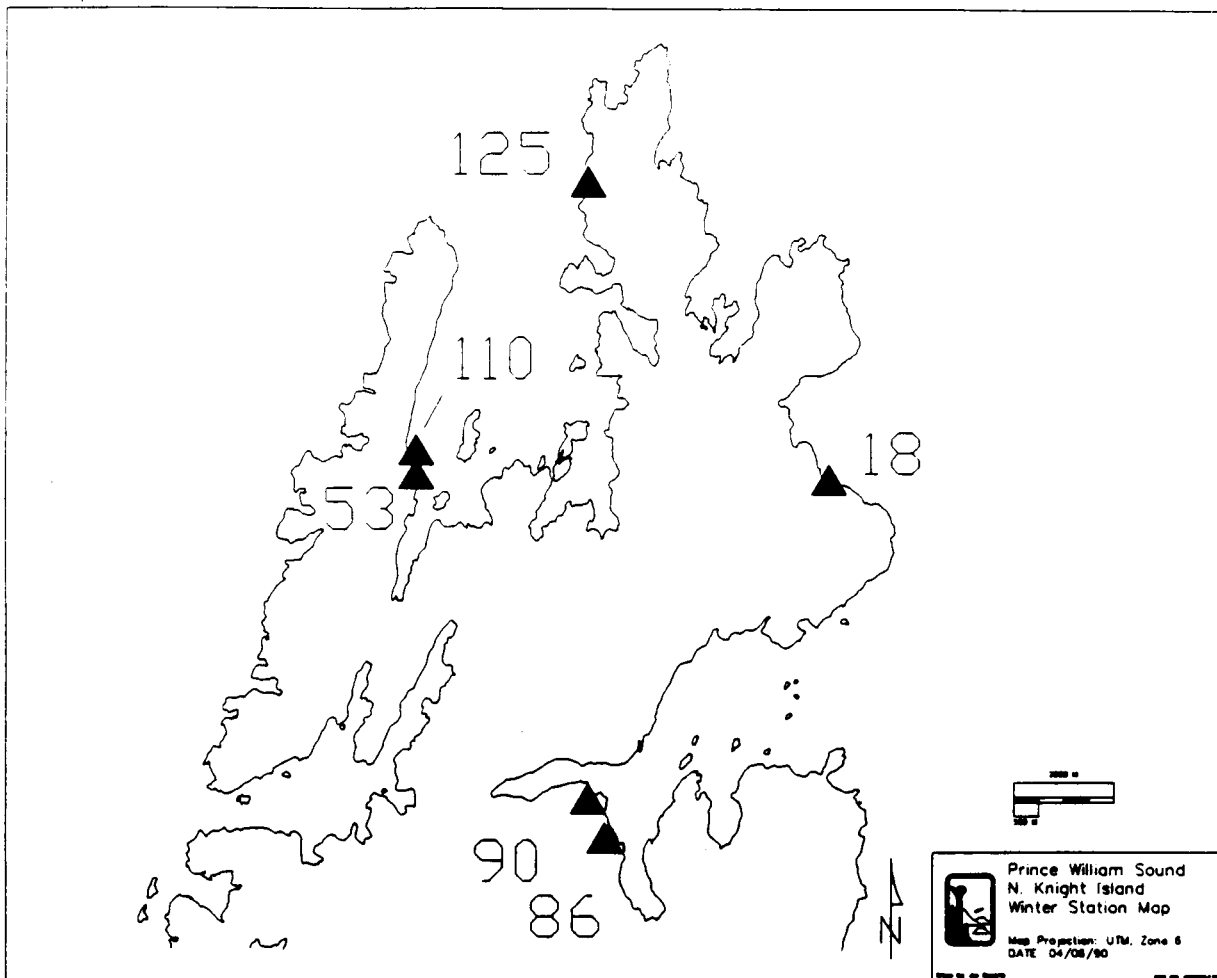
3.20 Station 110, Herring Bay, Knight Island

This site is located along the bank of an anadromous stream that empties into the middle of the western shore of Herring Bay. The beach is composed primarily of gravel and cobble overlying a compacted matrix of sandy gravel. The upper berm is constructed of fine gravels. Treatment was limited to manual sorbant pad oil collection. Transects from 22 October 1989, 24 November 1989, and 22 March 1990, are compared.

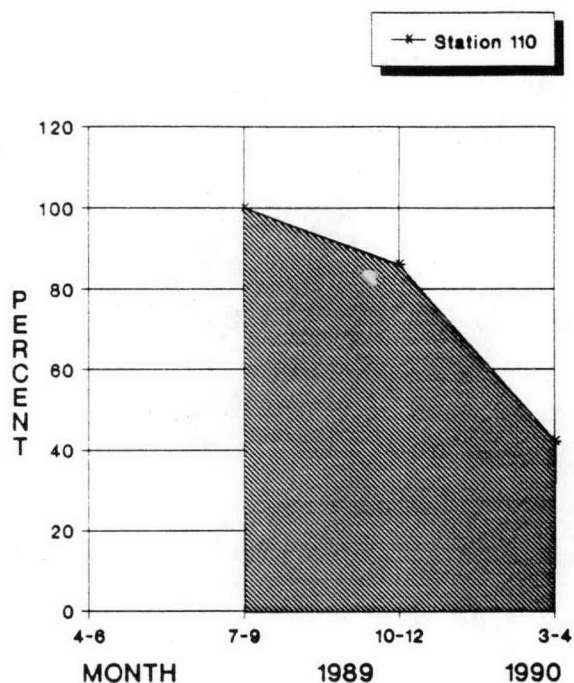
In October 1990 the site had an estimated surface coverage of 80 percent in the middle to upper tidal zones, which decreased to zero in the low tide terrace fronting the beach. Asphalt pavement was common throughout the upper zone. The asphalt mat penetrated 5 to 10 cm into the gravel substrate.

In November 1989 surface oiling had visually increased to 95 percent, and asphalt pavement was still common. Penetration and surface thickness essentially remained the same.

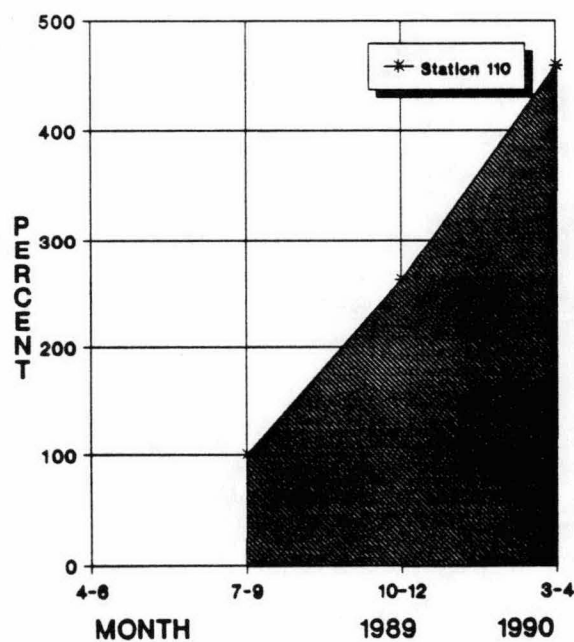
In March 1990 surface coverage was slightly reduced although still 75 to 85 percent along the middle portion of the beach face. Oil penetration was similar to that measured previously, 5 to 20 cm, being deepest along the upper part of the beach.



CUMULATIVE SURFACE OIL COVERAGE



CUMULATIVE VOLUME OF SUBSURFACE OILED SEDIMENT



* Values are set to 100 percent for the first survey to enable comparisons on a percentage basis.

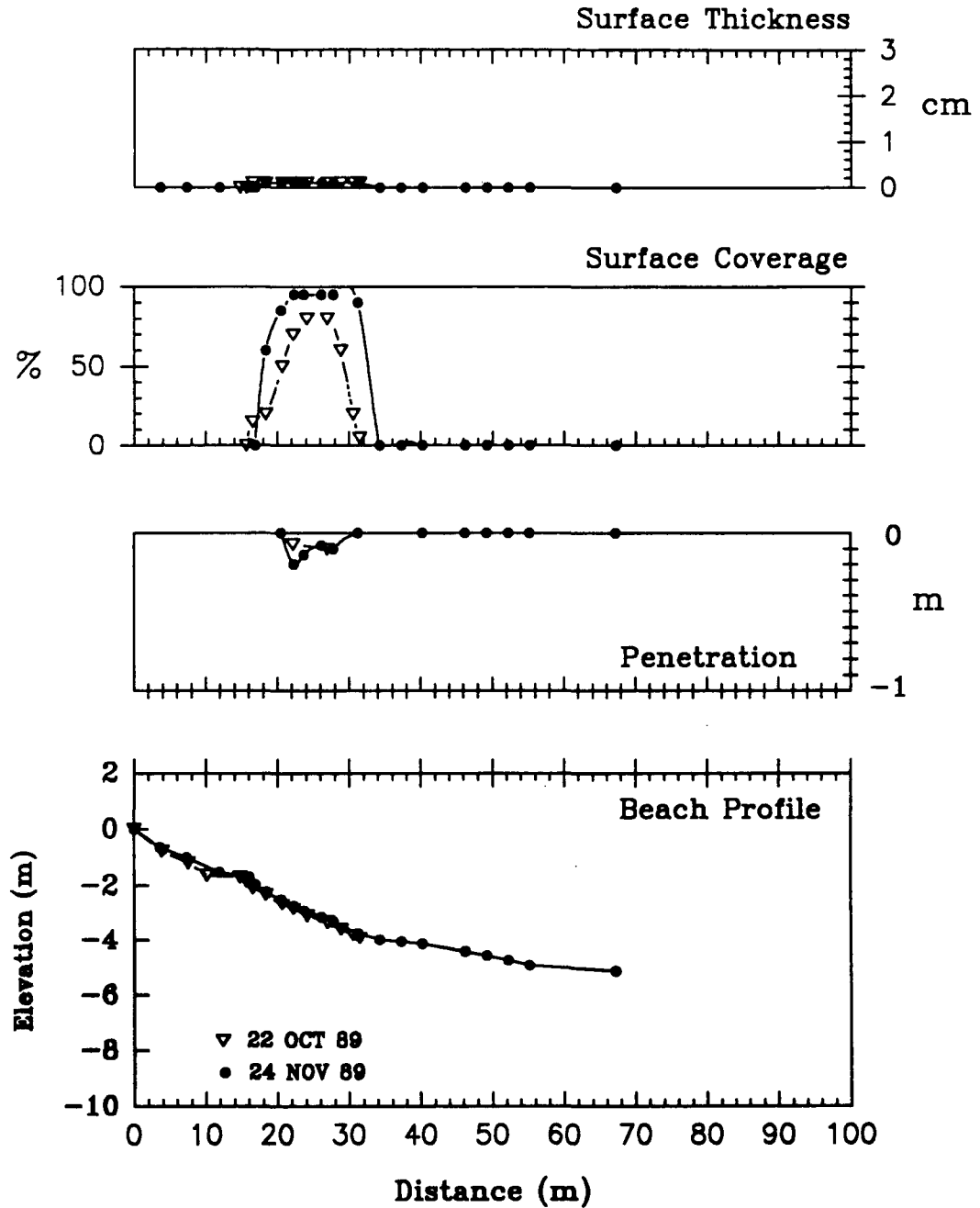
Alaska Department of Environmental Conservation

BEACH TRANSECT DATA

HERRING BAY, KNIGHT ISLAND

Segment KN132 B

Station 110

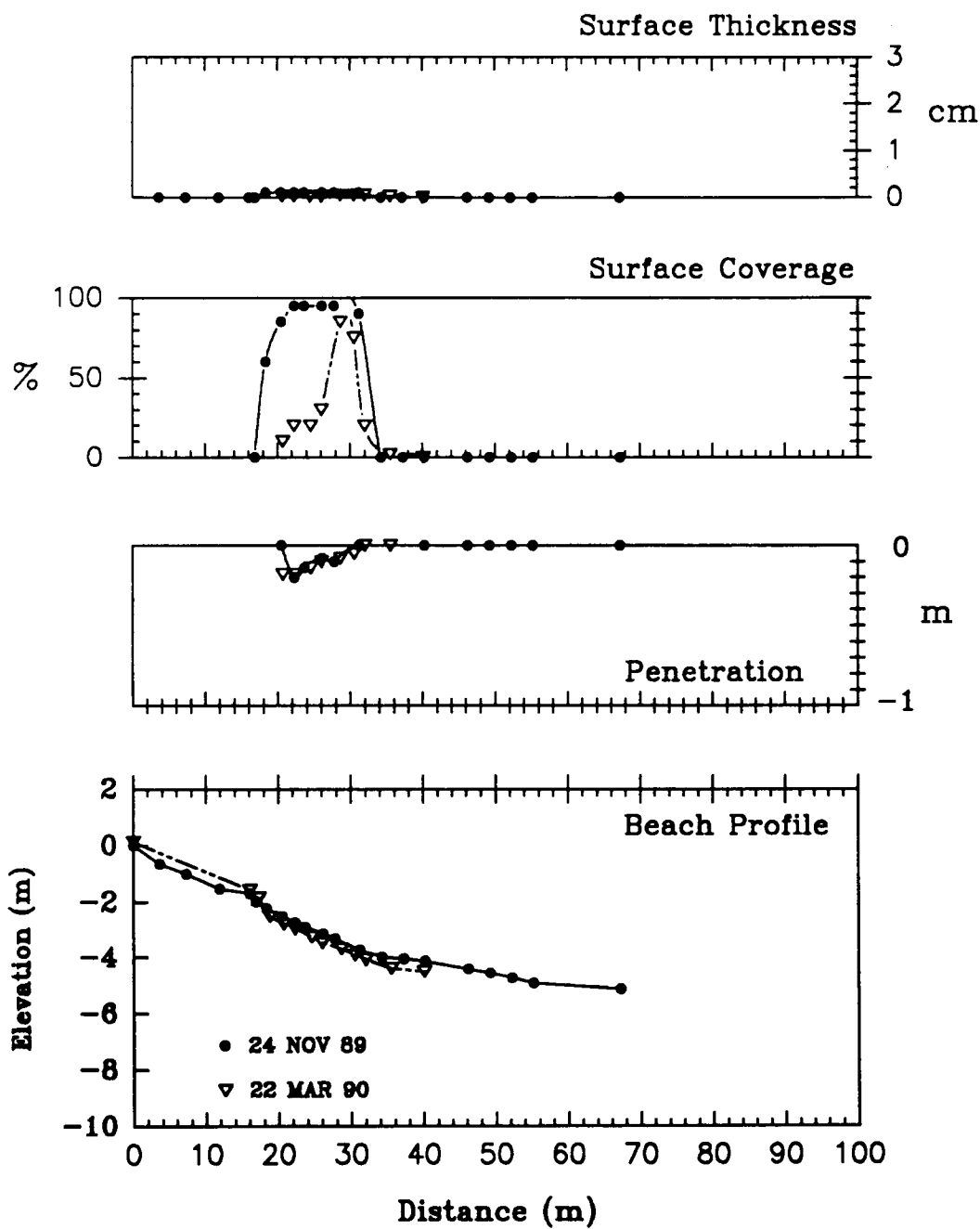


Alaska Department of Environmental Conservation
BEACH TRANSECT DATA

HERRING BAY, KNIGHT ISLAND

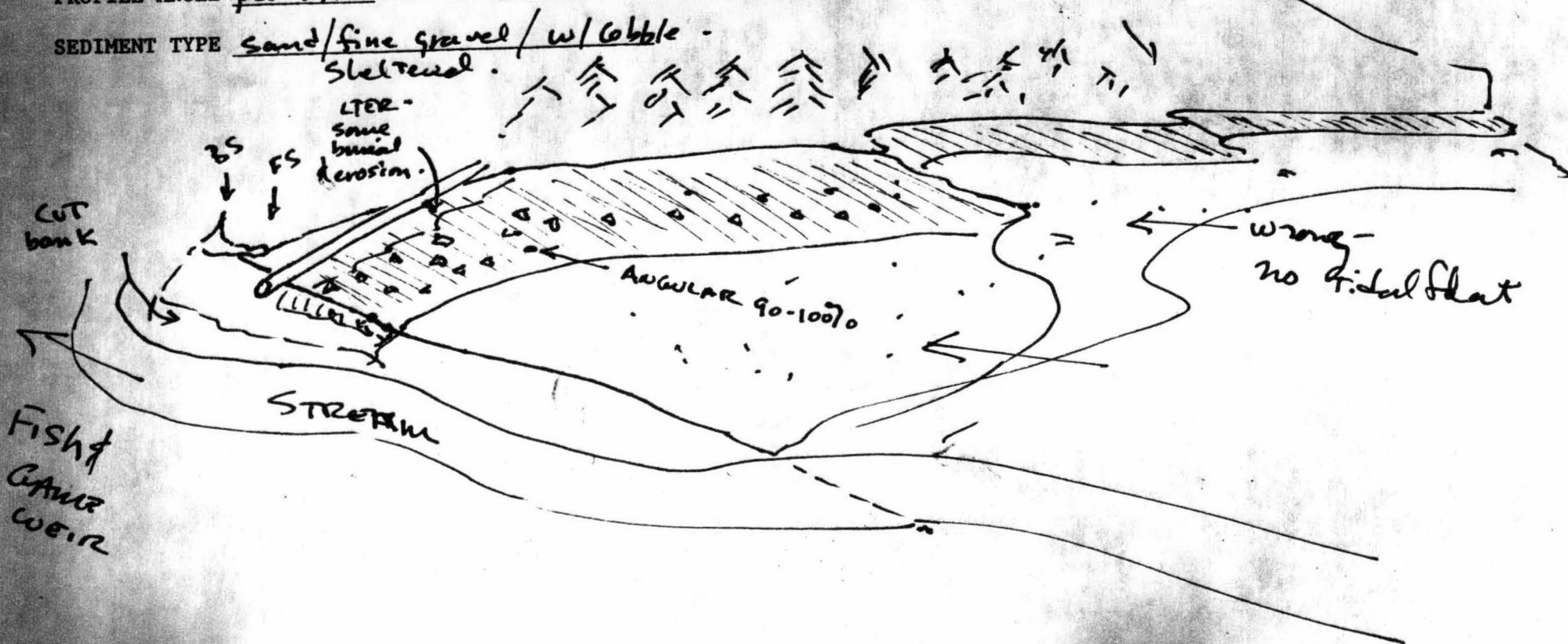
Segment KN132 B

Station 110



RS 110

PROFILE 6 June 1989 LOCATION Salmon Str. SW Herring Bay DATE 6 June 1989
RECORDERS ERG, CR, R Peterson PHOTOGRAPHS P156/1-15 S159/1-11 CR-24-28/24-37 TIME 1124
TIDE STAGE Low WEATHER Sunny/adj. fog WIND SPEED ~10 WIND DIRECTION OW shore (from N)
PROFILE ANGLE ~~20-54~~ 186 WAVE HT. _____ SAMPLES TAKEN: BIO NO CHEM NO SED NO
SEDIMENT TYPE Sand/fine gravel/w/cobble



DATE

16 June 1989

PROFILE

110

START

1628

FINISH

TIDAL STAGE

FRONT STAKE HT

LOCATION

Salmon Str. SW/Herring Bay

LOW TIDE

1000

BACK STAKE HT

PAGE

HORIZONTAL (M)

VERTICAL (CM) -

% OIL COVER

OIL THICKNESS

COMMENTS

PENET. (CM)

CHECK LIST

SAMPLES TAKEN -

depth of oil burial -

layer thickness -

oil penetration =

grain size -

BIOLOGICAL IMPACT

CLEANUP: # men -

equipment type & # -

DATE 06/06/89

PAGE _____

PROFILE 110 START 1028 FINISH _____ TIDAL STAGE _____ FRONT STAKE HT _____LOCATION Salmon Htr. SW Herring Bay LOW TIDE _____ BACK STAKE HT _____*Cumulative*

HORIZONTAL (M)	1.87	2.29	3.73	5.81	7.97	10.72	14.37	16.26	19.46	23.66	26.29	29.41	38.39				
VERTICAL (CM)	-13.3	-25.3	-51.8	-84.6	-108.1	-146.1	-190.6	-210.6	-240.4	-252.6	-284.6	-318.1	-338.6				
% OIL COVER	-	-	-	50	85	99	90	25	2	0	0	0	stream				
OIL THICKNESS (cm)	-	-	-	0.1	0.1	0.1	0.2	0.1	stain		0	0					
penetration COMMENTS (cm)	-	-	-	5	11	3	3	3	0	0	0	0					

CHECK LIST

SAMPLES TAKEN: -

depth of oil burial -

layer thickness -

oil penetration =

grain size -

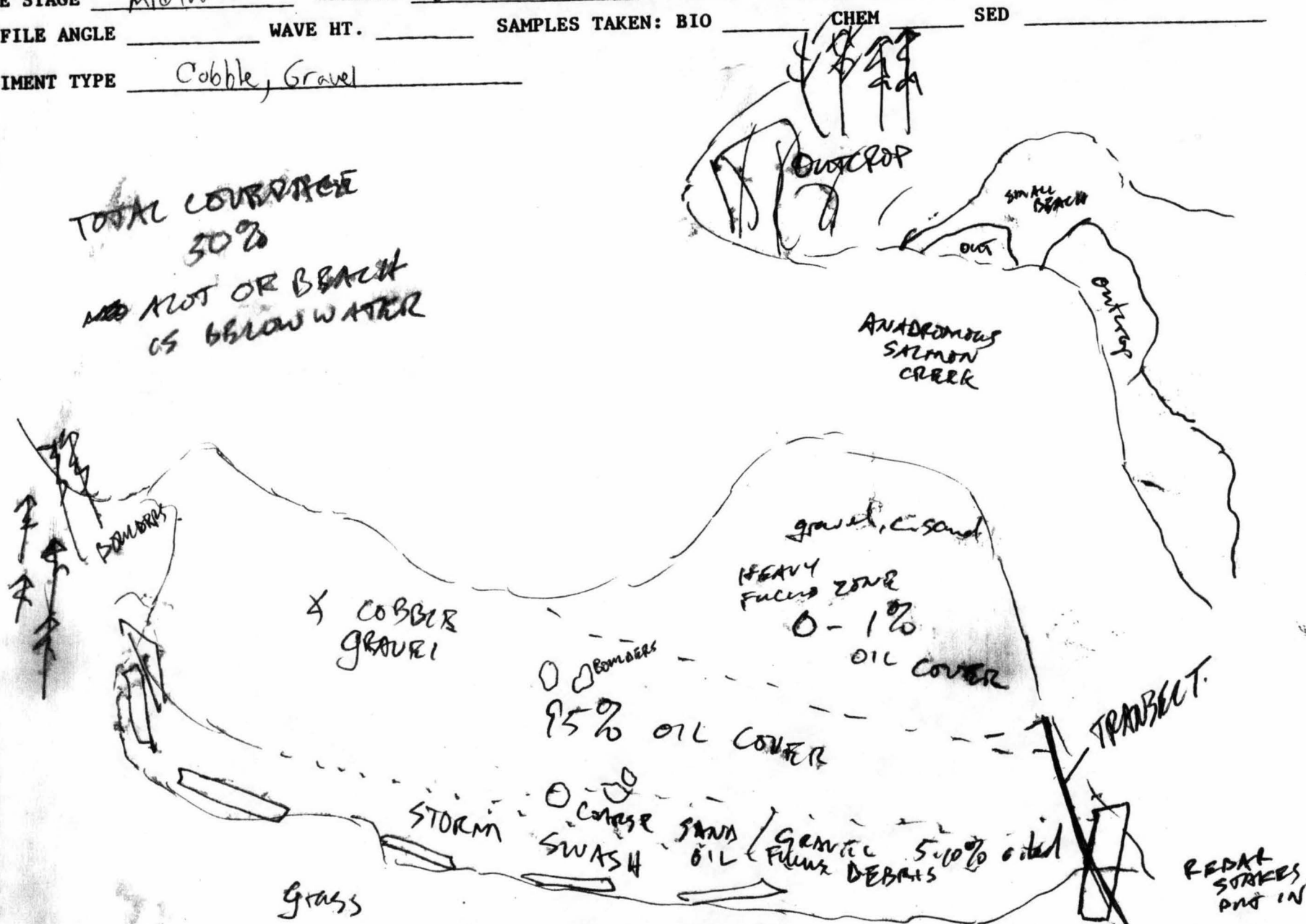
BIOLOGICAL IMPACT

CLEANUP: # men -

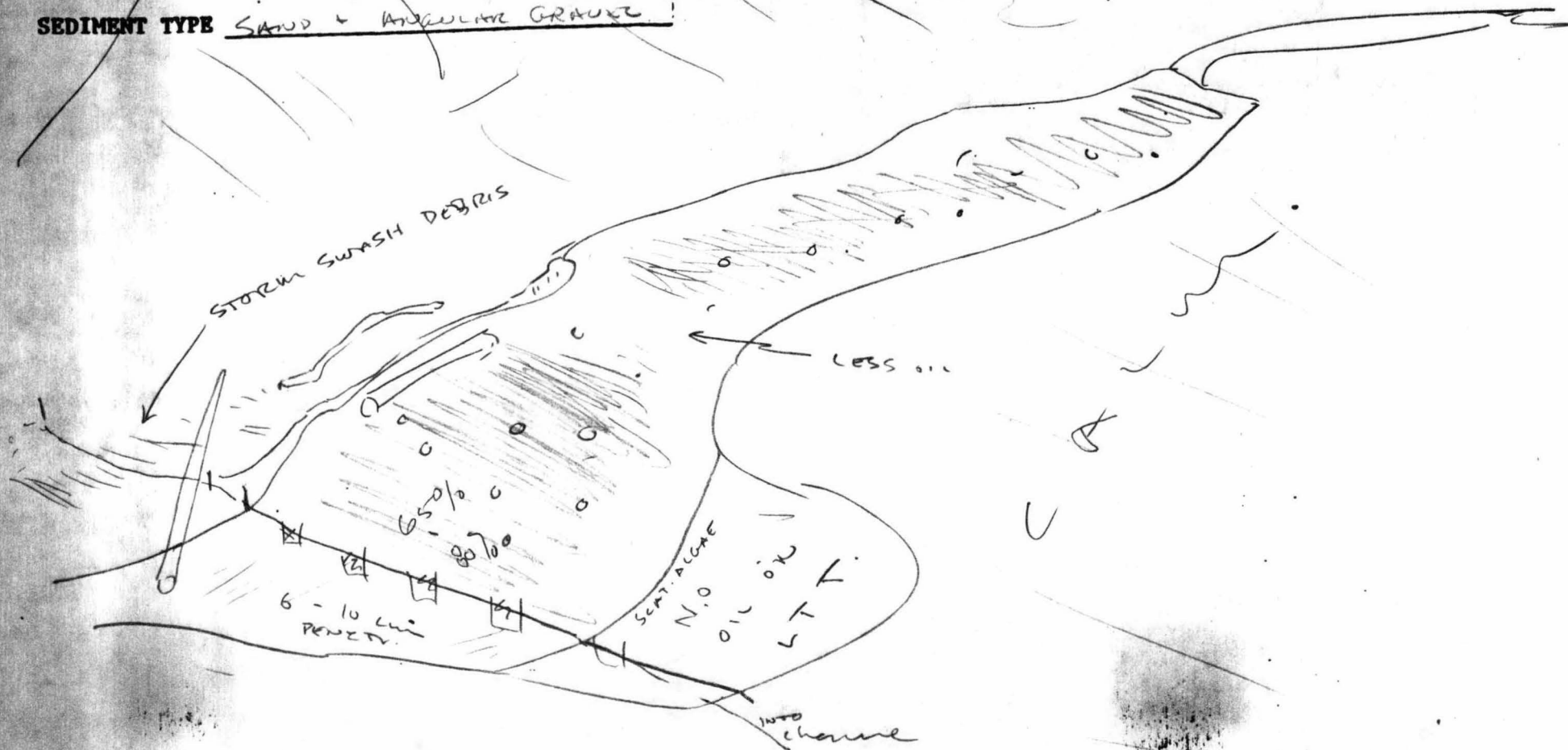
equipment type & # -

PROFILE 110 LOCATION Herring Bay Salmon Stream DATE 9/7/89
 RECORDERS CR, GP PHOTOGRAPHS 89GP 13, 24-36 89CR 73, 33-37 TIME 1300
 TIDE STAGE mid-low WEATHER overcast WIND SPEED 74.1-12 WIND DIRECTION _____
 PROFILE ANGLE _____ WAVE HT. _____ SAMPLES TAKEN: BIO _____ CHEM _____ SED _____
 SEDIMENT TYPE Cobble, Gravel

TOTAL COVERAGE
 30%
 NOT ON BEACH
 IS BELOW WATER



CR Roll 80/22-25
CR Roll 81/1-12
DATE 10-22
TIME 16:30
PROFILE 110 LOCATION SW. Side of Herring Bay
RECORDERS ERL CR, G P PHOTOGRAPHS ORG 2645/23-37 265 P/1-9 2665/1-4..
TIDE STAGE Mid-low WEATHER CLR/COD WIND SPEED 0 WIND DIRECTION 0
PROFILE ANGLE _____ WAVE HT. 5cm SAMPLES TAKEN: BIO _____ CHEM _____ SED _____
SEDIMENT TYPE Sand + Angular GRAVEL !



DATE 10-22-89PROFILE 110START 16:20FINISH 16:40TIDAL STAGE mid lowFRONT STAKE HT 30cmLOCATION SW Hatteras BayLOW TIDE 1432BACK STAKE HT 48

PAGE

100 AS
FS 2 = 30 cm
(1)

HORIZONTAL (M)

VERTICAL (CM)

% OIL COVER

OIL THICKNESS

COMMENTS

3.92	3.62	2.63	4.60	0.89		0.88	1.84	X	2.28	1.52	1.94	2.85	1.90	1.71	0.90	
-78	-41	-45	-6	-15	ACTIVE BGS	-24	-22		-37	-18	-25	-24	-24	-23	-10	
					ACTIVE BGS	15	20		50	70	80	80	60	20	5	
					ACTIVE BGS	0.05 in	0.5	0.1	0.5mm	0.5	0.5	1/4 6cm	0.5			
OLD-veg. storm zone	No oil	storm zone			START OILING	SEA-IL. ST. ST. on rubble			ASPHALTING		GOOD ASPHALTING					

WL 16:35

0 surf only 7cm

CHECK LIST

SAMPLES TAKEN: -

depth of oil burial -

layer thickness -

oil penetration -

grain size -

BIOLOGICAL IMPACT

CLEANUP: # men -

equipment type & # -

ENTERED

LOCATION W HERRING BAY, KANGARU I K0132

DATE 11/24/89

RECORDERS G. PAVIA, G. WINTER

PHOTOGRAPHS 896A 59 1-12

TIME 1555

TIDE STAGE Near Low

WEATHER CLEAR, CALM 25-30° WIND SPEED CALM WIND DIRECTION

PROFILE ANGLE 181

WAVE HT.

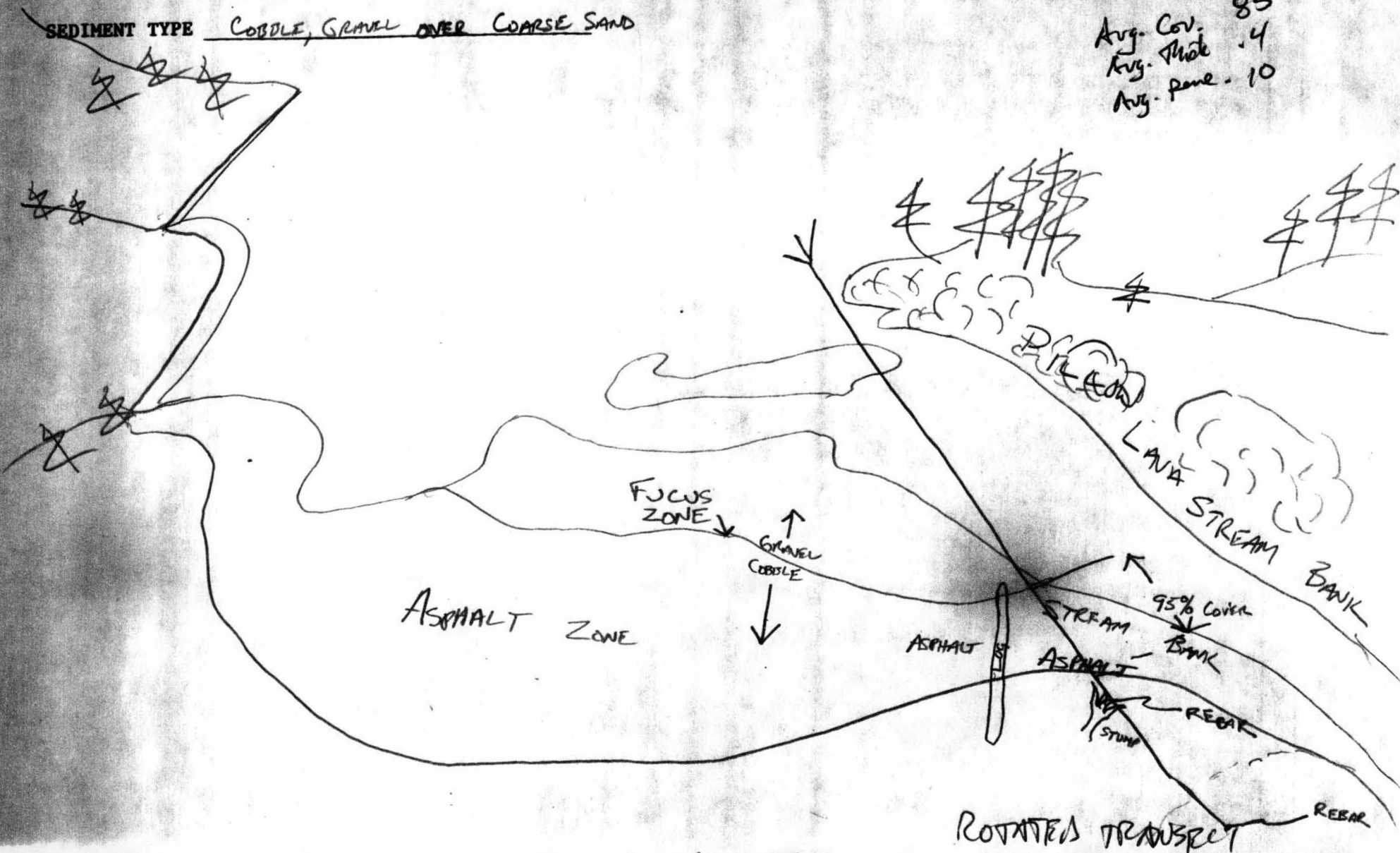
SAMPLES TAKEN: BIO

CHEM

SED 89GW110-1+2

SEDIMENT TYPE COBBLE, GRAVEL OVER COARSE SAND

Avg. Cov. 85
 Avg. Photo .4
 Avg. pane. 10



DATE

11/24/89

PROFILE

110

START

1555

FINISH

1643

TIDAL STAGE

NEAR LIND

FRONT STAKE HT

22

LOCATION

W HERRING BAY, KNLGATI

KN 132

LOW TIDE

$$17^{13} / 1.2$$

BACK STAKE HT

48

HORIZONTAL (M)

VERTICAL (C:1)

% OIL COVER

OIL THICKNESS

CONTENTS

NETZ: (cm)

CHECK LIST

SAMPLES TAKEN: -

depth of oil burial -

layer thickness -

oil penetration =

grain size -

BIOLOGICAL IMPACT

CLEANUP: # men -

equipment type & if -

CATALOG NUMBER: 2261016982

SEGMENT NUMBER: KN132 B

STREAM NAME:

SHORELINE TYPE:

LOCATION: KNIGHT ISLAND, HERRING BAY, WEST SIDE

DATE: 04/21/90 TIME: COVE -1715

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1 2	10	60				6-8	SURFACE SURFACE	MOR CT TB	middle, west bank p=1-3cm dk p=3-4cm p=4-5cm dk scattered oil slicks near area west bank, tide mark to, palter adjacent to lake not

COMMENTS:

HEAVIEST OILING OCCURS IN A 60M LONG X 10M WIDE BAND IN THE MID AND UPPER ITZ ON THE WEST BANK OF THE STREAM. A THIN LAYER OF ANGULAR ROCKS/COBBLE COVERS THE OIL SATURATED FINES THE UNDER SIDE OF THE SURFACE ROCKS HAVE A SPORADIC OIL COAT. SCATTERED TARBALLS ARE PRESENT WITHIN THE GRASSY TIDE POOL AREA & UPSTREAM ON THE EAST SIDE OF THE STREAM. RECOMMENDATIONS: TREAT DURING WINDOW PERIOD. TREATMENT COULD CONSIST OF A COMBINATION OF (HOT WATER WASH OR TWINPACK STEAM) AND REMOVAL OF OILED SEDIMENTS. WEST BANK - WORK AREA SYSTEMATICALLY, PUT ASIDE STAINED SURFACE ROCKS ON SECTION OF BEACH REMOVE LAYER OF OIL SATURATED FINES. PLACE SURFACE ROCKS FROM NEXT SECTION ON PREVIOUSLY WORKED AREA THEN REMOVE SATURATED FINES. CONTINUE ACROSS BEACH IN THIS MANNER ON HEAVIEST OILED PORTIONS. WHEN COMPLETED HOT WATER WASH THE AREA (TWIN PACK). REMOVAL OF OILED MATERIAL WOULD BE ENHANCED BY USE OF 4-WHEELER WITH TRAILER. EAST BANK - MANUALLY REMOVE SCATTERED TARBALLS WITHIN GRASSY TIDE POOL AREA AND UPSTREAM, ALSO REMOVE GROSS OILED VEGETATION. I AGREE WITH ADFG CLEANUP RECOMMENDATIONS, BUT ALSO SUGGEST USE OF BIOREMEDIATION AS LAST STEP TO P

CATALOG NUMBER: 2261016982

SEGMENT NUMBER: KN132 B

STREAM NAME:

SHORELINE TYPE:

LOCATION: KNIGHT ISLAND, HERRING BAY, WEST SIDE

DATE: 05/01/91 TIME: COVE -0950

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1	.5	8		10	3-5		SURFACE	HSOR	
2	10	60		15	3-5		SURFACE	AP HSOR	
3	.5	2		10	3-5		SURFACE	AP	
4	.5	2		20			SURFACE	CV	
5	10	20		<10	3-5		SURFACE	MSOR LSOR	
6	10	2		<10	3-5		SURFACE	AP	
7	5	10		30	3-5		SURFACE	HSOR AP	
8	5	30		5	3-5		SURFACE	MSOR	
9	25	60				0-15	SURFACE	MOR	

COMMENTS:

TWO PINK FRY IN STREAM. STREAM/BEACH AREA IS IMPROVING BUT STILL IN NEED OF TREATMENT. ADF&G PERSONNEL REPORTED THAT WHEN THE SUN COMES OUT, THE OIL LIQUIFIES & STARTS OOOZING TOWARDS THE STREAM. OG'S ESTIMATES ON % COVERAGE INCLUDES ALL THE ROCK & BOULDER SURFACES IN THE OILED AREA. SO IT IS A DECEPTIVELY LOW FIGURE. FIKE NET ACROSS STREAM - ADF&G PERSONNEL HAD FRY CAUGHT TO CODED-WIRE TAG. TREATMENT RECOMMENDATIONS: MANUAL REMOVAL 'AP/HSOR' SEDIMENTS MECHANICAL TILLING SUBSURFACE OIL WITHIN AREAS OF PITS 8-13. MAXIMUM OIL DEPTH FOUND - 15CM.

CATALOG NUMBER: 2261016982

SEGMENT NUMBER: KN132 B

STREAM NAME:

SHORELINE TYPE:

LOCATION: KNIGHT ISLAND, HERRING BAY, WEST SIDE

DATE: 08/01/91 TIME: COVE -1445

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
9							PIT	MOR	
G1							PIT	MOR	
G2							PIT	MOR	
G3							PIT	MOR	
H4							PIT	MOR MOR	

H5						PIT	HOR MOR	
H6						PIT	HOR MOR	
H7						PIT	LOR HOR	0-5 LOR, 5-10 HOR
H8						PIT	HOR	
I10						PIT	HOR	
I11						PIT	LOR	
J12						PIT	HOR	
G	5	20	100		5	SUBSUR	MOR LOR	
H	36	5	180		10	SUBSUR	HOR MOR	
I	40	5	200		20	SUBSUR	HOR MOR	
J	6	6	36		10	SUBSUR	HOR	
A	10	8	80	5		SURF	AP HSOR	
B	10	21	210	30	>5	SURF	AP HSOR	
C	5	36	180	35		SURF	AP HSOR	
D	5	40	200	40		SURF	AP HSOR	
E	5	30	150	40		SURF	AP HSOR	
F	1	1	1	100		SURF	AP	

COMMENTS:

SURFACE OIL (AP/HSOR) LOCATED THROUGHOUT SEGMENT FROM THE WEST SIDE OF STREAM NORTH TO THE FIRST BEDROCK OUTCROP. SUBSURFACE OIL (MOR TO LOR) LOCATED NEAR GRASSY POINT, SOUTHWEST END ADJACENT TO STREAM. HOR LOCATED IN SEGMENT FROM FIRST RUN OFF STREAM (ENTRANCE TO CAMP), NORTH TO BEDROCK OUTCROP. PINKS OBSERVED JUMPING NEAR THE MOUTH, BUT NO PINKS HAVE MOVED PAST THE WEIR. *SURVEY FOCUSED ON DOCUMENTED OILING TREATED IN 1991. NEEDS REASSESSMENT IN SPRING OF 1992.

OG SUPPLEMENTAL INFO TO MAD

RECORDER: FINE

RED-DATE: 1 2

PAGE

CATALOG NUMBER: 71-10-580

STREAM NAME:

SEGMENT NUMBER: 104

SHORELINE TYPE:

DATE: 4/21/90

TIME:

OG vs. MAD:

[illegible]



ANADROMOUS FISH STREAMS/OILING CONDITION
PWS

Segment # KN132B ASC# 226-10-16982 Location Herring Bay Knight Is.

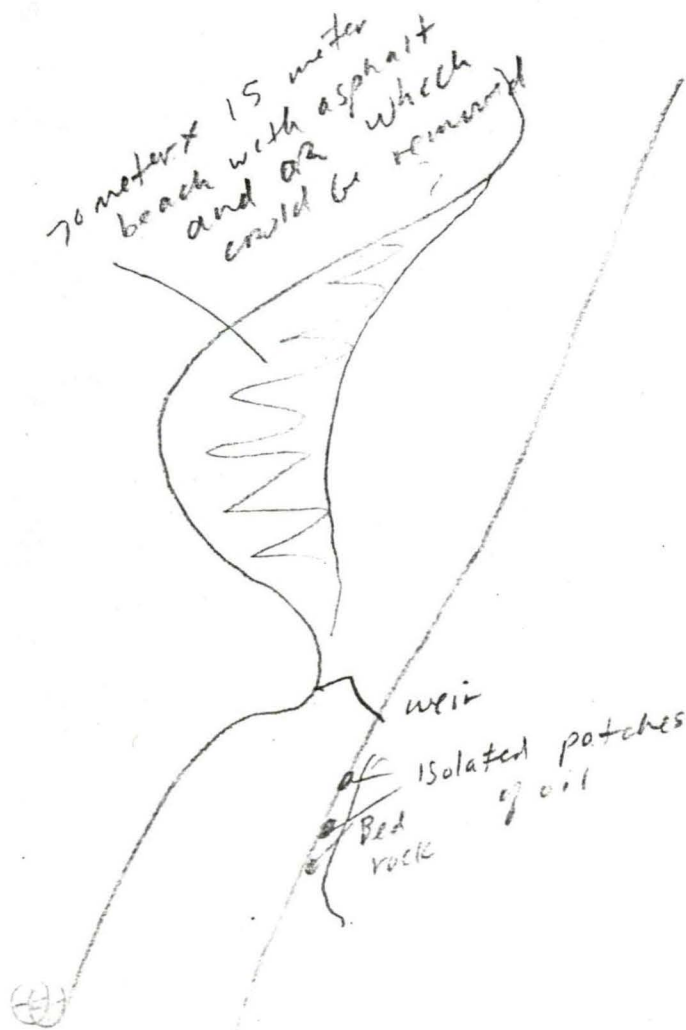
Date 8-14-90 Recorder/Observer T. Crowe / R. Gustin

Oil in streambed Yes Oil on streambanks Yes

Oil within 50m of mouth Yes Anadromous Fish present Yes

Description of oil and comments Some scattered patches of
mousse and OR remain on left side of stream above
constriction at weir. Primary remaining oil is
in the 70 meter right bank below weir. It consists
of heavy OR which is turning to asphalt on the
beach which has been tilled and bio'd. Recommend
manual removal of asphalt + OR. Later this
summer in September when adults have passed
on up stream. Manual removal only.

Oil Distribution Diagram



- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 8/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: M Fink
- 5) START TIME: 12:40 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Kuwada, Middleton, Weseman
- 6) STOP TIME: 2:45 p 18) LOW TIDE TIMES: _____ 24) AGENCY: PAC
- 7) SEGMENT #: KV132B 19) LOW TIDE HTS: _____ 25) PHOTOS TAKEN: Y N
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +2 - +6 ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y N
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16982 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y N
- 13) LOCATION: west side Herring Bay, Knight Is. SAMPLE I.D. _____
- 14) WAVE EXPOSURE: High Moderate Low
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach
- Cove Lagoon Marsh

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1A	8	10	80	5	-	-	AP/H50R
SITE 2B	21	10	210	30	>5	-	AP/H50R
SITE 3C	36	5	180	35	-	-	AP/H50R
SITE 4D	40	5	200	40	-	-	AP/H50R
SITE 5E	30	5	150	40	-	-	AP/H50R

29) OVERALL OIL IMPACT:

- H = >6m band with $\geq 50\%$ oil coverage
- M = >6m band with $\leq 50\%$ oil coverage or $\geq 3m$ to $\leq 6m$ with $\geq 10\%$ oil coverage
- L = <3m band with $> 10\%$ oil coverage
- VL = $\leq 10\%$ oil coverage regardless of band width
- N = No oil observed

30) OIL IN STREAMBED: Y N31) OIL ON BEACH ADJACENT TO MOUTH: N

32) SUBSTRATE TYPE (PERCENT):

Bedrock ☒ Boulder ☒ Gravel ☒ Sand ☒ Cobble ☒ Mud/Silt ☒33) ANADROMOUS FISH PRESENT: Y N

34) WILDLIFE OBSERVATION

Species _____ Number _____

PINK SALMON

35) COMMENTS: Surface oil (AP/H50R) located throughout segment from the west side of stream north to the first bedrock outcrop. Subsurface oil (M-50R) located near grassy point, southwest end adjacent to stream. Hair located in segment from first run-off stream (entrance to camp), north to bedrock outcrop. Pink observed jumping near the mouth, but no pinks have moved past the weir.

* Survey focused on documented oiling treated in 1991.

[illegible]

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

OG COMMENTS:

Areas G, H, I, J are subsurface.
survey focused on areas treated in 1991.

0 25 50
M



KN-132B

8/1/91

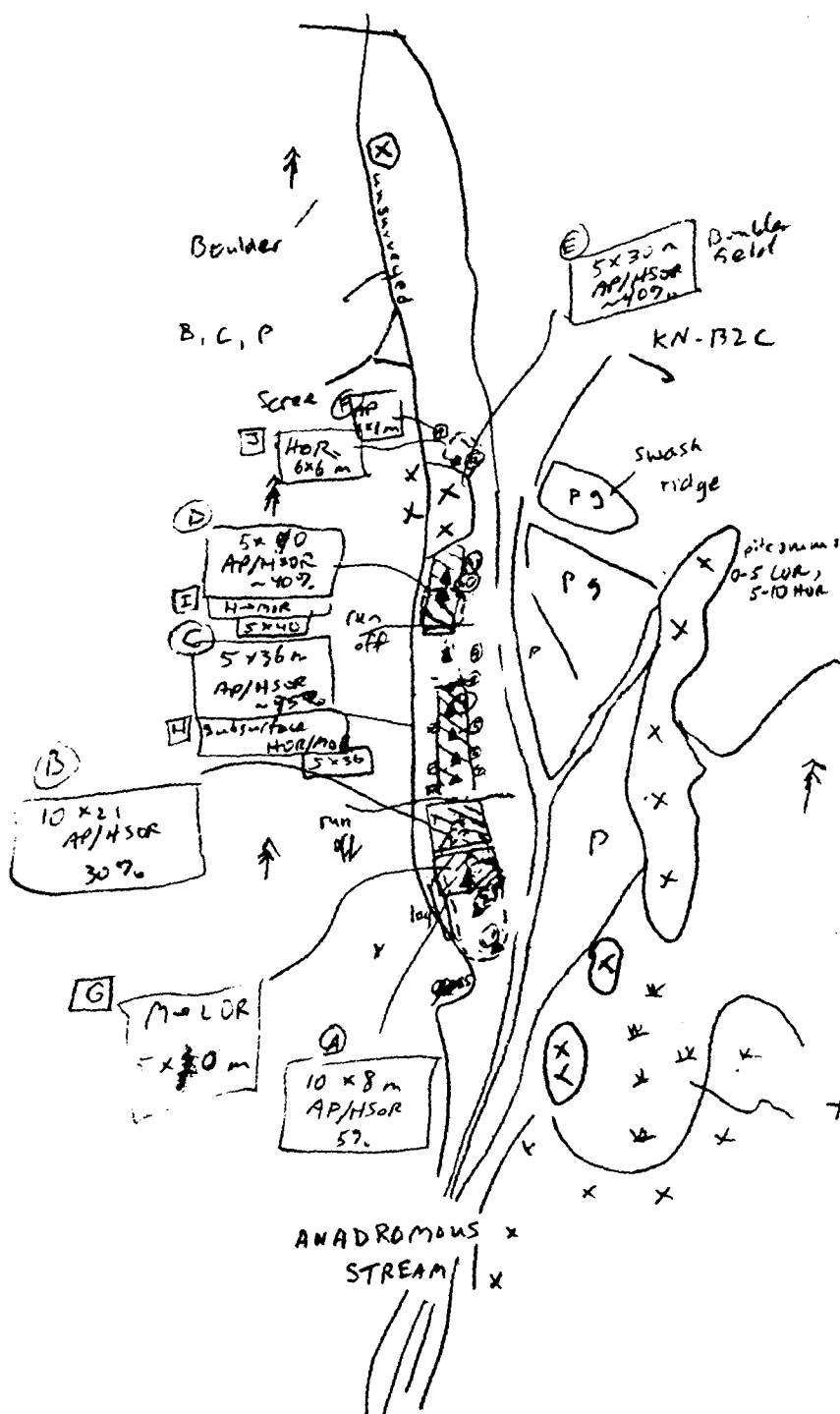
12:40 - 2:45 P.M.

FINK, ADF & G

KN-132-A

XX tidal marsh

X Bedrock



Pt #	cm TD	cm Dil	Clear below	w/t	sheen	seeds
G ①	19	10-16 MOR	Y	-	N	S, E, P, C
G ②	15	5-10 MOR	Y	-	N	S, E, P, C
G ③	20	10-15 MOR	Y	-	N	S, E, P, C
H ④	20	0-16 MOR/MOR	Y	-	-	S, E, P, C
H ⑤	21	0-16 MOR/MOR	Y	-	-	S, E, P, C
H ⑥	20	0-10 MOR/MOR	Y	-	-	S, E, P, C
H ⑦	11	0-5 MOR, 5-10 MOR	Y	-	-	S, E, P, C
H ⑧	18	7-13 MOR	Y	-	-	S, E, P, C
H ⑨	20	12-18 MOR	Y	-	-	S, E, P, C
I ⑩	22	0-20 MOR	Y	-	-	S, E, P, C
I ⑪	11	3-6 MOR	Y	-	-	S, E, P, C
I ⑫	13	0-10 MOR	Y	10	sk hand	S, E, P, C, B

ALL tide zones are UITE

mt
ANADSCAT-90

ADF&G MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: BS SS DS TS AVS SCMA MMMS PTA

2 REGION: PWS KP,CI K,AP

METHOD: Aerial Ground Boat

3 DATE: 4-21-90

15 HIGH TIDE TIMES: 1

21 TEAM RECORDER: Aimee Weseman

4 START TIME: 1600

16 HIGH TIDE HTS: 1

22 OBSERVERS: Rick Gustin

5 STOP TIME: 1715

17 LOW TIDE TIMES: 1730

23 AGENCY: ADF&G

6 SEGMENT #: KN-132B

18 LOW TIDE HTS: 1

24 PHOTOS TAKEN: Y N

7 STATION #:

19 TIDE HT AT SURVEY:

Roll #: Frame:

8 K-UNIT:

Ebb Slack Flood Slack

25 VIDEO TAKEN: Y N TAPES: 90RL6301SS

9 STAT AREA:

20 USCG QUAD: sew B-3

Start: 0 End: 111 -end of tape

10 LAT:

11 LONG:

26 SAMPLES TAKEN? Y N Number

12 SOURCE: Map Loran

Oil

13 LOCATION: West side Herring Bay

Sediment

14 DESCRIPTION: ADF&G study site

Biological

Water

EXTENT OF OIL

	SHORELINE				STREAM			
	L	M	M ²	%	L	M	M ²	%
27 SURFACE COVERAGE	60m	10m	heavily	area				
28 SURFACE THICKNESS								
29 PENETRATION	8cm	4cm	8cm					

30 OVERALL OIL IMPACT: N VL L M H

36 CATALOGED ANAD. FISH SREAM? Y N

37 CATALOG #: 226-10-16982

38 STREAM NAME:

39 OIL IN STREAM BED? Y N

40 OIL ON STREAM BANKS? Y N

41 OIL ON BEACH ADJACENT TO MOUTH? Y N
(within 50 meters)

42 OIL WITHIN 1 MILE OF STREAM? Y N

Where:

31 OIL TYPE: Pooled Mousse Tar Asphalt Sticky Stain

32 OILED DEBRIS? Y N - driftwood

33 SHORELINE TYPE: Headland Low-lying Rocks Beach Cove
Lagoon Marsh

43 ANADROMOUS FISH PRESENT? Y N

34 WAVE EXPOSURE: High Moderate Low

44 ANADROMOUS FISH OBSERVATION

35 SUBSTRATE TYPE: Bedrock 10 Boulder 5 Cobble 40
Gravel 35 Sand Mud/silt

Species	Aerial	Ground

COMMENTS: Heaviest oiling occurs in a 60m long x 10m wide band in the mt U I T Z on the west bank of the stream. A thin layer of angular rocks/cobble covers the oil saturated fines. The underside of the surface rocks have a sporadic oil coat. Scattered tar balls are present within the grassy tide pool area & upstream on the east side of the stream

KN132

6

45 PHOTOLOG

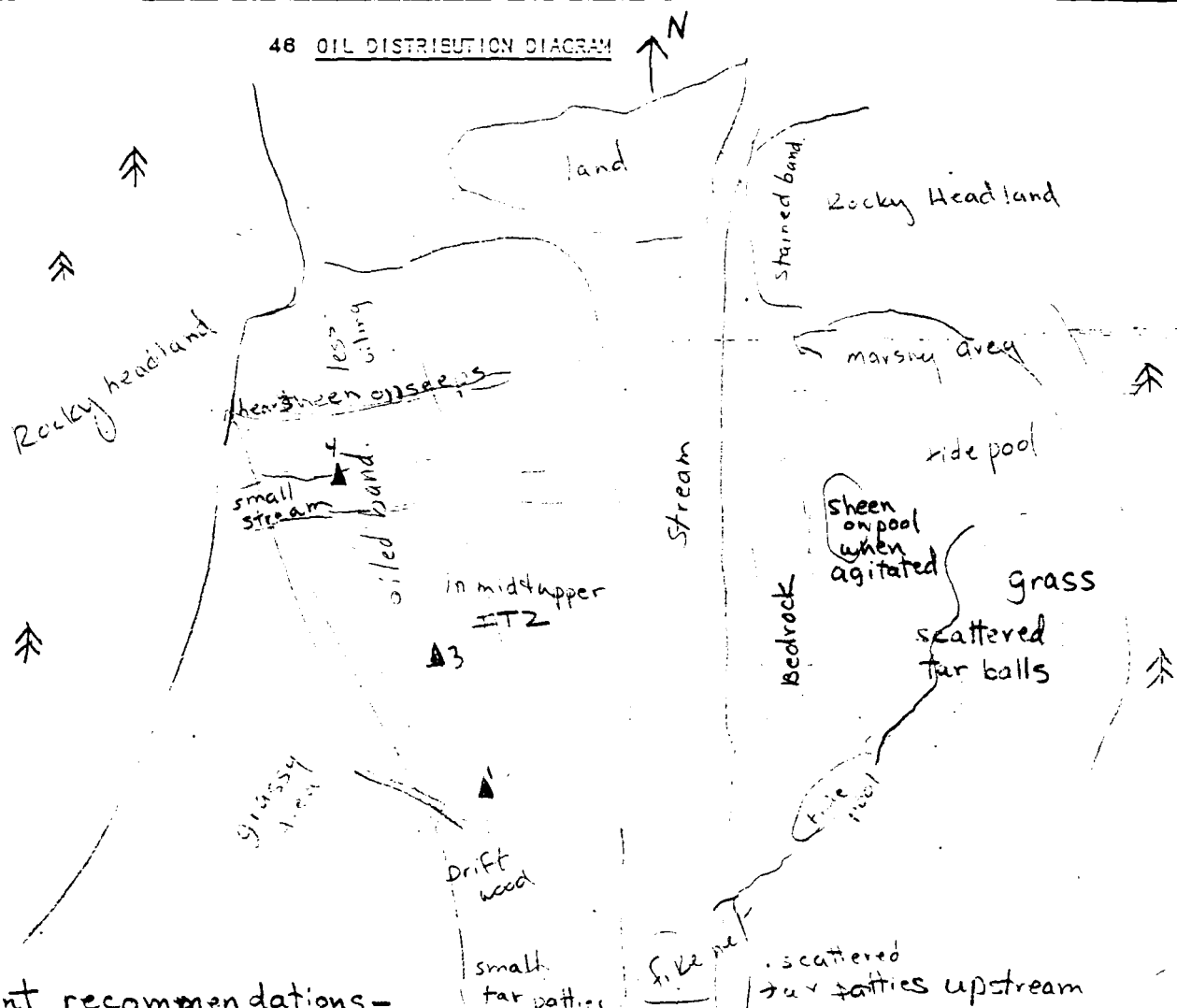
20-10-16982

FRAME(S)

DESCRIPTION

pit 1 - 16cm 8cm oil
 pit 4 - 8cm 8cm oil penetration
 pit 2 - 14cm 4cm oil penetration
 pit 3 - 4cm oil penetration

48 OIL DISTRIBUTION DIAGRAM



treatment recommendations -

treat during window period.

treatment could consist of a combination of (hot water wash) (or twinpack steam) removal of oiled sediments
on west bank - work area systematically - put aside stained surface rocks on section of beach
 remove layer of oil saturated fines. place surface rocks from next section on previously worked
 area then remove saturated fines. Continue across beach in this manner on heaviest oiled
 portions. When completed hot water wash the area (twinpack). Removal of oiled material
 would be enhanced by use of 4-wheeler with trailer.

On East bank - manually remove scattered tar balls within grassy tide pool area &
 upstream, also remove gross oiled vegetation

OVER

Comments of Ken Critchlow -

Agree with ADFB cleanup recommendations, but also suggest use of bioremediation as last step to provide enhanced longer term cleaning to degrade residual oil.

On west bank — work area systematically. Put aside stained surface rocks on section of beach, remove layer of saturated fines. Place surface rocks from next section on previously worked area, then remove saturated fines. Continue across beach in this manner on heavily oiled portions. When completed, hot water wash the area (twin pack).

Removal of oiled material would be enhanced by use of wheeler w/trailer.

On east bank -- manually remove scattered tar balls within grassy tide pool area & upstream. Also remove gross oiled vegetation.

Comments of Ken Critchlow -

Agree w/ ADF+G clean-up recommendations, but also suggest use of bioremediation as last step to provide enhanced longer term cleaning to degrade residual oil.

1) SURVEY TYPE: BS SS

2) REGION: PWS KP, CI K, AP

3) METHOD: Aerial Ground Boat

4) DATE: 5/1/91 16) HIGH TIDE TIME: _____

22) TEAM RECORDER: Amee Weseman

5) START TIME: 0800 17) HIGH TIDE HTS: _____

23) OBSERVERS: Tom Crowe

6) STOP TIME: 0950 18) LOW TIDE TIMES: 930

24) AGENCY: ADF&G

7) SEGMENT #: KN132B 19) LOW TIDE HTS: -1ft

25) PHOTOS TAKEN: Y (N)

8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +1

ROLL #: _____ FRAMES: _____

9) LAT: _____ Ebb Slack Flood Slack

26) VIDEO TAKEN: Y (N)

10) LONG: _____ 21) USCG QUAD: _____

TAPE # _____

11) ASC #: 226-10-16982

START: _____ STOP: _____

12) STREAM NAME: _____

27) SAMPLES TAKEN? Y (N)

13) LOCATION: Herring Bay, Knight I

SAMPLE I.D. _____

14) WAVE EXPOSURE: High Moderate Low

15) SHORELINE TYPE: Headland Low-lying Rocks Beach

Cove Lagoon Marsh

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1	8	0.5		10	3-5		HSOR
SITE 2	60	10		15	3-5		AP/HSOR
SITE 3	2	0.5		10	3-5		AP
SITE 4	2	0.5		20			CV
SITE 5	20	10		<10	3-5		M+LSOR

29) OVERALL OIL IMPACT: over for more sites

33) ANADROMOUS FISH PRESENT: (Y) N

H = >6m band with ≥50% oil coverage

(M) = >6m band with ≤ 50% oil coverage or ≥3m to ≤6m with ≥10% oil coverage

L = <3m band with >10% oil coverage

VL = ≤10% oil coverage regardless of band width

N = No oil observed

34) WILDLIFE OBSERVATION

Species Number

pink fry stream 2

pink fry 560

sculpin 1

pink fry 562

30) OIL IN STREAMBED: Y (N)

31) OIL ON BEACH ADJACENT TO MOUTH: (Y) N

32) SUBSTRATE TYPE (PERCENT):

Bedrock 10 Boulder 5 Gravel 40 Sand 5 Cobble 40 Mud/Silt _____

35) COMMENTS: Stream/beach area is improving but still in need of treatment. ADF&G personnel reported that when the sun comes out, the oil liquifies & starts going towards the stream.

OGs estimates on % coverage includes all the rock & boulder surfaces in the oiled area - so it is a deceptively low figure

fike net across stream - ADF&G personnel had fry caught to CW Tag.

2 pink fry in stream

36) PHOTOLOG

FRAME(S)

	length	width	DESCRIPTION	
site 6	2 x 10		3-5 cm deep	AP < 10%
site 7	10 x 5		3-5	HSOR/AP 30%
site 8	30 x 5		3-5	MSOR 5%
site 9	60 x 25		0-15	MOR

penetration

penetration

see OG sheet for pit information

pits 1-7 No. 1
 8 0-10 cm - MOR
 9 0-3 cm
 10 0-15 cm - MOR
 11 0-10 - LOR
 13 0-7 - LOR

A
2/

=

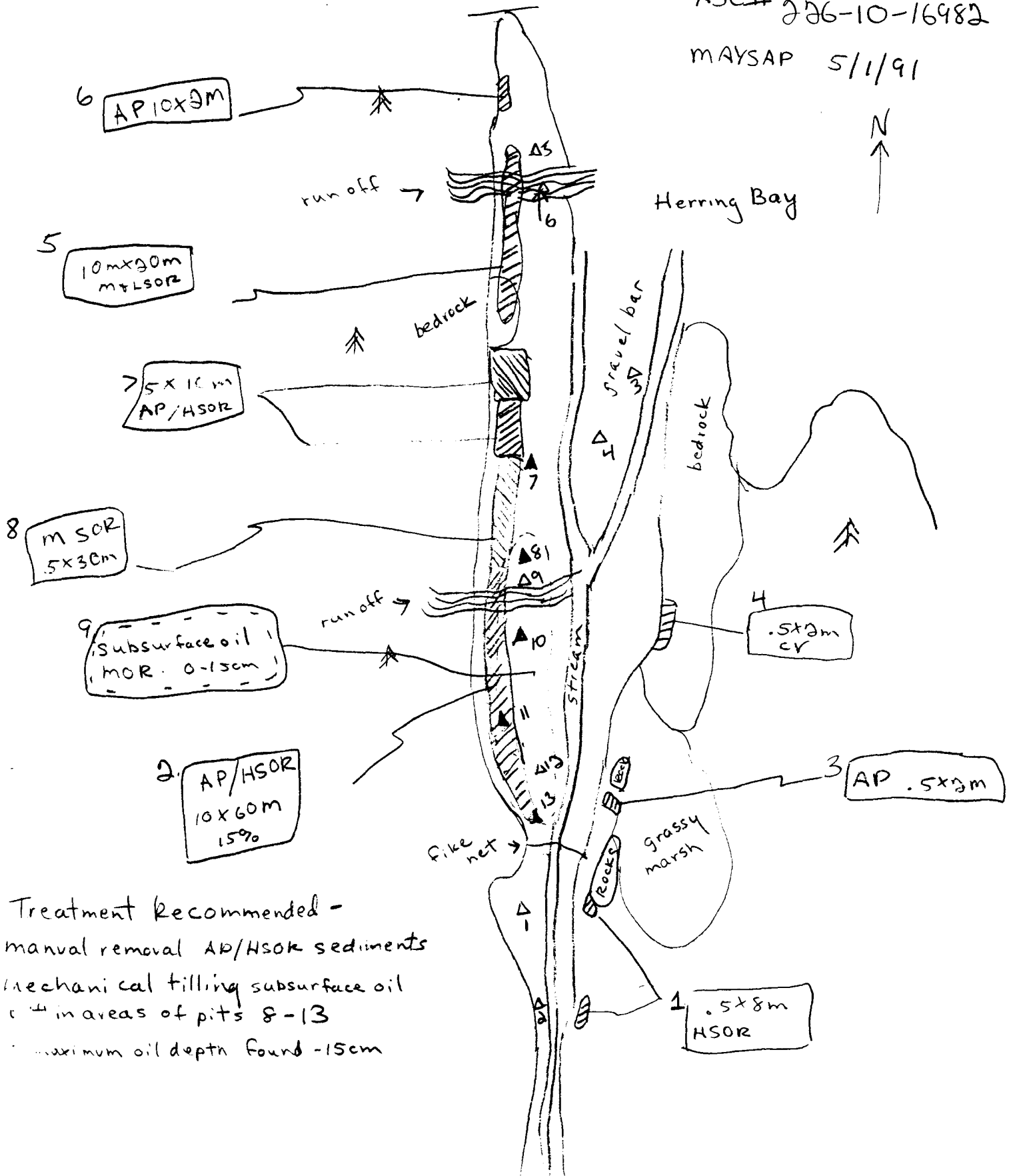
Sample Taken
 Photo Frame # and
 Shot Direction

A:EDDATFO
 April 3, 1991

KN132B

ASC# 226-10-16982

MAYSAP 5/1/91



Treatment Recommended -
manual removal AP/HSOR sediments
mechanical tilling subsurface oil
in areas of pits 8-13
maximum oil depth found -15cm

RCVD
7/24/89

MARILYNE SIGMEN
ALASKA DEPT. OF FISH AND GAME

On behalf of Exxon Corp. I request authorization to work within the enclosed area near the stream bed located in segment KN-132.

The area that requires work is an outcropping of boulders surrounded by cobble on a section of beach that we were directed by RAT not to treat. Within this outcropping of boulders there is free pools of oil and heavy staining on the boulders. The section needing treatment is approximately 20 yards by 10 yards.

The method we will employ shall be purely manual, using snares and pads.

Your consideration of this proposal is appreciated. Please respond in writing as soon as possible.

Sincerely

Wm C Baird
Wm C Baird
EXXON 2

FILE COPY

ALASKA DEPT. OF
FISH & GAME
JUL 24 1989
VALDEZ/R II
HABITAT DIVISION

STATE OF ALASKA / Department of Fish & Game
FIELD MEMO

Permit Number	N/A	Serial Number	Nº 1178
To (Permittee's Representative), of (Organization)		William Baird, Exxon	
Date and Time	7/25/89 4:00 pm.	Area	Prince William Sound
Location and Section of Work Herring Bay, Knight Island, KN-132			
☐ Authorization to Proceed ☐ Non Conformance ☐ ADEC Permit ☐ ADF&G Permit		☐ ADNR Permit ☒ Other	

This confirms my verbal direction provided to SROT 3 by department representative Lee Rogers (aboard the Tongass Ranger) on 7/13/89 re: proposed manual clean-up work in this segment. Per the description of the area in relation to the stream channel and banks received via radio, no permit or authorization is required by this department.

I requested a workplan documenting the area involved to confirm this determination. The undated workplan recently received include no sketch or location information. Please provide a sketch which indicates the location of the work in relation to the stream channel as soon as possible.

Per Lee's discussions with SROT 3, work should have proceeded. If any portion of the area is connected with the stream at higher tide levels, please remove the shore which may retain oil and expose fish to contamination.

Expiration Date

State Representative

Permittee Representative

Mamby Sigman, Field Office Coordinator

C. SIKSRUM EXXON

Action Taken by Permittee

DISTRIBUTION:

White—State Pipeline Coordinator; Green—Permittee Representative; Yellow—Originator; Pink—State Pipeline Coordinator, Fairbanks; Goldenrod—Field Files.

STATE OF ALASKA
FIELD MEMO

Department of Fish & Game

Permit Number

N/A

Serial Number

Nº 1178

To (Permittee's Representative), of (Organization)

William Baird, Exxon

Date and Time

7/25/89

Area

Prince William Sound

Location and Section of Work

Perry Bay, Knight Island, KN-132

___ Authorization to Proceed

___ Non Conformance

___ ADEC Permit

___ ADF&G Permit

___ ADNR Permit

☒ Other

This confirms my verbal direction provided to SCOT 3 by department representative Lee Rogers (aboard the Tongass Ranger) on 7/13/89 re: proposed manual clean-up work in this segment of the description of the area in relation to the stream channel and banks received via radio, no permit or authorization is required by this department.

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Expiration Date

State Representative

Marilyn Sigman, Field Office Coordinator

Permittee Representative

C. Sigman, Exxon

Action Taken by Permittee

DISTRIBUTION:

White—State Pipeline Coordinator; Green—Permittee Representative; Yellow—Originator; Pink—State Pipeline Coordinator, Fairbanks; Goldenrod—Field Files.

STATE OF ALASKA

FIELD MEMO

Permit Number

Serial Number

Nº 1178

To (Permittee's Representative), of (Organization)

Date and Time

Area

Location and Section of Work

☐ Authorization to Proceed

☐ Non Conformance

☐ ADEC Permit

☐ ADF&G Permit

☐ ADNR Permit

☒ Other

Expiration Date

State Representative

Permittee Representative

Action Taken by Permittee

DISTRIBUTION:

White—State Pipeline Coordinator; Green—Permittee Representative; Yellow—Originator; Pink—State Pipeline Coordinator, Fairbanks; Goldenrod—Field Files.

STATE OF ALASKA
FIELD MEMO

Permit Number

Serial Number

Nº 1178

To (Permittee's Representative), of (Organization)

Date and Time

Area

Location and Section of Work

☐ Authorization to Proceed

☐ Non Conformance

☐ ADEC Permit

☐ ADF&G Permit

☐ ADNRR Permit

☒ Other

Expiration Date

State Representative

Permittee Representative

Action Taken by Permittee

DISTRIBUTION:

White—State Pipeline Coordinator; Green—Permittee Representative; Yellow—Originator; Pink—State Pipeline Coordinator, Fairbanks; Goldenrod—Field Files.

State of Alaska
Department of Fish and Game
Habitat Division

Page__of__

Field Inspection Report

Date 5-26-90 Time 0725

Location: (Logging unit/Road/Waterbody) KN132 B
226-10-16982

Operator/Contractor: EXXON/VECO

Individuals present at time of inspection:

Name

Representing

<u>T. Lowe</u>	<u>ADFG</u>	<u>GERI NUYES</u>	<u>VECO</u>
<u>R. Gustin</u>	<u>ADFG</u>	<u>BOB DAWSON</u>	<u>VECO</u>
<u>Jan Breyer</u>	<u>ADFG</u>	<u>ROSS MILLER</u>	<u>UPS</u>

Activity/Situation Observed: CLEANUP.

Pertinent Statutes/Regulations: AK. Title 16

Recommended/Required Action (Specify): remove armor -
PICKUP tar mat / fill

Area of beach nearest Fyke trap still has heavy OR
6-10" deep. 6/1/90

By (date) _____ (if applicable)

Please note: This is not a final inspection report. It is intended to provide the operator/contractor with a notice of problems or concerns which require immediate attention. If necessary, a final inspection report will be issued at a subsequent date.

Rick Gustin
Fish and Game Representative/Title

Company Representative/Title

SEGMENT AS / KN-132 SUBDIVISION: B SITE: 1 DATE 8-10-90USCGNAME Michael D. Brown SIGNATURE Michael D. Brown☒ YES☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: very similar to KN-500-B, but this area is ~~not~~ protected. We should take a
step as a followup for more bioADECNAME John Hayer SIGNATURE John Hayer☒ YES☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: Anad stream ADEC comments should be considered during
decision of this site regarding stream area. S.S. oil + surface
oil observed on N. stream bank S. bank not assessed by ASAP team.
The rest of site should be reviewed to determine extent of
oil on site. High priority for 1991.LAND MANAGERNAME DOUGLAS GIBSON SIGNATURE Douglas Gibson☒ YES☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: Cleanup crews did not do a good job of
cleaning between boulders. Still too much oil
at this locality. Location of ANAD stream.EXXONNAME Martinez Nid. SIGNATURE Nidal Martinez☒ YES☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: Still a moderate amount of S.O.R. on
site.KN 132-B, AS# 226-10-16982

SITE 3

[illegible][illegible]

Frames 13

REVIEWED
8/14/90 T/L

REVISION NO. 7/27/99

OG Deimer

SEGMENT ST/ 1CN-132

SUBDIVISION B

DATE 8/10 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)
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 $\rightarrow$
Photo location, direction,
and number

LEGEND

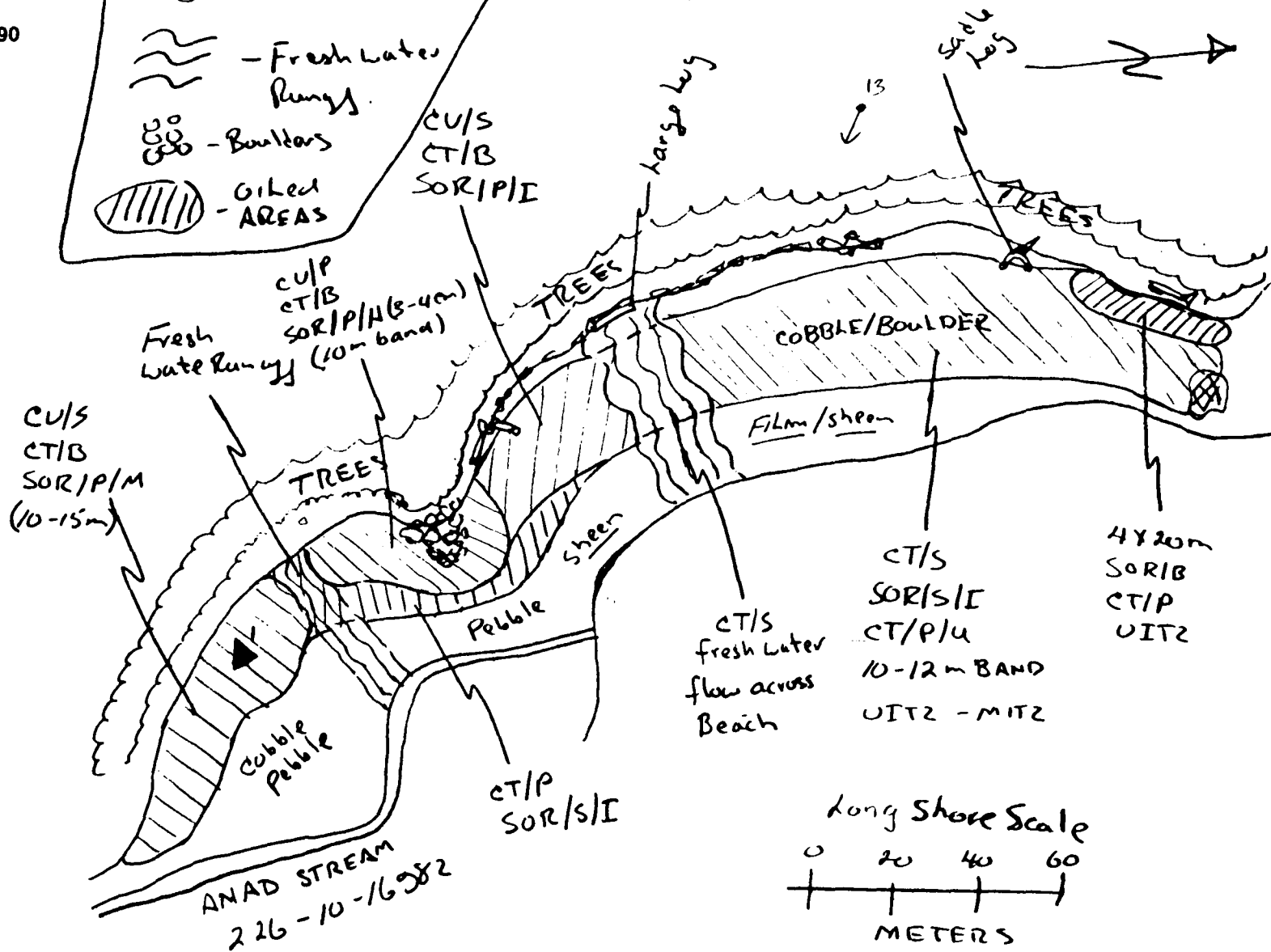
- Trees

- Fresh Water
Runny

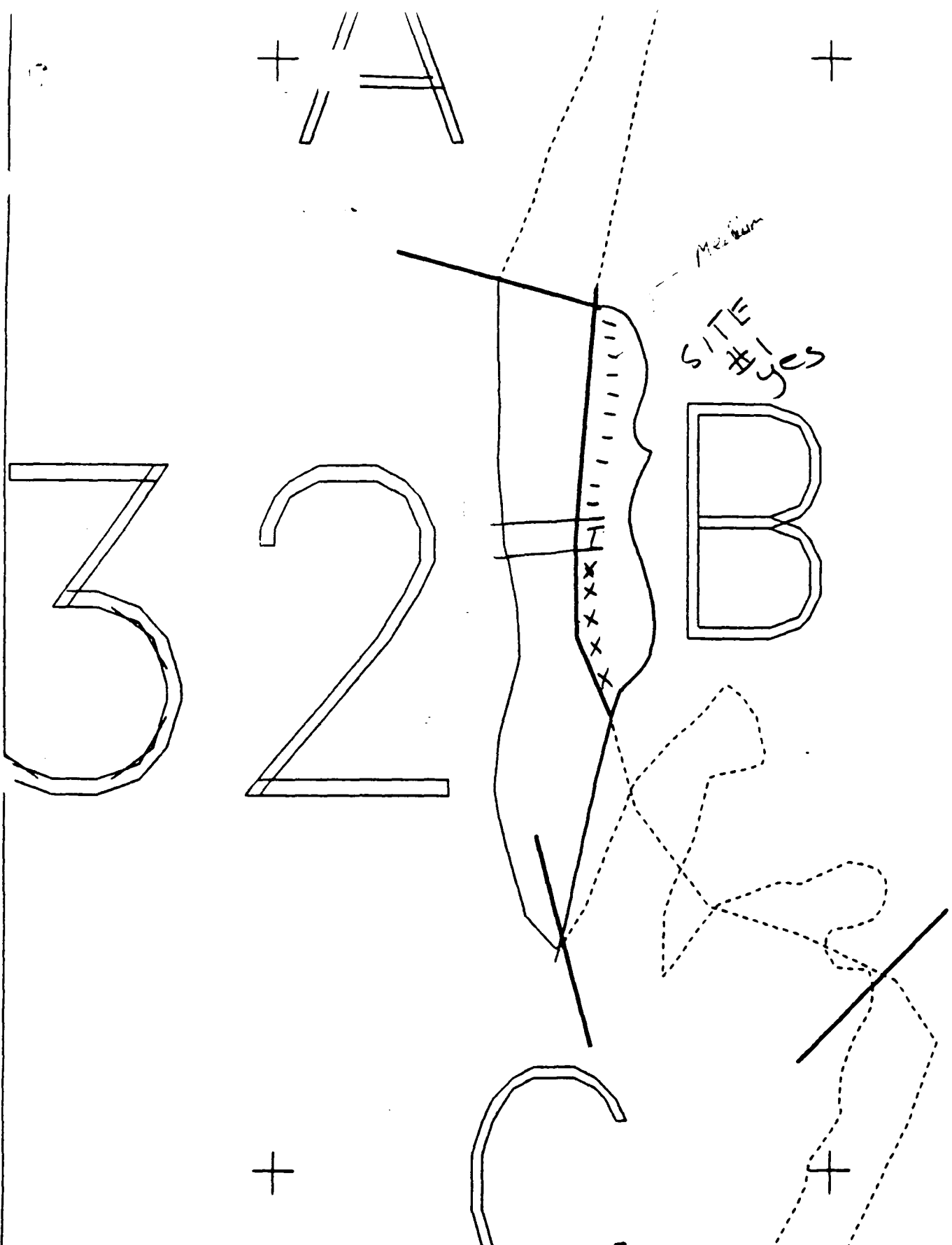
- Boulder

- Oiled
AREAS

SKETCH MAP



(Across Shore Exagrated)



XXXX
////

TTTT
0000

Wide
Medium
Narrow
Very Light
No Oil

KN-132 B

ADEC Subsegment Length: 170m

METERS

0 50 100

AK State Plane Zone 4 1:2102
kn-132b



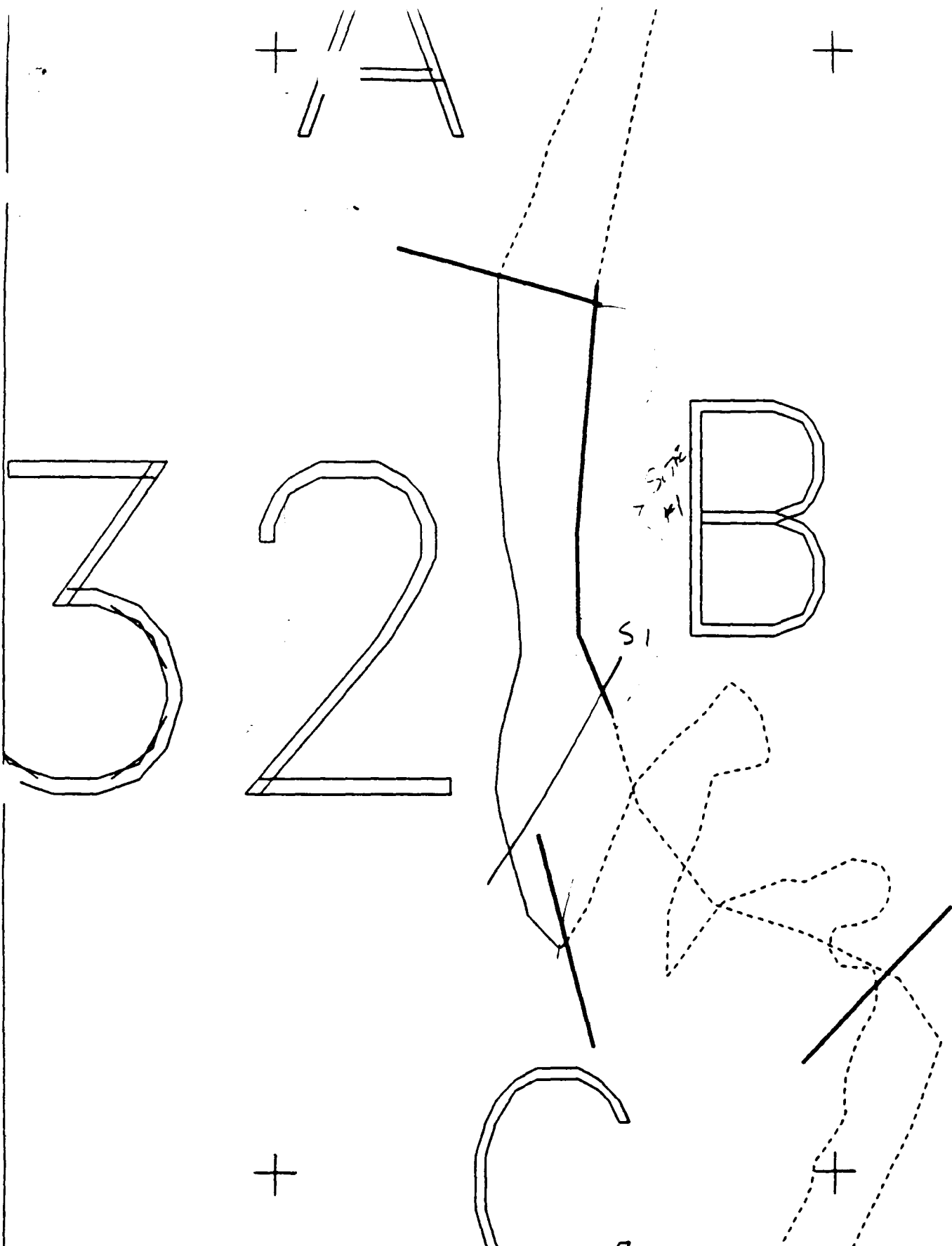
Subdivision Field Map

Map Key: KNIK-132B

Name: Reima

Date: 8/10/90

Date Entered:



XXXX
////

TTT
0000

Wide
Medium
Narrow
Very Light
No Oil

KN-132 B
ADEC Subsegment Length: 170m
METERS
0 50 111
AK State Plane Zone 4 1:2102
kto-132b



Subdivision Field Map
Map Key: KN1KN-132B
Name: Peimer
Date: 8/10/90
Date Entered:

Final Anadromous Stream Treatment Information

Segment ID - Stream ID	NTR	Bio	Bio Start	Bio End	Man	Man Start	Man End
K0911-CD020 262-10-10080					X	6/28/90	6/28/90
K0911-CD020 262-10-10092					X	6/28/90	6/28/90
K0917-CC100 262-15-10040	X						
K0919-HB001 262-20-10040					X	6/12/90	6/14/90
K0919-HB004 262-20-10030	X						
K1002-AB002 262-65-655					X	7/7/90	7/8/90
K1007-PB001 262-70-10025					X	6/23/90	6/24/90
K1007-PB016 262-70-10010					X	7/10/90	7/10/90
K1009-DB008 262-75-10020	X						
KN0103 226-10-16922		X	7/7/90	9/1/90	X	7/7/90	7/7/90
KN0106 226-10-16890					X	6/30/90	6/30/90
KN0110 226-10-16928	X						
KN0120 226-10-16940	X						
KN0129 226-10-16975					X	5/30/90	5/30/90
KN0129 KN0129-UNCAT		X	6/19/90	6/19/90	X	5/30/90	5/30/90
KN0132 226-10-16982		X	6/19/90	9/11/90	X	5/26/90	5/29/90
KN0134 226-30-16865		X	6/23/90	6/23/90	X	6/23/90	6/23/90
KN0201 226-30-16872					X	6/1/90	6/1/90
KN0205 226-30-16860					X	6/1/90	6/3/90
KN0211 226-10-16875		X	7/1/90	7/9/90	X	7/1/90	7/9/90
KN0211 226-10-16880					X	7/1/90	7/1/90
KN0213 226-30-16853		X	7/1/90	7/6/90	X	7/1/90	7/6/90
KN0401 226-30-16820					X	6/30/90	6/30/90
KN0500 226-10-16992		X	7/5/90	9/11/90	X	7/5/90	7/7/90
KN0500 226-10-16996		X	7/7/90	9/11/90	X	7/5/90	7/7/90
KN0601 226-40-16855	X						
KN0602 226-40-16851	X						
KN0602 226-40-16853	X						
KN0701 226-30-16840		X	6/30/90	9/13/90	X	6/30/90	7/27/90
KN0704 226-30-16844	X						
LA015 226-40-16782		X	7/3/90	7/8/90	X	7/3/90	7/8/90
LA018 226-40-16780		X	7/3/90	8/26/90	X	6/15/90	7/4/90
LA021 226-40-16774		X	6/17/90	6/17/90	X	6/13/90	6/14/90
LA021 226-40-16776	X						
LA023 226-40-16772	X						
LA029 226-40-16788	X						
LA031 226-40-16785	X						
MA009 226-20-15044	X						
MN001 227-20-17570	X						
NA026 226-40-12950	X						
NK001 232-21-10230		X	7/3/90	7/4/90	X	7/3/90	7/4/90
PD002 242-42-10450					X	6/21/90	6/23/90
PD003 242-42-10460					X	6/21/90	6/23/90
TB002 232-10-10340					X	7/1/90	7/1/90
TB003 232-10-10342					X	6/20/90	7/1/90
WB001 242-32-10155					X	6/19/90	6/19/90
WB003 242-32-10160					X	6/19/90	6/19/90
WH003 226-40-16322		X	7/8/90	7/8/90	X	7/8/90	7/8/90

LIST OF ASAP REPORTS and TAG RECOMMENDATIONS
CONTAINING ANDROMOUS STREAMS

9/10/90

<u>SEGMENT</u>	<u>CATALOG #</u>	<u>TAG RECOMMENDATION</u>
BA002A	226-40-16450	
BP004	226-20-16392	
BP004	226-20-16397	Bio/Customblen
BP004	226-20-16388	
BP004	226-20-16395	
CH002A	226-20-16180	
CH009B	226-20-16182	Tarmat removal/Bio
CH900A	226-20-16200	
CU014A	224-20-13036	
CU013A	224-20-13030	
EL052B	226-10-16902	NTR
EV014A	226-40-16640	
EV017A	226-40-16620	
EV025A	226-40-16613	
EV071B	228-40-16484	
GR007A	NOT CATALOGED	
GR103A	227-20-17880	
KN213B	226-30-16853	NTR
KN129A	226-10-16975	
KN129B	NOT CATALOGED	
KN132B	226-10-16982	
KN135A	226-30-16285	
KN211E	226-10-16875	NTR
KN401A	226-30-16820	
KN500A	226-10-16992	NTR
KN701B	226-30-16840	NTR
LA018A	226-40-16780	
LA021B	226-40-16776	
LA021A	226-40-16774	

ADEC EXXON VALDEZ POST-TREATMENT SURVEY REPORT

SEGMENT#: KN132

DATE: 09/16/89

LOCATION: SE HERRING BAY, KNIGHT I.

TIME: 10:36

Survey Type: Boat, Ground

Team: C. Robinson, P. Montesano, M. Baer

WEATHER AND SEA CONDITIONS

Weather: Sunny
Sea State: Calm

Wind Direction: 0
Knots: 0

Low Tide: 8:28	Feet: -1.1	High Tide: 14:42	Feet: 14.
Low Tide: 20:53	Feet: -1.8	High Tide: 2:23	Feet: 13.5

SHORELINE DESCRIPTION

Shoretypes: H,LR,B,C

(H=headland, LR=low-lying rock, B=beach, C=cove, L=lagoon, M=marsh)

Wave Exposure: M,L (H=high, M=moderate, L=low)

Shoreline Composition: R,B,C,G,S

(R=bedrock, B=boulder, C=cobble, G=gravel, S=sand, M=silt)

OIL CHARACTERISTICS

Degree of Oiling: L,M,H

(N=none, VL=very light, L=Light, M=moderate, H=heavy)

Area of Impact: H,M,L

(S=supratidal, H=high intertidal, M=mid tidal, L=low intertidal)

Max. Oil Thickness: 1 mm (1 = 1 mm or less, 0 = no oil)

Max. Oil Penetration: 30 cm (35 = 35 cm or greater)

Percent Segment Categorized as Oiled: 100%

Presence of Oiled Driftwood (y/n): y

Oil Types: SY,T,ST

(P=pooled, M=mousse, SY=sticky, T=tar, A=asphalt, ST=stain)

Samples: KN132-1 / KN132-2 / none / none

DAMAGED OR OILED ORGANISMS

Fucus (y/n): y Barnacles (y/n): y Mussels (y/n): y

Dead Mammals: 0 Dead Birds: 0

SOLID WASTE FOUND

Type: Few localities, boom, cleanup debris

Bags Collected: 0

Draft

Printed: 12/12/89 11:33

Walk-a-thon

LOG Keimer

SEGMENT ST/ ICM-132

SUBDIVISION B

DATE 8/10 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 ▲
Pit - No Subsurface Oil

2 ▲
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

LEGEND

☁ - Trees

~ - Fresh Water Runoff

○○○ - Boulders

▨ - Oiled Areas

CU/S
CT/B
SOR/P/I

CU/P
CT/B
SOR/P/H (3-4m)
SOR/P/H (10m band)

CU/S
CT/B
SOR/P/M
(10-15m)

TREES

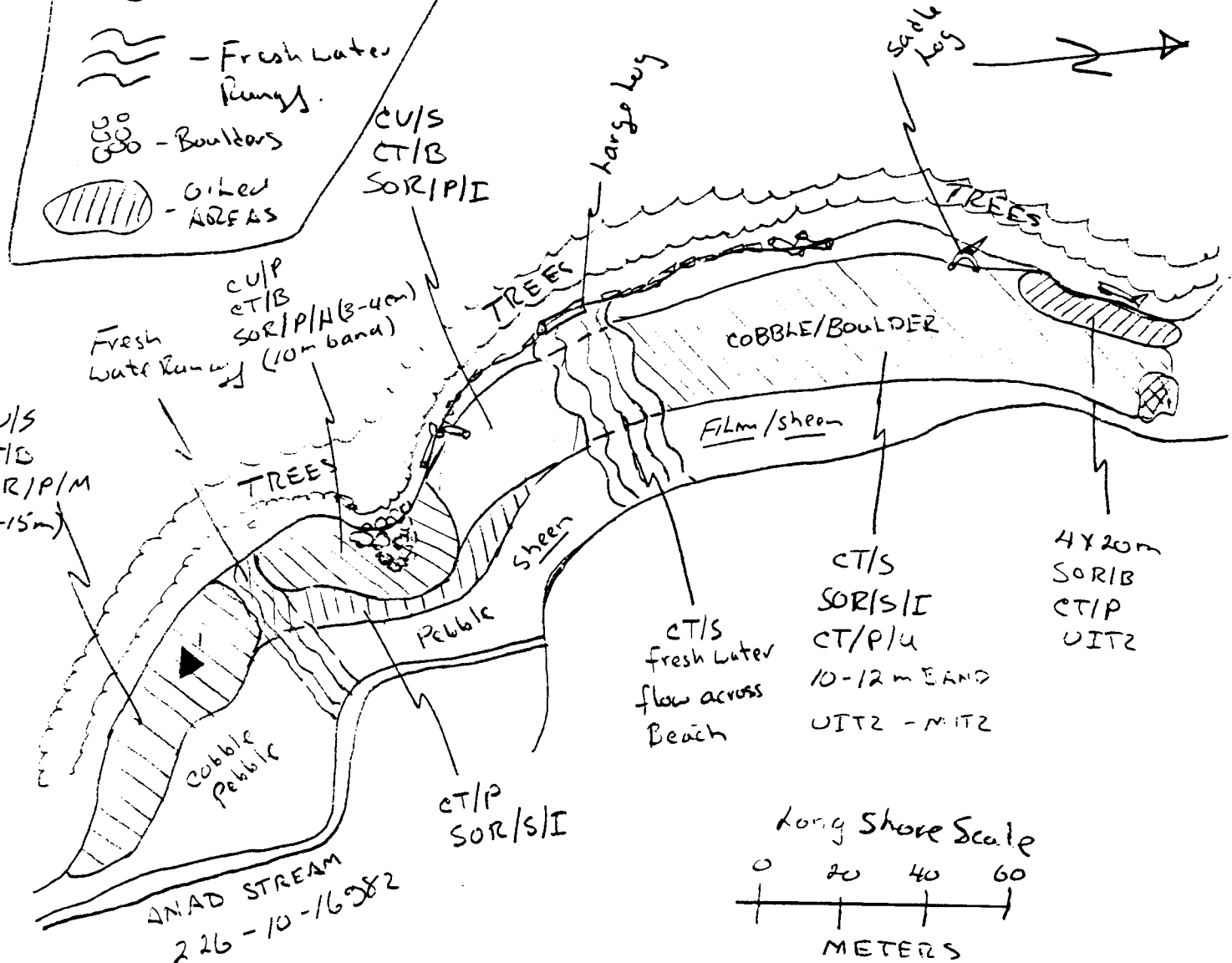
Pebble

CT/P
SOR/S/I

ANAD STREAM
226-10-16982

SKETCH MAP

226-10-16982



(Across shore Exaggerated)

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

REVISION: 03/24/90

ADEC BIOREMEDIATION DAILY REPORT

DATE: 9/11/90

ADEC Monitor: Rowann Hudnall

TIDES: TIME: HEIGHT:
 Low _____
 High _____
 Low _____
 High _____

WEATHER: Cloudy Rain Fog Sun
 TEMP: 50°F SEA COND: 1' chop
 WIND DIR: N-NE-E-SE-S-SW-W-NW
 WIND SPEED 0-15 16-30 30+

USCG Scott Rainsford
 OOPS Jame Byars

Exxon Al Snook
 Other _____

OGS Jim Conner

Segment	Sub	No. Sites	Inipol (gal)	Custom (lbs.)	Comments
KN113	A	3	114	484	3rd treat
KN132	BS	1	0	123	3rd treat
KN132	D	3	2	50	3rd treat
KN111	A	7	0	356	3rd treat
KN500	AS	3	0	76	3rd treat
KN500	BS	2	0	568	3rd treat
KN501	A	7	2	236	3rd treat
KN502	A	13	49	221	3rd treat

\shorelin\rowann\biorept 8/7/90

ADEC DEMOBILIZATION REPORT
FOR INIPOL AND CUSTOMBLEN TREATMENT

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

Attn: John Bauer
FAX 265-4666

From: _____ (please print)

RE: SEGMENT NUMBER KN132 SUBSEGMENT NUMBER B Anad

ADEC REP Rawann Hudnall USCG REP Scott Rainsford

EXXON REP Al Snook BOAT NAME/SQUAD NUMBER Don Bollinger
Squad 3

Site #	Length (along shore m)	Area m ²	Inipol (gallons)	Customblen (lbs.)
--------	---------------------------	------------------------	---------------------	----------------------

See Daily Report & OG report
for details

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

yes. bio reapplication. 3rd treatment.

customblen only due to recent Inipol treatment.

Describe the amount of oil remaining (type, size of area and location).

well weathered ct/cv on boulders in UITE
broken distribution. Subsurface patchy of.

Additional Comments (keep objective)

ADF + 6 marked area w/ pink flagging 50m
(Rick Gustin) from stream. No treatment
within 50m of stream. Flagging removed.

signature Rawann T. Hudnall

Date and time of demobilization from segment

Shoremon/Demob.bio 55/30/90

9/11/90

ADEC BIOREMEDIATION DAILY REPORT

DATE: 8/24/90ADEC Monitor: Rowann Hudnall

TIDES: TIME: HEIGHT:
 Low 10:18 0.7
 High 04:17 11.7
 Low 22:49 0.7
 High 16:32 12.6

WEATHER: Cloudy Rain Fog (Sun)
 TEMP: 65 SEA COND: Calm
 WIND DIR: N-NE-E-SE-S-SW-W-NW
 WIND SPEED (0-15) 16-30 30+

USCG Dan Pearcey
 OOPS James Byars

Exxon Frank Box
 Other _____

OGS Dan Mann, Bill Barstow

Segment Sub No. Inipol Custom Comments
 Sites (gal) (lbs.)

KN104	A	3	13	37.5	
KN105	B	1	0	21.5	
KN110	A	3	0	51	
KN111	A	7	85.5	237	
KN115	A	3	24.5	86	
KN122	A	2	52	26	
KN132	B	1	162	80	
KN500	A-S	3	0	134	
KN500	B	2	70	1110	
KN500	B-S	2			
KN502	A	13	0	202.5	
KN508	A	4	4	46	
KN701	B	1	0	61	
KN701	B-S	1	0	28	
KN702	A	5	57	58	
KN702	B	5	34.5	49.5	
KN703	A	10	12.5	80	

same area KN500 B
 + KN500 B-S overlap

\\shorelin\rowann\biorept 8/7/90

SLO1 C 6 0 40.5

ADEC DEMOBILIZATION REPORT FOR INIPOL AND CUSTOMBLEN TREATMENT

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

Attn: John Bauer
FAX 265-4666

From: _____ (please print)

RE: SEGMENT NUMBER KN132 SUBSEGMENT NUMBER B

ADEC REP Rowann Hudnall USCG REP Dan Percy

EXXON REP Frank Boy BOAT NAME/SQUAD NUMBER Don Bollinger
Squad 3

Site #	Length (along shore m)	Area m ²	Inipol (gallons)	Customblen (lbs.)
See Daily Report / OG Report for details				

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

No. ADF+G Rick Gustin + Tom Crowe requested that we not bio within 50m of stream mouth due to the salmon run so the original area covered by the work order was reduced.

Describe the amount of oil remaining (type, size of area and location).

ct/cv 1b/c in UITZ. Small asphalt patches (3cm²) binding boulders together.

Additional Comments (keep objective)

Should be looked at in 1991

signature Rowann T. Hudnall

Date and time of demobilization from segment 8/24/90

Shoremon\Demob.bio 55/30/90

ADEC DEMOBILIZATION REPORT FOR INIPOL AND CUSTOMBLEN TREATMENT

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

Attn: John Bauer
FAX 265-4666

From: _____ (please print)
RE: SEGMENT NUMBER KN132 SUBSEGMENT NUMBER B

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--------	---------------------------	------------------------	---------------------	----------------------

See Daily Report / OG Report for details

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

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Describe the amount of oil remaining (type, size of area and location).

ct/cv 1b/c in UITZ. Small asphalt patches (3cm²) binding boulders together.

Additional Comments (keep objective)

Should be looked at in 1991

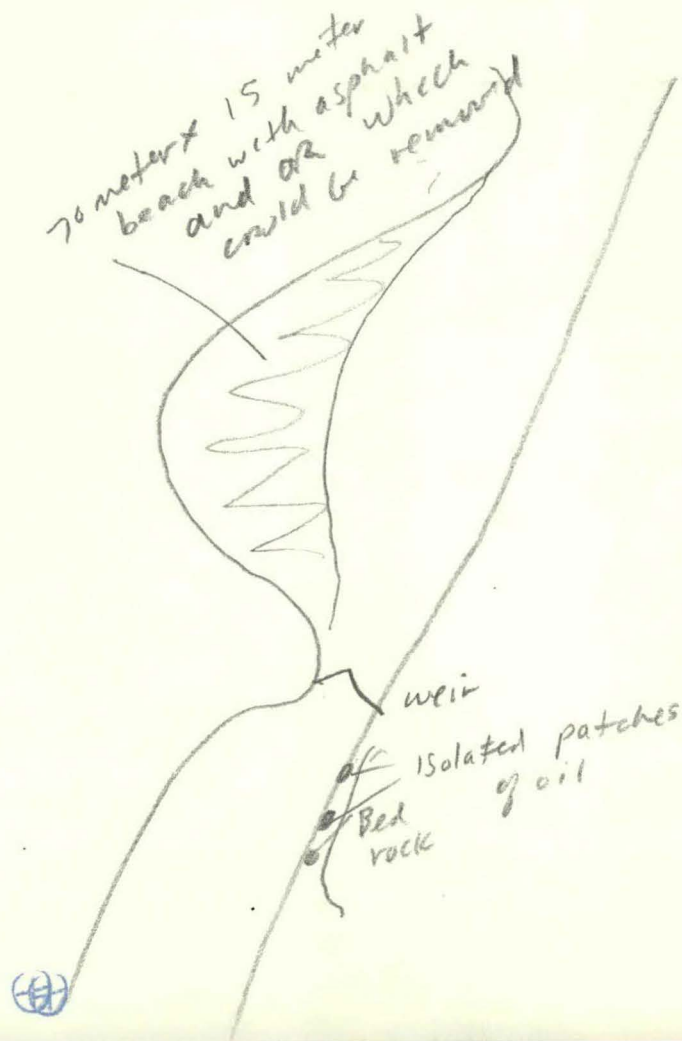
signature Rowann T. Hudnall
Date and time of demobilization from segment 8/24/90
Shoremon\Demob.bio 55/30/90

ANADROMOUS FISH STREAMS/OILING CONDITION
PWS

Segment # KN132B ASC# 226-10-16982 Location Herring Bay Knight Is.
Date 8-14-90 Recorder/Observer T. Crowe / R. Gustin
Oil in streambed Yes Oil on streambanks Yes
Oil within 50m of mouth Yes Anadromous Fish present Yes

Description of oil and comments Some scattered patches of
mousse and OR remain on left side of stream above
constriction at weir. Primary remaining oil is
in the 70 meter right bank below weir. It consists
of heavy OR which is turning to asphalt on the
beach which has been tilled and bio'd. Recommend
manual removal of asphalt + OR. Later this
summer in September when adults have passed
on up stream. Manual removal only.

Oil Distribution Diagram



FIELD SHORELINE COMMENT SHEET

ASAP survey - 90

JAB

SEGMENT AS / KN-132 SUBDIVISION: B SITE: 1 DATE 8-10-90

JSCG

NAME M. T. Michael D. Brown SIGNATURE M. T. Michael D. Brown

☒ YES

☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: VERY SIMILAR TO KN-500-B, BUT THIS AREA IS PROTECTED. WE SHOULD LIST AS THIS AS A FOLLOWUP FOR MORE BIO

ADEC

NAME John Hayer SIGNATURE John Hayer

☒ YES

☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: Anad stream ADF+6 remains should be considered during decision of this site regarding stream area. S.S. oil + surface oil. observed on N. stream bank S. bank not assessed by ASAP team. The rest of site should be removed to determine extent of ~~oil~~ S.S. oiling and effects of bio. + weathering on S.S. + surface oil on site. High priority for 1991.

LAND MANAGER

NAME DOUGLAS GIBSON SIGNATURE Douglas Gibson

☒ YES

☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: cleanup crews did not do a good job of cleaning between boulders. still too much oil at this locality. Location of ANAD stream.

EXXON

NAME Martinez Nid. SIGNATURE Nicholas G. Martinez

☒ YES

☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: Still a moderate amount of S.O.R. on site.

PAGE : 06

TOTAL EST LENGTH OF SHORELINE SURVEYED: 170 m

SURFACE OIL

SITE 1

SITE 2

SITE 3

[illegible]

SUBSURFACE OIL

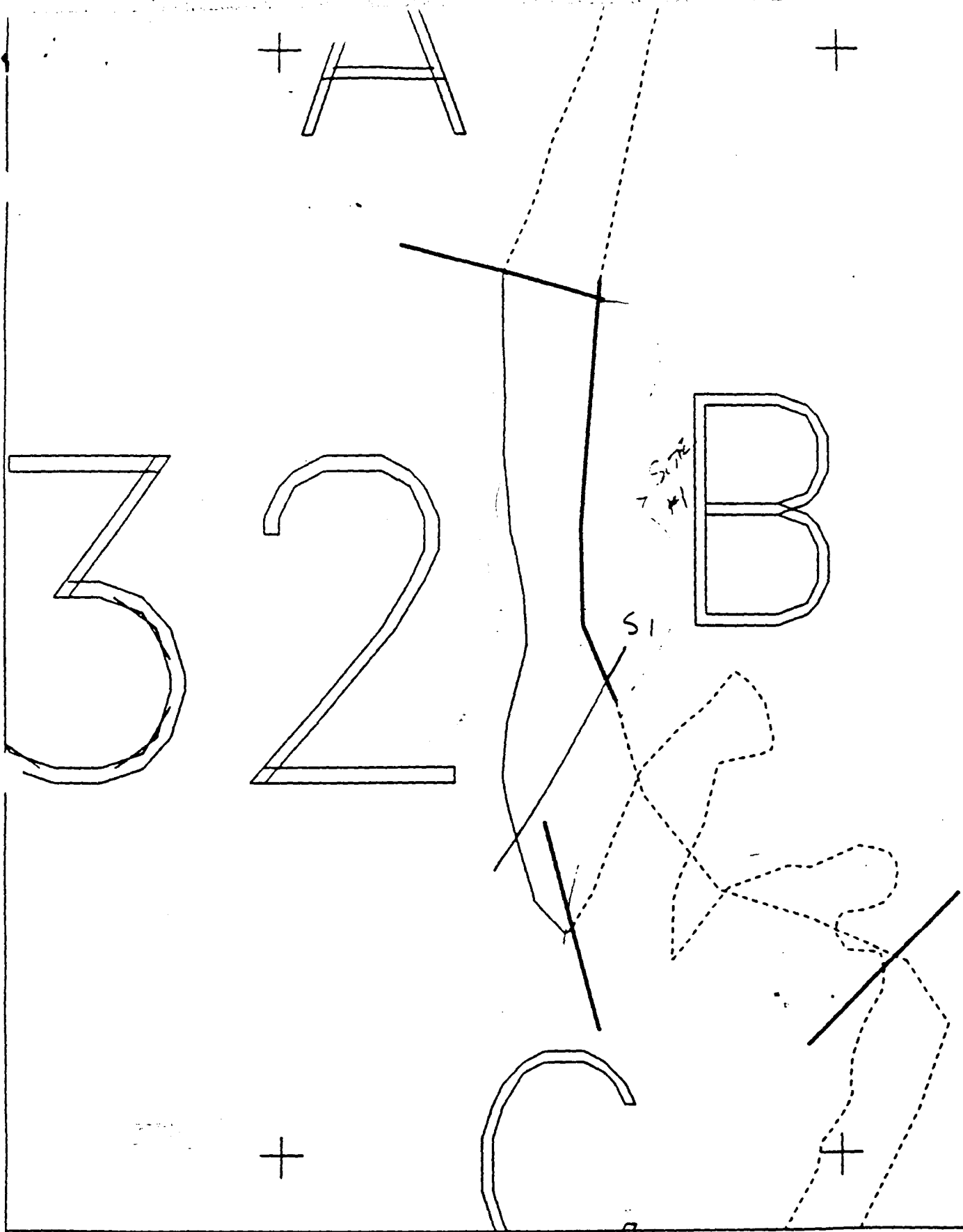
Photographs:

Roll No. *456789*

Frames 13

REVIEWED
8/14/90 TJC

COMMENTS Boulder cobbles pebble beach terminating at an ANAD stream
226-10-16982. Entire beach is oiled with heavier concentrations
at the Southern end. Retain a small number of specimens.



XXXX
 ////

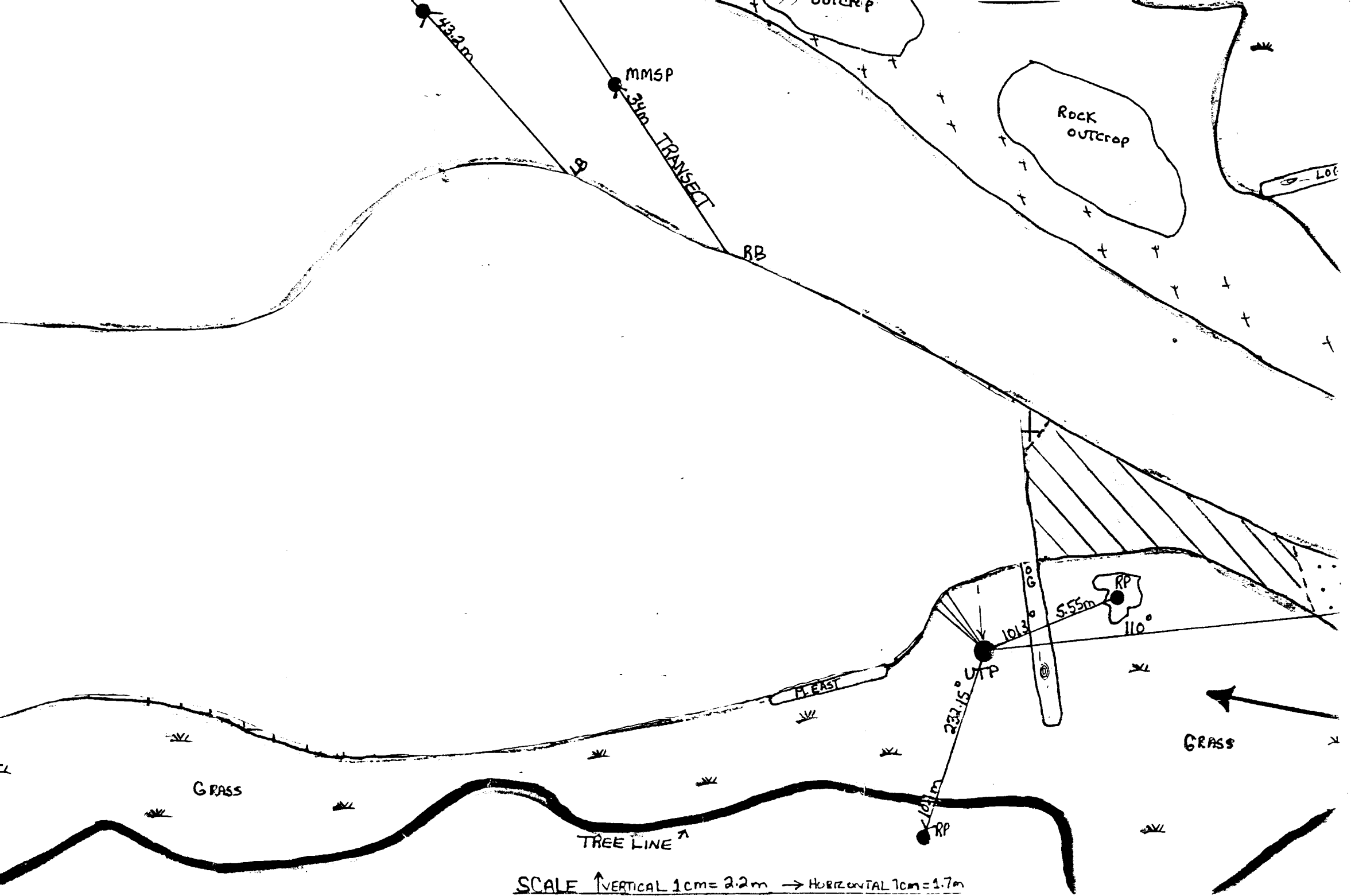
 TTT
 0000

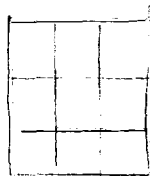
Wide
 Medium
 Narrow
 Very Light
 No Oil

KN-132 B
 ADEC Subsegment Length: 170m
 METERS
 0 50 111
 AK State Plane Zone 4 1:2102
 kn-132b

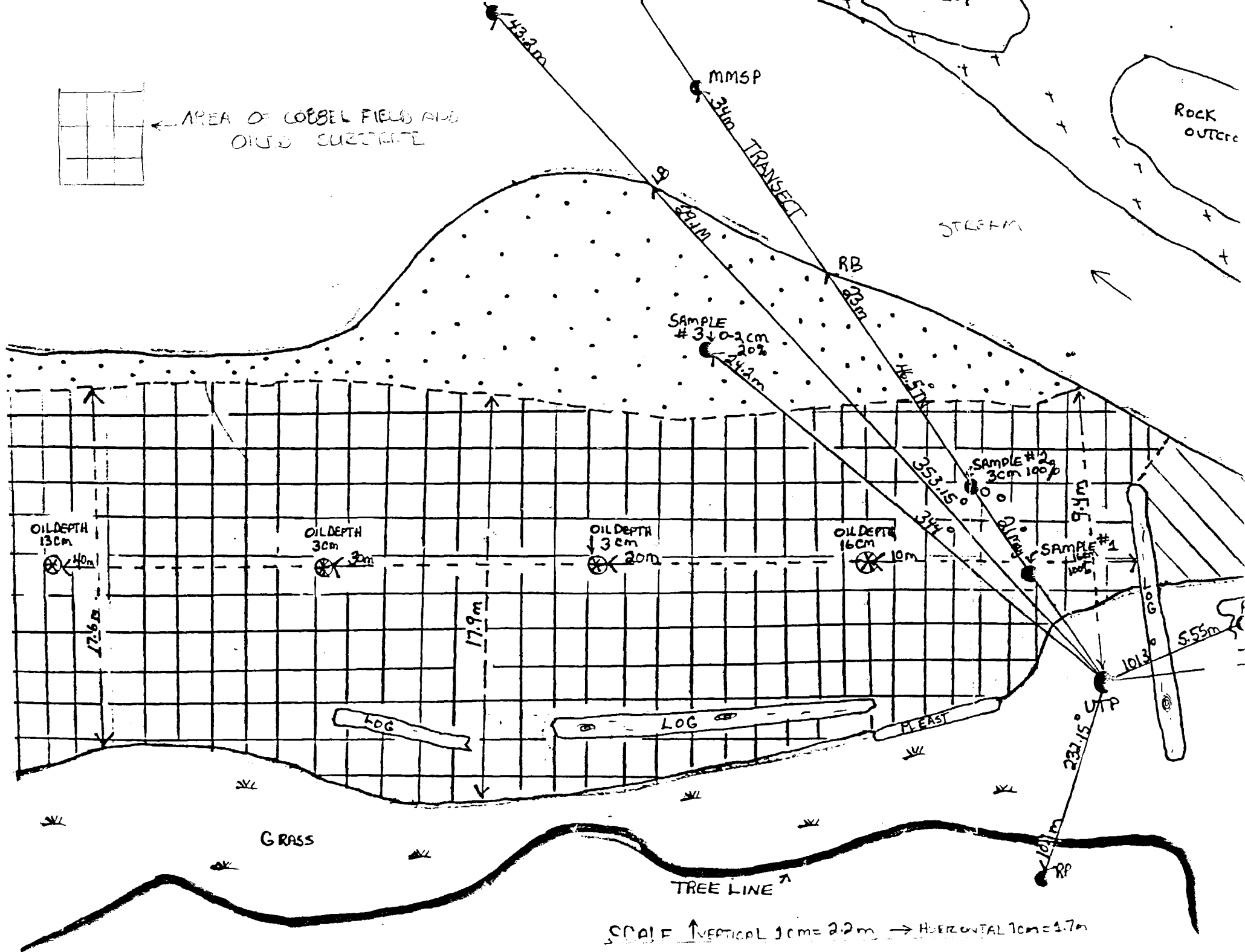


Subdivision Field Map
 Map Key: KNIK-132B
 Name: Peimer
 Date: 8/10/40
 Date Entered:





AREA OF COBBLE FIELD AND OILY SUBSTRATE



WORK PLAN MODIFICATION RECOMMENDATION

SEGMENT_KN132_____ SUBDIVISION_B_____ DATE_June 16, 1990

MODIFICATION 226-10-1698-2

1. REASON FOR MODIFICATION

An armor of fist to softball size cobble is cemented to the anadromous stream bank by OP/OR saturated sand/sediment. Attempts to move this armor to access and remove the OP/OR sand that has grouted in between it has proved to be labor intensive and unproductive. Large tar mats surface oil and buried oil still remain adjacent to and on the banks of this anadromous stream. Due to the size and amount of the cobble armor, the large area of stream bank and the amount of oil left on this stream bank other treatment will be necessary.

2. SUGGESTED ADJUSTMENT TO WORK PLAN

Due to the large cobble on this beach mechanical tilling is suggested to expose buried oil covered by the large cobble. Bioremediation in the form of customblen (solid pellet fertilizer) should be tilled into this beach.

3. TIMING ISSUES

escapement of adult pink salmon July 11, 1990

ADEC_____

EXXON_____

USCG_____

LAND MANAGER_____ (if field rep is on scene)

ADEC DEMOBILIZATION REPORT
FOR INIPOL AND CUSTOMBLEN TREATMENT

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

Attn: John Bauer
FAX 265-4666

From: Mike Ebel (please print)

RE: SEGMENT NUMBER KN-132 SUBSEGMENT NUMBER B; Site #1

ADEC REP Mike Ebel USCG REP Mike Zenone

EXXON REP Frank Box BOAT NAME/SQUAD NUMBER MU/Don Bollinger
Squad #3

Site #	Length (along shore m)	Area m ²	Inipol (gallons)	Customblen (lbs.)
I	(36m L x 14m W) + (170m L x 9.75m W)	(proposed) 171 gal	102 [#]	
	= 2,164 m ²	(actual) 124 gal		

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

This was an Exxon bioremediation test site, the manual preparation was not adequate (needed heavy tilling)

Describe the amount of oil remaining (type, size of area and location).

This mostly boulder/cobble beach was heavily oiled even after manual crews had removed areas of AP and Tarmacs. The area of shoreline treated was nearby to the ADFG anadromous stream # 226-10-16982 but separated by a control site that was left untreated (too close to stream anyway for bioremediation). The surface had 15 pooled oil with 1C-1B cover and coat widespread. From the looks

Additional Comments (keep objective) of the areas where rocks had been turned over there was significant subsurface oil. However, pits were not dug because this was a test site. (Refer to OG bio sketch)

★ This area needs further review and is not sufficiently treated to be demobilized unless this will be overridden from test.

signature Michael J. Ebel
Date and time of demobilization from segment 6/2/90 1530 hrs
Shoremon\Demob.bio 55/30/90

ADEC DEMOBILIZATION REPORT FOR INIPOL AND CUSTOMBLEN TREATMENT

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

- EPA BIO TEST SITE -

ALL: John Bauer
FAX 265-4666

ANAD STREAM # 266-10-16702

From: JAN KRIEGER (please print)

RE: SEGMENT NUMBER 10111 SURVEYMENT NUMBER 13

ADEC REP JAN KRIEGER USCG REP SCOTT RAINSFORD

EXXON REP RXX HARRISON BOAT NAME/SQUAD NUMBER M/V CORINTHIAN SQUAD # 1
DOES ED TURNER

Site #	Length (along shore m)	Area m ²	Inipol (gallons)	Customblen (lbs.)
--------	---------------------------	------------------------	---------------------	----------------------

<u>1</u>	<u>36.1 x 18m</u>	<u>648m</u>	<u>51</u>	<u>24</u>
----------	-------------------	-------------	-----------	-----------

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

YES

Describe the amount of oil remaining (type, size of area and location). 51/61/10 IN WITZ

Additional Comments (keep objective)

- This is an EPA BIO TEST SITE & we are the second crew to treat the area. (1st application was 06/02/90 by M/V DON BOLINGER). THIS AREA HAS ALREADY BEEN DEMOB'D

signature JAN KRIEGER

Date and time of demobilization from segment 07/12/90 11:30
Shoremon/Demob.bio 55/30/90

CREW GRADE (B)

DATE 6.3.90

CHECKLIST

- ___ H Area
- ___ Approx. Scale
- ___ Say/Seb Brdry
- ___ OS (km)
- ___ Width
- ___ Length
- ___ % Cover
- ___ Substrate Character
- ___ E in HMLAYL
- ___ SDI
- ___ Profile Location(s)
- ___ Profile(s)
- ___ PH Location(s)
- ___ Photo Location(s)

LEGEND

- 
- FIG. 20. Subsurface Oil

- 2 A
PR - Subsurface Oil

CT/C

Contents

CT/D

Stream Classification

510

Project Description

CLAS

Abstract

1964

Old Version

•

10

**Phone location, direction,
and number**

Reapplication

Annotation

Area #1 Was

2. Treated with Inipol & Cust.
on July 12 1990 SK

SKELETON MAP

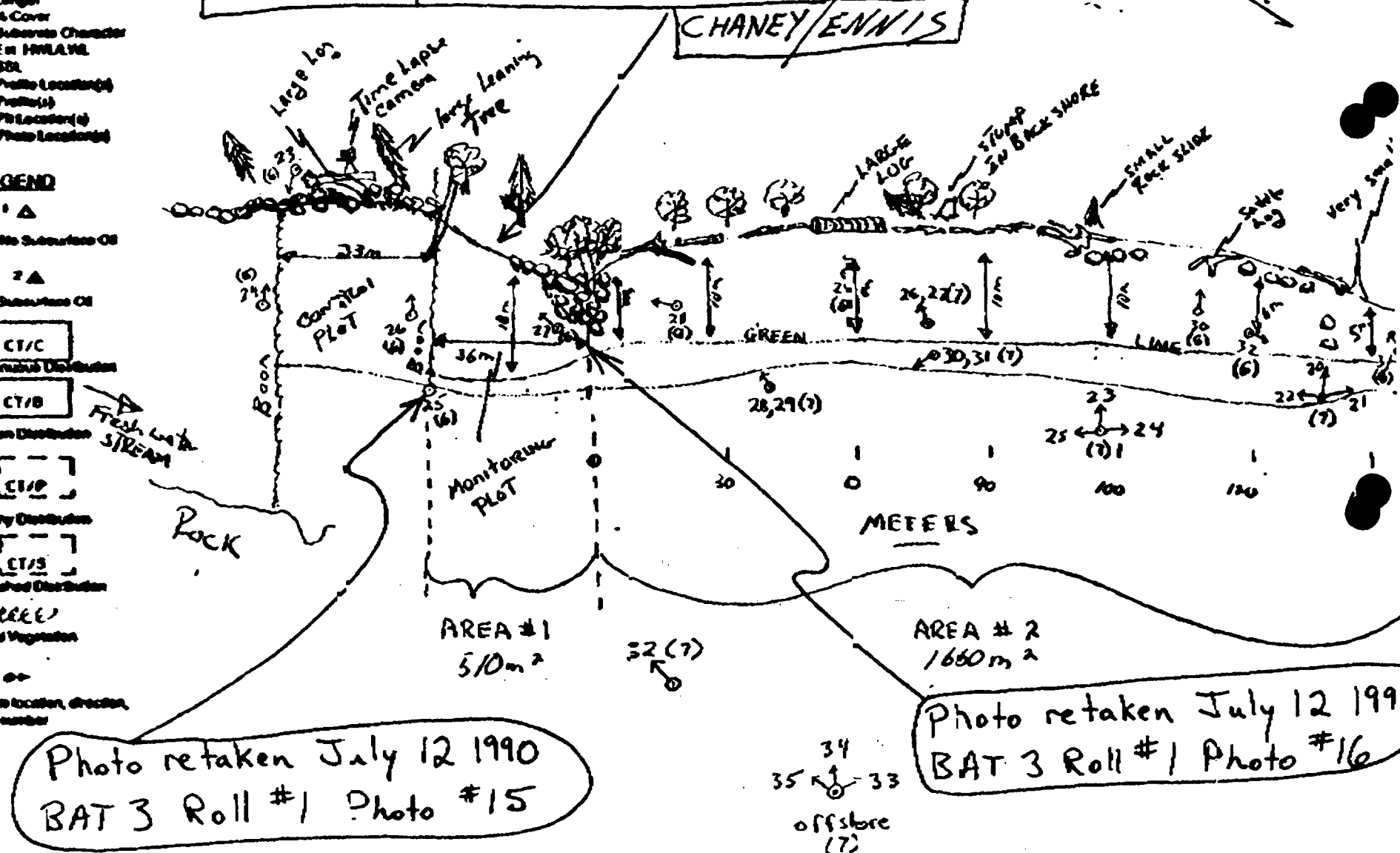
KN132 B
ANAD STREAM #
226-10 16982

EPA
TEST SITE

CHANEY/ENNIS

True North

~~MA 6.~~



ADEC DEMOBILIZATION REPORT
FOR PHYSICAL/MECHANICAL TREATMENT AND CUSTOMER

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska
Attn: John Bauer
FAX 265-4666, 265-4656

RE: SEGMENT NUMBER KV132 SUBSEGMENT NUMBER 13

DEC REP JAN KRIEGER USCG REP DAVID SYLVESTER

EXXON REP DARYL YOS BOAT NAME/SQUAD NUMBER M/V MARTIAN

SQUAD
1

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

NO, THE AREA STILL NEEDS TO BE BIOREMEDIATED.

Is there additional oil remaining which can be removed with further physical/mechanical treatment? If yes what is the recommended treatment method.

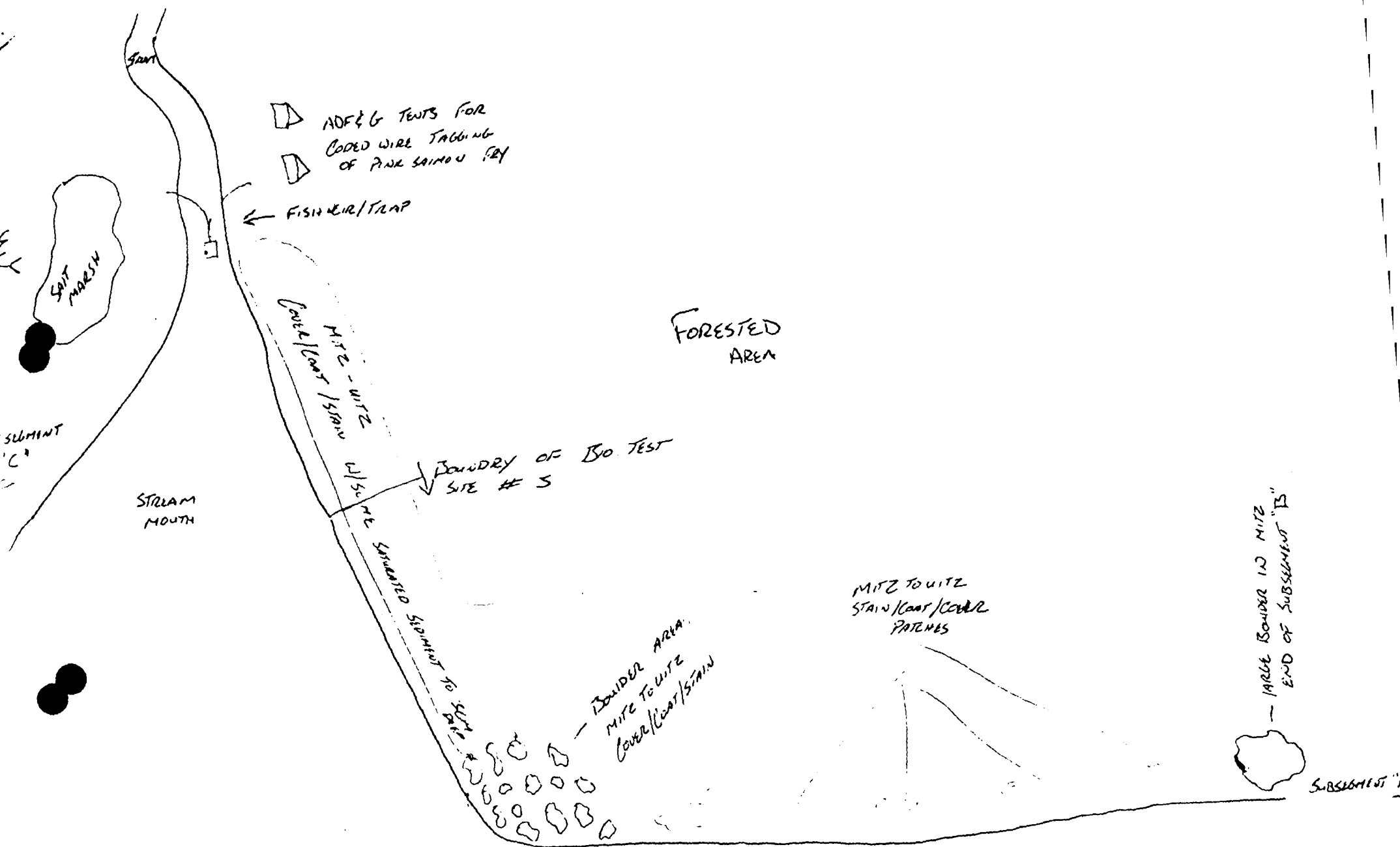
YES THERE IS ADDITIONAL OIL REMAINING, BUT I DON'T KNOW WHAT THE BEST METHOD OF TREATMENT WOULD BE CONSIDERING THE PROXIMITY TO AN ADJACENT STREAM, THE TYPE OF BEACH MATTER, & THE CONSISTENCY OF THE OIL.

Describe the amount of oil remaining (type, size of area and location). SEE MAP ON BACK SIDE OF THIS FORM

Additional Comments (keep objective)

— PLEASE SEE ATTACHED ADF&G REPORT —

signature [Signature] 05/28/90
Date and time of demobilization from segment 05/28/90 17:30
Shoremon\55 5-12-90



ADEC DEMOBILIZATION REPORT FOR INIPOL AND CUSTOMBLEN TREATMENT

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

Attn: John Bauer
FAX 265-4666

From: Steven Blank (please print) Stream #
RE: SEGMENT NUMBER 4N-132 SUBSEGMENT NUMBER B 226-10-16986

ADEC REP Steven Blank USCG REP Dan Pearcey

EXXON REP Frank Bok BOAT NAME/SQUAD NUMBER Don Bollinger

Site #	Length (along shore m)	Area m ²	Inipol (gallons)	Customblen (lbs.)
1	112	1456	54	45

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

The work order called for manual removal of tar/mat and spot washing along with Bio. It is obvious that manual removal has been done, as far as spot washing I do not know. Rick Gustin from USF&G was here and was willing to use a Bobcat to till the surface and then Bioremediate.

Describe the amount of oil remaining (type, size of area and location).

The only oil remaining is within the 15ft constraint from the anadromous stream set up by Rick Gustin.

Additional Comments (keep objective)

The Bobcat did a good job at tilling up the sediments up to a foot down.

signature Steven Blank

Date and time of demobilization from segment 9:30pm 6-19-90
Shoremon\Demob.bio 55/30/90

STREAM TREATMENT REPORT
Alaska Department of Fish and Game
Rick Gustin and Tom Crowe

May 29, 1990

ASC # 226-20-16180

Segment KN132B

Observations The intertidal zone surrounding this channel is confined to a low energy, elongated cove bordered by bedrock walls. The substrate is composed predominantly of fist to softball size cobble armoring a 5-10 cm layer of tar mat. A very rich biota occurs throughout the lower intertidal zones below the oiled areas.

The range of oiling types consists of tarmat and OP subsurface fine gravel and sand. While this site contains significant amounts of subsurface oil, treatment of this site will be difficult due to the armor of cobble. Cleaning this beach will be like tearing up a cobble road with a shovel.

Other than complete removal of the substrate, elimination of oil will be difficult. Additionally, the ADF&G outmigrant smolt study will at risk during extensive treatment operations especially INIPOL treatment.

05-26-90

This morning work was supposed to begin on the stream site at KN132. Two work crews started on this segment but not in the area of where the stream ANADSCAT covered. After asking the OOPS beach monitor, Ed Turner, why the work had not continued into the stream he said that he could not work on it without an ANADSCAT work order. We told him that the Coast Guard had the work order FOSC had approved for this section. His reply was that since the EXXON command had not sent it to him that he was not authorized to work there. We then went to Coast Guard Lt. Commander Ken Keane to ask why this was happening and what we could do. Keane pulled the file and handed it to Darryl Yoes during the lunch break on the CORINTHIAN. The next morning work was to start on the stream ANADSCAT Segment.

05-27-90

This morning I received a message from Darryl Yoes asking for a permit to work on the stream and in the water between the stream banks. After issuing the permit Darryl assured me that the work would start. Later in the day I received a request from Rick Gustin to meet him in Marsha Bay. Later, I notice that there was a crew setting up a test work site

for Inipol on the beach near the stream. I talked to the crew EXXON representative Jim Major about what kind of treatment would take place. He was not even aware that there were people working and living in the area or that there were salmon fry being released into the stream. I contacted John Bauer about what had taken place and found out that the Bio-test team had picked the site just two days ago.

The Coast Guard Monitor, Jim Gamble, said that he would not start work on the stream until an ADF&G monitor was on the beach. Work starts at 0600 and I told him I would meet him there at 0555.

05-28-90

The work at the stream site started early. The crews were removing the cobble armor off the beach and digging up and removing the oiled sand\gravel. Work continued throughout the day. In the afternoon the tide started to wash over the freshly tilled beach. A fairly heavy sheen started to bleed over the beach and toward the Fish & Game fish holding pens. After asking the Coast Guard representative if he could arrange to string a snare across the mouth of the stream. He said that he would not do it. We kicked it upstairs and it got done. Work continued on till the end of the day.

05-29-90

Crews continued to remove oiled gravel adjacent to the stream today. Oiled mousse pies were removed from upstream areas and salt marsh area on the right side of the stream.

Also this afternoon I talked to an EXXON bioremediation Rep. John Wilkinson. He told me that Mark Kuwada had given the go ahead for the use of INIPOL. I told him that I would much rather have heard that from Mark. John Wilkinson wanted to convert me into a believer by preaching to me the INIPOL sermon. After asking him a few questions that he could not answer, I failed again to see the light.

Manual removal was completed by the afternoon and the ANAD segment was demobilized.

Summary

There was still alot of ROT gravel left and some OP left in the area that the ANADSCAT covered. The work that was accomplished was very difficult and labor intensive. All that could be done with the tools and methods available was accomplished.

Better methods of treating this beach and stream would have been tilling with heavy equipment (dozer with ripper) and hot water wash with hot water flood. Bioremediation in the form of slow release dry fertilizer raked in or buried in the upper intertidal zone.

Wave action and winter storms will hopefully replace these

methods and clean up the rest of the oil remaining at this stream site.

State of Alaska
Department of Fish and Game
Habitat Division

Page ___ of ___

Field Inspection Report

Date 5-26-90 Time 0725

Location: (Logging unit/Road/Waterbody) KN132 B
226-10-169 B2

Operator/Contractor: EXXON/VECO

Individuals present at time of inspection:

Name

Representing

<u>T. Cline</u>	<u>ADEC</u>	<u>GERI NOYES</u>	<u>VECO</u>
<u>R. Cushman</u>	<u>ADFG</u>	<u>BOB DAWSON</u>	<u>VECO</u>
<u>Jan Breyer</u>	<u>ADEC</u>	<u>ROSS MILLER</u>	<u>UPS</u>

Activity/Situation Observed: CLEANUP.

Pertinent Statutes/Regulations: AK. Title 16

Recommended/Required Action (Specify): remove armor -
PICKUP tar mat / fill

Area of beach nearest Fyke trap still has heavy OR
6-10" deep. 6/1/90

By (date) _____ (if applicable)

Please note: This is not a final inspection report. It is intended to provide the operator/contractor with a notice of problems or concerns which require immediate attention. If necessary, a final inspection report will be issued at a subsequent date.

Rick Gustav

Fish and Game Representative/Title

Company Representative/Title

Page of

Date 5-26-90 Time 0725

Operator/Contractor: EXXON / VECO

[illegible]

Joe Cline	ADEC	GERI NUYES	VELO
R. Cushman	ADEC	BOB DAWSON	VELO
Jan Frierer	ADEC	ROSS MILLER	UPS

Pertinent Statutes/Regulations: AK. Title 16

Recommended/Required Action (Specify): remove armor -
pickup far mat / fill

Area of beach nearest Fyke trap still has heavy OR
6-10" deep. 6/1/90

By (date) _____ (if applicable)

Please note: This is not a final inspection report. It is intended to provide the operator/contractor with a notice of problems or concerns which require immediate attention. If necessary, a final inspection report will be issued at a subsequent date.

<u>Rick Gustin</u>	
Fish and Game Representative/Title	Company Representative/Title

State of Alaska
Department of Fish and Game
Habitat Division

Page ___ of ___

Field Inspection Report

Date 5-26-90 Time 0725

Location: (Logging unit/Road/Waterbody) KN132 B
226-10-16982

Operator/Contractor: EXXON/VECO

Individuals present at time of inspection:

Name Representing

<u>T. C. W. ADEC</u>	<u>GERI NUYES VECO</u>
<u>R. C. W. ADEC</u>	<u>BOB DAWSON VECO</u>
<u>Jan R. W. ADEC</u>	<u>ROSS MILLER UPS</u>

Activity/Situation Observed: CLEANUP.

Pertinent Statutes/Regulations: AK Title 16

Recommended/Required Action (Specify): remove armor -
pickup far mat / till

Area of beach nearest Fike trap still has heavy ORS
6-8" deep.
6/1/90

By (date) _____ (if applicable)

Please note: This is not a final inspection report. It is intended to provide the operator/contractor with a notice of problems or concerns which require immediate attention. If necessary, a final inspection report will be issued at a subsequent date.

Rick Gustafson
Fish and Game Representative/Title
Company Representative/Title

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ KN-132 STREAM NO: 226-10-16982 DATE 4/21/90

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)

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Subject stream is located at boundary of Subdivision B and C (2 and 3 of 4).

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. David McMan* DATE: 5/10/90

Subsurface Oil Observed: Yes X No Maximum Depth 8 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>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) manual removal of tarmat and pickup oiled vegetation and mousse patties, 2) spot wash area under tarmat after removal, and 3) bioremediation of area shown on attached sketch map. Work should be conducted between 5/15 and 7/10 with approval of ADF&G regarding bioremediation of stream bank.

TAG COMMENTS: _____

TAG APPROVAL DATE: 5/10/90

ADEC ART WEINER *Art Weiner*

EXXON ANDY TEAL *Andy Teal*

NOAA Burt Wescott *Burt Wescott*

USCG D.D. ROME *D.D. Rome*

FOSC: *my L* DATE: 5-15-90

ADF&G MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: BS SS DS TS AVS SCHA MMHS PTA

2 REGION: PWS KP,CI K,AP

METHOD: Aerial Ground Boat

3 DATE: 4-21-90

15 HIGH TIDE TIMES: 1

21 TEAM RECORDER: Aimee Weseman

4 START TIME: 1600

16 HIGH TIDE HTS: 1

22 OBSERVERS: Rick Gustin

5 STOP TIME: 1715

17 LOW TIDE TIMES: 1730

23 AGENCY: ADF&G

6 SEGMENT #: KN-132B

18 LOW TIDE HTS: 1

24 PHOTOS TAKEN: Y N

7 STATION #: _____

19 TIDE HT AT SURVEY: _____

Roll #: _____ Frame: _____

8 K-UNIT: _____

Ebb Slack Flood Slack

25 VIDEO TAKEN: Y N TAPE#: 90RLG001SSS

9 STAT AREA: _____

20 USCG QUAD: sew B-3

Start: 0 End: 111 -end of tape

10 LAT: _____

11 LONG: _____

26 SAMPLES TAKEN? Y N Number

12 SOURCE: Map Loran

Oil _____

13 LOCATION: West side Herring Bay

Sediment _____

14 DESCRIPTION: ADF&G study site

Biological _____

Water _____

EXTENT OF OIL

	SHORELINE				STREAM			
	L	W	M ²	%	L	W	M ²	%
27 SURFACE COVERAGE	60m	10m	on heavy area					
28 SURFACE THICKNESS								
29 PENETRATION	8cm	4cm	8cm					

36 CATALOGED ANAD. FISH SREAM? Y N

37 CATALOG #: 226-10-16982

38 STREAM NAME: _____

39 OIL IN STREAM BED? Y N

40 OIL ON STREAM BANKS? Y N

41 OIL ON BEACH ADJACENT TO MOUTH? Y N
(within 50 meters)

42 OIL WITHIN 1 MILE OF STREAM? Y N

Where: _____

30 OVERALL OIL IMPACT: N VL L M H

31 OIL TYPE: Pooled Mousse Tar Asphalt Sticky Stain

32 OILED DEBRIS? Y N - driftwood

33 SHORELINE TYPE: Headland Low-lying Rocks Beach Cove
Lagoon Marsh

43 ANADROMOUS FISH PRESENT? Y N

34 WAVE EXPOSURE: High Moderate Low

35 SUBSTRATE TYPE: Bedrock 10 Boulder 5 Cobble 40
Gravel 35 Sand _____ Mud/silt _____

44 ANADROMOUS FISH OBSERVATION
Species Aerial Ground

COMMENTS: Heaviest oiling occurs in a 60m long x 10m wide band in the M+U ITZ on the west bank of the stream. A thin layer of angular rocks/cobble covers the oil saturated fines. The underside of the surface rocks have a sporadic oil coat. Scattered tar balls are present within the grassy tide pool area & upstream on the east side of the stream

KN132

6

45 PHOTOLOG

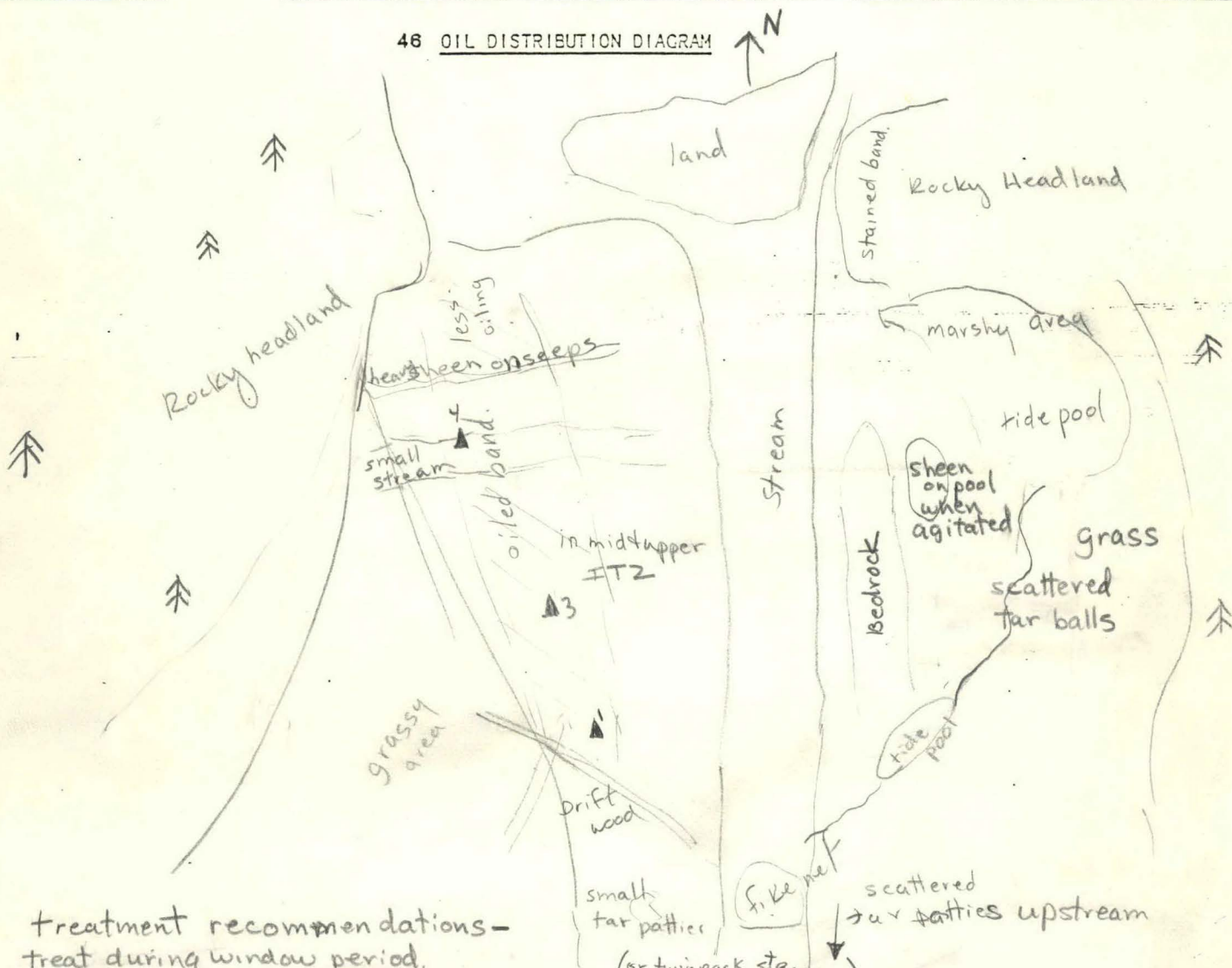
226-10-16982

FRAME(S)

DESCRIPTION

pit 1 - 16cm 8cm oil	pit 2 - 14cm 4cm oil penetration
pit 4 - 18cm 8cm oil penetration	pit 3 - 4cm oil penetration

46 OIL DISTRIBUTION DIAGRAM



Treatment recommendations -

treat during window period.

treatment could consist of a combination of (hot water wash) & removal of oiled sediments

on west bank - work area systematically - put aside stained surface rocks on section of beach remove layer of oil saturated fines. Place surface rocks from next section on previously worked area then remove saturated fines. Continue across beach in this manner on heaviest oiled portions. When completed hot water wash the area (twin pack). Removal of oiled material would be enhanced by use of 4-wheeler with trailer.

On east bank - manually remove scattered tar balls within grassy tidal pool area & upstream, also remove gross oiled vegetation

Sample taken
Photo frame # and
shot direction.

OVER

Comments of K. Critchlow -

Agree with ABFB cleanup recommendations, but also suggest use of bioremediation as last step to provide enhanced longer term cleaning to degrade residual oil.

FIELD SHORELINE COMMENT SHEET

7

SEGMENT ST / KN-132 SUBDIVISION: ASC# 226-10-16982 DATE 4-21-90

USCG

NAME Kerwin L. Dreher SIGNATURE CWO2 K. R. Dreher

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

This is a heavily oiled area and does need special attention. I concur with the below recommendation but would also consider bioremediation after those steps.

~~ADEC~~ → ADFG

NAME Aimee Weseman SIGNATURE Aimee Weseman

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

Heaviest oiling occurs within a 60m x 10m Land in M44T2 on west bank of stream. Put aside top layer of rocks & manually remove oil saturated fines in areas of highest oil concentration. Replace rocks & wash area with hot water. Recover oil. String layers of pom-poms at intervals to prevent erosion & oil deposition in stream. Removal of oiled material would be facilitated by use of 4-wheeler with trailer. Remove scattered tar mats within grassy tide pool area, upstream or wherever encountered. Remove oiled vegetation.

~~LAND MANAGER~~ → NONE

NAME _____ SIGNATURE _____

☐ NO TREATMENT RECOMMENDED

☐ TREATMENT SUGGESTED

COMMENTS

DATE 4/21 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

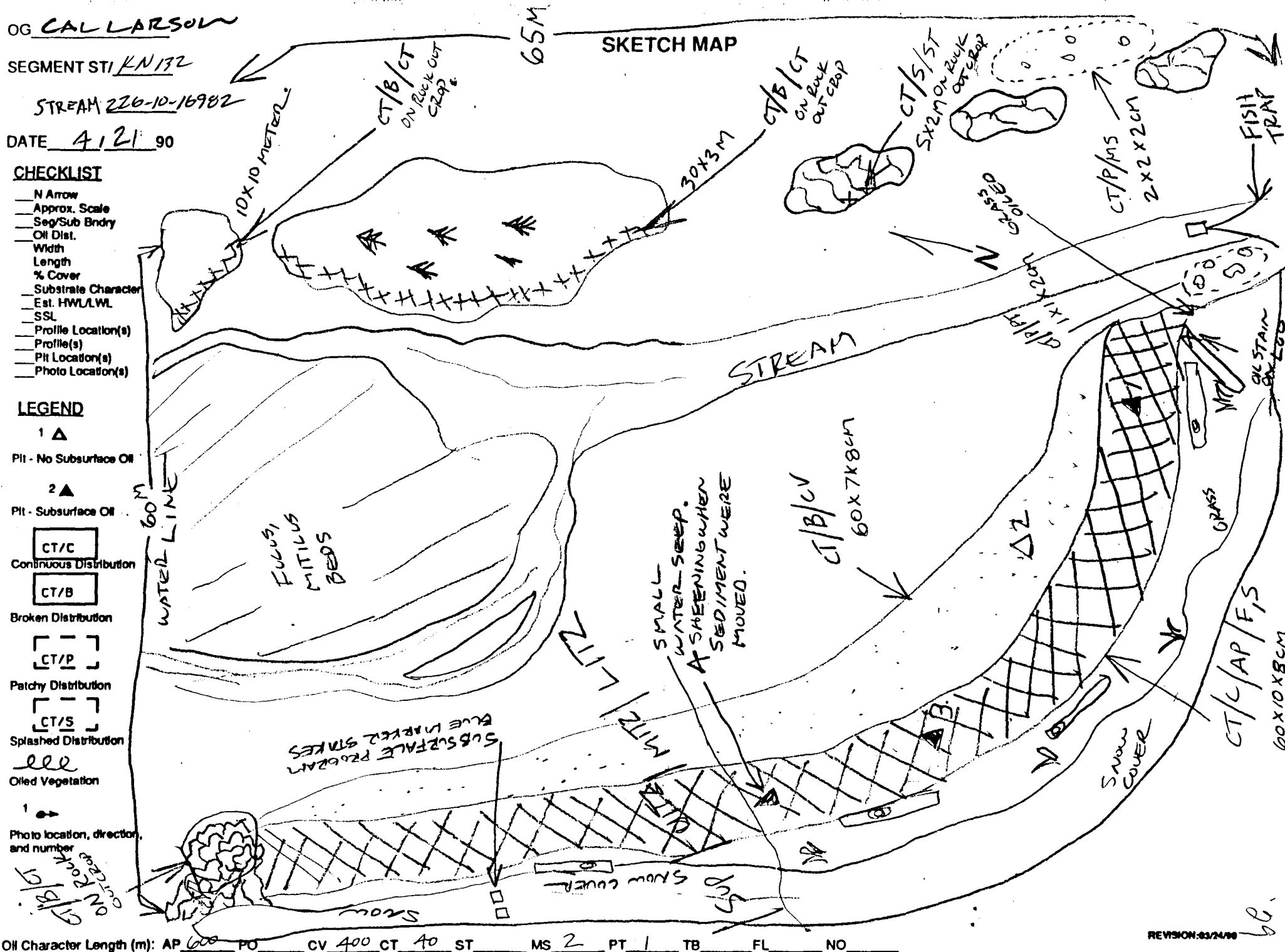
- 1 
Pit - No Subsurface Oil
- 2 
Pit - Subsurface Oil
- 
CT/C
Continuous Distribution
- 
CT/B
Broken Distribution
- 
CT/P
Patchy Distribution
- 
CT/S
Splashed Distribution
- 
Oiled Vegetation

1 

Photo location, direction,
and number

Oil Character Length (m): AP 600 PO CV 400 CT 40 ST MS 2 PT 1 TB FL NO

REVISION: 03/24/04



OG CAL LARSON

SEGMENT STIKNITZ

STREAM 226-10-16982

DATE 4/21/90

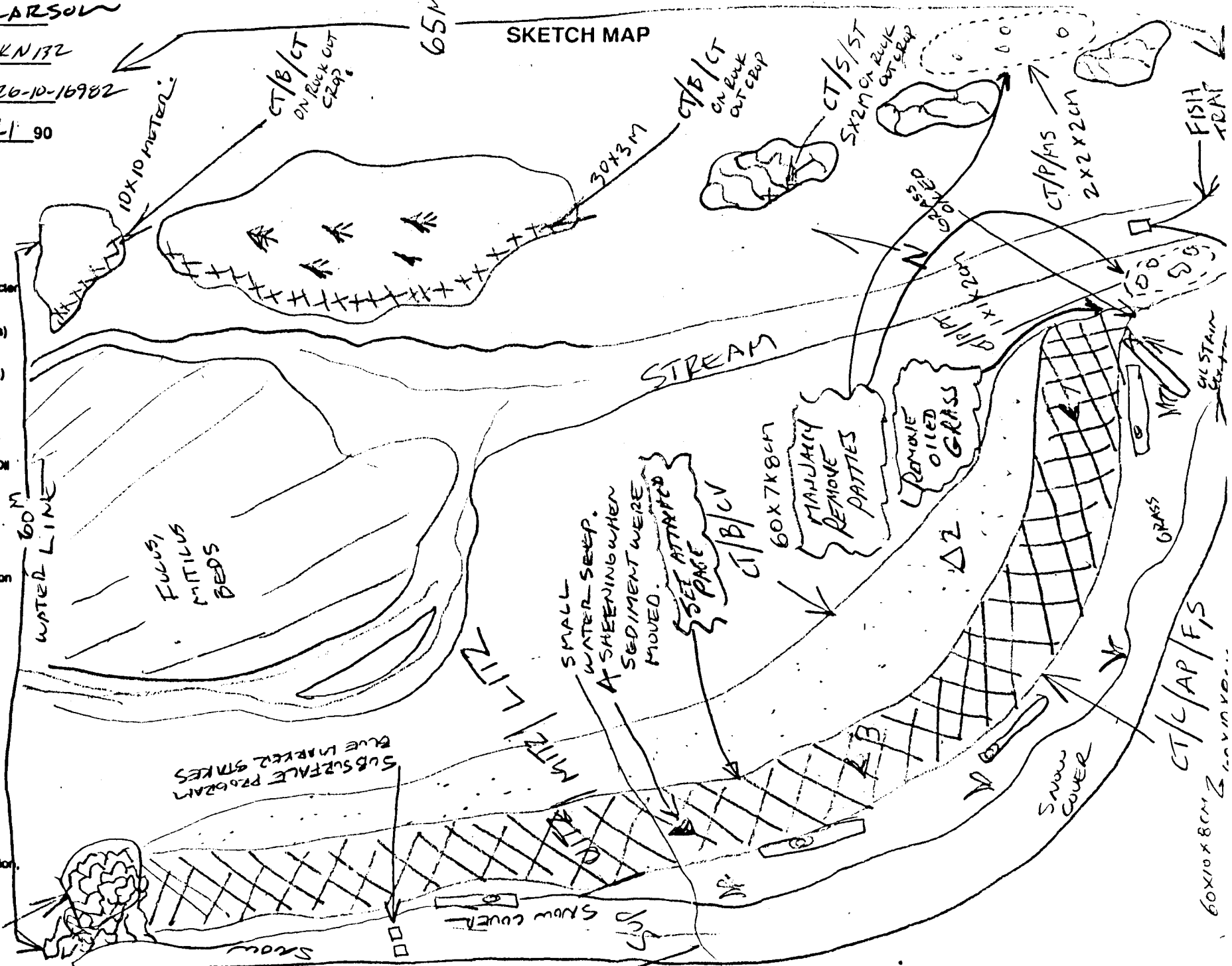
CHECKLIST

- 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
- $\square$ CT/C
Continuous Distribution
- $\square$ CT/B
Broken Distribution
- $\square$ CT/P
Ichthy Distribution
- $\square$ CT/S
Splashed Distribution
- $\lll$
Oiled Vegetation
- 1 $\rightarrow$
Photo location, direction, and number

SKETCH MAP



Oil Character Length (m): AP 600 PO 400 CV 400 CT 40 ST 2 MS 2 PT 1 TB 1 FL 1 NO 1

REVISION: 03/24/98

ANAD 11-1-132

STREAM # 226-10-16982

OPNS RECOMMENDATIONS ATTACHMENT
TO ANNOTATED OPS SKETCH

TREATMENT RECOMMENDATION OF 60 X 10 X 8 CM C/C/AP/F, S

MOVE LARGE COBBLE AND MANUALLY REMOVE AP SEDIMENTS AS
PRACTICAL LINE CUT WITH POM POM TO PROTECT STREAM
AND SPOT WASH REMAINING COBBLE / PEBBLE IN AP IMAGED
AREA. BIOREMEDIATE CROWN AREA AFTER TREATMENT IF
ADF & G WILL ALLOW

OPERATIONS FIELD NOTES

See Back for Instructions

SEGMENT ID ANAO KN-132
 STREAM ID # 226-10-16982
 ANNOTATED MAP INCLUDED YIN

DATE 4-21-90
 NAME DARRELL JOES
 TEAM # 14

SURFACE OIL	Quantities in Meters			Treatment Recommendation						
	Length	Width	Area	None	Y/N	% Treat	Y/N	% Treat	Y/N	% Treat
Wide Band	<u>SEE BELOW</u>									
Medium Band										
Narrow Band										
Very Light										
TOTAL MANDAYS										

SUBSURFACE OIL

Other (Describe)?	<u>SEE SKETCH MAP - BIO BEYOND AREA IF AOE # 6</u> <u>WILL ALLOW BIO WILL REQUIRE ADDL 5 M/D'S</u>
-------------------	---

TARMATS	Quantities in Meters			Treatment Rec			# of Bags	Mandays Required	
	Length	Width	Thick(cm)	None	Breakup	Remove		Breakup	Remove
Area #1	<u>60</u>	<u>10</u>	<u>8</u>			☒	<u>1200</u>		<u>30</u>
Area #2									
Area #3									
Area #4									
Sporadic Mats									

MANUAL PICKUP	Type of Debris			In Meters		# of Bags	Pickup Y/N	Manday Estimate
	Mousse Tarballs	Oiled Veget	Cleanup Debris	Length	Width			
"Pocket" #1	☒			<u>2</u>	<u>2</u>	<u>2</u>	<u>Y</u>	<u>1</u>
"Pocket" #2	☒			<u>1</u>	<u>1</u>	<u>1</u>	<u>Y</u>	<u>1</u>
"Pocket" #3		☒		<u>2</u>	<u>2</u>	<u>2</u>	<u>Y</u>	<u>1</u>
Random/Continuous								

OILED LOGS <u>YIN</u>	OILING <u>H/M/L</u>	QUANTITY <u>L/M/S</u>	BURN <u>Y/N</u>
-----------------------	---------------------	-----------------------	-----------------

Is there Other Debris on the Beach? YIN How Many Bags? 1000 Is it mingled with the Oiled Debris YIN
LOGS / PEAT - DO NOT REMOVE

GENERAL Snow covering 20% of the Supratidal Zone?
 Wave Exposure H/M/L Access Limitations: LONG SLOPING SHALLOW BEACH
 Snare Boom/Pom Poms Recommended? YES - TO PROTECT STREAM DURING TREATMENT
 Would the production Craft have to be relocated to complete work on this subdivision? YIN, # of Times 6
2 DURING TIDE CYCLE

COMMENTS: ALL WORK SHOULD BE PLANNED FOR PERIOD 5-15 + 7-10.
CONTACT AOE # 6 BEFORE STARTING WORK

SHORELINE OILING SUMMARY (ANAD)

REVISION NO. 04/13/90

OG CAL LARSON USCG DREHER, CWE IMENT ST/ KN 132
 BIO KEN CRITCHLOW LAND REP STREAM 226 70-16982 (OF)
 EXXON DARLHL YOE ADFG ZILK GUSTIN-AIMEE WESEMAN TIME 16:00 to 17:00
 TEAM NO. 14 TIDE LEVEL +2 FT DATE 4 / 21 / 90
 EST. SUBDIVISION LENGTH: 150 m ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo
 SURFACE SEDIMENTS: R % B % C 30 % P 30 % G 30 % S 10 % M % V %
 SLOPE: Lang % Hang % Vert % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High
 OIL CATEGORY LENGTH: W 60 m M 40 m N 5 m VL m NO 45 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR						IMPACTED ZONES				
	IC	FB	FP	FS	SB	DBL	FW	GY	SL	TL	LR	SU	UI	MI	LI
ASPHALT PAVEMENT	✓					✓							✓		
POOLED															
COVER		✓				✓							✓		
COAT		✓				✓							✓		
STAIN															
MOUSSE			✓			✓						✓			
PATTIES			✓	✓		✓							✓		
TARBALLS															
FILM															
NO OIL															

PAVEMENT H (F) (S) 600 sq. m by .8 cmPATTIES / TARBALLS 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 #BAGS

Photographs:

Roll No. Frames

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CH)	BELOW		OIL / FILM COLOR						PIT ZONE				A N A	SHEEN (Y/N)	⚠	SURFACE - SUBSURFACE SEDIMENTS		
		OP	OR	OL	OF	NO		UO	UC	SB BR	DBL FW	GY SL	TRK TL	LBH	SU	U	M	L							
1	16	✓					5-8		✓				✓			✓									CB, PB/GP, SD
2	14		✓				5-8		✓				✓			✓									CB/PB/GP, SP
3	14					✓	.									✓									CB / PB, SD
4	18				✓		5-8		✓				✓			✓					Y	Y			CB/PB/GP - -CB, PB, GP
							.																		
							.																		

COMMENTS FISH 360172 SALMON STUDY SITE. LARGE BAND OF ASPHALT ON EAST SIDE OF CULV. COATING ON BOLDERS/BED. IS DRY NON MOBIL. RICH HEALTHY BIOTA IN LOWER TIDAL ZONE.

REVIEWED DATE

GENERAL DATA

226-10
SEG ID: KN-132 SUBDIV: 16982 TEAM: 14 SURVEY DATE: 4/21/90
PAVEMENT: CHAR F₃S AREA 600 THICKNESS 8 TARBALLS —
OILED: LGS SM VEG SM TRH — DBR — WAVE EXP: LW X MD — HG —
FAX RCVD: — DT: — AGENCY DISAGREE: —
EST SUBDIV LGTH: 150 OIL CATEGORY: W 60 M 40 N 5 VL — NO 45 U —

SURFACE DATA

SURFACE SEDIMENT: BRK — BLD — COB 30 PEB 30 GRN 30 SAN 10 MUD — VEG —

CHAR #: 1 OIL CHAR: AP OIL DIST: CONT X BRKN — PTCH — SPLH —
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU — UI X MI — LI —

CHAR #: 2 OIL CHAR: CV OIL DIST: CONT — BRKN X PTCH — SPLH —
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU — UI X MI — LI —

CHAR #: 3 OIL CHAR: CT OIL DIST: CONT — BRKN X PTCH — SPLH —
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU — UI X MI — LI —

CHAR #: 4 OIL CHAR: MS OIL DIST: CONT — BRKN — PTCH X SPLH —
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU X UI — MI — LI —

CHAR #: 5 OIL CHAR: PT OIL DIST: CONT — BRKN — PTCH X SPLH X
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU — UI X MI — LI —

CHAR #: — OIL CHAR: — OIL DIST: CONT — BRKN — PTCH — SPLH —
OIL CLR: — FILM CLR: — TIDAL ZONE: SU — UI — MI — LI —

CHAR #: — OIL CHAR: — OIL DIST: CONT — BRKN — PTCH — SPLH —
OIL CLR: — FILM CLR: — TIDAL ZONE: SU — UI — MI — LI —

CHAR #: — OIL CHAR: — OIL DIST: CONT — BRKN — PTCH — SPLH —
OIL CLR: — FILM CLR: — TIDAL ZONE: SU — UI — MI — LI —

ANAD

SSAT DATA ENTRY FORM

SUBSURFACE DATA

PAGE 1 OF 1SEGMENT ID: KN-132 SUBDIV: 226-10
16982

PIT # 1 PIT DEPTH 16 OIL CHARACTER OP OIL INTVAL: FROM 5 TO 8
 QUANT: UC OIL CLR: DBR FLM CLR: TL ZONE: SU - UI X MI - LI -
 SUBSURF SEDIMENT: BRK - BLD - COB - PEB - GRN X SAN X MUD - VEG -

PIT # 2 PIT DEPTH 14 OIL CHARACTER OR OIL INTVAL: FROM 5 TO 8
 QUANT: UC OIL CLR: DBR FLM CLR: TL ZONE: SU - UI X MI - LI -
 SUBSURF SEDIMENT: BRK - BLD - COB - PEB - GRN X SAN X MUD - VEG -

PIT # 3 PIT DEPTH 14 OIL CHARACTER NO OIL INTVAL: FROM - TO -
 QUANT: - OIL CLR: - FLM CLR: - ZONE: SU - UI X MI - LI -
 SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN - SAN X MUD - VEG -

PIT # 4 PIT DEPTH 18 OIL CHARACTER OF OIL INTVAL: FROM 5 TO 8
 QUANT: UC OIL CLR: BIBR FLM CLR: TL ZONE: SU - UI X MI - LI -
 SUBSURF SEDIMENT: BRK - BLD - COB X PEB X GRN X SAN - MUD - VEG -

PIT # PIT DEPTH OIL CHARACTER OIL INTVAL: FROM TO
 QUANT: OIL CLR: FLM CLR: ZONE: SU UI MI LI
 SUBSURF SEDIMENT: BRK BLD COB PEB GRN SAN MUD VEG

PIT # PIT DEPTH OIL CHARACTER OIL INTVAL: FROM TO
 QUANT: OIL CLR: FLM CLR: ZONE: SU UI MI LI
 SUBSURF SEDIMENT: BRK BLD COB PEB GRN SAN MUD VEG

PIT # PIT DEPTH OIL CHARACTER OIL INTVAL: FROM TO
 QUANT: OIL CLR: FLM CLR: ZONE: SU UI MI LI
 SUBSURF SEDIMENT: BRK BLD COB PEB GRN SAN MUD VEG

PIT # PIT DEPTH OIL CHARACTER OIL INTVAL: FROM TO
 QUANT: OIL CLR: FLM CLR: ZONE: SU UI MI LI
 SUBSURF SEDIMENT: BRK BLD COB PEB GRN SAN MUD VEG

PROBLEMS:

4/12/90

RECEIVED
APR 10 1990

REGION: PRINCE WILLIAM SOUND

SEGMENT: KN-132

DEPT. OF
ENVIRONMENTAL CONSERVATION

SUBDIVISIONS: A (1 OF 4)

Concur with recommended treatment

No bio. STAG

SHORELINE EVALUATION

SEGMENT ST/ KN-132 SUBDIVISION A (1 OF 4) DATE 3/31/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Stream mouth (anadromous catalogue 226-10-16982) - Salmon fry out-
migration (1A) - 3/1 to 5/15; Salmon spawning (1B) - 7/10 to 8/31.

SUBDIVISION ECOLOGICAL CONSTRAINTS: Avoid disturbance/damage to un-
oiled 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 Re-
source 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 235 m: No Oil 0 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: Manual pickup of rope/pom-pom found during survey. Bio-
remediation of area where surface coat found.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

FIELD SHORELINE COMMENT SHEET

SEGMENT ST 1 KN 132 SUBDIVISION: A DATE 3/31/90

USCG

NAME D. F. White SIGNATURE D. F. White

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

MANUALLY REMOVING OF OIL - DEBRIS AND TRASH REMOVED.

ADEC

NAME Dianne Munson SIGNATURE Dianne Munson

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

Low angle boulder beach. Coats are primarily on under surface of boulders. Recommend turning boulders over and manually removing oil. Possible tools could be a putty knife or wire brush. Debris and trash removal.

LAND MANAGER

NAME Dave Mandrella SIGNATURE David Mandrella

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

Low angle boulder beach with sporadic coating of oil primarily on underside of boulders in the upper to lower intertidal zone. Suggest scraping and/or riving underside of boulders. Debris pickup in supratidal zone.

SHORELINE OILING SUMMARY

REVISION NO. 000000

OG Sawyer USCG White SEGMENT ST/ KN132
 BIO Benton LAND REP Mandrella SUBDIVISION A (1 of 4)
 EXXON Katsimpalis ADEC Munson TIME 7:30 to 9:00
 TEAM NO.: 2 TIDE LEVEL: +5.5 to +1.0 DATE Mar 13 / 1990
 EST. SUBDIVISION LENGTH: 350 to 290 m ☒ Sun ☒ Clouds ☐ Fog ☒ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: N to S
 SURFACE SEDIMENTS: R 5 % B 90 % C 5 % P — % G — % S — % M — % V — %
 SLOPE: Long 100 % Hang — % Vert — % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High
 OIL CATEGORY LENGTH: W — m M — m N — m VL 290 m NO — m

SURFACE OIL

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

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			
Debris			

DEBRIS COLLECTED
☒ YES ☐ NOTYPE Pebbles/Rope#BAGS 1

Photographs:

Roll No. St-8-1Frames 6, 7

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CH)	BELOW		OIL / FILM COLOR					PIT ZONE				A N A	SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UC	UC	1	2	3	4	5	SU	U	M	U		

COMMENTS ST/KN132 low angle boulder beach. Coats are primarily on the underside of boulders in the upper to lower intertidal zone. Subsurface pits were not excavated because of boulder substrate.

SHORELINE ECOLOGICAL SUMMARY

Segment ST / KN 132 Subdivision A Date (mo / day / yr) 3/31/90

Time (24 hr) 0730 Biologist J. Benson

(A) Substrate type and % of segments:
(1) Bedrock 5 (2) Boulder 90 (3) Cobble 5 (4) Pebble 0 (5) Sand 0 (6) Silt 0

(B) Overall % cover of biota (% of segment): Dense 10 Moderate 60 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-8-1

Frames 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

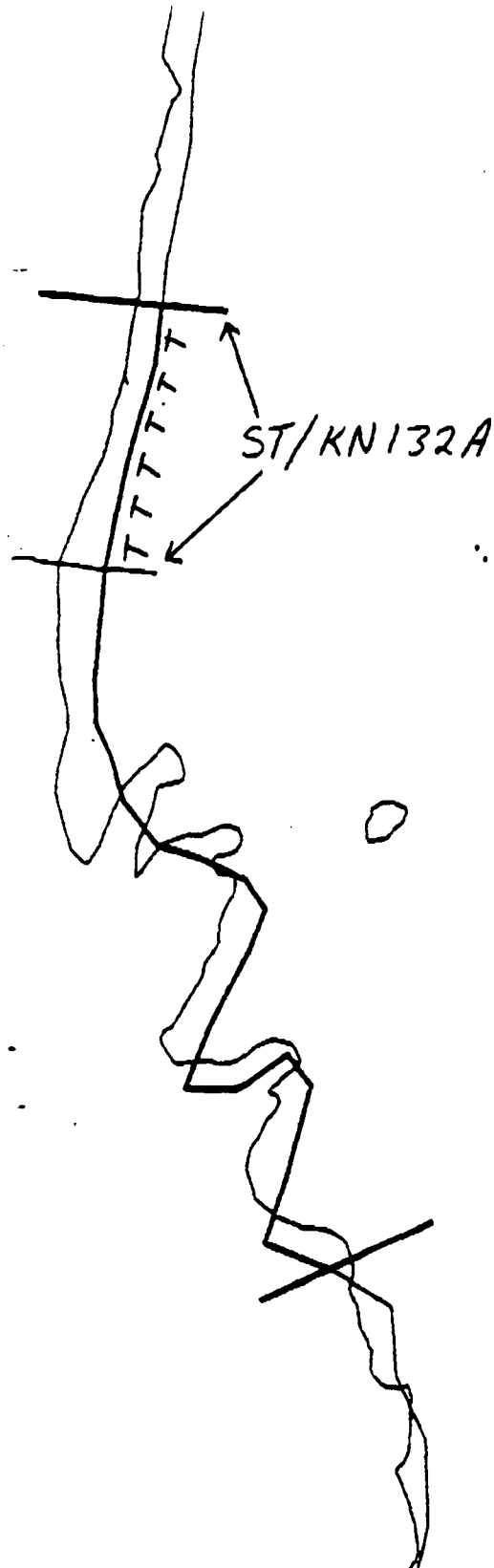
NOT PRESENT

Wildlife Observations/ General Comments:

sea otter (Enhydra lutris)

Ecological Considerations:

sensitivities: 1B (stream mouth - salmon spawning)



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

KN-132

ADEC Segment Length: 1108m

0 100 200 300
METERS

Map Key: PWS-315

Name: SawyerDate: Mar 31, 1990

Data Entered:

OG Sawyer

SEGMENT ST/KN132

SUBDIVISION A (1 of 4)

DATE Mar 13/90

CHECKLIST

- ☒ N Arrow
- ☒ Approp. Scale
- ☒ Seg/Sub Entry
- ☐ 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

PH - No Subsurface Oil

2 Δ

PH - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

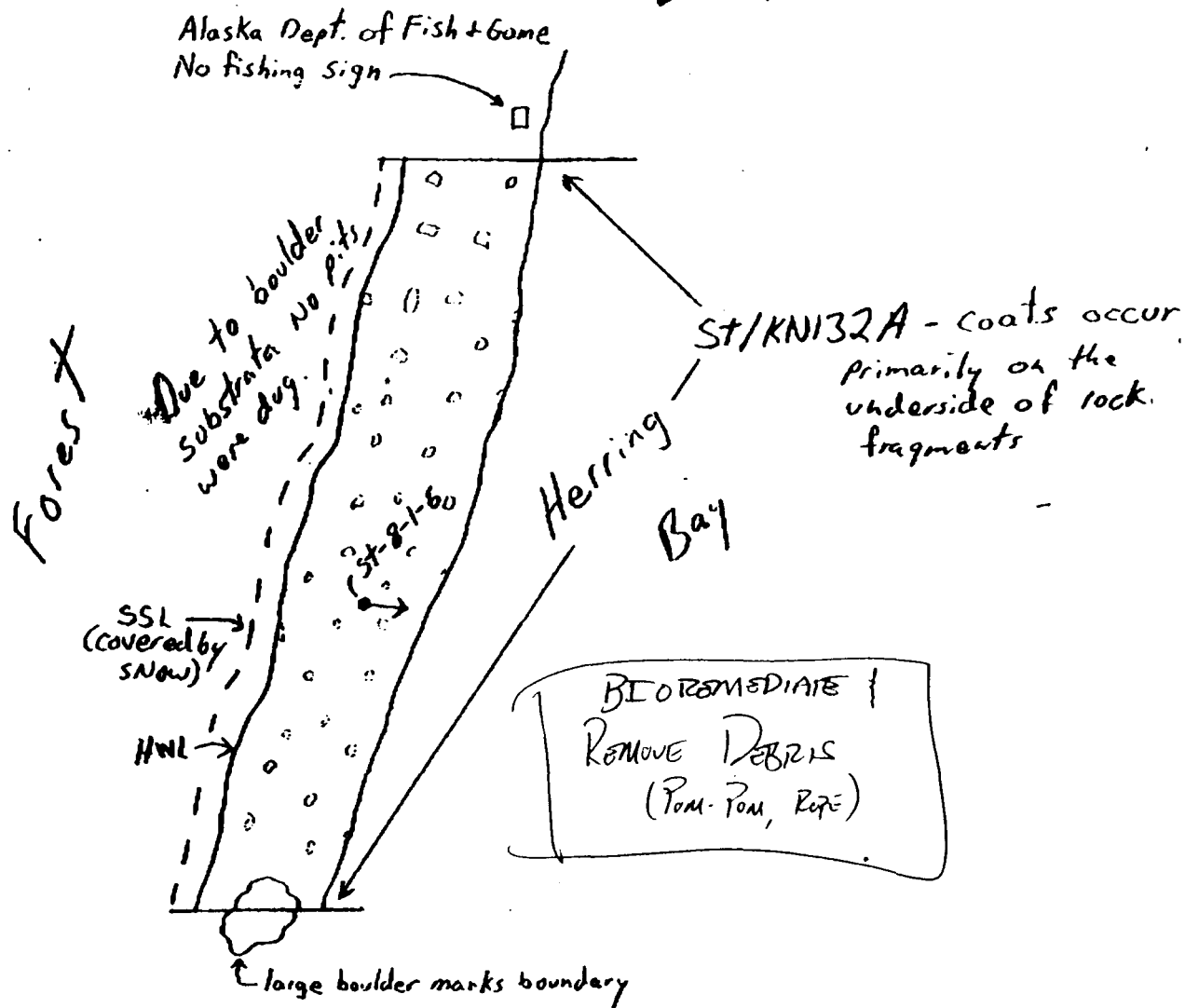
Splashed Distribution

Oiled Vegetation

1 ●→

Photo location, direction,
and number

SKETCH MAP St-8-1-7



Oil Character Length (m): AP — PO — CV 290 CT — ST — MS — PT — TB — FL — NO —

REVISION 000000

4/12/90

RECEIVED
APR 10 1993

DEPT. OF
NATURAL RESOURCES & CONSERVATION

REGION: PRINCE WILLIAM SOUND

SEGMENT: KN-132

SUBDIVISIONS: B (2 OF 4)

Manual pickup, ^{general} of tarrat recommended
Bio remediation not recommended; salmon-
fry rearing area.

Agree -

SHORELINE EVALUATION

SEGMENT ST/ KN-132 SUBDIVISION B (2 OF 4) DATE 3/31/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Stream mouth (anadromous catalogue 226-10-16982) - Salmon fry out-
migration (1A) - 3/1 to 5/15; Salmon spawning (1B) - 7/10 to 8/31.

SUBDIVISION ECOLOGICAL CONSTRAINTS: No disturbance of stream bed or
banks unless authorized by ADF&G. Contact ADF&G Habitat Division
prior to treatment for permits.

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 46 m: Medium 69 m: Narrow 55 m: V.Light 0 m: No Oil 0 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 22 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: Bioremediate area of surface coat as shown on sketch map.
Breakup and remove asphalt mats. Work between 5/15 and 7/10 based
on constraints.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____

EXXON _____

NOAA _____

USCG _____

FOSC: _____ DATE: _____

FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ KN 122 SUBDIVISION: B DATE 3-31-90

USCG

NAME W.E. WHITE SIGNATURE W.E. White

☐ NO TREATMENT RECOMMENDED
COMMENTS

☒ TREATMENT SUGGESTED

TREATMENT OF THIS SEDIMENT - RECOMMEND HIGH QUALITY
TREATMENT - DUE TO FISH AND GAME - HEAVY OIL
SHORE LINE.

ADEC

NAME Dianne Munson SIGNATURE Dianne Munson

☐ NO TREATMENT RECOMMENDED
COMMENTS

☒ TREATMENT SUGGESTED

This subsegment is adjacent to a high quality anadromous stream. Very extensive asphalt/pavement (ca 1300 sq. meters with a maximum penetration of greater than 22 cm). Oil saturates pore spaces between subsurface sediments. Black oil globules surface in pits interstitial water (definitely mobile). This subsegment definitely needs further attention. Because cobbles lie on top of the asphalt it would be difficult to remove manually. Recommend mechanical dredging or mechanical milling with water washing. Possible bioremediation polishing, etc. All recommendations pending Alaska Fish and Game Regulations.

LAND MANAGER

NAME David Mandrella SIGNATURE David Mandrella

☐ NO TREATMENT RECOMMENDED
COMMENTS

☒ TREATMENT SUGGESTED

Station is adjacent to high quality anadromous stream. Substantial areas of asphalt pavement occur, primarily in upper intertidal zone. Subsurface oil was measured to be up to 22 cm. thick in spot nearest stream. Scattered and patchy coats of oil occur in all zones.

Recommend: Selected removal of asphalt pavement.

Scraping and absorbing underside of boulders and cobbles.

Manual tilling of heavily impacted areas along with spot flushing and placement of sancoats.

Possible bioremediation if in compliance with AK fish and game regulations.

REVISION NO. 08/1/88

SHORELINE OILING SUMMARY

REVISION NO. 05/28/90

OG Sawyer USCG White SEGMENT ST/ KN132
 BIO Benson LAND REP Mandrella SUBDIVISION B (2 of 4)
 EXXON Katsimpalis ADEC Munson TIME 9:00 to 11:30
 TEAM NO.: 8 TIDE LEVEL: +1 to -0.5 DATE Mar 31 1990
 EST. SUBDIVISION LENGTH: 310 m ☒ Sun ☒ Clouds ☐ Fog ☐ Rain ☒ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: N to S
 SURFACE SEDIMENTS: R 5 % B 20 % C 70 % P 5 % G - % S - % M - % V - %
 SLOPE: Long 95 % Hang - % Vert 5 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High
 OIL CATEGORY LENGTH: W 70 m M 60 m N 35 m VL - m NO 0 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR				IMPACTED ZONES			
	10	15	20	25	30	35	40	45	SU	U	M	L
ASPHALT PAVEMENT			/	✓						/		
POOLED												
COVER												
COAT			/	✓						/	/	/
STAIN												
MOUSSE												
PATTIES												
TARBALLS												
FILM			/			✓	/			/	/	/
NO OIL												

 PAVEMENT: H F 51300 sq. m by 52022 cm ^{Avg = 14cm}
PATTIES / TARBALLS - 0 BAGSNEAR SHORE SHEEN? ☒ BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

DEBRIS COLLECTED

☐ YES ☒ NO

TYPE

#BAGS

Photographs:

Roll No. ST-8-1Frames 8, 9, 10, 11, 12

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-GM)	BELOW		OIL / FILM COLOR				PIT ZONE				A N A	SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UC	30	40	50	60	SU	U	M	L		
1	20	/					0.5	/						/				N	B, G, P
2	25					/	- - -	/						/				N	G, P, S
3	30	/					50 - 22	/						/				N	P, G
							.												
							.												
							.												

COMMENTS ST/KN132B Low angle cobble, boulder beach with patchy and splashes of pavement in upper intertidal zone. Subsurface oil was measured to be up to 22 cm thick in pit #3. Films occur occasionally within upper and middle intertidal zones throughout segment.

SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/22/90

Segment ST / K132 Subdivision B Date (mo / day / yr) 3/31/90

Time (24 hr) 0920 Biologist J. Benson

(A) Substrate type and % of segments:
(1) Bedrock 5 (2) Boulder 20 (3) Cobble 70 (4) Pebble 5 (5) Sand 0 (6) Silt 0

(B) Overall % cover of biota (% of segment): Dense 10 Moderate 70 Low 20

(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-8-1

Frames 8-12

BARNACLES

Dense			Moderate			Sparse			Rare			NOT PRESENT
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	

MYTILUS

Dense			Moderate			Sparse			Rare			NOT PRESENT
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	

GASTROPODS

Dense			Moderate			Sparse			Rare			NOT PRESENT
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	

FUCUS

Dense			Moderate			Sparse			Rare			NOT PRESENT
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	

Wildlife Observations/ General Comments:

gull

Ecological Considerations:

sensitivities: 1B (stream mouth; salmon spawning)



DATE Nov 131 90

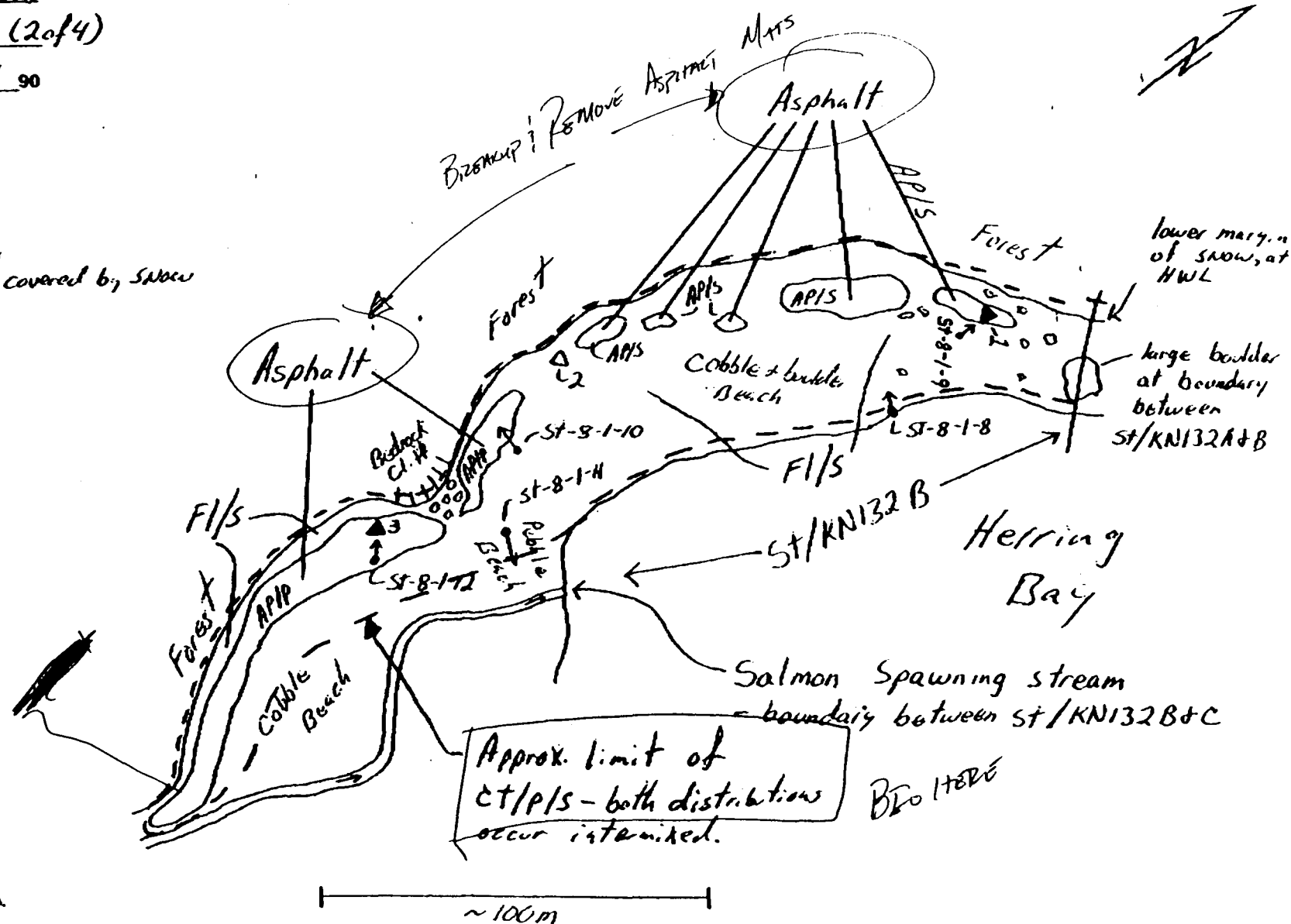
CHECKLIST

- M Amber
 Approx. Scale
 Seg/Sub Entry
 Oil Dist
 Width
 Length
 % Cover
 Substrate Character
 Est. HML/LWL
 SSL ←
 Profile Location(s)
 Profile(s)
 Pct Location(s)
 Photo Location(s)

LEGEND

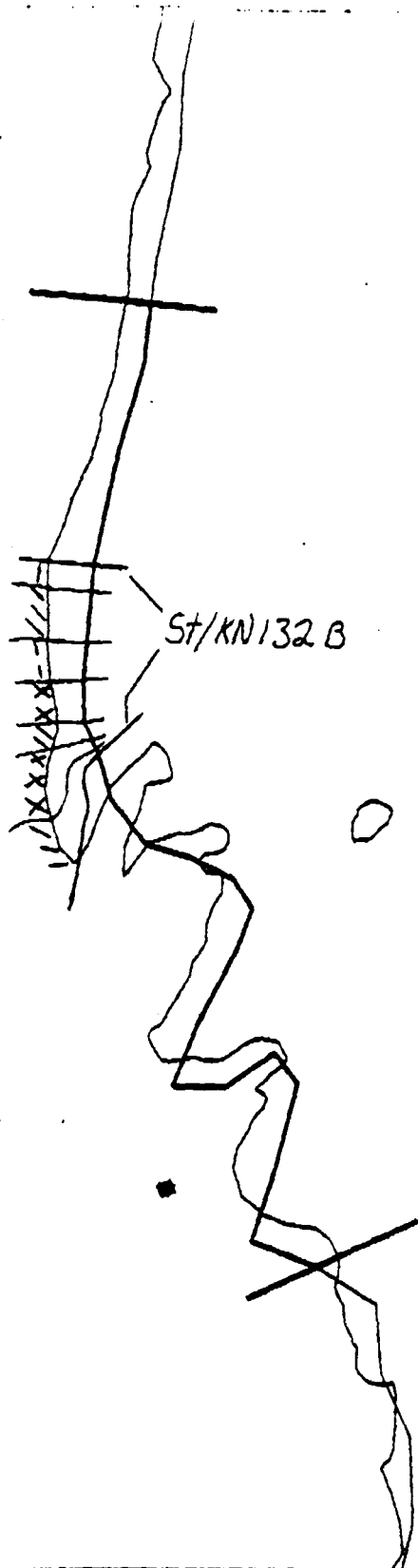
- 1 
Pit - No Subsurface Oil
- 2 
Pit - Subsurface Oil
- 
Continuous Distribution
- 
Broken Distribution
- 
Patchy Distribution
- 
Splashed Distribution
- Oiled Vegetation
- 1 
Photo location, direction
and number

SKETCH MAP



Oil Character Length (m): AP 215 PO - CV - CT 100 ST - MS - PT - TB - FL 30 NO -

REVISION 02/2000



KN-

XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

KN-132

ADEC Segment Length: 1108m



Map Key: PWS-315

Name: Sawyer

Date: 3-31-90

Data Entered:

4/12/90

RECEIVED
APR 10 1990

DEPT. OF
ENVIRONMENTAL CONSERVATION

REGION: PRINCE WILLIAM SOUND

SEGMENT: KN-132

SUBDIVISIONS: C (3 OF 4)

Bioremediation not recommended. Salvage
by rearing area. Manual trash/debris
removal recommended.

Scheduled for final Sect. ?
agree

SHORELINE EVALUATION

SEGMENT ST/ KN-132 SUBDIVISION C (3 OF 4) DATE 3/31/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Stream mouth (anadromous catalogue 226-10-16982) - Salmon fry out-
migration (1A) - 3/1 to 5/15; Salmon spawning (1B) - 7/10 to 8/31.

SUBDIVISION ECOLOGICAL CONSTRAINTS: No disturbance of stream bed or
banks unless authorized by ADF&G. Contact ADF&G Habitat Division
prior to treatment for permits.

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 Re-
source 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 63 m: No Oil 106 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: Bioremediate area shown on sketch map. Work between
5/15 and 7/10 based on constraints.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____

EXXON _____

NOAA _____

USCG _____

FOSC: _____ DATE: _____

FIELD SHORELINE COMMENT SHEET

SEGMENT ST 1 KN 132 SUBDIVISION: C DATE 3-31-90**USCG**NAME W. F. WHITE SIGNATURE William F. White☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED
COMMENTS

SMALL AMOUNTS OF OIL ON COBBLES, DEBRIS
AND TRASH REMOVAL.

ADECNAME Dianne Munson SIGNATURE Dianne Munson☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED
COMMENTS

Small amounts of coats on cobbles, seen in interstitial
water. Debris and trash removal in supratidal.

LAND MANAGERNAME David Mandrella SIGNATURE David M. Mandrella☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED
COMMENTS

Sporadic coat noted on underside of boulder cobble
substrate. Debris pickups in supratidal.

SHORELINE OILING SUMMARY

REVISION NO. 06/28/90

OG Sawyer USCG White SEGMENT ST/ KN132
 BIO Benton LAND REP Mandrelle SUBDIVISION C (3 of 4)
 EXXON Katsimpalis ADEC Munson TIME 11:30 to 11:40
 TEAM NO.: 8 TIDE LEVEL: -0.5 to -1 DATE Mar 13 / 1990
 EST. SUBDIVISION LENGTH: 471 m ☒ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: E to W
 SURFACE SEDIMENTS: R 40 % B 30 % C 10 % P 20 % G - % S - % M - % V - %
 SLOPE: Long 60 % Hang - % Vert 40 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High
 OIL CATEGORY LENGTH: W - m M - m N - m VL 300 m NO 171 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR								IMPACTED ZONES			
	C	N	P	S	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 0 sq. m by 0 cmPATTIES / TARBALLS 0 BAGS

NEAR SHORE SHEEN? NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

DEBRIS COLLECTED

☒ YES ☐ NOTYPE Part of Boom#BAGS 4

Photographs:

Roll No. ST-8-1Frames 13-14

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (cm)	BELOW		OIL / FILM COLOR								PIT ZONE				A N A	SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UG	1	2	3	4	5	6	7	8	SU	U	M	U		
1	30						---															N	P, G, S
2	30						---															N	G, P
* 3	15						---															N	C, P, S
							.																
							.																
							.																

COMMENTS ST/KN132C: Pocket beaches separated by vertical bedrock cliffs.

* No oil layers observed in subsurface, however a sheen was noted in pit #3.

OG. Sawyer

SEGMENT ST/ KN132

SUBDIVISION C (3 of 4)

DATE Mar 31 90

CHECKLIST

☐ N Arrow
☐ Approx. Scale
☐ Seg/Sub Bdry
☐ Oil Dist
☐ Width
☐ Length
☐ % Cover
☐ Substrate Character
☐ Est. F/V/L/W/L
☐ SSL
☐ Profile Location(s)
☐ Profile(s)
☐ P4 Location(s)
☐ Photo Location(s)

LEGEND

1 Δ
P1 - No Subsurface Oil

2 ▲
P1 - Subsurface Oil

CT/C
Continuous Distribution

CT/B
Broken Distribution

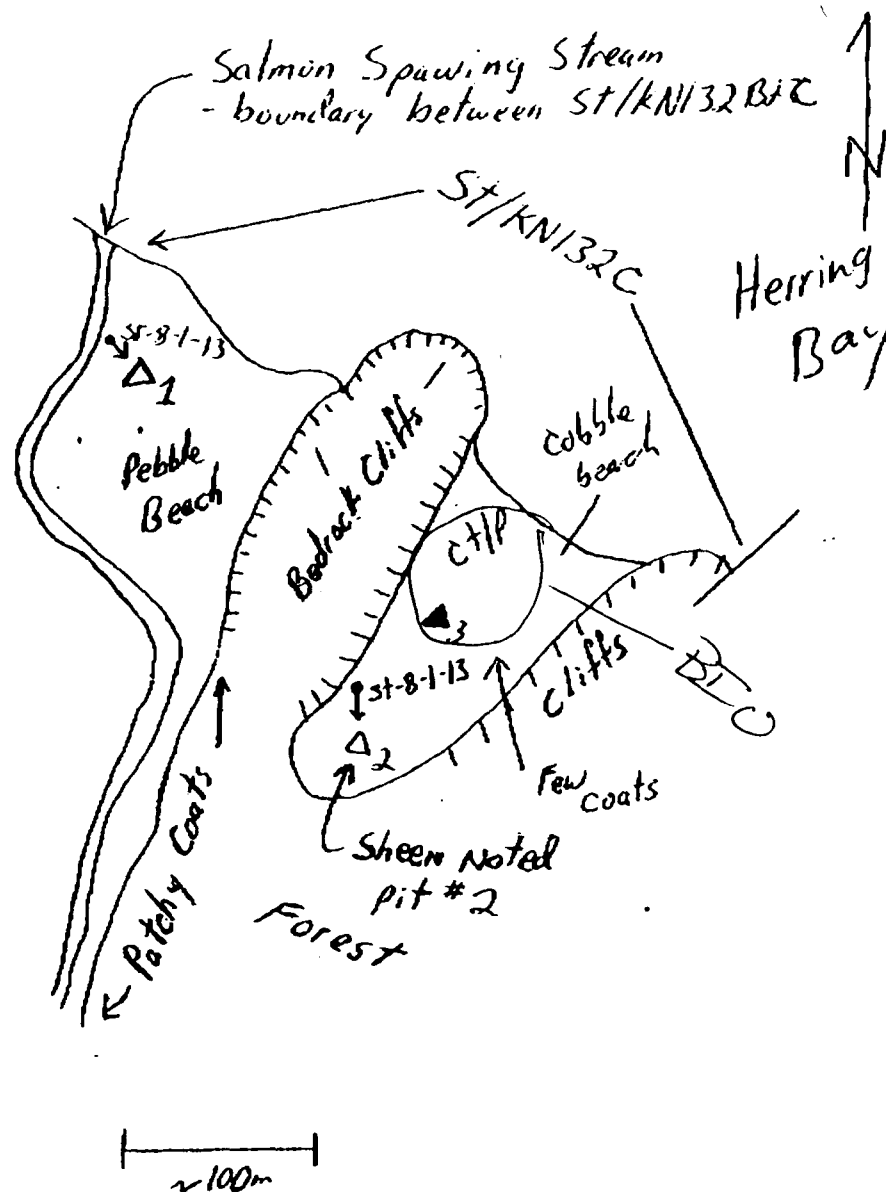
CT/P
Patchy Distribution

CT/S
Splashed Distribution

Oiled Vegetation

1 ●→
Photo location, direction,
and number

SKETCH MAP



Oil Character Length (m): AP — PO — CV — CT 200 ST — MS — PT — TB — FL 30 NO 300

REVISION: 03/2000

DEC-12-1999 12:29 FROM YU... RIVER

TO

P.13

SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/22/90

Segment ST / KN 132 Subdivision C Date (mo / day / yr) 3/31/90Time (24 hr) 1130 Biologist J. Benson

(A) Substrate type and % of segments:

(1) Bedrock 40 (2) Boulder 30 (3) Cobble 10 (4) Pebble 20 (5) Sand 0 (6) Silt 0(B) Overall % cover of biota (% of segment): Dense 20 Moderate 50 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-8-1Frames 13, 14

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

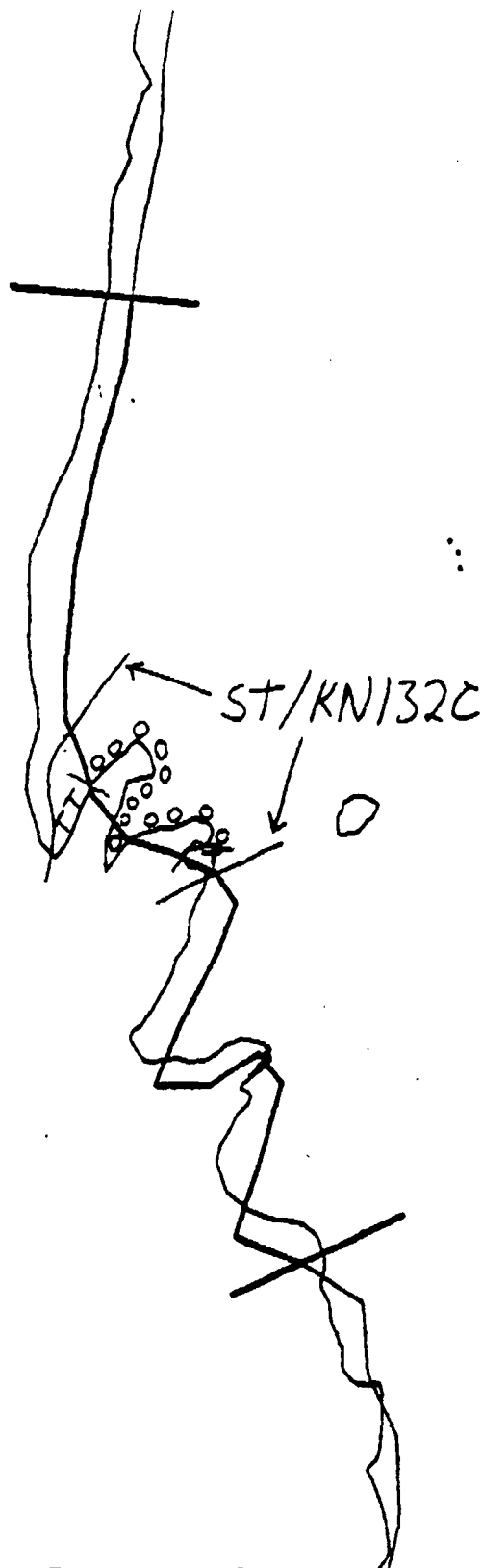
Wildlife Observations/ General Comments:

Bald Eagle (Haliaeetus leucocephalus)

Overall % cover of biota was dense when a green filamentous alga (not among 4 groups above) covered many cobbles

Ecological Considerations:

sensitivities: 1B (stream mouth - salmon spawning)



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

KN-132

ADEC Segment Length: 1108m



Map Key: PWS-315

Name: _____

Date: _____

Date Entered: _____

4/12/90

RECEIVED
APR 10 1990

DEPT. OF
ENVIRONMENTAL CONSERVATION

REGION: PRINCE WILLIAM SOUND

SEGMENT: KN-132

SUBDIVISIONS: D (4 OF 4)

Recommend removing asphalt. No
bioremediation - salvor by leaving area.
Washing o.k. if released oil skimmed
adequately.

add: Tullrig at Pit #2

SHORELINE EVALUATION

SEGMENT-ST/ KN-132 SUBDIVISION D (4 OF 4) DATE 3/31/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Stream mouth (anadromous catalogue 226-10-16982) - Salmon fry out-
migration (1A) - 3/1 to 5/15; Salmon spawning (1B) - 7/10 to 8/31.

SUBDIVISION ECOLOGICAL CONSTRAINTS: Avoid disturbance/damage to un-
oiled substrate and biota.

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 Re-
source 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 246 m: No Oil 319 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 14 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: Bioremediate area(s) shown on sketch map. Remove asphalt
mats. Work between 5/15 and 7/10 based on constraints.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____
EXXON _____
NOAA _____
USCG _____

FOSC: _____ DATE: _____

FIELD SHORELINE COMMENT SHEET

SEGMENT ST 1 KN-132 SUBDIVISION: 1 DATE 3-31-90

USCG

NAME W. E. WHITE SIGNATURE W. E. White

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED
COMMENTS

RECOMMEND REMOVAL OF OILED LOG, HOT WATER/
STEAM WASHING.

ADEC

NAME Dianne Munson SIGNATURE Dianne Munson

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED
COMMENTS

This subsegment is a boulder, cobble, cove separated by bedrock headlands. Coats on surface and undersides of boulders and cobbles. Pit shows sheen in interstitial water. Sporadic asphalt pavement at hit 2. Large log at hit 2 is 70% oiled. Recommend removal of oiled log, hot water/steam washing with cold water flush (shore crew).

LAND MANAGER

NAME David Mandrella SIGNATURE David Mandrella

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED
COMMENTS

Oiled condition consists of small patches of asphalt pavement which should be removed. Treat large woody debris covered with coat of oil. Gravel and pebble areas in intertidal have no apparent oiling. Sporadic coats on underside of rocks should be manually scraped.

S RELINE OILING SUMMARY

REVISION NO. 6328/90

OG Sawyer USCG White SEGMENT ST/ KN132
 BIO Benson LAND REP Mandrella SUBDIVISION D (4 of 4)
 EXXON Katsimpealis ADEC Munson TIME 11:40 to 13:00
 TEAM NO.: 8 TIDE LEVEL: -0.5 to +3.0 DATE Mar 13 / 90
 EST. SUBDIVISION LENGTH: 440 m ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: E to W
 SURFACE SEDIMENTS: R 40 % B 20 % C 20 % P 10 % G 10 % S - % M - % V - %
 SLOPE: Long 70 % Hang - % Vert 30 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High
 OIL CATEGORY LENGTH: W - m M - m N - m VL 170 m NO 270 m

SURFACE OIL

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

PAVEMENT: H (F) S 5 sq. m by 14 cmPATTIES / TARBALLS - BAGSNEAR SHORE SHEEN? NO BR (RW) (SL) TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			✓
Vegetation			
Trash			
Debris			

DEBRIS COLLECTED
☒ YES ☐ NOTYPE rope#BAGS 1

Photographs:

Roll No. ST-8-1Frames 15-16

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-CH)	BELOW		OIL / FILM COLOR								PIT ZONE				A N A	SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		VO	UC	1	2	3	4	5	6	7	8	SU	U	M	L		
*1	20				✓		①-②		✓													N	P, G, S, wt
2	25				✓		50-14		✓													N	P, G, S
*3	25				✓		①-②		✓													N	P, S, wt
*4	35				✓		①-②		✓													N	C, P, G, wt
							.																
							.																

COMMENTS ST/KN132D: Boulder and cobble beaches separated by bedrock ridges. Sporadic pavement occurs only in small areas (2 to 3 m²), but may be buried in places. Large oiled log in upper tidal zone of westernmost "pocket" beach. *Pits 1, 3, and 4 had silver sheens (Film on water in pits, but films were not observed on subsurface sediment.

SHORELINE ECOLOGICAL SUMMARY

REVISION: 08/22/90

Segment ST / KN132 Subdivision D Date (mo / day / yr) 3/31/90Time (24 hr) 1150 Biologist J. Jensen

(A) Substrate type and % of segments:

(1) Bedrock 40 (2) Boulder 20 (3) Cobble 20 (4) Pebble 5 (5) Sand 5 (6) Silt 0(B) Overall % cover of biota (% of segment): Dense 50 Moderate 25 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 (3)

Photographs:

Roll No. ST-B-1Frames 15, 16

BARNACLES

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

MYTILUS

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

Wildlife Observations/ General Comments:

gull
high % cover of green filamentous algae

Ecological Considerations:

sensitivities: 1B (stream mouth - salmon spawning)

OG Sawyer

SEGMENT ST/KN/32

SUBDIVISION 0(4a/4)

DATE Mar 31 90

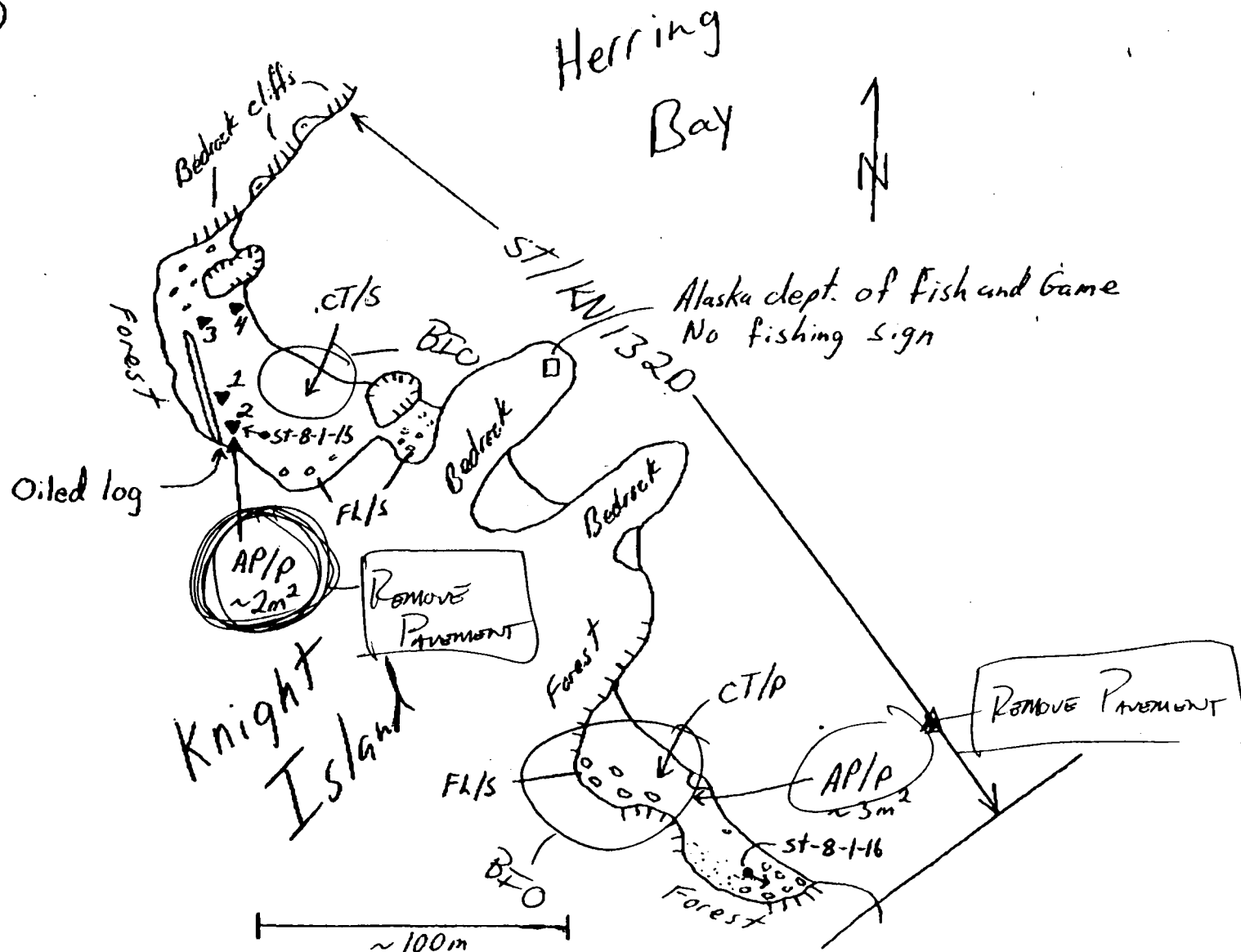
CHECKLIST

- ___ N Area
- ___ Approx. Scale
- ___ Seg/Sub Boundry
- ___ Oil Dist.
- ___ Width
- ___ Length
- ___ % Cover
- ___ Substrate Character
- ___ Est. HMLAWL
- ___ SSL
- ___ Profile Location(s)
- ___ Profile(s)
- ___ Pic Location(s)
- ___ Photo Location(s)

LEGEND

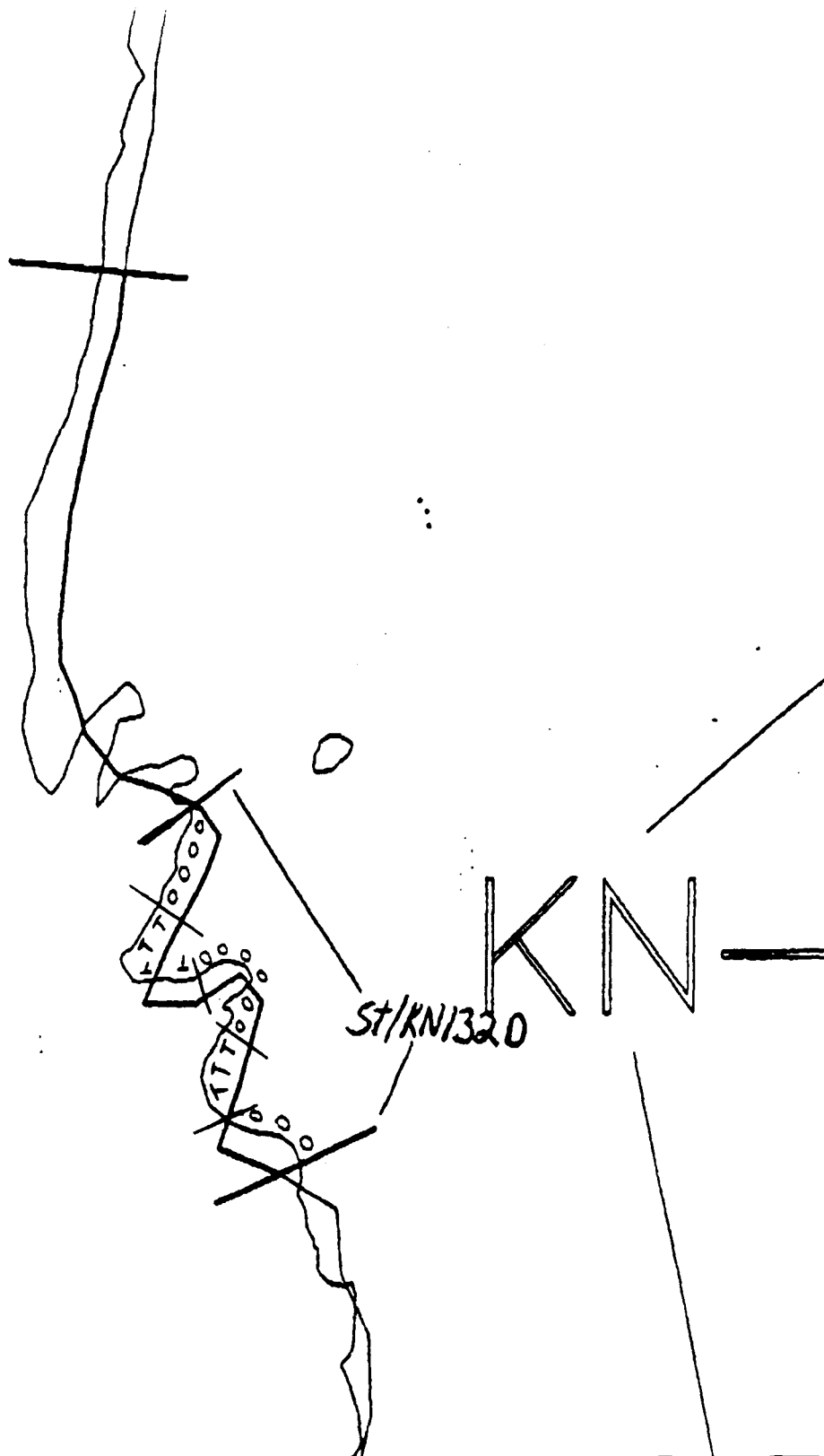
- 1 Δ
- PI - No Subsurface Oil
- 2 Δ
- PI - Subsurface Oil
- CT/C
- Continuous Distribution
- CT/B
- Broken Distribution
- CT/P
- Patchy Distribution
- CT/S
- Splashed Distribution
- Oiled Vegetation
- Photo location, direction, and number

SKETCH MAP



Oil Character Length (m): AP 5 PO - CV - CT 80 ST - MS - PT - TB - FL 60 NO

REVISION 918680



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

KN-132

ADEC Segment Length: 1108m



Map Key: PWS-315

Name: _____

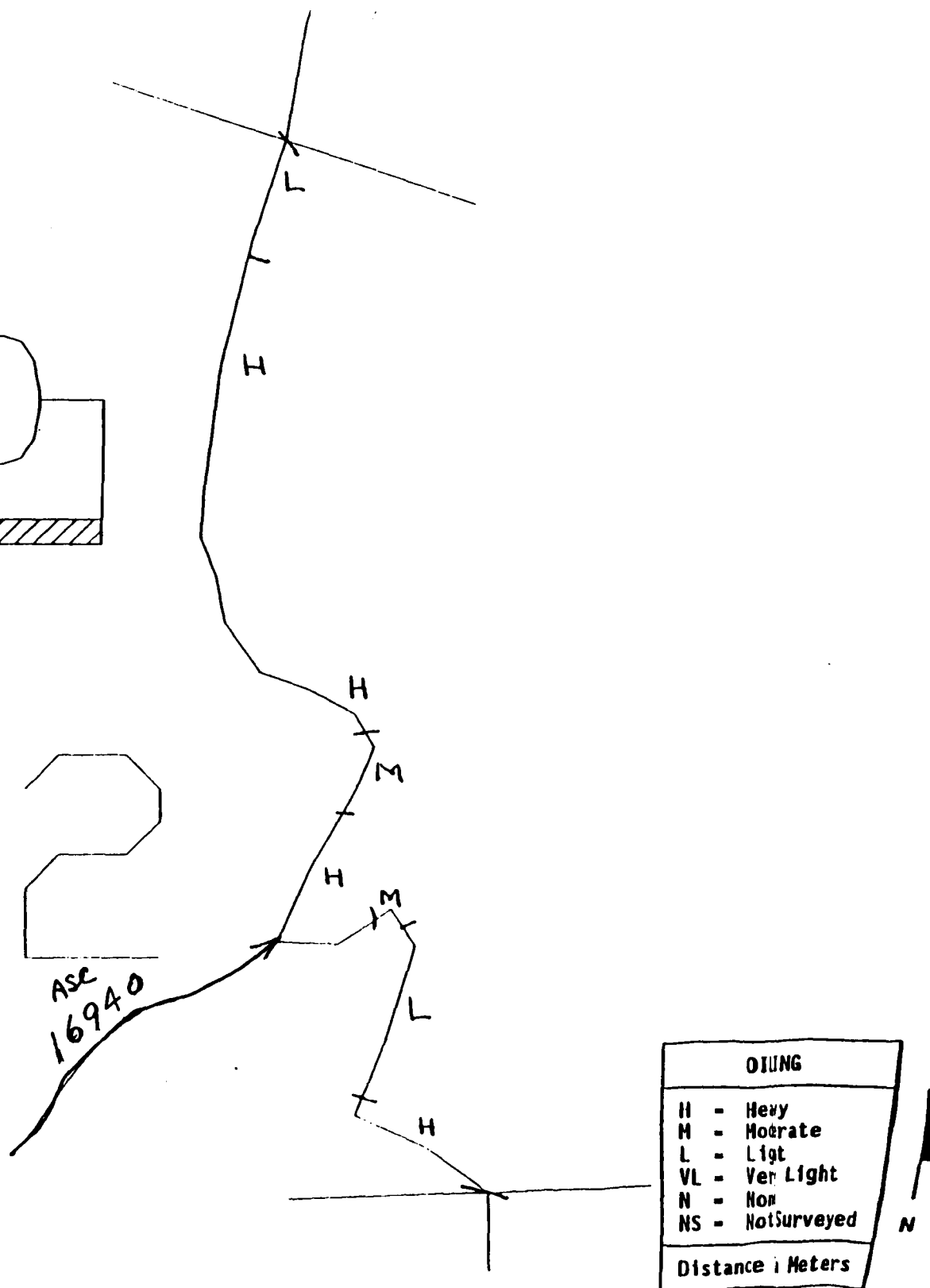
Date: _____

Date Entered: _____

500.0

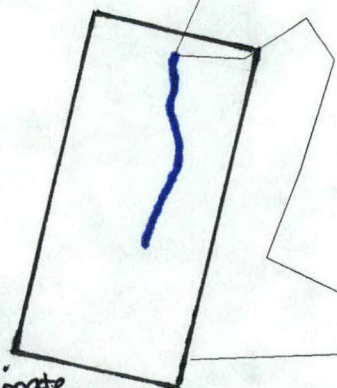
KN132

ASC
16940

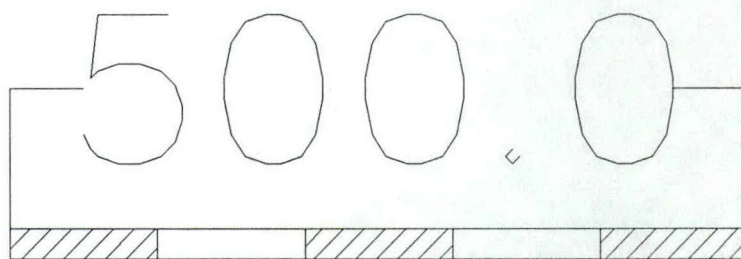


WINTER STUDY 1989

KN132



approximate
location of study site
KN132692MH



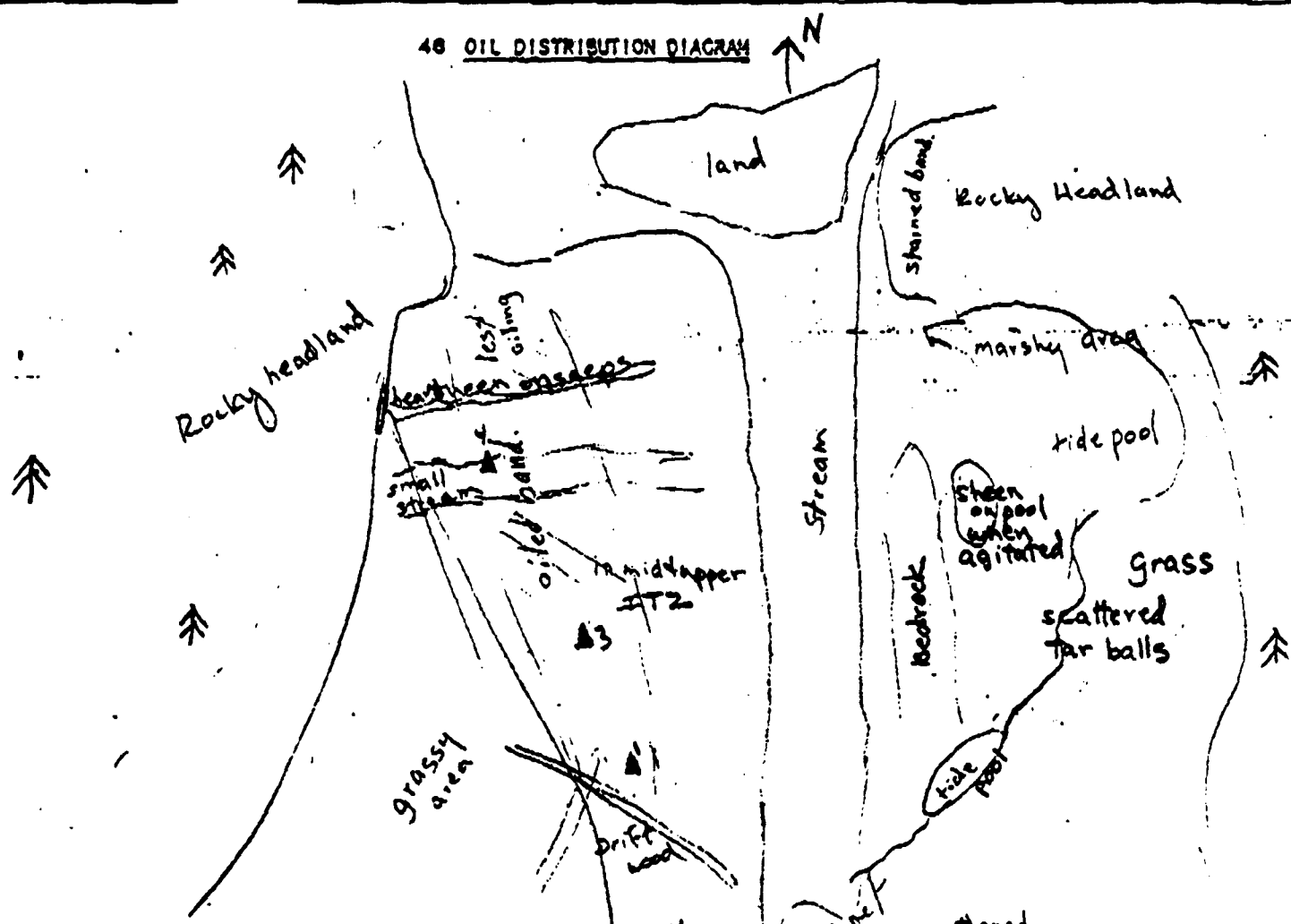
FOSC: ML DATE: 5-15-90

KN132 3/51

45 PHOTOLOG

FRAME(S)	DESCRIPTION
	pit 1 - 16cm 8cm oil
	pit 2 - 14cm 4cm oil penetration
	pit 4 - 18cm 9cm oil penetration
	pit 3 - 4cm oil penetration

46 OIL DISTRIBUTION DIAGRAM



treatment recommendations -
 treat during window period.
 treatment could consist of a combination of (hot water wash) removal of oiled sediment
on west bank - work area systematically - put aside stained surface rocks on section of beach
 remove layer of oil saturated fines. Place surface rocks from next section on previously worked
 area then remove saturated fines. Continue across beach in this manner on heaviest oil
 portions. When completed hot water wash the area (pump). Removal of oiled material
 would be enhanced by use of wheeler with trailer.
On east bank - manually remove scattered tar balls within grassy tide pool area
 upstream. also remove scattered tar balls



SUBJECT ANALYTICAL IS
STREAM AT
BOUNDARY OF
SUBDIVISION B&C

ST/KN132C

KN-

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

KN-132

ADEC Segment Length: 1108m



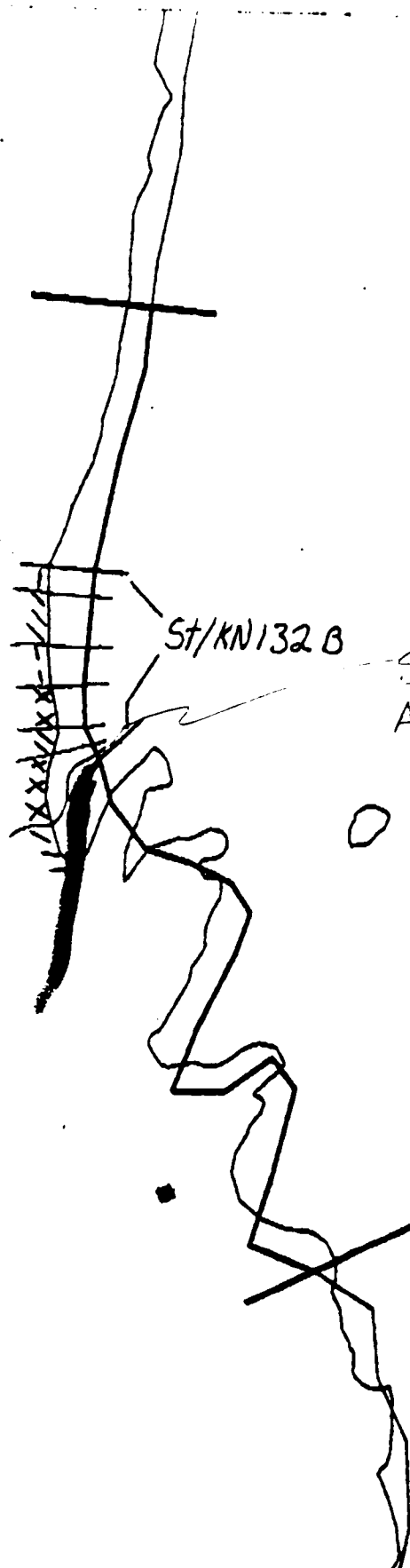
Map Key: PWS-315

Name: _____

Date: _____

Date Entered: _____





ST/KN132B

SUBJECT
ANADROMOUS
STREAM
AT BOUNDARY
OF SUBDIVISION
B & C

KN-

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

KN-132

ADEC Segment Length: 1108m



Map Key: PWS-315

Name: Sawyer

Date: 3-31-90

Data Entered:

OG CALLARSON

SEGMENT STI KN 132

STREAM 226-10-16982

DATE 4/21/90

CHECKLIST

- N Arrow
- Approx. Scale
- Seg/Sub Bndry
- Oil Dist.
- Width
- Length
- % Cover
- Substrate Character
- Est. HW/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

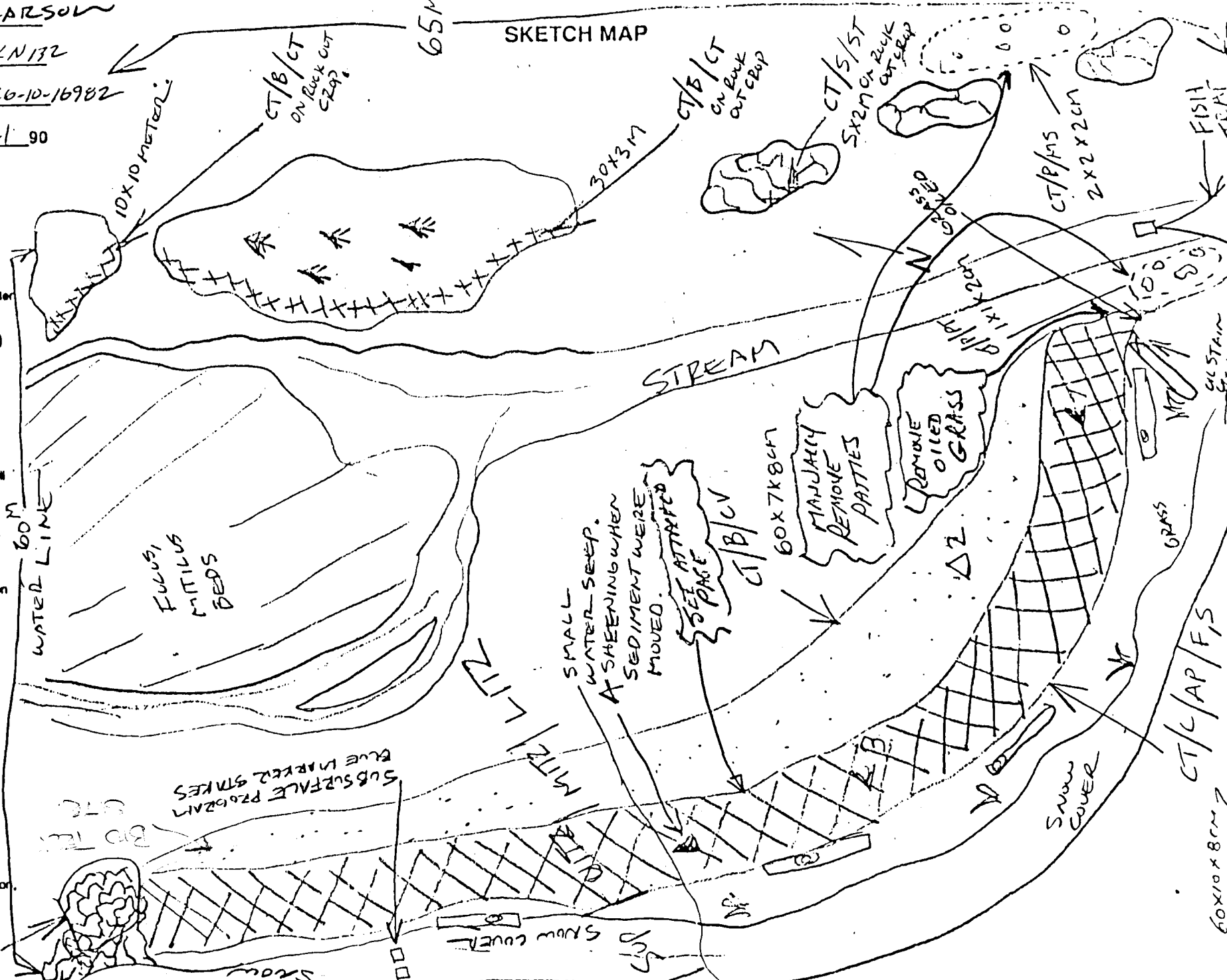
CT/P
Patchy Distribution

CT/S
Splashed Distribution

Oil
Oiled Vegetation

Photo location, direction,
and number

SKETCH MAP



REVISION: 8/24/98

OG CAL LARSON

SEGMENT STI KN 132

STREAM 226-10-16982

DATE 4/21/90

CHECKLIST

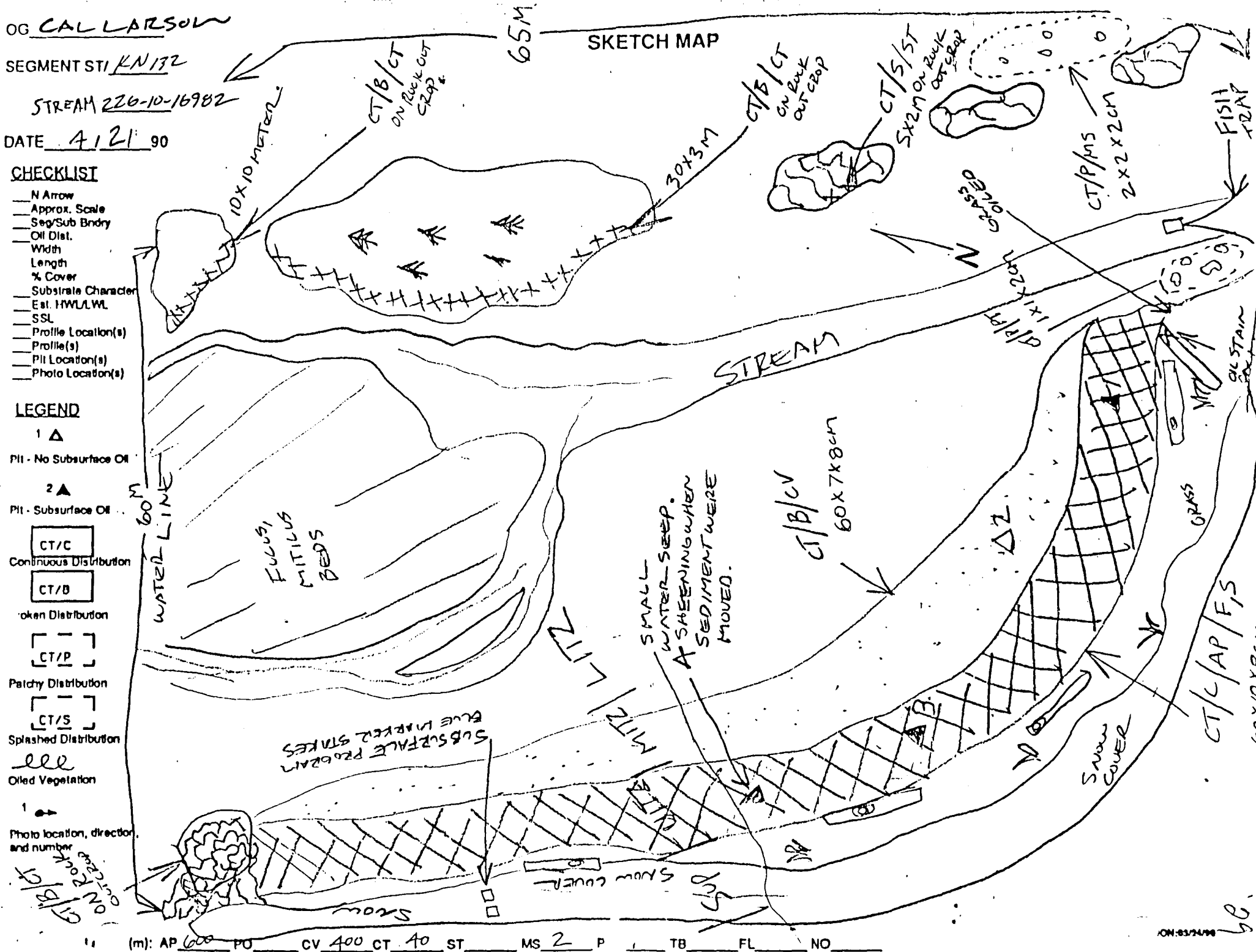
- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Bndry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HW/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pli Location(s)
- ☐ Photo Location(s)

LEGEND

- 1 Δ
Pli - No Subsurface Oil
- 2 Δ
Pli - Subsurface Oil
- $\square$ CT/C
Continuous Distribution
- $\square$ CT/B
Broken Distribution
- $\square$ CT/P
Patched Distribution
- $\square$ CT/S
Splashed Distribution
- $\lll$
Oiled Vegetation

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

SKETCH MAP



(m): AP 600 PO CV 400 CT 40 ST MS 2 P TB FL NO

RECEIVED
MAY 07 1990

DEPT. OF
ENVIRONMENTAL CONSERVATION

ANADROMOUS FISH STREAM ASSESSMENT

REGION: PRINCE WILLIAM SOUND

SEGMENT: KN-132 *B*

STREAM NO: 226-10-16982

SEE ADF & G recommendation

*ORIGINAL STREAM MAP HAS
BEEN ALTERED*

A

SEGMENT ST/ KN-132 STREAM NO: 226-10-16982 DATE 4/21/90**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)

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Subject stream is located at boundary of Subdivision B and C (2 and 3 of 4).

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: _____

Subsurface Oil Observed: Yes X No _____ Maximum Depth 8 cm**RECOMMENDATIONS:** No Treatment RecommendedX Treatment RecommendedX Manual PickupX BioremediationX Tarmat Removal Snare/Absorbent Booms Oil Snares (pom poms) Absorbents (pads, rolls, etc)X Spot Washing: X Wands Beach Cleaner Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmat and pickup oiled vegetation and mousse patties, 2) spot wash area under tarmat after removal, and 3) bioremediation of area shown on attached sketch map. Work should be conducted between 5/15 and 7/10 with approval of ADF&G regarding bioremediation of stream bank.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____

EXXON _____

NOAA _____

USCG _____

FOSC: _____ DATE: _____

PWS, SEWAPD 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 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 6/1)

1E Main Bay Hatchery release (4/20 to 6/10)

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

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

1H Remote release site

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 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

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 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 (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 (5/1 to 9/30)

7HH Finfish harvesting

7H Deer harvesting (8/15 to 2/28)

7JJ 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

51/51

FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ KN-132 SUBDIVISION: ASC# 226-10-16982 DATE 4-21-90

USCG

NAME Kerwin L. Dreher SIGNATURE cuoz K. L. Dreher

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

This is a heavily oiled area and does need special attention. I concur with the below recommendation but would also consider bioremediation after those steps.

~~ADEC~~ → ADFG

NAME Aimee Weseman SIGNATURE Aimee Weseman

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

Heaviest oiling occurs within a 60m x 10m band in MY42T2 on west bank of stream. Put aside top layer of rocks & manually remove oil saturated fines in areas of highest oil concentration. Replace rocks & wash area with hot water. Recover oil. String la of pom-poms at intervals to prevent erosion & oil deposition in stream. Removal of oiled material would be facilitated by use of 4-wheeler with trailer. Remove scattered tar mats within grassy tide pool area, upstream or wherever encountered. Remove oiled vegetation.

~~LAND MANAGER~~ → NONE

NAME _____ SIGNATURE _____

☐ NO TREATMENT RECOMMENDED

☐ TREATMENT SUGGESTED

COMMENTS

SHORELINE OILING SUMM Y(ANAO)

REVISION NO. 04/03

OG CAL LARSON USCG DREHER, CWE SEGMENT ST/ KN 132 8/c
 BIO REN CLITCHLOW LAND REP STREAM 226-10-15982 (OF)
 EXXON DARLHL YOE3 ADFG 226-K-0010N-AIMEE WESEMAN TIME 6:00 to 12:00
 TEAM NO. 14 TIDE LEVEL +2 ft DATE 4/21/90
 EST. SUBDIVISION LENGTH: 150 m ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☐ Rock
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo
 SURFACE SEDIMENTS: R % B % C 30 % P 30 % G 30 % S 10 % M % V
 SLOPE: Long % Hang % Vert % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High
 OIL CATEGORY LENGTH: W 60 m M 10 m N 5 m VL m NO 45 m

SURFACE OIL

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

PAVEMENT H (F) 5 680 sq. m by 1.8 cPATTIES / TARBALLS BAGSNEAR SHORE SHEEN? NO BR RW (SL) TL

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

Did You COLLECT DEBRIS 5☐ YES ☒ NOTYPE #BAGS

Photographs:

Roll No. Frames

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL	BELOW		OIL / FILM COLOR					PIT ZONE				A N A	SHEEN (Y/N)	Y	SURFACE - SUBSURFACE SEDIMENTS		
		OP	OR	OL	OF	NO		NO	NO	1	2	3	4	5	SU	U	M	U						
1	16	✓					5-8		✓				✓			✓								CB, PB, GL, S
2	14		✓				5-8		✓				✓			✓								CB, PB, GL, S
3	14					✓	-						-			✓								CB, PB, S
4	18				✓		5-8		✓				✓			✓				Y	Y			CB, PB, GL - CB, PB, GL
							.																	
							.																	

COMMENTS. FISH & GAME SAN-MAN SURT SITE. LARGE BAND OF ASPHALT ON EAST SIDE OF CULV. COATING ON BOLDERS/BED. IS DRY NON MOBIL. RICH HEALTHY BIOD. IN LOWER TIDAL ZONE.

REVIEWED AWDATE 4-23-90

5 Nov 1964

36/51

ADFG MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: BS SS DS TS AVS SCMA MMS PTA

2 REGION:

PWS

KP,CI

K,AP

METHOD:

Aerial

Ground

Boat

3 DATE: 4-21-9016 HIGH TIDE TIMES: 121 TEAM RECORDER: Aimee Wesema4 START TIME: 160018 HIGH TIDE HTS: 122 OBSERVERS: Rick Gustin5 STOP TIME: 171517 LOW TIDE TIMES: 173023 AGENCY: ADFG6 SEGMENT #: KN-13218 LOW TIDE HTS: 124 PHOTOS TAKEN: Y N

7 STATION #:

19 TIDE HT AT SURVEY:

Roll #:

Frames:

8 K-UNIT:

Ebb

Stack

Flood

Stack

25 VIDEO TAKEN: Y N

TAPE:

9 STAT AREA:

20 USCC QUAD: sew B-3Starts: 0 outEnd: 111

10 LAT:

11 LONG:

26 SAMPLES TAKEN: Y N

Number

12 SOURCE:

Map

Loran

Oil

13 LOCATION:

West side Herring Bay

Sediment

14 DESCRIPTION: ADFG study site

Biological

Water

EXTENT OF OIL

	SHORELINE				STREAM			
	L	N	N ²	S	L	N	N ²	S
27 SURFACE COVERAGE	60m	10m	pn	heavy	oil			

28 SURFACE THICKNESS

29 PENETRATION

30 OVERALL OIL IMPACT:

N

VL

L

N

N²

31 OIL TYPE:

Pooled

Mousse

Tar

Asphalt

StickyStain

32 OILED DEBRIS:

Y

N - driftwood

33 SHORELINE TYPE:

Headland

Low-lying Rocks

Beach

Cove

34 WAVE EXPOSURE:

High

Moderate

Low

35 SUBSTRATE TYPE:

Bedrock

10

Boulder

5

Cobble

40

Gravel

35

Sand

Mud/silt

36 CATALOGED ANAD. FISH STREAM: Y N37 CATALOG #: 226-10-16982

38 STREAM NAME:

39 OIL IN STREAM BED: Y N40 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 N

Where:

43 ANADROMOUS FISH PRESENT: Y N

44 ANADROMOUS FISH OBSERVATION
Species Aerial Ground

Comments: Heaviest oiling occurs in a 60m long x 10m wide band in the M² U¹ T² on the west bank of the stream. A thin layer of angular rocks/cobble covers the oil saturated fines. The underside of the surface rocks have a sporadic oil coat. Scattered tar balls are present within the grassy tide pool area & upstream on the east side of the stream.

KN132 3/51

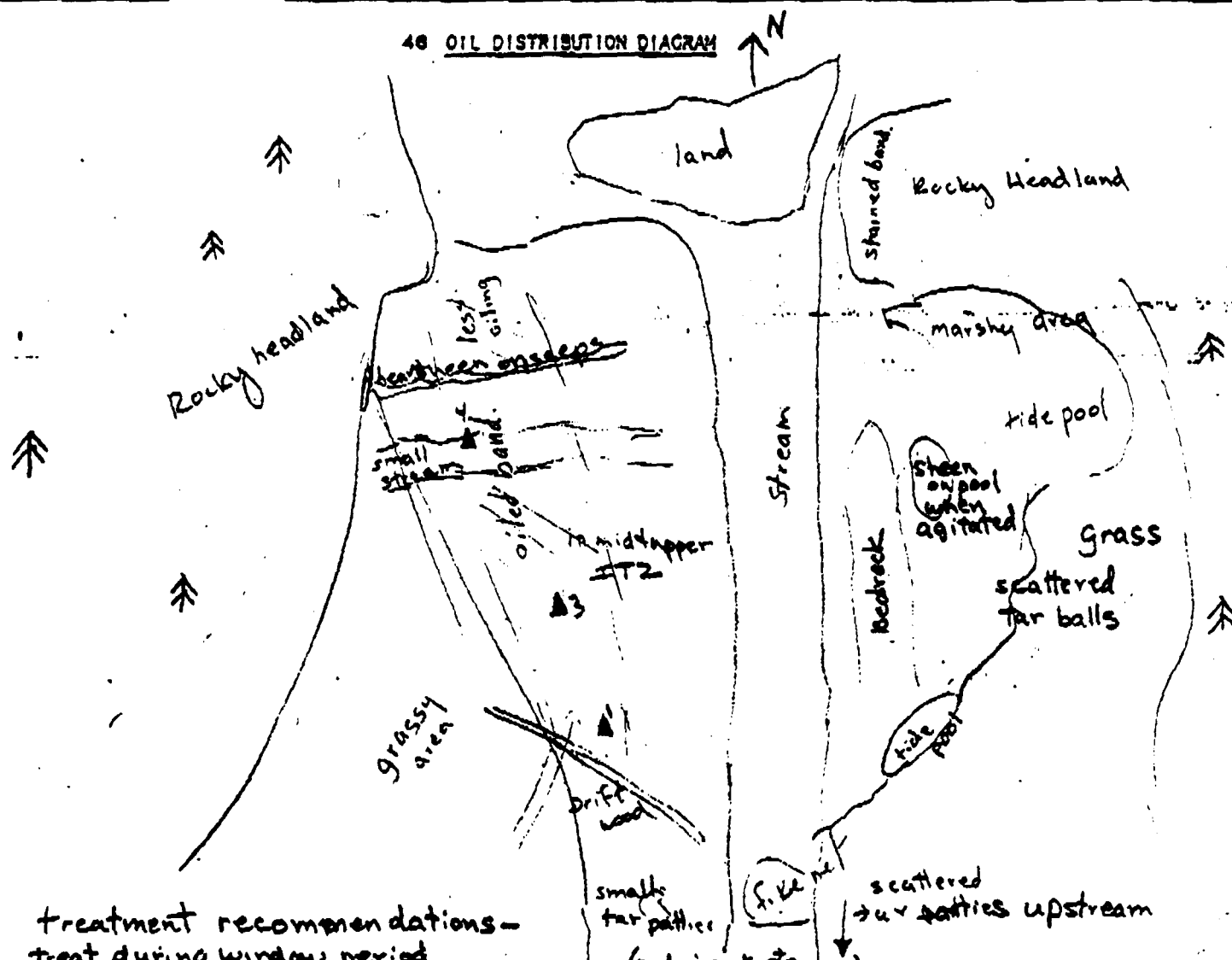
45 PHOTOLOG

FRAME(S)

DESCRIPTION

pit 1 - 16cm 8cm oil pit 2 - 14cm 4cm oil penetration
 pit 4 - 18cm 8cm oil penetration pit 3 - 4cm oil penetration

46 OIL DISTRIBUTION DIAGRAM



treatment recommendations -
 treat during window period.

treatment could consist of a combination of (hot water wash) removal of oiled sediment
on west bank - work area systematically - put aside stained surface rocks on section of beach
 remove layer of oil saturated fines. Place surface rocks from next section on previously worked
 area then remove saturated fines. Continue across beach in this manner on heaviest oil
 portions. When completed hot water wash the area (tumpack). Removal of oiled material
 would be enhanced by use of 4-wheeler with trailer.

On East bank - manually remove scattered tar balls within grassy tide pool area
 upstream, also remove gross oiled vegetation

ANAS 4-132

STREAM # 226-10-16982

OPNS RECOMMENDATION ATTACHMENT
TO ANNOTATED OPS SKETCH

TREATMENT RECOMMENDATION OF 60X10X8CM C/C/AP/15,5

MOVE LARGE COBBLE AND MANUALLY REMOVE AP SEDIMENTS AS
PRACTICAL LINE LITZ WITH POM POM TO PROTECT STREAM
AND SPOT WASH REMAINING COBBLE / PEBBLE IN AP IMAGED
AREA. BIOREMEDIATE BEHIND AREA AFTER TREATMENT IF
ADF #6 WILL ALLOW.

Comments of Ken Critchlow -

38/5

Agree with ADFB cleanup recommendations, but also suggest use of bioremediation as last step to provide enhanced longer term cleaning to degrade residual oil.



SUBJECT ANALYSIS
STREAM AT
BOUNDARY OF
SUBDIVISION 132C

ST/KN132C

KN-

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

KN-132

ADEC Segment Length: 1108m

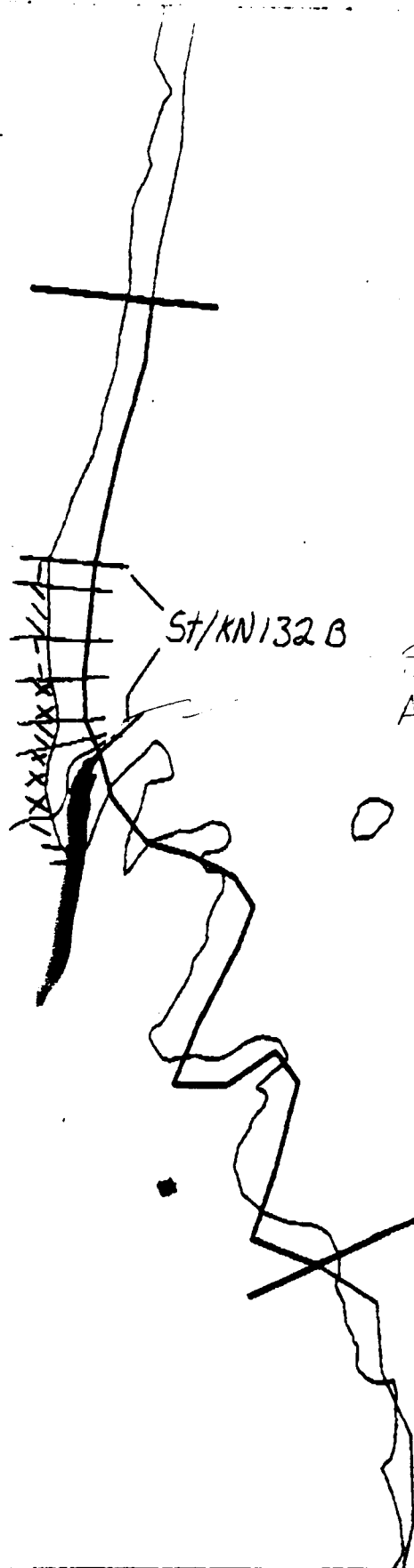


Map Key: PWS-315

Name: _____

Date: _____

Date Entered: _____



SUBJECT
ANADICTICUS
STREAM
AT BOUNDARY
OF SUPERVISION
B & C

KN-

XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

KN-132

ADEC Segment Length: 1108m



Map Key: PWS-315

Name: Sawyer

Date: 3-31-90

Data Entered:

SEGMENT ST1 KN132

CTO SAM 276-11-16947-

There was so much detail to map that Cal Larson our O.G. Used to maps to get all of it and Exxon only used one of these in the report sent to T.A.G. And changed that one also.

KN-132

SKETCH MAP

SKETCH MAP

CT/B/CT
ON ROCK CUT
CRQ?

CT/B/CT
C_N R_{UK}
a_T C_{EPD}

CT/S/ST
Sx270a Ruck
at 100

$$c_T/p/\mu s$$

FISH FEEL

STREAM

SMALL
WATER SEEP.
SHEENING WHEN
SEDIMENT WERE
MOVED.

SET AT
PAGE

$$\frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}$$

60x7x8cm

MANJARY
REMOVE

2. REMOVE OILED GLASS

7/2/2023

CT/C/AP/F,S

248x01x09

W
CAL STAIN

520/521

SUBSURFACE PROBABLY
BLUE MARBLE STONES

5 Nov 1964

CT/S
Splashed Distribution

Splashed Distribution

Oiled Vegetation

Photo location, direction,
and number

$\frac{G}{B} = \frac{G}{B}$

Oil Character Length (m): AP 600 PO CV 400 CT 40 ST MS 2 PT 1 TB FL NO

REVISION: 03/24/90

DATE 4/21 90

CHECKLIST

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

LEGEND

- 1 Δ
- PII - No Subsurface Oil

- 2 ▲
Plt - Subsurface Oil

CT/C
Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/5
Splashed Distribution

Oil Vegetation

1 

Photo location, direction,
and number

Oil Character Length (m): AP (20) POT

CV 400 CT 40 ST

us ?

DT

1

TO

1

51

1

10

NEWS

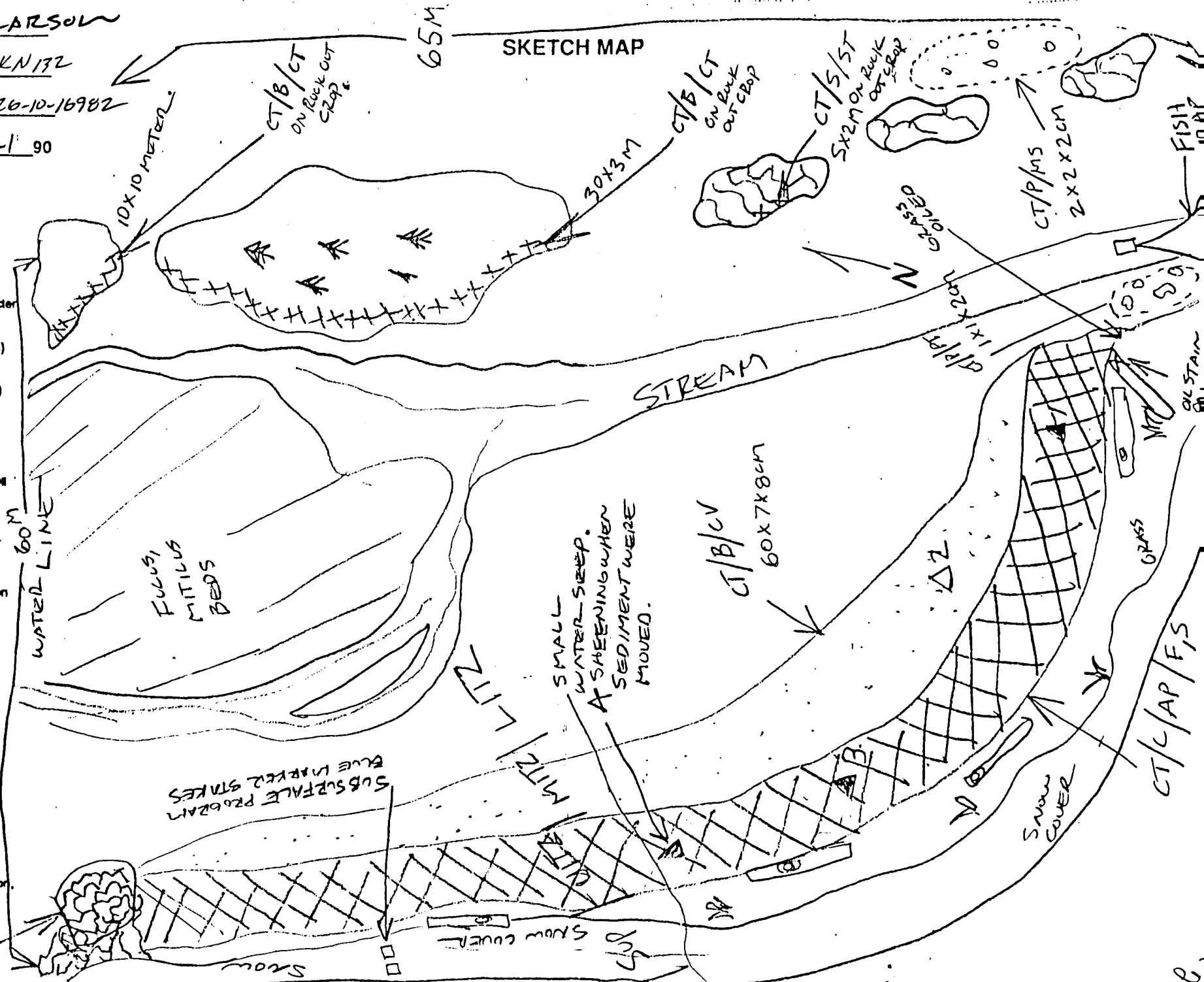
NON-1

www

—

5

SKETCH MAP



REVISION: 01/24/14

ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN132692 MH INITIAL LAYOUT DATE 11/5/89
 Team Members BEN - EAST - TALVI Time (start/stop) 1045 1300
 Low Tide (time/ht.) 1111 6.04 FT High Tide (time/ht.) 1651 9.79 FT
 Weather: (sunny/ cloudy / rain/ fog/ snow) Seas: (rough/ moderate/ calm)
 Wave Ht: 0 Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

LAYOUT AND BEACH PROFILE

TRANSECT LAYOUT: Compass bearing: 46.5° Length of transect: 55.1m
 STUDY AREA LOCATION AND DIMENSIONS (see maps): Lat. 60°26'30" Long. 147°47'12"
55M(w) x 70.5M(L) (less grassy areas). HERRING BAY KNIGHT ISLAND
(WEST SIDE)

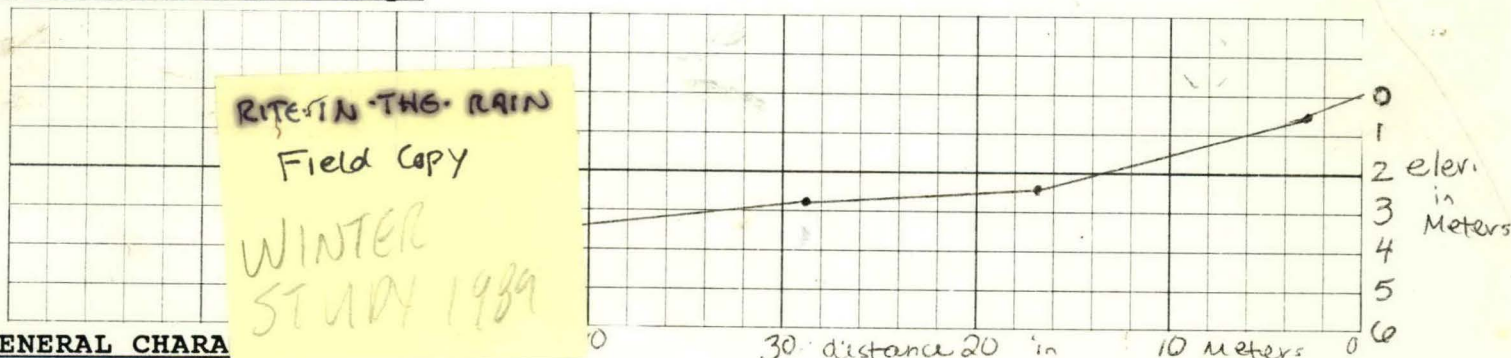
LOCATION OF TRANSIT POINT; distance and bearing to local features, etc.:
Upper transect point - close to upper end of 40' log near stream on left bank. 1 Reference point in spruce
tree 232.15', 10.1 M ; other one in stump on other side of log, 101.3', 5.55 M.

BEACH ELEVATION PROFILE: Bearing from transit point: 46.5 Inst. height: 1.45

Point # Location	Total elevation	Actual Elev. (tot-inst ht)	Distance from transit point	% Slope (el/dist)
high tide line	2.0	.5	2.7 M	
lower end cobble band	3.9	2.4	16.7 M	
left bank	4.3	2.8	28.8 M	
LTP	5.1	3.6	43.2 M	8.3 %

(Lower transect point)
MIDSTREAM

Elevation Profile Graph



GENERAL CHARA

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION Low rocky coastline on south w/ pocket beaches. rightshoebank
rocky w/ tidepool behind, beach cobble + sand. shallow, narrow bay.

SUBSTRATE TYPES(%EA): Rock 20 Boulder(>10") 10 Cobble(2.5"-10") 30
 Pebble(.06"-2.5") 30 Sand/Mud(<.06") 10

GENERAL OILING CONDITIONS: Left bank (facing downstream) cobble/sand beach heavily
oiled. Some light to oil and tar patches in LITZ. Heavy band
on left bank varies considerably in depth of oil.

BIOLOGICAL/OTHER OBSERVATIONS: Saw one doe in meadow upstream.

ADF&G STREAM HABITAT EVALUATION

STUDY SITE # KN132692MH DATE 11/5/89
 Location W. Side Herring Bay, Knight Island Lat. 60°26'30" Long. 147°47'12"
 Team Members Ben, East, Talvi Time (start/stp) 1045 - 1300
 Low Tide (time/ht.) 1111, 6.04 feet High Tide (time/ht.) 1651 9.79 feet
 Weather: (sunny/ ^{ptly}cloudy/ rain/ fog/ snow)
 Seas: (rough/ moderate/ calm) Wave Height: 0
 Wind direction: (N-NE-E-SE-S-SW-W-NW) Knots: 0-10 10-20 20-30 30+)

STREAM MORPHOLOGY

Instream Pt. Locations	Bearing from Transit Pt.	Distance from Transit Pt.	Distance to L. Streambank	Distance to R. Streambank
On Transect	<u>0°</u>	<u>34 M</u>	<u>23</u>	<u>45</u> (no distinct channel tide @ 6.3')
Upper ITZ	<u>110°</u>	<u>27.2</u>	<u>19.4</u>	<u>37.15</u>
Low-Mid ITZ	<u>353°15'</u>	<u>43.2</u>	<u>27.1</u>	<u>62.3</u> (55.4 to rock)

Observations: (berms, tide pools, etc.) _____

PHOTO AND VIDEO DOCUMENTATION (taken from transit point; transect line 0°)

< <u>Upper midstream pt. 110°</u>	photo: roll#/frame	<u>P-89WP003-V</u>	<u>frame 20</u>
< <u>42</u>	photo: roll#/frame	"	<u>21</u>
< <u>0° (transect line)</u>	photo: roll#/frame	"	<u>22</u>
< <u>332° (Far point north)</u>	photo: roll#/frame	"	<u>23</u>
< <u></u>	photo: roll#/frame		

Video scan (cassette #, footage) V-89WP004-V 508-653

Additional video footage left bank assessment, 653-980, misc. 980-1007

Aerial video (cassette #, footage) V-89WP-004-V 262-508 height 400 +

Aerial photo (roll #, frame) Polaroid only

OIL MEASUREMENT, OBSERVATIONS (see map for details)

Location (tidal zone, bank)	AVG. Width and Length of oil band (M)	% Coverage	Subsurface/ surface/ depth
<u>Left bank M-UITZ</u>	<u>41.3 (L) x 17 (W)</u>	<u>100</u>	<u>both/ varied 3-16 cm.</u>
<u>right bank M-UITZ</u>	<u>14.4 (L), up rock face</u>	<u>70</u>	<u>Surface - lg. boulder rock</u>

P. 2 - Stream Habitat Evaluation

.5M ² Sample Plot Location, °, dist. from transit pt.	%Coverage	Avg. Depth	Oil Type, Consistency
1 UITZ L.B. 0°, 533 M	100	16 CM	pooled_mousse_coated_Xmobile_tarryXasphalt_stain
2 MITZ L.B. 0°, 11.25 M	100	3 CM	pooled_mousse_Xcoated_mobile_tarryXasphalt_stain
3 LITZ L.B. 344°, 24.2 M	20	0-2 CM	pooled_mousse_coated_mobile_tarryXasphalt_stain
4 LITZ RB 0°, 50 M	0	0	pooled_mousse_coated_mobile_tarry_asphalt_stain (light green in water)
			pooled_mousse_coated_mobile_tarry_asphalt_stain
			pooled_mousse_coated_mobile_tarry_asphalt_stain

% of Transect Line Intercepting Oil: 75 ; Heavy Moderate Light

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

Type	Sample#	Location (°, dist.), Description	Documentation
S	89WP015V+VD	Sample plot 4 UITZ R. Bank broke 1 jar, split sample in town into 2 jars.	P89WP003-V 11, 12
S	89WP016V+VD	Sample plot 3 LITZ L. Bank	" 14, 15 *
S	89WP017V+VD	Sample plot 2 MITZ L.B.	" 16, 17
S	89WP018V+VD	Sample plot 1 UITZ L.B.	" 18, 19
✓	—	PLOT 3 oil penetration measurement of substrate	" 13 *

Biological Damage, Other Observations: fucus in LITZ appears healthy. We saw a deer (doe) in a small meadow upstream.

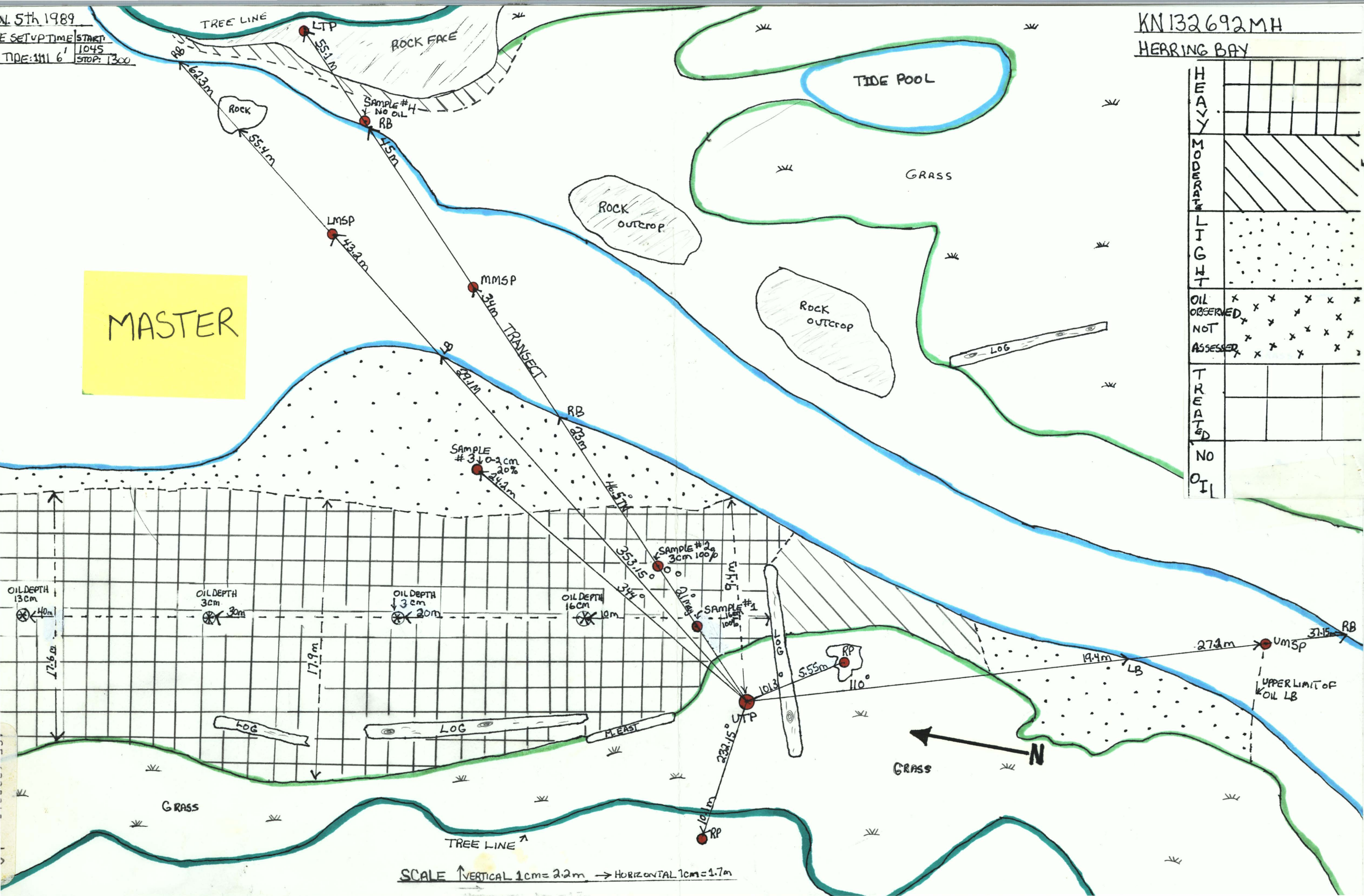
Beach covered with heavy frost above current high tide line. Substrate beginning to freeze, ice along stream banks; difficult to detect oil in some areas.

SETUP TIME	START:
TIME: 11:11 6'	1045
	STOP: 1300

HERRING BAY

MASTER

HEAVY									
MODERATE									
LIGHT									
OIL OBSERVED NOT ASSESSED									
TREATED									
NO OIL									



ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN1326 INITIAL LAYOUT DATE 11/5/87
 Team Members Ben - EAST - TALVI Time (start/stop) 1045 1300
 Low Tide (time/ht.) 111 6.04 FT High Tide (time/ht.) 1651 9.79 FT
 Weather: (sunny/cloudy/rain/fog/snow) Seas: (rough/moderate/calm)
 Wave Ht: 0 Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

LAYOUT AND BEACH PROFILE

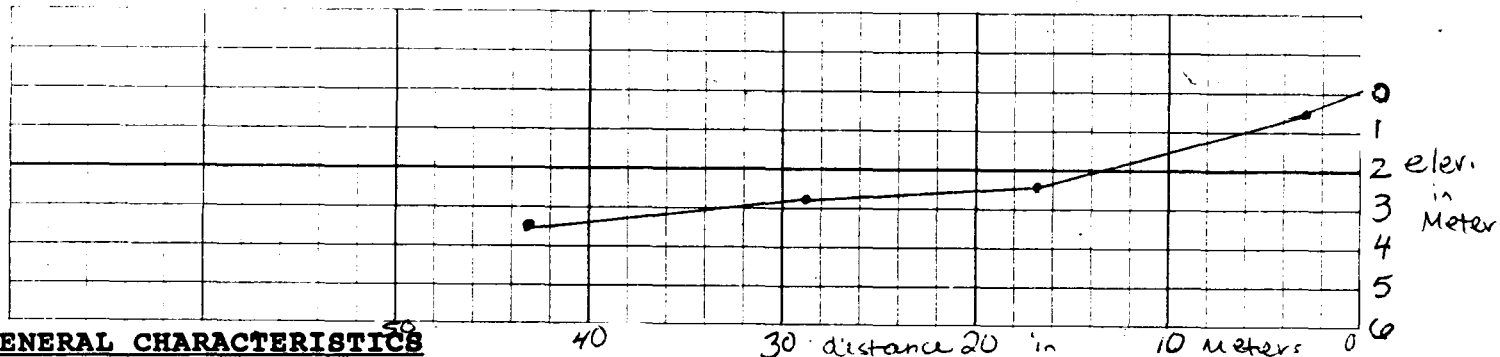
TRANSECT LAYOUT: Compass bearing: 46.5° Length of transect: 55.1m
 STUDY AREA LOCATION AND DIMENSIONS (see maps): Lat. 60°26'30" Long. 147°47'12"
55M(w) x 70.5M(L) (less grassy areas). HERRING BAY KNIGHT ISLAND
 (WEST SIDE)

LOCATION OF TRANSIT POINT; distance and bearing to local features, etc.:
 Upper transect point - close to upper end of 40' log near stream on left bank. 1 Reference point in ^{10ft} Spruce tree 232.15', 10.1 M; other one in stump on other side of log, 101.3', 5.55 M.

BEACH ELEVATION PROFILE: Bearing from transit point: 46.5 Inst. height: 1.45

Point # Location	Total elevation	Actual Elev. (tot-inst ht)	Distance from transit point	% Slope (el/dist)
high tide line	2.0	.5	2.7 M	
lower end cobble band	3.9	2.4	16.7 M	
left bank	4.3	2.8	28.8 M	
LTP (Lower transect point) MIDSTREAM	5.1	3.6	43.2 M	8.3 %

Elevation Profile Graph



GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION Low rocky coastline on south w pocket beaches. Right stream bank rocky w tide pool behind, beach cobble + sand. Shallow, narrow bay.

SUBSTRATE TYPES (%EA): Rock 20 Boulder (>10") 10 Cobble (2.5"-10") 30
 Pebble (.06"-2.5") 30 Sand/Mud (<.06") 10

GENERAL OILING CONDITIONS: Left bank (facing downstream) cobble/sand beach heavily oiled. Some light oil and tar patches in LITZ. Heavy band on left bank varies considerably in depth of oil.

BIOLOGICAL/OTHER OBSERVATIONS: Saw one doe in meadow upstream.

STREAM HABITAT EVALUATION

STUDY SITE # KN132692MH DATE 11/5/89
 Location W. Side Herring Bay, Knight Island Lat. 60°26'30" Long. 147°47'12"
 Team Members Ben, East, Talvi Time (start/stp) 1045 - 1300
 Low Tide (time/ht.) 1111, 6.04 feet High Tide (time/ht.) 1651 9.79 feet
 Weather: (sunny/ ptly cloudy / rain/ fog/ snow)
 Seas: (rough/ moderate/ calm) Wave Height: 0
 Wind direction: (N-NE-E-SE-S-SW-W-NW) Knots: 0-10 10-20 20-30 30+

STREAM MORPHOLOGY

Instream Pt. Locations	Bearing from Transit Pt.	Distance from Transit Pt.	Distance to L. Streambank	Distance to R. Streambank
On Transect	<u>0°</u>	<u>34 M</u>	<u>23</u>	<u>45</u> (no distinct channel + d. @ 6.3')
Upper ITZ	<u>110°</u>	<u>27.2</u>	<u>19.4</u>	<u>37.15</u>
Low-Mid ITZ	<u>353°15'</u>	<u>43.2</u>	<u>27.1</u>	<u>62.3</u> (55.4 to rock)

Observations: (berms, tide pools, etc.) _____

PHOTO AND VIDEO DOCUMENTATION (taken from transit point; transect line 0°)

< Upper midstream pt. 110° photo: roll#/frame P-89WP003-V frame 20
 < 42 photo: roll#/frame " 21
 < 0° (transect line) photo: roll#/frame " 22
 < 332° (Far point north) photo: roll#/frame " 23
 < " photo: roll#/frame "

Video scan (cassette #, footage) V-89WP004-V 508-653

Additional video footage left bank assessment, 653-980, misc. 980-1007

Aerial video (cassette #, footage) V-89WP004-V 262-508 height 400 +

Aerial photo (roll #, frame) Polaroid only

OIL MEASUREMENT, OBSERVATIONS (see map for details)

Location (tidal zone, bank)	Avg. Width and Length of oil band (M)	% Coverage	Subsurface/ surface/ depth
<u>Left bank M-UITZ</u>	<u>41.3(L) x 17(W)</u>	<u>100</u>	<u>both/ varied 3-16 cm.</u>
<u>right bank M-UITZ</u>	<u>14.4(L), up rock face</u>	<u>70</u>	<u>Surface - lg. boulder rock</u>

P. 2 - Stream Habitat Evaluation

.5M ² Sample Plot Location, °, dist. from transit pt.	%Coverage	Avg. Depth	Oil Type, Consistency
1 LITZ L.B. 0°, 5.33 M	100	16 CM	pooled_mousse_coated_Xmobile_ tarry_Xasphalt_stain_
2 MITZ L.B. 0°, 11.25 M	100	3 CM	pooled_mousse_Xcoated_mobile_ tarry_Xasphalt_stain_
3 LITZ L.B. 344°, 24.2 M	20	0.2 CM	pooled_mousse_coated_mobile_ tarry_Xasphalt_stain_
4 LITZ R.B. 0°, 50 M	0	0	pooled_mousse_coated_mobile_ tarry_asphalt_stain_ (light green in water)
			pooled_mousse_coated_mobile_ tarry_asphalt_stain_
			pooled_mousse_coated_mobile_ tarry_asphalt_stain_

% of Transect Line Intercepting Oil: 75; Heavy Moderate Light

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

Type	Sample#	Location (°, dist.), Description	Documentation
S	89WP015V+VD	Sample plot 4 LITZ R. Bank ^{broke 1 jar, split sample in town into 2 jars.}	P89WP003-V 11, 12
S	89WP016V+VD	Sample plot 3 LITZ L. Bank	" 14, 15 *
S	89WP017V+VD	Sample plot 2 MITZ L.B.	" 16, 17
S	89WP018V+VD	Sample plot 1 LITZ L.B.	" 18, 19
-	-	PLOT 3 oil penetration measurement of substrate	" 13 *

Biological Damage, Other Observations: focus in LITZ appears healthy. We saw a deer (doe) in a small meadow upstream.

Beach covered with heavy frost above current high tide line. Substrate beginning to freeze, ice along stream banks; difficult to detect oil in some areas.

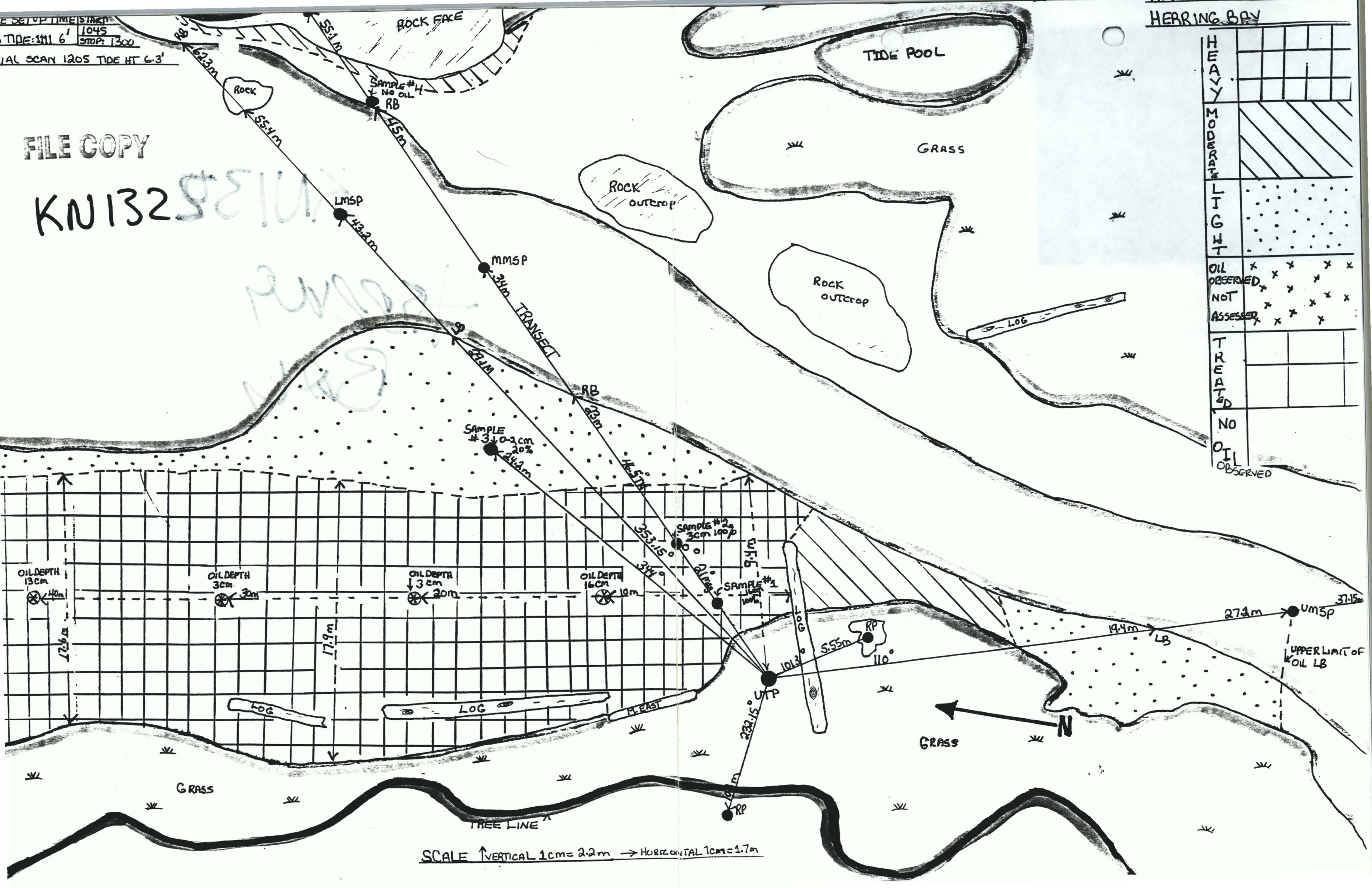
E SETUP TIME START 1045
 TIDE: 1111 6' STOP: 1300
 AL SCAN 1205 TIDE HT 6.3'

FILE COPY

KN132

HERRING BAY

HEAVY									
MODERATE									
LIGHT									
OIL OBSERVED	x	x	x	x	x	x	x	x	x
NOT ASSESSED	x	x	x	x	x	x	x	x	x
TREATED									
NO OIL OBSERVED									



KN132

Howe
Bay



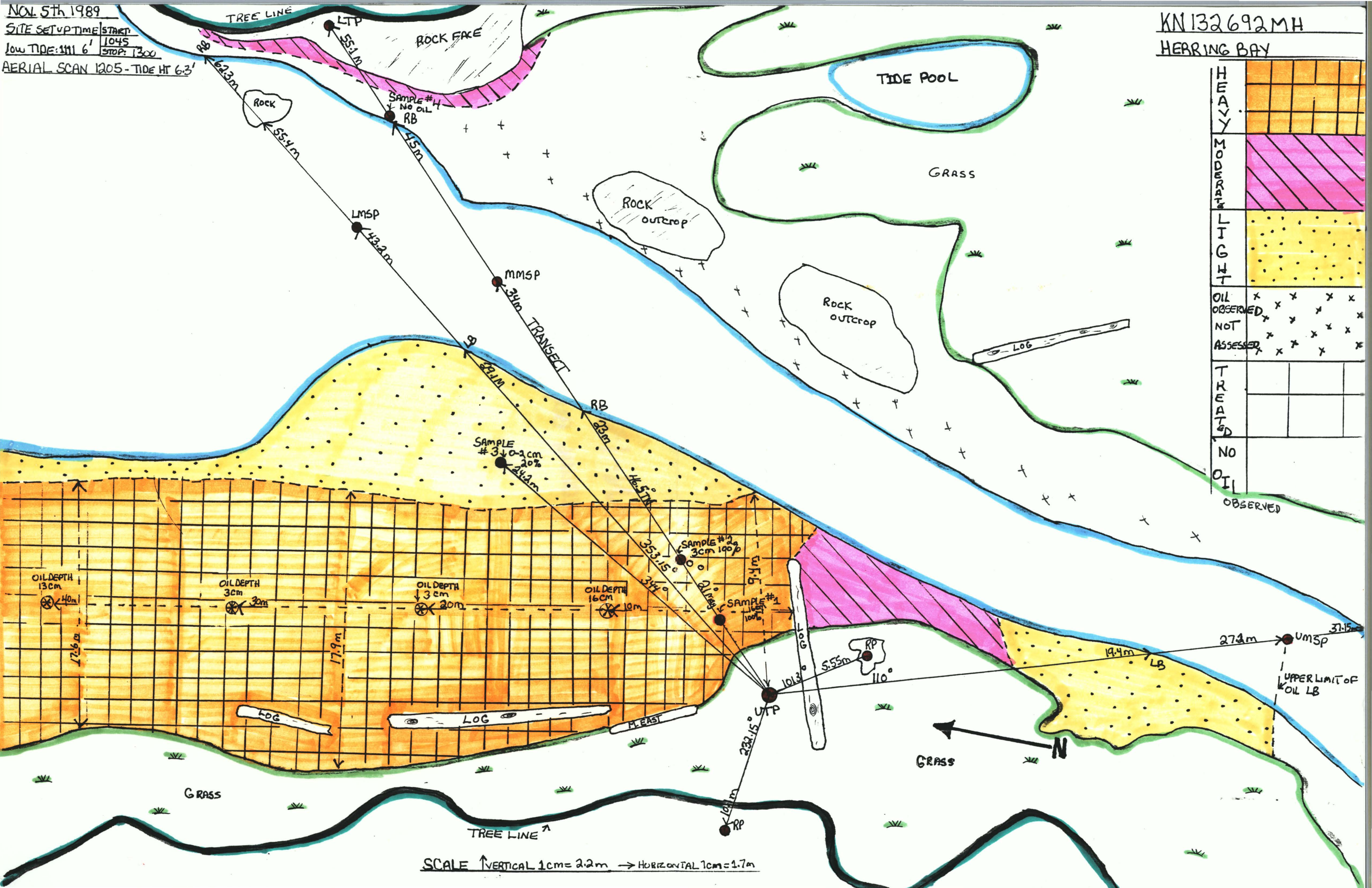
KN132692MH

11/5/89

NO
COVERED

NOV 5th 1989
 SITE SETUP TIME START 1045 STOP 1300
 LOW TIDE: 111 6'
 AERIAL SCAN 1205 - TIDE HT 6.3'

KN132692MH
 HEARING BAY



HEAVY	
MODERATE	
LIGHT	
OIL OBSERVED	
NOT ASSESSED	
TREATED	
NO OIL OBSERVED	

KN-132
HEELING BAY



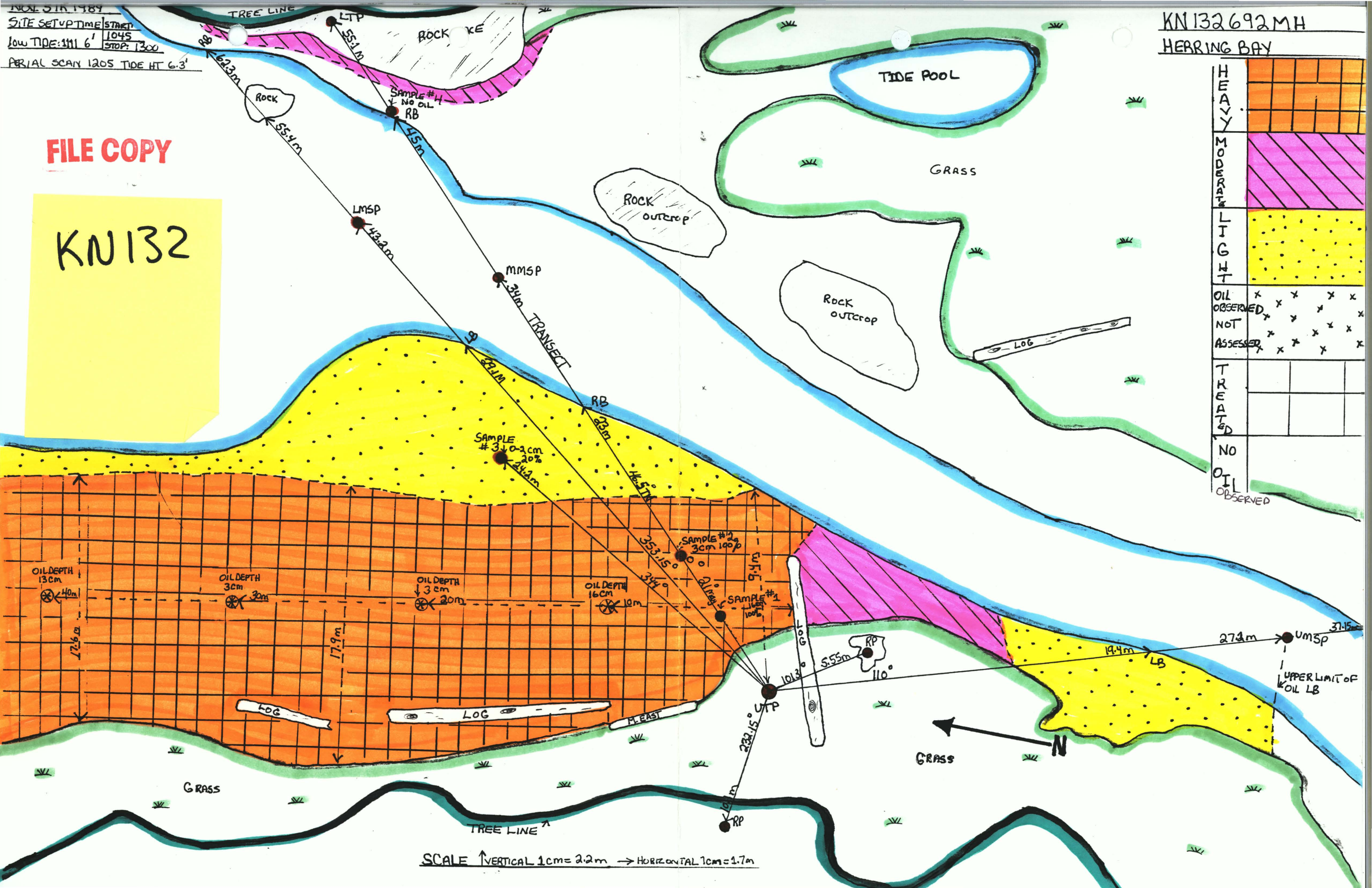
NOV 5 IN 1987
 SITE SETUP TIME START 1045 STOP 1300
 LOW TIDE: 111 6' PERIAL SCAN 1205 TIDE HT 6.3'

KN132692MH
 HERRING BAY

FILE COPY

KN132

HEAVY	
MODERATE	
LIGHT	
OIL OBSERVED	
NOT ASSESSED	
TREATED	
NO OIL OBSERVED	



ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN132692 M4 INITIAL LAYOUT DATE 11/5/89
 Team Members Ben - EAST - TALVI Time (start/stop) 1045 1300
 Low Tide (time/ht.) 111 6.04 F High Tide (time/ht.) 1651 9.79 F
 Weather: (sunny/ cloudy rain/ fog/ snow) Seas: (rough/ moderate/ calm)
 Wave Ht: 0 Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0) 10 10-20 20-30 30+

LAYOUT AND BEACH PROFILE

TRANSECT LAYOUT: Compass bearing: 46.5° Length of transect: 55.1m
 STUDY AREA LOCATION AND DIMENSIONS (see maps): Lat. 60°26'30" Long. 147°47'12"
55M(w) x 70.5M(L) (less grassy areas). HERRING BAY KNIGHT ISLAND
 (WEST SIDE)

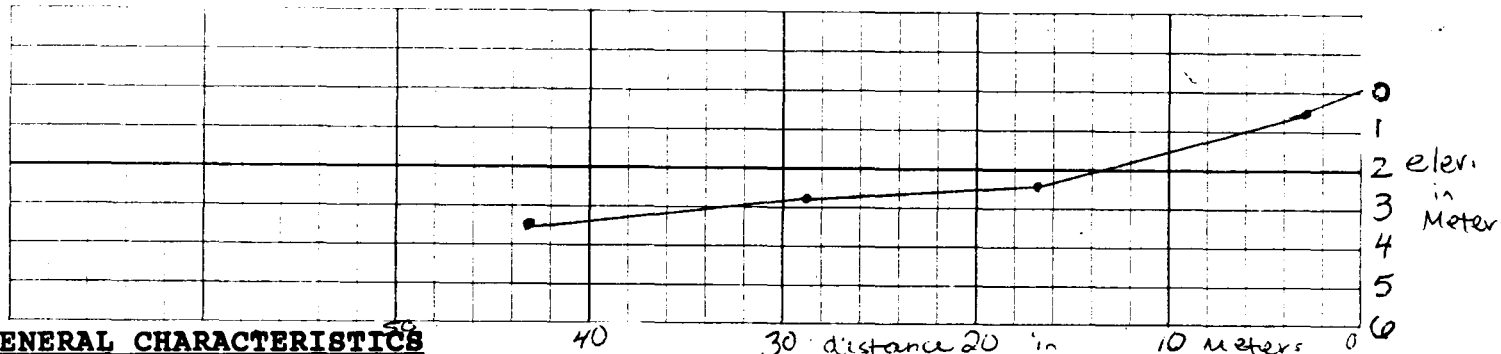
LOCATION OF TRANSIT POINT; distance and bearing to local features, etc.:
 Upper transect point - close to upper end of 40' log near stream on left bank. 1 Reference point in Spruce tree ^{10ft} 232.15', 10.1 M; other one in stump on other side of log, 101.3', 5.55 M.

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lower end cobble band	3.9	2.4	16.7 M	
left bank	4.3	2.8	28.8 M	
LTP	5.1	3.6	43.2 M	8.3 %

(Lower transect point)
 MIDSTREAM

Elevation Profile Graph



GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION Low rocky coastline on south w pocket beaches. Right stream bank rocky w tide pool behind, beach cobble + sand. Shallow, narrow bay.

SUBSTRATE TYPES (%EA): Rock 20 Boulder (>10") 10 Cobble (2.5"-10") 30
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 Location W Side Herring Bay, Knight Island Lat. 60°26'30" Long. 147°47'12"
 Team Members Ben, East, Talvi Time (start/stp) 1045 - 1300
 Low Tide (time/ht.) 1111, 6.04 feet High Tide (time/ht.) 1651 9.79 feet
 Weather: (sunny/ptly cloudy/rain/fog/snow)
 Seas: (rough/moderate/calm) Wave Height: 0
 Wind direction: (N-NE-E-SE-S-SW-W-NW) Knots: 0-10 10-20 20-30 30+)

STREAM MORPHOLOGY

Instream Pt. Locations	Bearing from Transit Pt.	Distance from Transit Pt.	Distance to L. Streambank	Distance to R. Streambank
On Transect	<u>0°</u>	<u>34 M</u>	<u>23</u>	<u>45</u> (no distinct channel tide @ 6.3')
Upper ITZ	<u>110°</u>	<u>27.2</u>	<u>19.4</u>	<u>37.15</u>
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Observations: (berms, tide pools, etc.) _____

PHOTO AND VIDEO DOCUMENTATION (taken from transit point; transect line 0°)

< (Upper midstream pt.) 110° photo: roll#/frame P-89WP003-V frame 20
 < 42 photo: roll#/frame " 21
 < 0° (transect line) photo: roll#/frame " 22
 < 332° (Far point north) photo: roll#/frame " 23
 < photo: roll#/frame _____

Video scan (cassette #, footage) V-89WP004-V 508-653

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Aerial video (cassette #, footage) V-89WP004-V 262-508 height 400 +

Aerial photo (roll #, frame) Polaroid only

OIL MEASUREMENT, OBSERVATIONS (see map for details)

Location (tidal zone, bank)	Avg. Width and Length of oil band (m)	% Coverage	Subsurface/surface/depth
<u>Left bank M-UITZ</u>	<u>41.3(L) x 17(W)</u>	<u>100</u>	<u>both/ Varied 3-16 cm.</u>
<u>right bank M-UITZ</u>	<u>14.4(L), up rock face</u>	<u>70</u>	<u>Surface - lg. boulder rock</u>
_____	_____	_____	_____
_____	_____	_____	_____

P. 2 - Stream Habitat Evaluation

.5M ² Sample Plot Location, °, dist. from transit pt.	%Coverage	Avg. Depth	Oil Type, Consistency
1 UITZ L.B. 0°, 5.33 M	100	16 cm	pooled mousse coated ☒ mobile tarry ☒ asphalt stain
2 MITZ L.B. 0°, 11.25 M	100	3 cm	pooled mousse ☒ coated mobile tarry ☒ asphalt stain
3 LITZ L.B. 344°, 24.2 M	20	0-2 cm	pooled mousse coated mobile tarry ☒ asphalt stain
4 LITZ R.B. 0°, 50 M	0	0	pooled mousse coated mobile tarry asphalt stain (light green in water)
			pooled mousse coated mobile tarry asphalt stain
			pooled mousse coated mobile tarry asphalt stain

% of Transect Line Intercepting Oil: 75 ; Heavy Moderate Light

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

Type	Sample#	Location (°, dist.), Description	Documentation
S	89WP015V+VD	Sample plot 4 LITZ R. Bank	broke 1 jar, split sample in four into 2 jars. P89WP013-V 11, 12
S	89WP016V+VD	Sample plot 3 LITZ L. Bank	" 14, 15 *
S	89WP017V+VD	Sample plot 2 MITZ L.B.	" 16, 17
S	89WP018V+VD	Sample plot 1 UITZ L.B.	" 18, 19
-	-	PLOT 3 oil penetration measurement of substrate	" 13 *

Biological Damage, Other Observations: Fucus in LITZ appears healthy. We saw a deer (doe) in a small meadow upstream.

Beach covered with heavy frost above current high tide line. Substrate beginning to freeze, ice along stream banks; difficult to detect oil in some areas.

RICK GUSTIN LOG BOOK FROM 098-12-89 TO 09-21-89 PRE OIL SPILL CATALOGED STREAMS

#	Box	Map	ASC #	Quad #	Location	Segment #	Sample #	Date	Footage	Page #	Condition of Oiling
1.	[1]	21	16280	Sew-B3	Chenega Is.	CH-001	89RLG006	08-13-89		4	Heavy
2.	[1]	18	16180	Sew-B3	Chenega Is.	CH-002	89RLG009	08-13-89		4	Heavy
3.	[1]	20	16260	Sew-B3	Kake Cove	CH-017	89RLG007	08-13-89		6	Light
4.	[2]	44	16940	Sew-B3	Herring Bay	KN-132	89RLG025	08-14-89		11	Very heavy
5.	[2]	3	16932	Sew-B3	Herring Bay	KN-129	89RLG032	08-14-89		12	Heavy to Moderate
6.	[3]	33	16797	Sew-A3	Thumb Bay	KN-605	89TWC034	08-15-89		13	Light
7.	[3]	15	16851	Sew-A3	Main Bay	KN-602	89TWC039	08-15-89		14	Heavy
8.	[3]	34	16810	Sew-A3	Hogan Bay	KN-411	89TWC042	08-15-89		15	Light
9.	[3]	35	16820	Sew-B3	Snug Harbor	KN-402	89TWC046	08-15-89		15	Heavy to Moderate
10.	[3]	37	16840	Sew-B2	Marsha Bay	KN-701	89TWC050	08-16-89		17	Heavy to Moderate
11.	[3]	39	16850	Sew-B2	Marsha Bay	KN-704	89TWC054	08-16-89		18	Moderate
12.	[3]	33	16844	Sew-B2	Marsha Bay	KN-704	89TWC058	08-16-89		19	Moderate
13.	[3]	40	16865	Sew-B2	SA Bay of Isles	KN-134	89TWC062	08-16-89		20	Heavy
14.	[5]	41	16868	Sew-B3	Bay of Isles	KN-201	89RLG066	08-18-89		21	Moderate (this stream does not exist?)
15.	[6]	36	16830	Sew-B2	Knight Is. S.E.	KN-705	89RLG069	08-18-89		23	Moderate

THE NUMERALS IN THE MAP COLUMN ARE FOR REFERENCE TO 'DOCUMENTED OILED ANADROMOUS STREAMS IN PRINCE WILLIAM SOUND' RANDOMIZED LIST STREAM SURVEYS, 2 AUGUST 1989.

NUMERALS IN THE BOX COLUMN INDICATE THE NUMBER CODE PRINTED ON THE SAMPLE BOXES.

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 8/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: M. Fink
- 5) START TIME: 12:40 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Kurada, Middleton, Weseman
- 6) STOP TIME: 2:45p 18) LOW TIDE TIMES: _____ 24) AGENCY: PAG
- 7) SEGMENT #: KN132B 19) LOW TIDE HTS: _____ 25) PHOTOS TAKEN: Y N
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +2-+6 ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y N
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16982 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y N
- 13) LOCATION: west side Herring Bay, Knight Is. SAMPLE I.D. _____
- 14) WAVE EXPOSURE: High Moderate Low
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach
- Cove Lagoon Marsh

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1A	8	10	80	5	-	-	AP/H50R
SITE 2B	21	10	210	30	>5	-	AP/H50R
SITE 3C	36	5	180	35	-	-	AP/H50R
SITE 4D	40	5	200	40	-	-	AP/H50R
SITE 5E	30	5	150	40	-	-	AP/H50R

29) OVERALL OIL IMPACT:

H = >6m band with $\geq 50\%$ oil coverageM = >6m band with $\leq 50\%$ oil coverage or $\geq 3\text{m}$ to $\leq 6\text{m}$ with $\geq 10\%$ oil coverage

L = <3m band with >10% oil coverage

VL = $\leq 10\%$ oil coverage regardless of band width

N = No oil observed

33) ANADROMOUS FISH PRESENT: Y N30) OIL IN STREAMBED: Y N31) OIL ON BEACH ADJACENT TO MOUTH: Y N

32) SUBSTRATE TYPE (PERCENT):

Bedrock ✓ Boulder ✓ Gravel ✓ Sand ✓ Cobble ✓ Mud/Silt ✓

34) WILDLIFE OBSERVATION

Species _____ Number _____

35) COMMENTS: Surface oil (AP/H50R) located throughout segment from the west side of stream north to the first bedrock outcrop. Subsurface oil (M-L50R) located near grassy point, southwest end adjacent to stream. H50R located in segment from first run-off stream (entrance to camp), north to bedrock outcrop. Pink observed jumping near the mouth, but no pinks have moved past the weir.

* Survey focused on documented oiling treated in 1991.

36) PHOTOLOG

FRAME(S)

DESCRIPTION

Δ
2/

=
=

Sample Taken
Photo Frame # and
Shot Direction

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 8/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: M. Fink
- 5) START TIME: _____ 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Kunzda, Middleton, Weseman
- 6) STOP TIME: _____ 18) LOW TIDE TIMES: _____ 24) AGENCY: _____
- 7) SEGMENT #: _____ 19) LOW TIDE HTS: _____ 25) PHOTOS TAKEN: Y N
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: _____ ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y N
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16982 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y N
- 13) LOCATION: _____ SAMPLE I.D. _____
- 14) WAVE EXPOSURE: High Moderate Low
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach
Cove Lagoon Marsh

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1 F	1	1	1	100	-	-	AP
SITE 2 G	20	5	100	-	5	-	M → LOR
SITE 3 H	5	36	180	-	10	-	H → MOR (6-16)
SITE 4 I	5	40	200	-	20	-	H → MOR
SITE 5 J	6	6	36	-	10	-	HOR

- 29) OVERALL OIL IMPACT: 33) ANADROMOUS FISH PRESENT: Y N
- H = >6m band with ≥50% oil coverage
- M = >6m band with ≤50% oil coverage or ≥3m to ≤6m with ≥10% oil coverage
- L = <3m band with >10% oil coverage
- VL = ≤10% oil coverage regardless of band width
- N = No oil observed
- 30) OIL IN STREAMBED: Y N
- 31) OIL ON BEACH ADJACENT TO MOUTH: Y N
- 32) SUBSTRATE TYPE (PERCENT):
- Bedrock _____ Boulder ☒ Gravel ☒ Sand _____ Cobble ☒ Mud/Silt _____
- 34) WILDLIFE OBSERVATION
- Species _____ Number _____

35) COMMENTS: _____

Subsurface Area G - Pits 1,2,3 ; Area H - pits 4,5,6,7,8 ;
Area I - pits 10,11 ; Area J - pit 12
Needs reassessment in Spring of '92.

Survey focused on areas treated in 1991

36) PHOTOLOG

FRAME(S)

DESCRIPTION

Δ
2/

=
=

Sample Taken
Photo Frame # and
Shot Direction

A:EDDATFO
April 3, 1991

ADFG SHORELINE OILING SUMMARY

PAGE 1 OF 3

A.S.C. NO. 226-10-16982

SEGMENT KN132

Team Recorder: FINK

SUBDIVISION B

Observers: Weseman, Kuwala Middleton

DATE 8/1/91

TIME 12:40 to 2:45 p

TIDE LEVEL +2.0 ft. to +6.0 ft.

ENERGY LEVEL: ☐ H ☒ M ☐ L

SURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELO

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

TOTAL LENGTH SHORELINE SURVEYED: _____ m

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

EST. OIL CATEGORY LENGTH: W _____ m M _____ m N _____ m VL _____ m NO _____ m US _____ 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	S			S							C, P, G	M	10	8					AP/H5OR 5%
B	P			P							C, P, G	M	10	21					AP/H5OR 5% thick 30%
C	P			P							C, P, G	M	5	36					AP/H5OR 35%
D	P			P							C, P, G	M	5	40					AP/H5OR 40%
E	P			P							B, C	H	5	30					AP/H5OR 40% Boulders
F	B										C, P, G	M	1.0	1.0					AP 100%

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 #

FRAMES

SECTION: VENTRIQUE, N=HIGH ANGLE, M=MEDIUM ANGLE, E=LOW ANGLE PHOTOLOG #																			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	19			X					10 - 16	Y	-	-		X			S-P-G-C			
2	15			X					5 - 10	Y	-	-		X			S-P-G-C			
3	20			X					10 - 15	Y	-	-		X			S-P-G-C			
4	20		X	X					0 - 16	Y	-	-		X			S-P-C-C			
5	21		X	X					0 - 16	Y	-	-		X			S-P-G-C			
6	20		X	X					0 - 10	Y	-	-		X			S-P-G-C			
7	11		X		X				5 - 10	Y	-	-		X			S-P-G-C	0-5, LOR 5-10 HOR		
8	18		X						7 - 13	Y	-	-		X			S-P-C-C			
9	20			X					12 - 18	Y	-	-		X			S-P-G-C			

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

OG COMMENTS:

Surface oil (AP/H5OR) located throughout segment from stream north to first bedrock outcrop. Subsurface oil (MI-LOR) located near grassy point, southern end of segment. HOR located in segment from first run-off stream (entrance to camp), north to bedrock outcrop.

Needs reassessment in Spring of '92.

Pinks observed jumping near the mouth. No pinks past the weir.

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

Areas G, H, I, J are subsurface,
survey focused on area's treated in 1991.

0 25 50
M



KN-132B

8/1/91

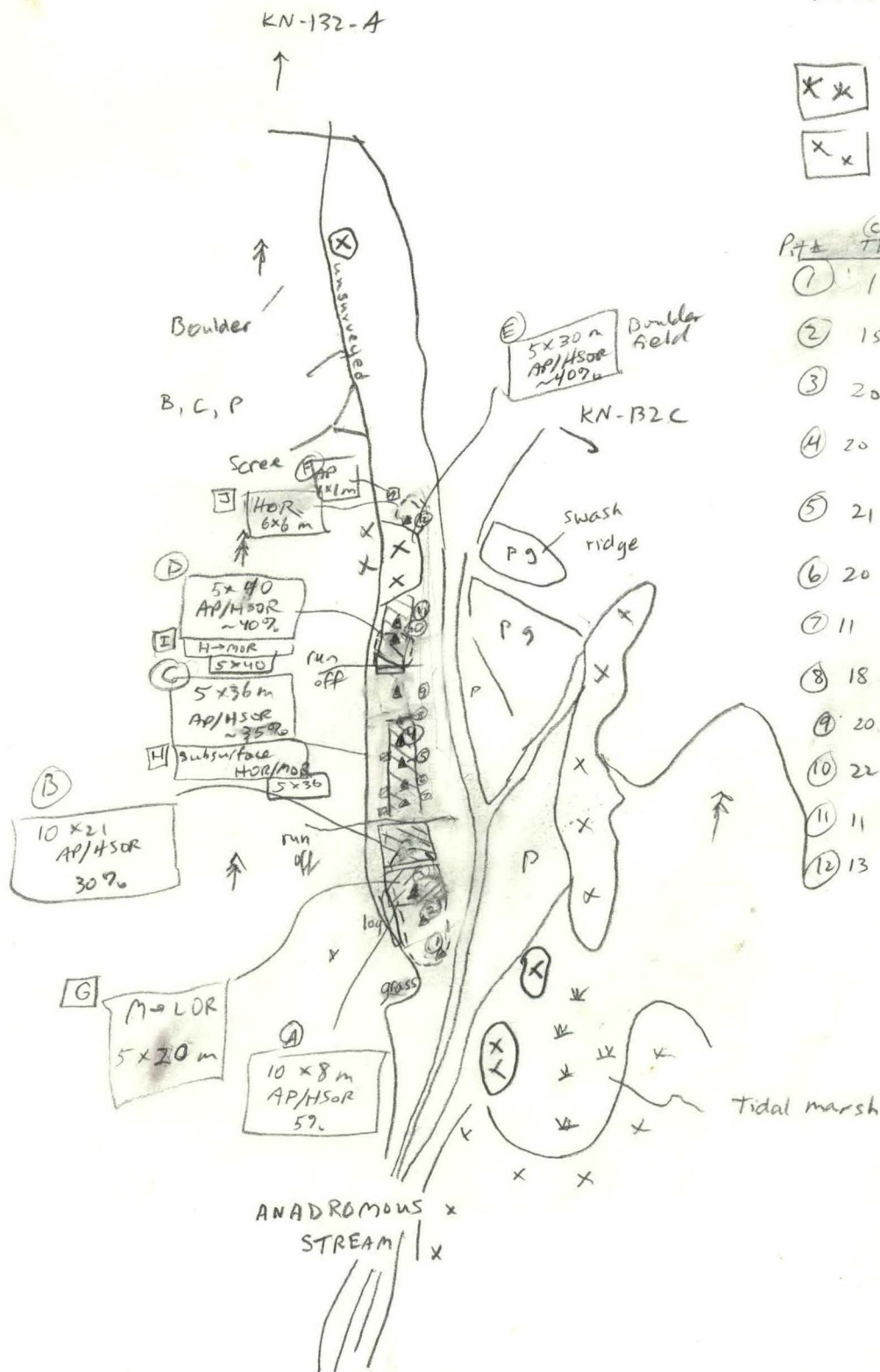
12:40 - 2:45 PM.

FINK, ADF4G

XX tidal marsh

Xx Bedrock

Pit #	(cm) TD	(cm) Dil	Clean below	w/t	shells	seeds	zone
①	19	10-16 HOR	Y	-	N	S, G, P, C	u
②	15	5-10 HOR	Y	-	N	S, G, P, C	u
③	20	10-15 HOR	Y	-	N	S, G, P, C	u
④	20	0-16 HOR/HOR	Y	-	-	S, G, P, C	u
⑤	21	0-16 HOR/HOR	Y	-	-	S, G, P, C	u
⑥	20	0-10 HOR/HOR	Y	-	-	S, G, P, C	u
⑦	11	0-5 LOR 5-10 HOR	Y	-	-	S, G, P, C	u
⑧	18	7-13 HOR	Y	-	-	S, G, P, C	u
⑨	20	12-18 HOR	Y	-	-	S, G, P, C	u
⑩	22	0-20 HOR	Y	-	-	S, G, P, C	u
⑪	11	3-6 LOR	Y	-	-	S, G, P, C	u
⑫	13	0-10 HOR	Y	10	Blk heads	C, P, G, B	u



ADF&G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16982

Date: 6 7 91

Stream Name: _____

Observer: TOM CROWE &
AIMEE WESEMAN

Segment-Sub Unit KN132 B

Location: HERRING BAY

Anad. Stream Permit Issued? Y ☒ N

Date: _____

Work Order Issued: ☒ Y ☐ N

Date: 5/20/91

Demob Date: 6/4/91

Oil Characteristics (circle appropriate ones)

Surface: ☒ AP, MS, TB, ☒ SOR, CV, CT, ST, FL, DB, None
Subsurface: ☒ OP, HOR, ☒ MOR, ☒ LOR, OF, TR, None

Treatment Techniques:

Manual Removal ☒
Manual Raking ☒
Spot Wash
Other

Bioremediation & Type CUSTOM BLEND
Mechanical Tilling
Header Flood (Hot/Cold)

Crew Size: 10

Lbs. or Bags of Oil/Sediment Removed ?

Other Agency Reps, and Names: DEBBIE WALTERS (DEC)

Photos Y ☒ N

Roll #

Frames

Video

Tape #

Start

End

NONE

Sediment/Oil Samples (Y ☒ N)

Collection Number

Purpose of Trip * SEE COMMENTS

* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.

TAGGING TILL 15TH

Describe extent of remaining oil (any comments on expected completion of cleanup).

HSOR, AP AND SUBSURFACE OILING (7cm) LOC REMAINING. AP AND
SOR LEFT UPSTREAM 100M. OIL PENETRATION TO 10cm 12cm
MOR IN SEVERAL AREAS.

Comments: (Are work order procedures being followed?, etc.)

AREAS IN MITZ AND UITZ REMAIN OILED. OILING
CONDITIONS RANGE FROM OP/AP, HSOR AND SUBSURFACE
MOR. WORK ORDERS FOR THIS AREA MAY HAVE
BEEN FOLLOWED HOWEVER SERIOUS AMOUNTS OF
OIL REMAIN ADJACENT TO THIS ANADROMOUS STREAM.
FISH & GAME REPRESENTATIVES WERE NOT PRESENT WHEN
THE CLEANUP EFFORT WAS CONDUCTED. THIS SURVEY WAS
DONE DURING A HOT SUNNY PERIOD WHEN OILING CONDITIONS
WERE EASILY OBSERVED. THE ENTIRE SEGMENT SMELLED OF
CRUDE OIL. SUGGESTION IS THAT THIS STREAM BE
REASSESSED BY TAG FOR POSSIBLE MECHANICAL TILLING AS
MANUAL WORK APPEARS TO BE INADEQUATE.

WAND SNCT 1425

A:OPRESP
April 2, 1991

ADF&G MULTI-ASSESSMENT DATA FORM

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 5/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: Aimee Weseman
- 5) START TIME: 0800 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Tom Crowe
- 6) STOP TIME: 0950 18) LOW TIDE TIMES: 930 24) AGENCY: ADF&G
- 7) SEGMENT #: KN132B 19) LOW TIDE HTS: -1ft 25) PHOTOS TAKEN: Y (N)
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +1 ROLL #: _____ FRAMES: _____
- 9) LAT: _____ (Ebb) Slack Flood Slack 26) VIDEO TAKEN: Y (N)
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16982 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y (N)
- 13) LOCATION: Herring Bay, Knight I SAMPLE I.D. _____
- 14) WAVE EXPOSURE: High Moderate Low _____
- 15) SHORELINE TYPE: Headland Low-lying Rocks (Beach) _____
- (Cove) Lagoon (Marsh) _____

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1	8	0.5		10	3-5		HSOR
SITE 2	60	10		15	3-5		AP/HSOR
SITE 3	2	0.5		10	3-5		AP
SITE 4	2	0.5		20			CV
SITE 5	20	10		<10	3-5		M+LSOR

- 29) OVERALL OIL IMPACT: over for more sites 33) ANADROMOUS FISH PRESENT: (Y) N

H = >6m band with ≥50% oil coverage

(M) = >6m band with ≤50% oil coverage or ≥3m to ≤6m with ≥10% oil coverage

L = <3m band with >10% oil coverage

VL = ≤10% oil coverage regardless of band width

N = No oil observed

- 30) OIL IN STREAMBED: Y (N)

- 31) OIL ON BEACH ADJACENT TO MOUTH: (Y) N

- 32) SUBSTRATE TYPE (PERCENT):

Bedrock _____ Boulder _____ Gravel _____ Sand _____ Cobble _____ Mud/Silt _____

- 35) COMMENTS: Stream/beach area is improving but still in need of treatment. ADF&G personnel reported that when the sun comes out, the oil liquifies & starts oozing towards the stream.

34) WILDLIFE OBSERVATION

Species	Number
<u>pink fry-stream</u>	<u>2</u>
<u>pink fry-</u>	<u>560</u>
<u>sculpin</u>	<u>1</u>

OG's estimates on % coverage includes all the rock & boulder surfaces in the oiled area - so it is a deceptively low figure

file net across stream - ADF&G personnel had fry caught to CW Tag.

36) PHOTOLOG

FRAME(S)

	length	width	DESCRIPTION
site 6	2 x 10		3-5 cm deep AP <10%
site 7	10 x 5		3-5 HSOR/AP 30%
site 8	30 x 5		3-5 msor 5%
site 9	60 x 25		0-15 mor

see O's sheet for pit information

pits 1-7 NO.1
 8 0-10 cm - mor
 9 0-3 cm
 10 0-15 cm - mor
 11 0-10 LOR
 13 0-7 LOR

PAGE 1 OF 2

No subsurface ice was found except in a very discontinuous band of ~ 60 m in association with the major (southerly) location of (H) 50K. Maximum penetration depth was 15 cm.

PAGE 2 OF 2

DATE 05 / 01 / 91

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

OG COMMENTS:

0 25 50
m



KN-132-B

05/01/91

OG. Map

D.I. Little

0805-0945

KN-132-A



Tidal marsh



Bedrock

F AP 10' x 2m
<1%

Boulder

B.C.P

Scree

E

10m x 20m
<1% SOR/FL

in boulders
also some AP
+ CT on <1%
Cobbles

①

#	PIT TO	Y/N	3/p	NO. OF	W/T
1	30	Y	g/p		20
2	25	Y	g/p		23
3	25	Y	g/p		10
4	25	Y	g/p		—
5	20	Y C/P/3			5
6	25	Y b/p/g			25
7	20	Y S P/g		MITZ	—
8	25	0-10 (M) OR g/p		MITZ	—
9	20	0-3 mly P/g's		MITZ	FL
10	20	0-15 (M) OR g/s/r		"	S
11	20	0-10 (L) OR g/s		"	S
12	20	0-3 mly		"	S
13	10	0-7 (L) OR P/g		MITZ	—

KN-132-C

swash
ridge

UNSURVEYED

Mussels

D 0.3 x 2m
CV 20%

C AP 0.5 x 2m
100%

SUBSURFACE OIL MAP
IN 3 PATCHES of
about 2 x 5 m.

Tidal marsh

ANADROMOUS
STREAM

NO
OIL

A 0.5 x 8m. SUTZ
H/SOR in veg. mat
100%

H 5 x 10m
AP 30%
and
SOR 5m
of the above

I SOR 5 x 30
<5%

C.P

B AP/HSCR
10 x 30m
5%

PLU 10% overall out
AP more than
high & narrow
SOR remaining

S P/g
NO OIL

NO 2A

Photo Locations



KN-132-B

05/01/91

OG. Map

D.I. Little

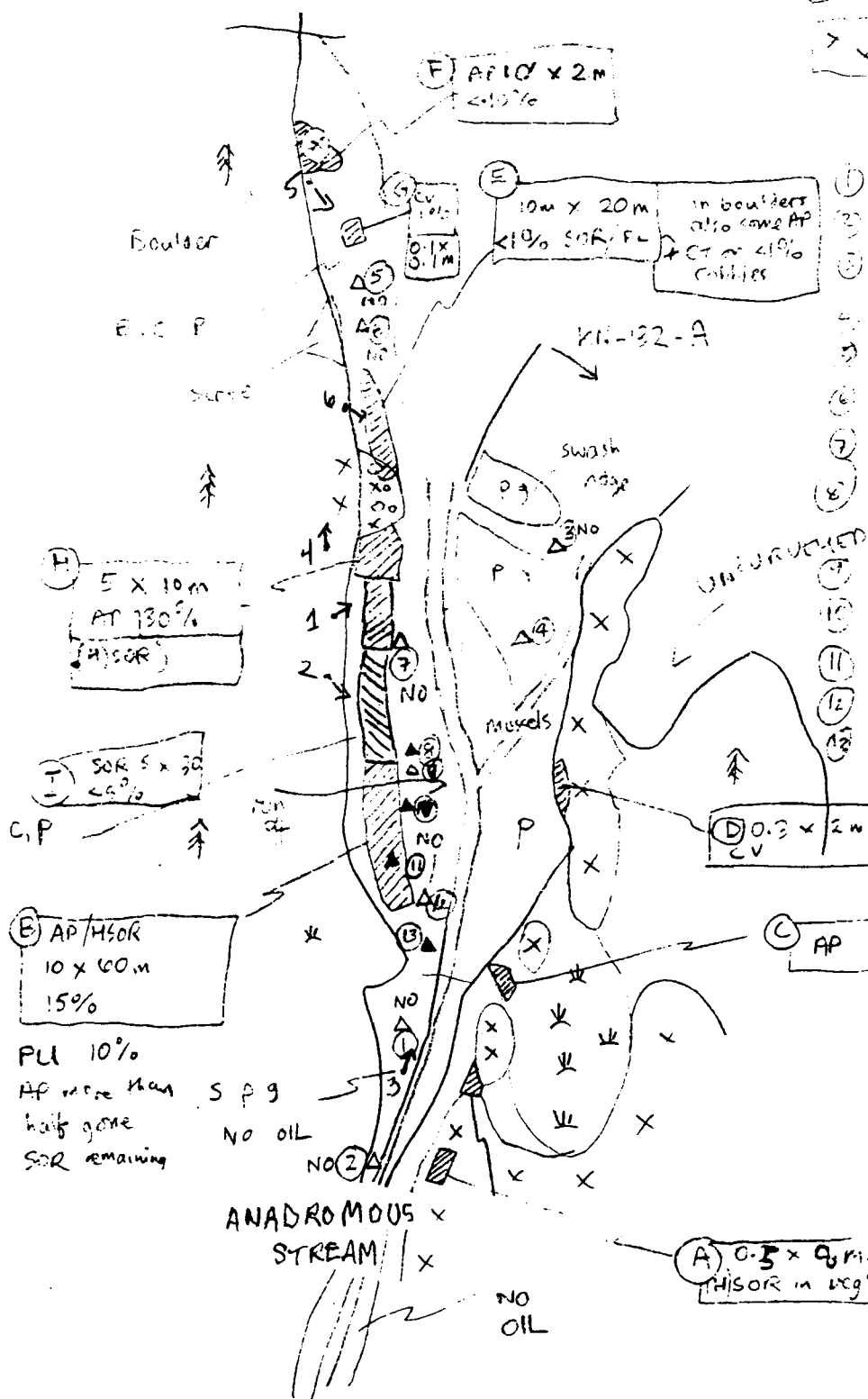
0805-0945

止

Tidal marsh

7

Bedrock

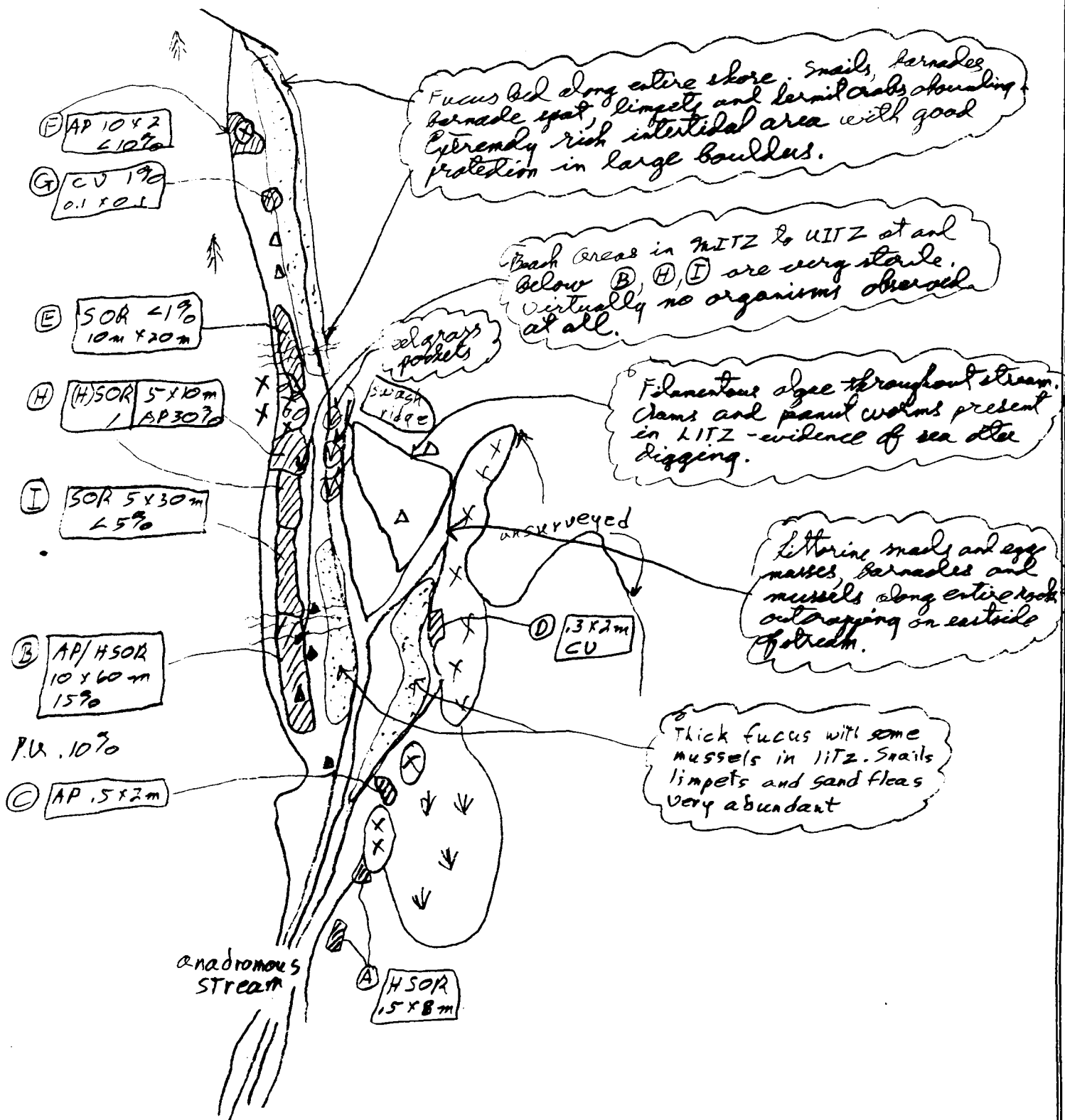


#	PIT TO	Y/m	g/p	MITZ	W/T
30	Y	g/p		20	
25	Y	g/p		23	
25	Y	g/p		10	
35	Y	g/p		—	
20	Y	g/p/2		5	
25	Y	g-pg		25	
20	Y	5 pg		MITZ—	
25	O-10	(M)OR g/p		MITZ -	
20	O-2	only g/p		MITZ -	
20	O-15	(M)OR g/p		"	
20	O-10	(M)OR g/p		—	
20	O-3	only		—	
20	O-7	(M)OR g/p		MITZ -	

0 25 50
meters



KN-132-B 5/01/91
Bio. Map T.R. Schroeder
0805-0945



MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6
 DATE 5/1/91
 SEGMENT # KN-132
 TIDAL HEIGHT (Range) +1 to -1 feet
 SUBDIVISION B
 BIOLOGIST T.A. Schroeder
 SEA STATE Light Chop
 WIND SPEED/DIRECTION N = 10-15 mph
 PHOTOGRAPHS: ROLL #
 FRAME #

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

(E, F & G) = Intertidal area below these patches of CV, AP and SOA are very lush and productive. Fucus and mussel growth is excellent and large, cobble rocks are providing shelter for vast numbers of Littorine snails, hermit crabs, limpets and barnacles.

(B, H & I) = Fucus kelp and mussels are reestablishing themselves in LITZ above these patches of SOA and AP. Much of LITZ had extensive mechanical cleaning and is virtually lacking in any animal life or vegetation. Snails, limpets and amphipods very abundant in LITZ.

(A, C & D) = Located in close proximity to salmon stream. The intertidal spawning area of this stream is very productive and should not be jeopardized by any intrusive cleaning methods.

While this area is exposed to considerable storm activity, the intertidal area is very rich with plant and animal life. The area treated with more intrusive mechanical methods (B & G) is almost lacking in any plant or animal life, whereas, the area treated with less intrusive methods (E, F & G) is very rich and lush.

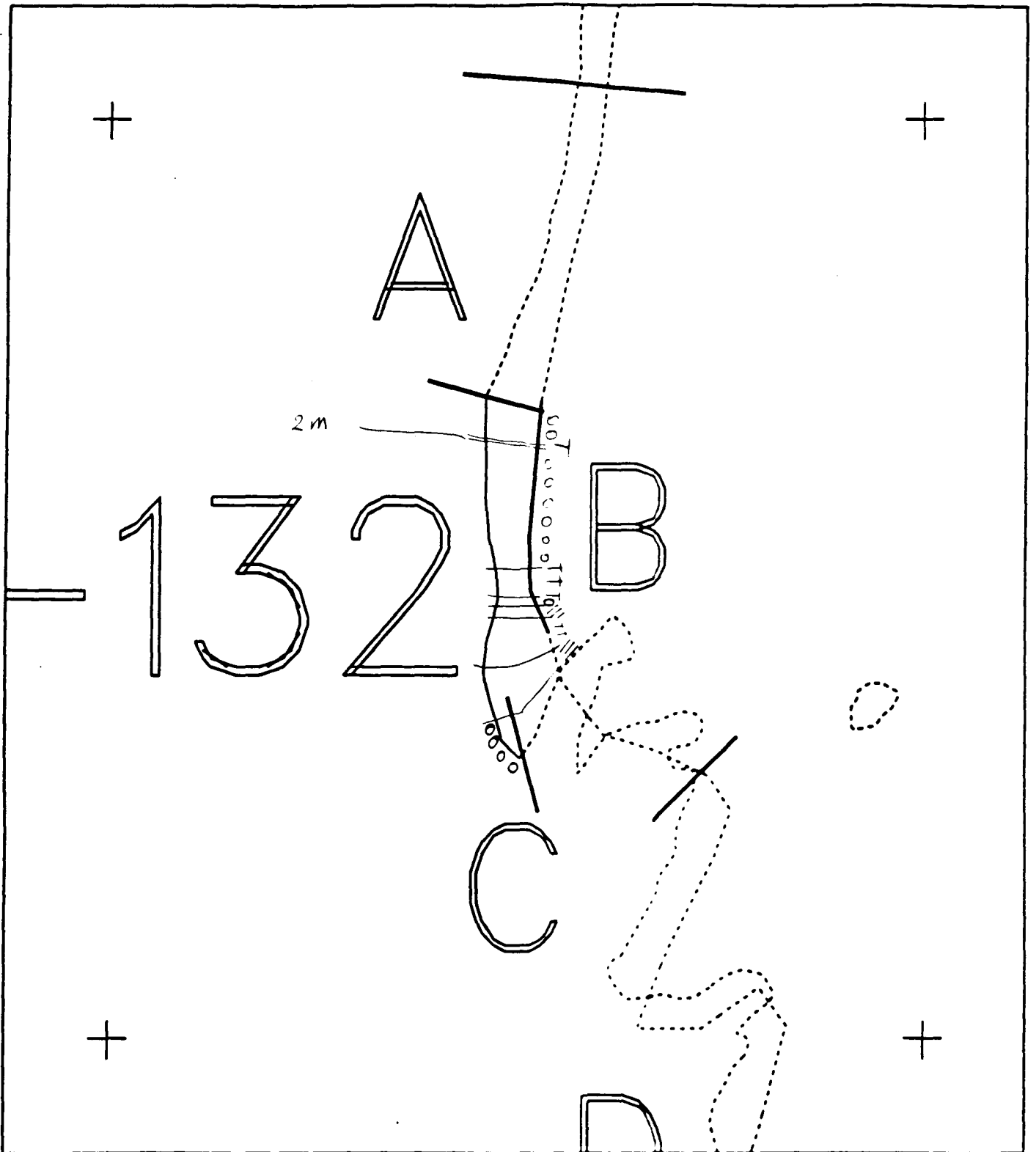
WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			1 Sculpin
Seabirds			560 pink salmon
Waterfowl	1	17	frag. in bucket.
Gulls/kittiwakes	1		
Shorebirds			2 pink fry in
Corvids			stream.
Other Birds			

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

Shoreline subdivision map showing important biological features attached.



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

KN0132 B
 ADEC Subsegment Length: 170m

METERS
 0 100 200

AK State Plane Zone 4
 kn0132b



Subdivision Field Map

Map Key: KNKN0132B

Name: DAVID LITTLE

Date: 05/01/91

Date Entered:

maySAP

13

2



← LINE WHERE TILLING
STOOPS
STAT2

4502

Doc

Outcrop

mor

C

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

KN0132 B

ADEC Subsegment Length: 170m

METERS

AZ State Plane Zone 4
btu0132b



Subdivision Field Map

Map Key: KNIKNO1320

Name: Tom Crowe

Date: 5/1/91

Date Entered:

MAYSAP FIELD SHORELINE COMMENT SHEET

TEAM NO. 6 SEGMENT KN-132 SUBDIVISION B DATE 5/1/91

ADEC / USFS

NAME TOM CROWE

SIGNATURE [Signature]

☐ NTR ☒

THIS LOW ENERGY BEACH AREA HAS GREATLY IMPROVED OILING CONDITIONS SINCE LAST TREATED IN 1990. HOWEVER THERE STILL REMAINS A SIGNIFICANT LAYER OF OILING ADJACENT TO THE ANADROMOUS STREAM THAT TRAVERSES THIS SEGMENT. AN EFFORT SHOULD BE MADE TO REDUCE OR REMOVE THE OIL REMAINING. SUGGESTED TREATMENT OF MECHANICAL TILLING SUCH AS USED TO TILL THIS AREA IN 1990. THIS METHOD HAS PROVEN TO BE VERY EFFECTIVE.

EXXON

NAME Scott A. Nauman

SIGNATURE [Signature]

☒ NTR

Oiling on this subdivision is limited to the surface - pits were all free of oil with the exception of one shallow hole (10 cm). Surface band is patchy sor and AP. The AP present adjacent to the stream was collected to its practical limit during the survey. Moving north down the beach, the shoreline gains more angular cobbles and boulders. The practicality of recovering the isolated patches in this area is low (would involve boulder flipping, etc). I see no benefit to treatment.

LANDMANAGER

NAME Aimee Weseman OF ADFG

SIGNATURE [Signature]

☐ NTR ☒ Treatment Recommended

This productive Anadromous fish stream still contains appreciable amounts of AP, HSOR sediments along the stream bank. The resident ADFG personnel report that when the sun comes out, the oil liquifies & "oozes" out of the ground-downhill towards the channel. At the very least the AP HSOR sediments should be removed. A more thorough treatment would include mechanically tilling these areas as well as the MOR oil located closer to the channel.

USCG/NOAA

NAME CWO SPURR / Rebecca HFF

SIGNATURE [Signature]

☐ NTR

Areas with remaining oil in upper intertidal could be manually turned over & remaining asphalt pieces picked up. However, this activity should be restricted to upper & mid tid zones, i.e. areas E, H, I & J. Mechanical tilling is not called for & would be too intrusive. Care should be taken not to impact marsh/peat areas, such as those above stream bed in 132-C.

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 8/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: M Fink
- 5) START TIME: 12:40 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Kuwada, Middleton, Weseman
- 6) STOP TIME: 2:45 p 18) LOW TIDE TIMES: _____ 24) AGENCY: PAG
- 7) SEGMENT #: KV132B 19) LOW TIDE HTS: _____ 25) PHOTOS TAKEN: Y N
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +2 - +6 ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y N
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16982 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y N
- 13) LOCATION: west side Herring Bay, Knight Is. SAMPLE I.D. _____
- 14) WAVE EXPOSURE: High Moderate Low _____
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach _____
- Cove Lagoon Marsh _____

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1A	8	10	80	5	-	-	AP/H50R
SITE 2B	21	10	210	30	>5	-	AP/H50R
SITE 3C	36	5	180	35	-	-	AP/H50R
SITE 4D	40	5	200	40	-	-	AP/H50R
SITE 5E	30	5	150	40	-	-	AP/H50R

29) OVERALL OIL IMPACT:

H = >6m band with $\geq 50\%$ oil coverageM = >6m band with $\leq 50\%$ oil coverage or $\geq 3m$ to $\leq 6m$ with $\geq 10\%$ oil coverage

L = <3m band with >10% oil coverage

VL = $\leq 10\%$ oil coverage regardless of band width

N = No oil observed

33) ANADROMOUS FISH PRESENT: Y N30) OIL IN STREAMBED: Y N31) OIL ON BEACH ADJACENT TO MOUTH: Y N

32) SUBSTRATE TYPE (PERCENT):

Bedrock ✓ Boulder ✓ Gravel ✓ Sand ✓ Cobble ✓ Mud/Silt ✓

34) WILDLIFE OBSERVATION

Species _____ Number _____

PINK SALMON

35) COMMENTS: Surface oil (AP/H50R) located throughout segment from the west side of stream north to the first bedrock outcrop. Subsurface oil (M-L50R) located near grassy point, southwest end adjacent to stream. Hair located in segment from first run-off stream (entrance to camp), north to bedrock outcrop. Pinks observed jumping near the mouth, but no pinks have moved past the weir.

* Survey focused on documented oiling treated in 1991.

CONTINUATION

- 1) SURVEY TYPE: BS SS
- 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 8/1/91 16) HIGH TIDE TIME: _____
- 5) START TIME: _____ 17) HIGH TIDE HTS: _____
- 6) STOP TIME: _____ 18) LOW TIDE TIMES: _____
- 7) SEGMENT #: _____ 19) LOW TIDE HTS: _____
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: _____
- 9) LAT: _____ Ebb Slack Flood Slack
- 10) LONG: _____ 21) USCG QUAD: _____
- 11) ASC #: 226-10-16982
- 12) STREAM NAME: _____
- 13) LOCATION: _____
- 14) WAVE EXPOSURE: High Moderate Low
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach
Cove Lagoon Marsh
- 22) TEAM RECORDER: M. Fink
- 23) OBSERVERS: Kuwada, Middleton, Weseman
- 24) AGENCY: _____
- 25) PHOTOS TAKEN: Y N
ROLL #: _____ FRAMES: _____
- 26) VIDEO TAKEN: Y N
TAPE # _____
START: _____ STOP: _____
- 27) SAMPLES TAKEN? Y N
SAMPLE I.D. _____

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE <u>± F</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>100</u>	<u>-</u>	<u>-</u>	<u>AP</u>
SITE <u>2 G</u>	<u>20</u>	<u>5</u>	<u>100</u>	<u>-</u>	<u>5</u>	<u>-</u>	<u>M → LOR</u>
SITE <u>3 H</u>	<u>5</u>	<u>36</u>	<u>180</u>	<u>-</u>	<u>10</u>	<u>-</u>	<u>H → MOR (6-16)</u>
SITE <u>4 I</u>	<u>5</u>	<u>40</u>	<u>200</u>	<u>-</u>	<u>20</u>	<u>-</u>	<u>H → MOR</u>
SITE <u>5 J</u>	<u>6</u>	<u>6</u>	<u>36</u>	<u>-</u>	<u>10</u>	<u>-</u>	<u>HOR</u>

29) OVERALL OIL IMPACT:

- H = >6m band with ≥50% oil coverage
- M = >6m band with ≤50% oil coverage or ≥3m to ≤6m with ≥10% oil coverage
- L = <3m band with >10% oil coverage
- VL = ≤10% oil coverage regardless of band width
- N = No oil observed

33) ANADROMOUS FISH PRESENT: Y N

30) OIL IN STREAMBED: Y N

31) OIL ON BEACH ADJACENT TO MOUTH: Y N

32) SUBSTRATE TYPE (PERCENT):

Bedrock _____ Boulder ☒ Gravel ☒ Sand _____ Cobble ☒ Mud/Silt _____

35) COMMENTS:

Subsurface Area G - Pits 1, 2, 3; Area H - pits 4, 5, 6, 7, 8;
Area I - pits 10, 11; Area J - pit 12
Needs reassessment in Spring of '92.

Survey focused on areas treated in 1991

34) WILDLIFE OBSERVATION

Species _____ Number _____

A.S.C. NO. 226-10-16982

SEGMENT KN132

Team Recorder: FINIK

SUBDIVISION B

Observers: Weseman, Kuwada, Middleton

DATE 8 / 1 / 91

TIME 12:40 to 2:45

TIDE LEVEL +2.0 ft. to +6.0 ft.

ENERGY LEVEL: ☐ H ☒ M ☐ L

SURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELO

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

TOTAL LENGTH SHORELINE SURVEYED: _____ m

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

EST. OIL CATEGORY LENGTH: W_____m M_____m N_____m VL_____m NO_____m US_____m

[illegible]

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 #

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	19			X					10 - 16	Y	-	-		X			S-P-G-C	
2	15			X					5 - 10	Y	-	-		X			S-P-G-C	
3	20			X					10 - 15	Y	-	-		X			S-P-G-C	
4	20		X	X					0 - 16	Y	-	-		X			S-P-G-C	
5	21		X	X					0 - 16	Y	-	-		X			S-P-G-C	
6	20		X	X					0 - 10	Y	-	-		X			S-P-G-C	
7	11		X		X				0 - 10	Y	-	-		X			S-P-G-C	0-5, LOR 5-10, HOR
8	18		X						7 - 13	Y	-	-		X			S-P-G-C	
9	20			X					12 - 18	Y	-	-		X			S-P-G-C	

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

OG COMMENTS:

COMMENTS:
Surface oil (AP/ASAR) located throughout segment from stream north to first bedrock outcrop. Subsurface oil (MG-LOR) located near grassy point, southern end of segment. HCR located in segment from first run-off stream (entrance to camp), north to bedrock outcrops.

Needs reassessment - in Spring of '92.

Pinks observed jumping near the mouth. No pinks past the weir.

[illegible]

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

OG COMMENTS:

Areas G, H, I, J are subsurface,
survey focused on areas treated in 1991.

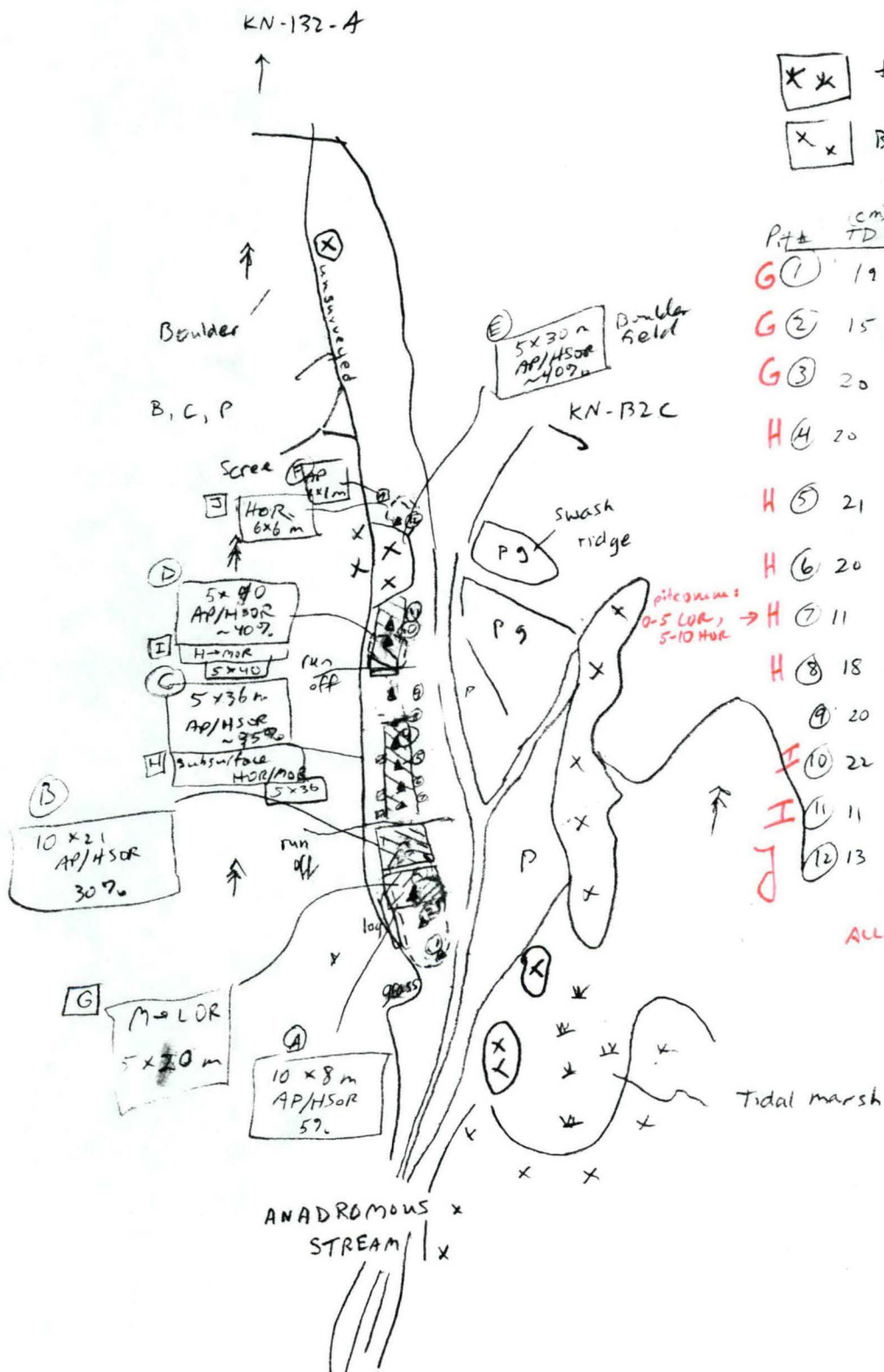


8/1/91

FINK, ADF & G

 tidal marsh

 Bedrock



Pt #	TD	cm Oil	Clean below	w/t	sheen	seeds	20.
G (1)	19	10-16 HOR	Y	-	N	S, G, P, C	✓
G (2)	15	5-10 HOR	Y	-	N	S, G, P, C	✓
G (3)	20	10-15 HOR	Y	-	N	S, G, P, C	✓
H (4)	20	0-16 HOR/HOR	Y	-	-	S, G, P, C	✓
H (5)	21	0-16 HOR/HOR	Y	-	-	S, G, P, C	✓
H (6)	20	0-10 HOR/HOR	Y	-	-	S, G, P, C	✓
H (7)	11	0-5 HOR 5-10 HOR	Y	-	-	S, G, P, C	✓
H (8)	18	7-13 HOR	Y	-	-	S, G, P, C	✓
H (9)	20	12-18 HOR	Y	-	-	S, G, P, C	✓
I (10)	22	0-20 HOR	Y	-	-	S, G, P, C	✓
I (11)	11	3-6 HOR	Y	-	-	S, G, P, C	✓
J (12)	13	0-10 HOR	Y	10	blk heads	C, P, G, B	✓

All tide zones are Uitz

5/13/91

Discrepancy notes

k

Review

KN132 B

226-10-16982

HAB

site 1

- Agree -

site 2

10 x 50 m

150%

AP/HSON

-

site 3

- AGREE -

site 4

- AGREE

site 5

< 100%

- Δ -

site 6

< 100%

- Δ -

site 7

- AGREE

site 8

- AGREE

site 9

- HAB: less resolution

60 x 25 m

(looks like extent pit 8 - 13)



OG

site A

site B

10 x 30 m

150%

AP/HSON

0-15 cm plumb.

site C

site D

site E

< 100%

site F

< 100%

site H

site I

- no site # (subsurface)
HAB in 3 patches of ~ 2 x 5 m
~~ating noted N for pit 7~~
~~length more site~~

0

0

0

ADF&G MULTI-ASSESSMENT DATA FORM

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 5/1/91 16) HIGH TIDE TIME: _____
- 5) START TIME: 0800 17) HIGH TIDE HTS: _____
- 6) STOP TIME: 0950 18) LOW TIDE TIMES: 930
- 7) SEGMENT #: KN132B 19) LOW TIDE HTS: -1ft
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +1
- 9) LAT: _____ Ebb Slack Flood Slack
- 10) LONG: _____ 21) USCG QUAD: _____
- 11) ASC #: 226-10-16982
- 12) STREAM NAME: _____
- 13) LOCATION: Herring Bay, Knight I
- 14) WAVE EXPOSURE: High Moderate Low
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach
Cove Lagoon Marsh
- 22) TEAM RECORDER: Aimee Weseмай
- 23) OBSERVERS: Tom Crowe
- 24) AGENCY: ADF&G
- 25) PHOTOS TAKEN: Y (N)
- ROLL #: _____ FRAMES: _____
- 26) VIDEO TAKEN: Y (N)
- TAPE # _____
- START: _____ STOP: _____
- 27) SAMPLES TAKEN? Y (N)
- SAMPLE I.D. _____

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1	8	0.5		10	3-5		HSOR
SITE 2	60	10		15	3-5		AP/HSOR
SITE 3	2	0.5		10	3-5		AP
SITE 4	2	0.5		20			CV
SITE 5	20	10		40	3-5		M+LSOR

- 29) OVERALL OIL IMPACT: over for more sites 33) ANADROMOUS FISH PRESENT: (Y) N
- H = >6m band with $\geq 50\%$ oil coverage
- (M) = >6m band with $\leq 50\%$ oil coverage or $\geq 3m$ to $\leq 6m$ with $\geq 10\%$ oil coverage
- L = <3m band with $> 10\%$ oil coverage
- VL = $\leq 10\%$ oil coverage regardless of band width
- N = No oil observed

- 30) OIL IN STREAMBED: Y (N)
- 31) OIL ON BEACH ADJACENT TO MOUTH: (Y) N
- 32) SUBSTRATE TYPE (PERCENT):

Bedrock _____ Boulder _____ Gravel _____ Sand _____ Cobble _____ Mud/Silt _____

- 35) COMMENTS: Stream/beach area is improving but still in need of treatment. ADF&G personnel reported that when the sun comes out, the oil liquifies & starts going towards the stream.

OGs estimates on % coverage includes all the rock & boulder surfaces in the oiled area - so it is a deceptively low figure

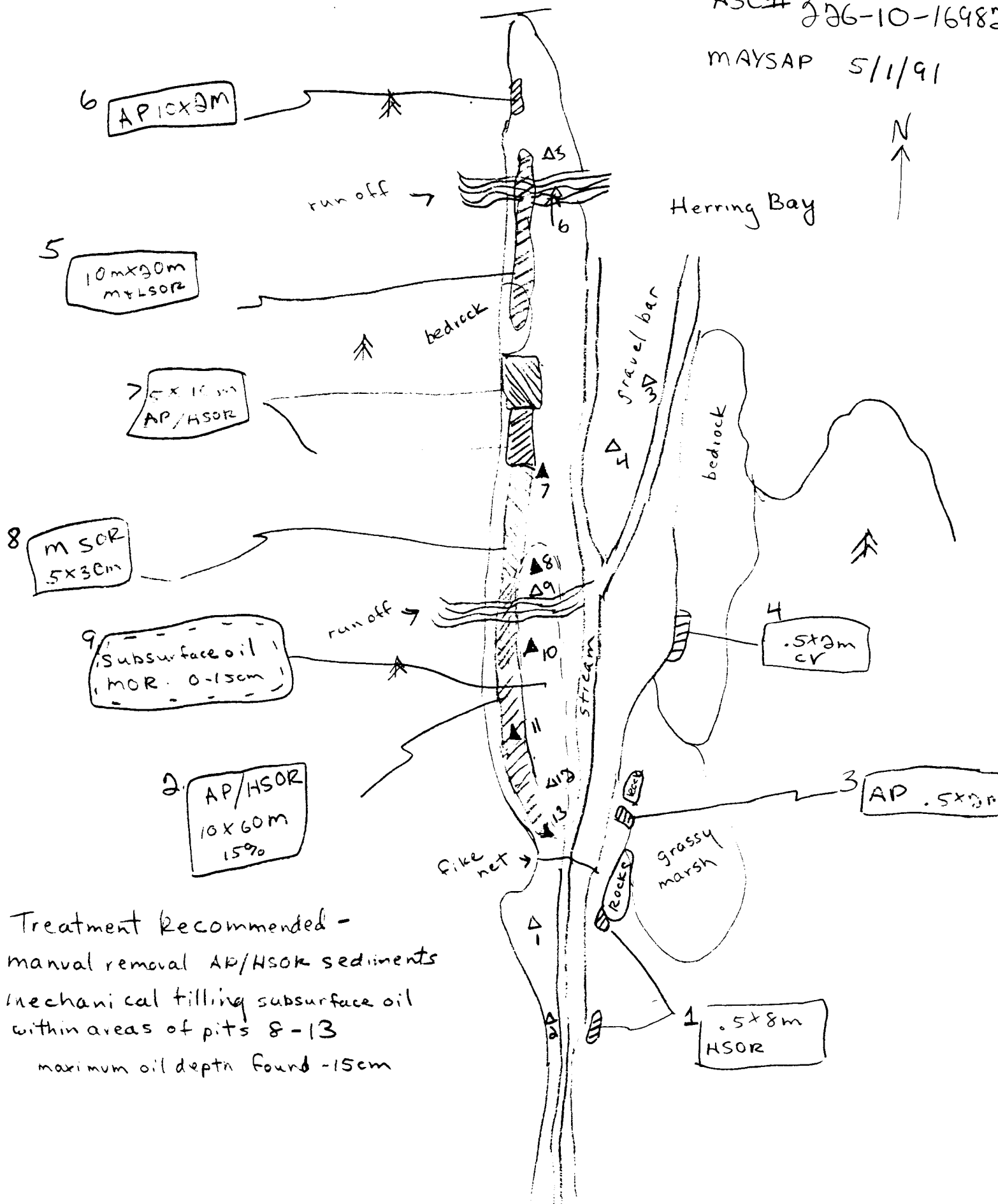
34) WILDLIFE OBSERVATION

Species	Number
<u>pink flycatcher</u>	<u>2</u>
<u>pink fly collected</u>	<u>560</u>
<u>Gulls</u>	<u>17</u>

KN132B

ASC# 226-10-16982

MAYSAP 5/1/91



Treatment Recommended -
 manual removal AP/HSOR sediments
 mechanical tilling subsurface oil
 within areas of pits 8-13
 maximum oil depth found -15cm

PAGE 1 OF 2

No subsurface oil was found except in a very discontinuous band of ~60m in association with the major (southerly) location of HI OR. Maximum penetration depth was 15 cm.

PAGE 2 OF 2

DATE 05 / 01 / 91

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

OG COMMENTS:

0 25 50
m



KN-132-B

05/01/91

OG Map

D.L. Little

0805-0945

KN-132-A



Tidal marsh



Bedrock

F AP 10' x 2m
<1%

E 10m x 20m
<1% SOR/FL
in boulders
also some AP
cobble

#	PIT TO	Y/N	3/p	dist from	W/T
1	30	Y	g/p		20
2	25	Y	g/p		23
3	25	Y	g/p		10
4	25	Y	g/p		—
5	20	Y	C/P/g		5
6	25	Y	g/p		25
7	20	Y	S/P/g		UTZ—
8	25	0-10	(M) SOR/g/p		UTZ—
9	20	0-3 mly	g/p		UTZ—
10	20	0-15	(M) SOR g/s/r		5
11	20	0-10	(L) SOR g/s		5
12	20	0-3 mly	"		5
13	20	0-7	(L) SOR g/p		MITZ—

Boulder

B.C.P

Surge

KN-132-C

Swash ridge

UNSURVEYED

H 5 x 10m
AP 30%
SOR 5m
of the above

I SOR 5 = 50
C.P

E AP/H/SOR
10 x 30m
15%

PLU 10% overall oil
AP more than
1/2 of area now
SOR remaining

ANADROMOUS
STREAM

NO OIL

D 0.3 x 2m
CV 20%

C AP 0.5 x 2m
100%

Tidal Marsh

SUBSURFACE OIL MAP
IN 3 PATCHES of
about 2 x 5 m.

A 0.5 x 8m. SUTZ
H/SOR in veg mat
100%

Photo Locations



KN-132-B

05/01/91

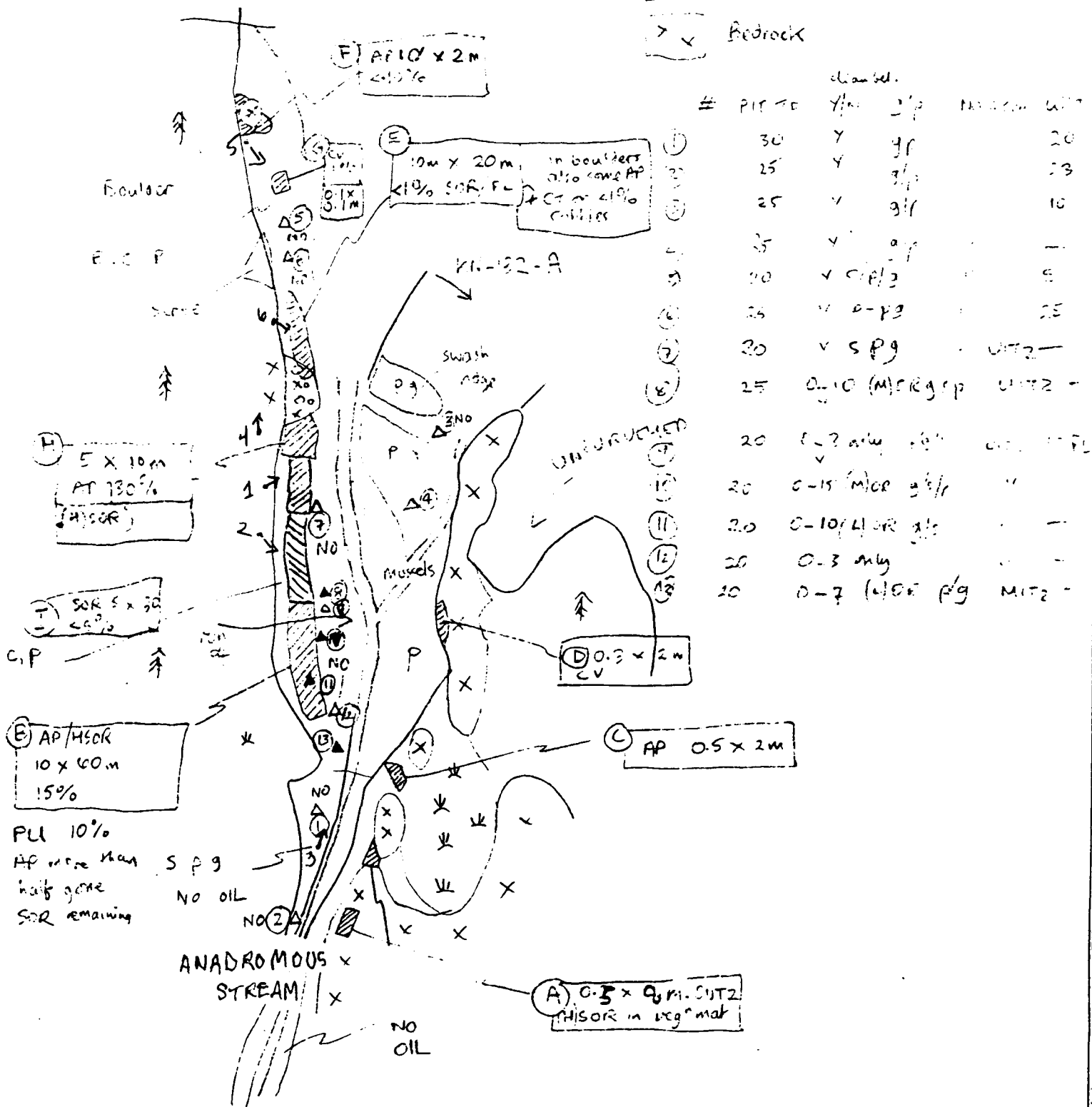
OG-Mop

D.I. Little

0805-0945

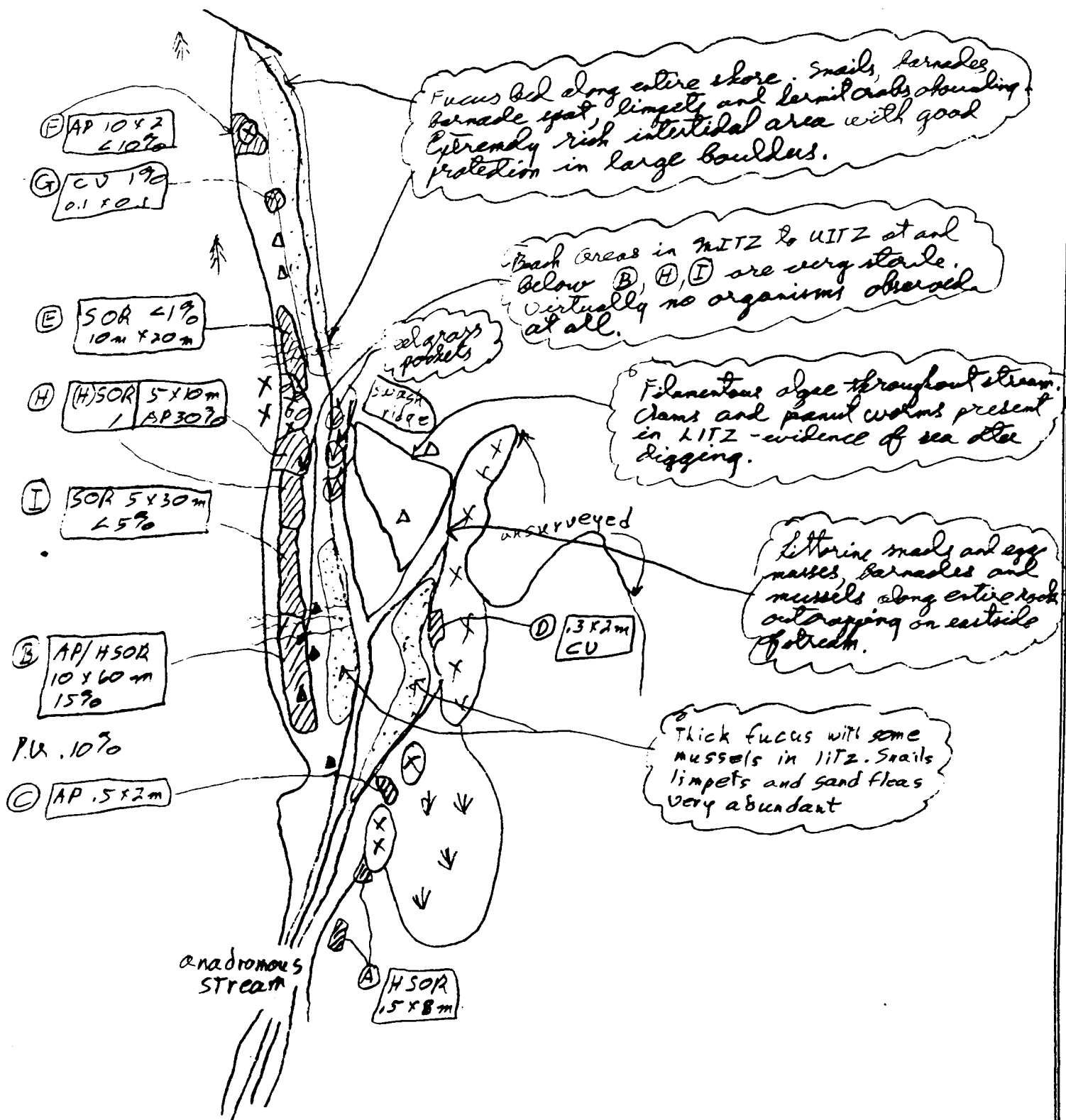
✕ ✕ Tidal marsh

> < Bedrock



KN-132-B 5/01/91
 Bio. Map T.R. Schroeder
 0805-0945

0 25 50
 meters



MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6 DATE 5/1/91
 SEGMENT # KN-132 TIDAL HEIGHT (Range) +1 to -1 feet
 SUBDIVISION B BIOLOGIST T.A. Schroeder
 SEA STATE Light Chop WIND SPEED/DIRECTION N = 10-15 mph
 PHOTOGRAPHS: ROLL # FRAME #

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

(E, F & G) = Intertidal area below these patches of CU, AP and SOA are very lush and productive. Fucus and mussel growth is excellent and large cobble rocks are providing shelter for most numbers of Littorine snails, limpets and barnacles.

(B, H & I) = Fucus kelp and mussels are reestablishing themselves in LITZ below these patches of SOA and AP. Mud to LITZ had extensive mechanical cleaning and is virtually lacking in any animal life or vegetation. Snails, limpets and amphipods very abundant in LITZ.

(A, C & D) = Located in close proximity to salmon stream. The intertidal spawning area of this stream is very productive and should not be jeopardized by any intrusive cleaning methods.

While this area is exposed to considerable storm activity, the intertidal area is very rich with plant and animal life. The area treated with more intrusive mechanical methods (B & I) is most lacking in any plant or animal life, whereas the area treated with less intrusive methods (E, F & G) is very rich and lush.

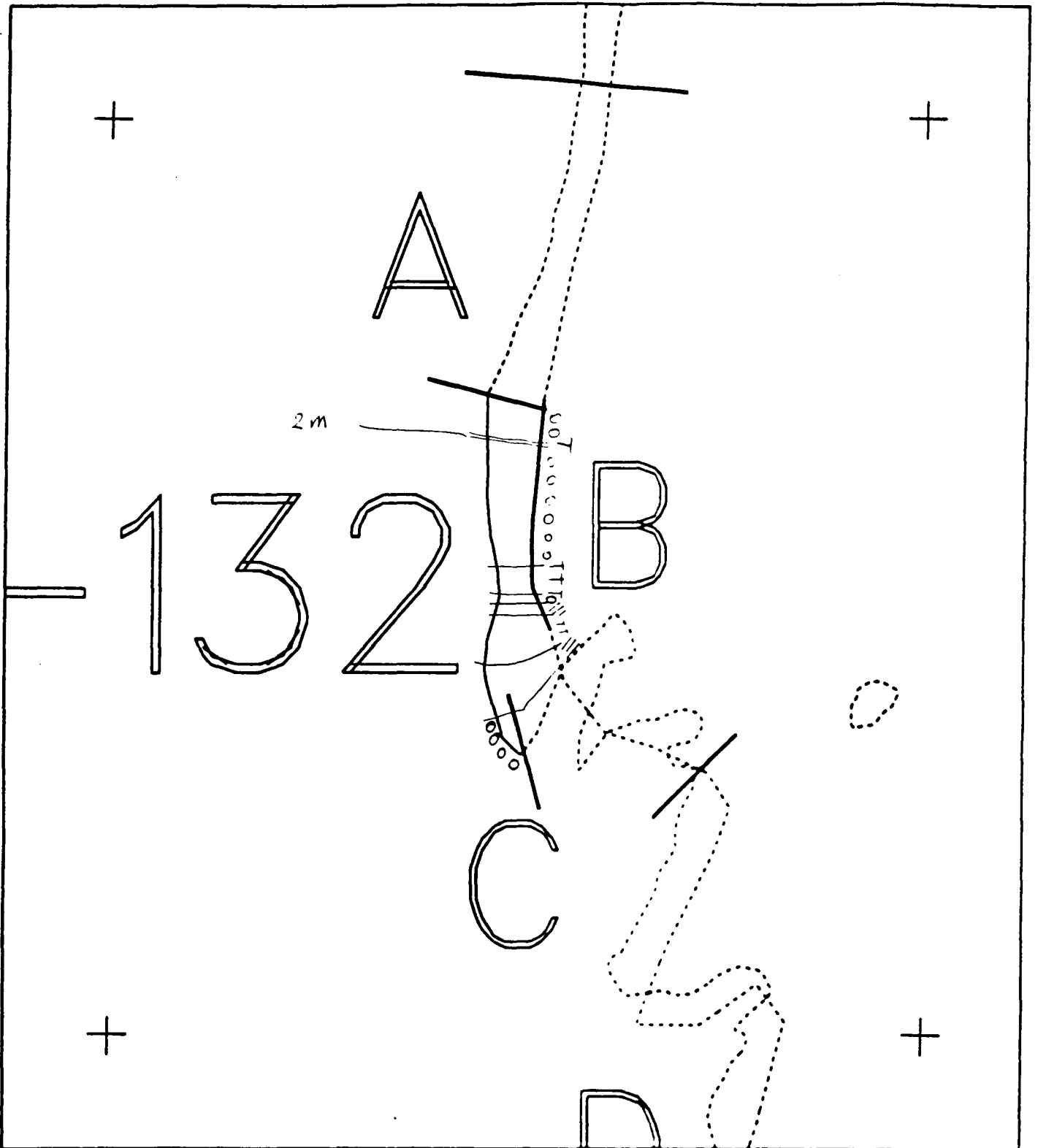
WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			1 Sculpin
Seabirds			560 pink salmon
Waterfowl	1	17	fly in bucket.
Gulls/Kittiwakes	1		
Shorebirds			2 pink fly in stream.
Corvids			
Other Birds			

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

Shoreline subdivision map showing important biological features attached.



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

KN0132 B
 ADEC Subsegment Length: 170m

METERS
 0 100 200

AK State Plane Zone 4
 kn0132b



Subdivision Field Map

Map Key: KNKN0132B

Name: DAVID LITTLE

Date: 05/01/91

Date Entered:

MAYSAP FIELD SHORELINE COMMENT SHEET

TEAM NO. 6 SEGMENT KN-132 SUBDIVISION B DATE 5/1/91

ADEC / USFS

NAME TOM CROWE

SIGNATURE

[Signature]

☐ NTR

☒

THIS LOW ENERGY BEACH AREA HAS GREATLY IMPROVED OILING CONDITIONS SINCE LAST TREATED IN 1990. HOWEVER THERE STILL REMAINS A SIGNIFICANT LAYER OF OILING ADJACENT TO THE ANADROMOUS STREAM THAT TRAVERSES THIS SEGMENT. AN EFFORT SHOULD BE MADE TO REDUCE OR REMOVE THE OIL REMAINING. SUGGESTED TREATMENT OF MECHANICAL TILLING SUCH AS USED TO TILL THIS AREA IN 1990. THIS METHOD HAS PROVEN TO BE VERY EFFECTIVE.

EXXON

NAME Scott A. Nauman

SIGNATURE

[Signature]

☒ NTR

Oiling on this subdivision is limited to the surface - pits were all free of oil with the exception of one shallow hole (10 cm). Surface band is patchy sor and AP. The AP present adjacent to the stream was collected to its practical limit during the survey. Moving north down the beach, the shoreline gains more angular cobbles and boulders. The practicality of recovering the isolated patches in this area is low (would involve boulder flipping, etc). I see no benefit to treatment.

LANDMANAGER

NAME Aimee Weseman OF ADFG

SIGNATURE

[Signature]

☐ NTR

☒ Treatment Recommended

This productive Anadromous fish stream still contains appreciable amounts of AP, HSOR sediments along the stream bank. The resident ADFG personnel report that when the sun comes out, the oil liquifies & "oozes" out of the ground-downhill towards the channel. At the very least the AP HSOR sediments should be removed & more thorough treatment would include mechanically tilling these areas as well as the MOR oil located closer to the channel

USCG/NOAA

NAME CWO SPURR / Rebecca HFE

SIGNATURE

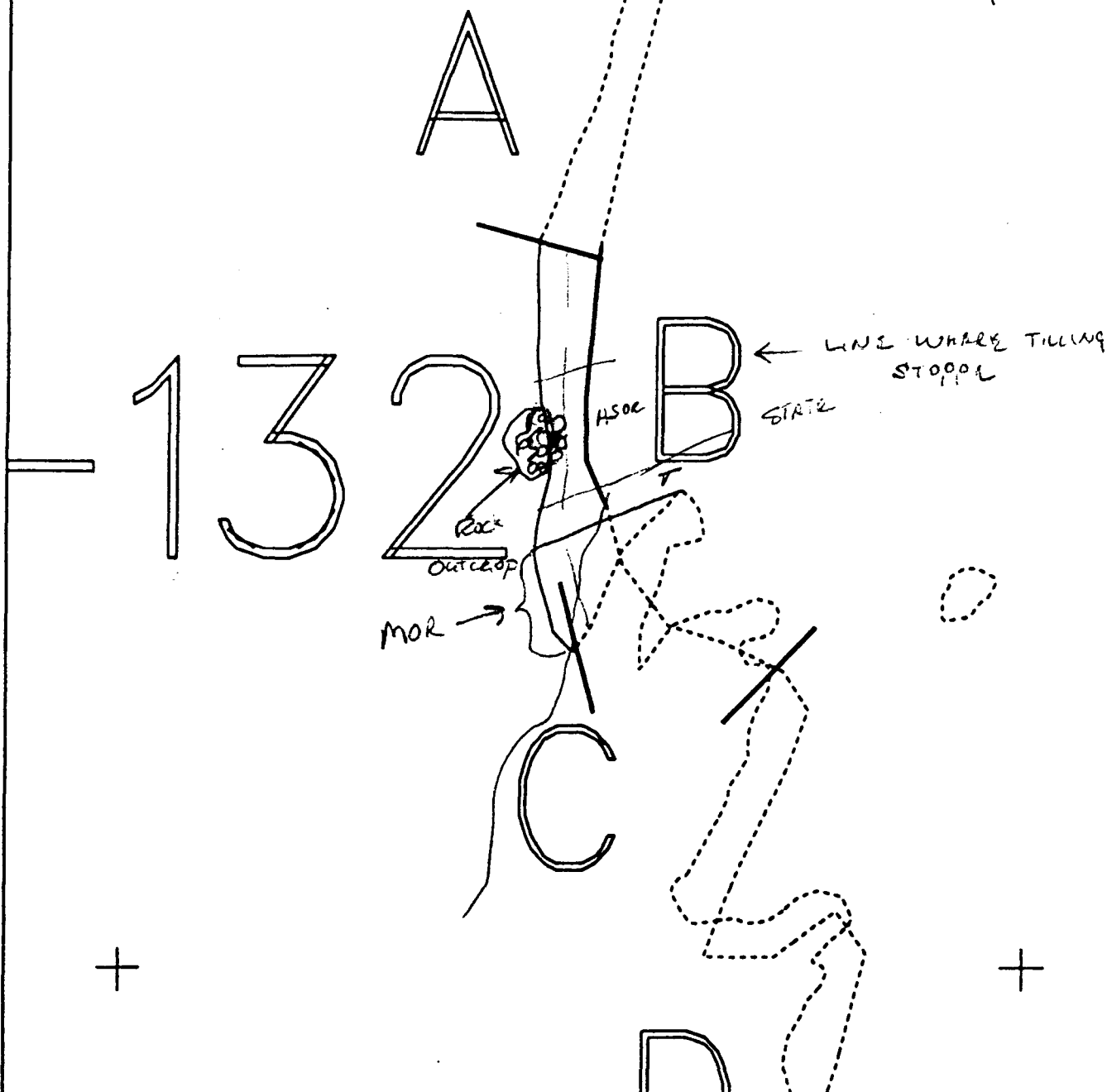
[Signature] / [Signature]

☐ NTR

Areas with remaining oil in upper intertidal could be manually turned over & remaining asphalt pieces picked up. However, this activity should be restricted to upper & mid tide zones, i.e. areas E, H, I & J. Mechanical tilling is not called for & would be too intrusive. Care should be taken not to impact marsh/peat areas, such as those along stream bed in 132-C.

ADEC Comments Cont...

MaySAP



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

KN0132 B
 ADEC Subsegment Length: 170m
 METERS
 0 100 200
 AK State Plane Zone 4
 4801326

Subdivision Field Map
 Map Key: KN0132B
 Name: Tom Crowe
 Date: 5/1/91
 Data Entered:



1991 MAYSAP EVALUATION

SEGMENT: KN 132 SUB: B REGION: PWS SURVEY DATE: 5/1/91

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:

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: Pickup, AP, SOR. No ch. manually till.

clear P+I

TAG: PV. accessible AP, SOR. manually

till clear P+I. TAG to reassess

following manual treatment to determine

if mechanical needed.

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.

RECEIVED: 5/7/91 M.C.

DATE 05 / 01 / 91

[illegible]

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

OG COMMENTS:

REVIEWED: 5/7/91 me

0 25 50
m



KN-132-B

05/01/91

OG-Map

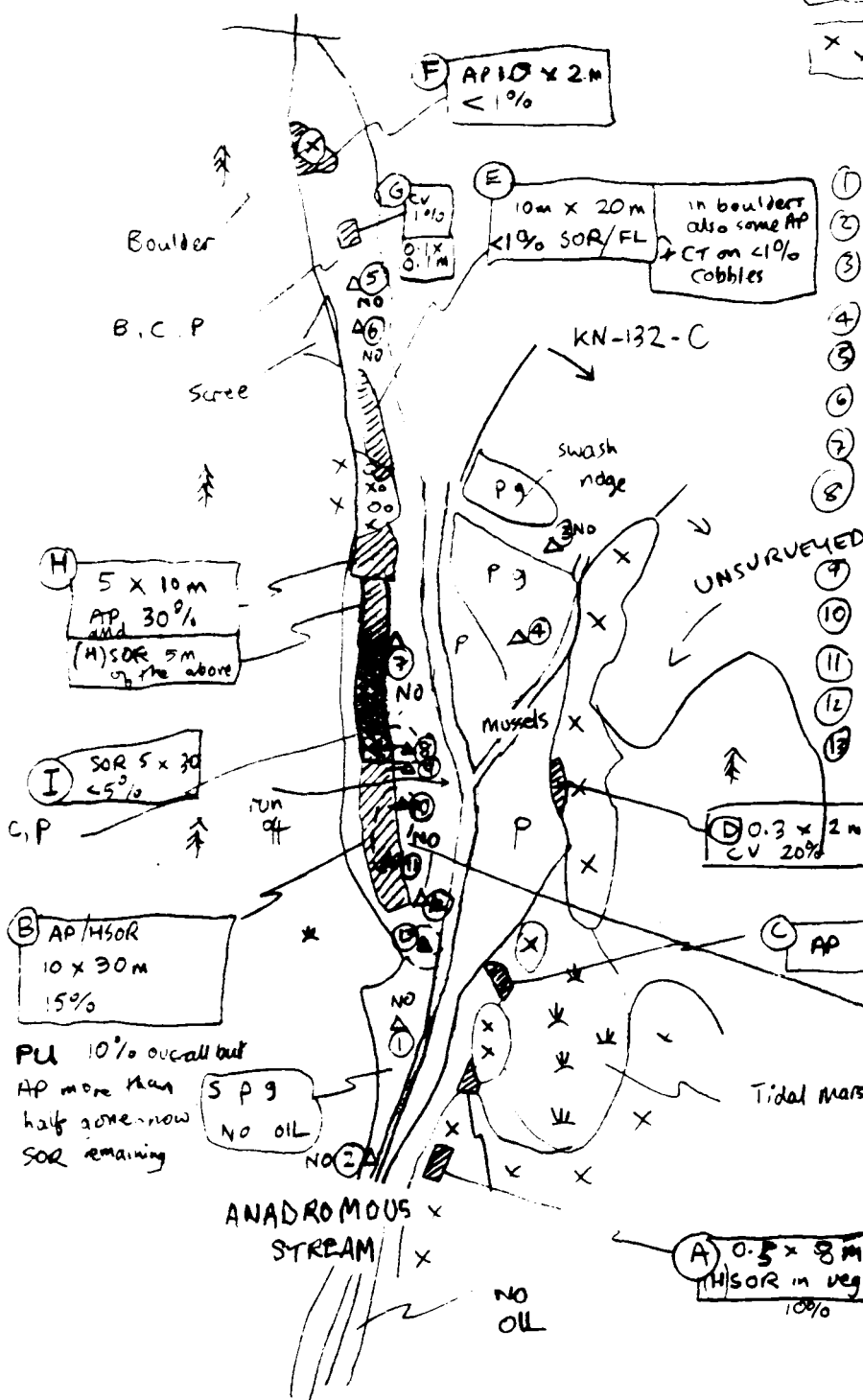
D.L. Little

0805-0945

KN-132-A

* * Tidal marsh

x x Bedrock



#	PIT TO	Y/N	3/p	NO. OF	WIT
1	30	Y	g/p		20
2	25	Y	g/p		23
3	25	Y	g/p		10
4	25	Y	g/p		
5	20	Y C/A/g			5
6	25	Y b/p			25
7	20	Y S/P			UIT2-
8	25	0-10 (M)OR g/s			UIT2-
9	20	0-3 mly	g/s		UIT2 10 FL
10	20	0-15 (M)OR g/s			UIT2
11	20	0-10 (H)OR g/s			UIT2
12	20	0-3 mly			UIT2
13	10	0-7 (H)OR g/s			MIT2-

Reviewed
Reviewed: 5/7/91 MC

KN-132-B

05/01/91

OG. Map

D.I. Little

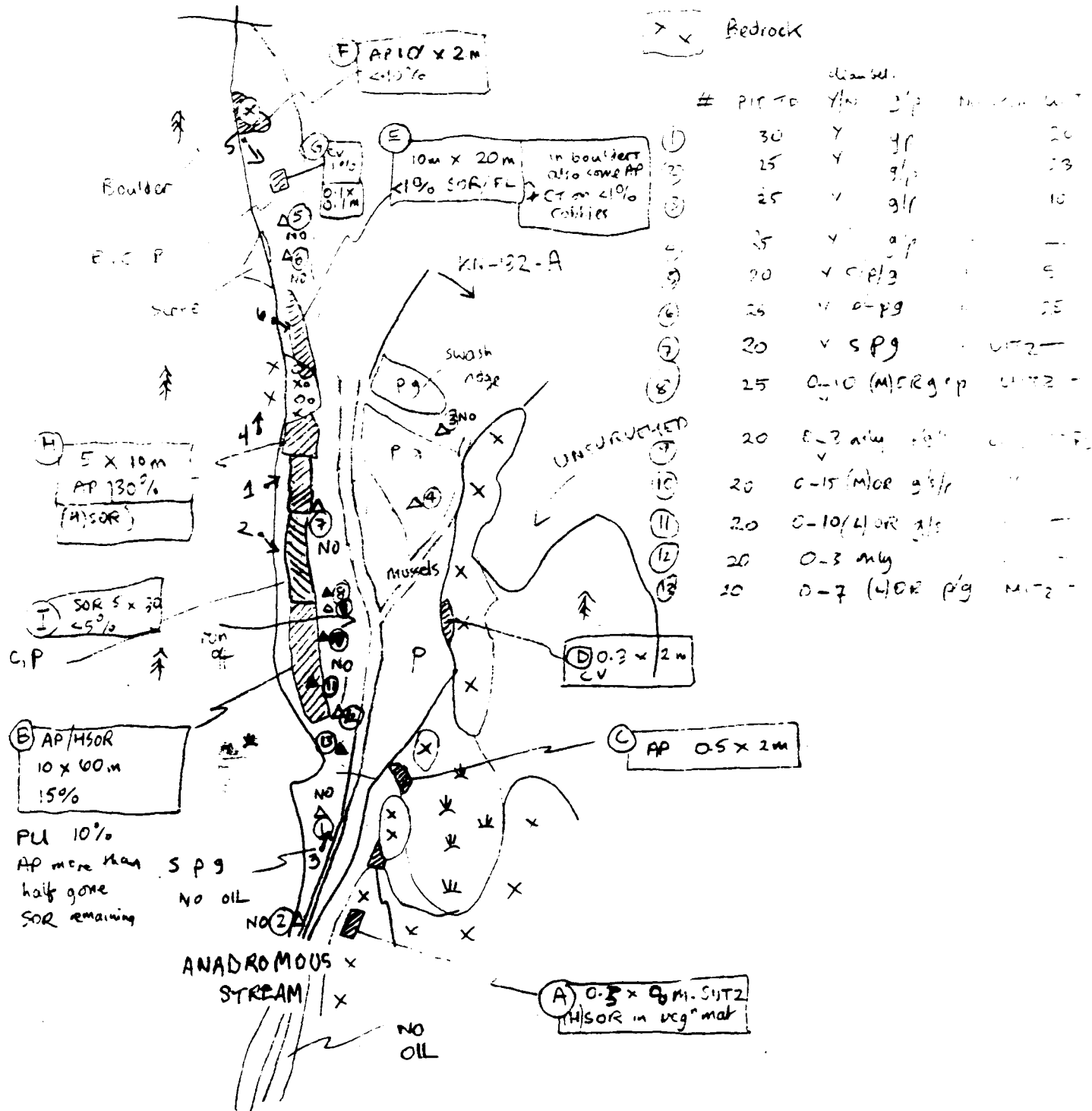
0805-0945



Tidal marsh



Bedrock



REVISED 5/8/91 LC

WAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6 DATE 5/1/91
 SEGMENT # KN-132 TIDAL HEIGHT (Range) +1 to -1 feet
 SUBDIVISION B BIOLOGIST T.A. Schroeder
 SEA STATE Light Chop WIND SPEED/DIRECTION N-10-15 mph
 PHOTOGRAPHS: ROLL # FRAME #

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

(E, F & G) = Intertidal area below those patches of CV, AP and SOA are very lush and productive. = Moss and mussel growth is excellent and large cable racks are providing shelter for vast numbers of Littorine snails, limpets and barnacles.

(B, H & I) = Fucus beds and mussels are reestablishing themselves in LITZ below those patches of SOA and AP. Mud to LITZ has extensive mechanical cleaning and is virtually lacking in any animal life or vegetation. Snails, limpets and amphipods are abundant in LITZ.

(A, C & D) = Located in close proximity to salmon stream. The intertidal spawning area of this stream is very productive and should not be jeopardized by any intrusive cleaning methods.

While this area is exposed to considerable storm activity, the intertidal area is very rich with plant and animal life. The area treated with more intrusive mechanical methods (B, H & I) is almost lacking in any plant or animal life, whereas the area treated with less intrusive methods (E, F & G) is very rich and lush.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles			1 Sculpin
Seabirds			560 pink salmon
Waterfowl	1	17	frag in bucket.
Gulls/Kittiwakes	1		
Shorebirds			2 pink frag in stream.
Corvids			
Other Birds			

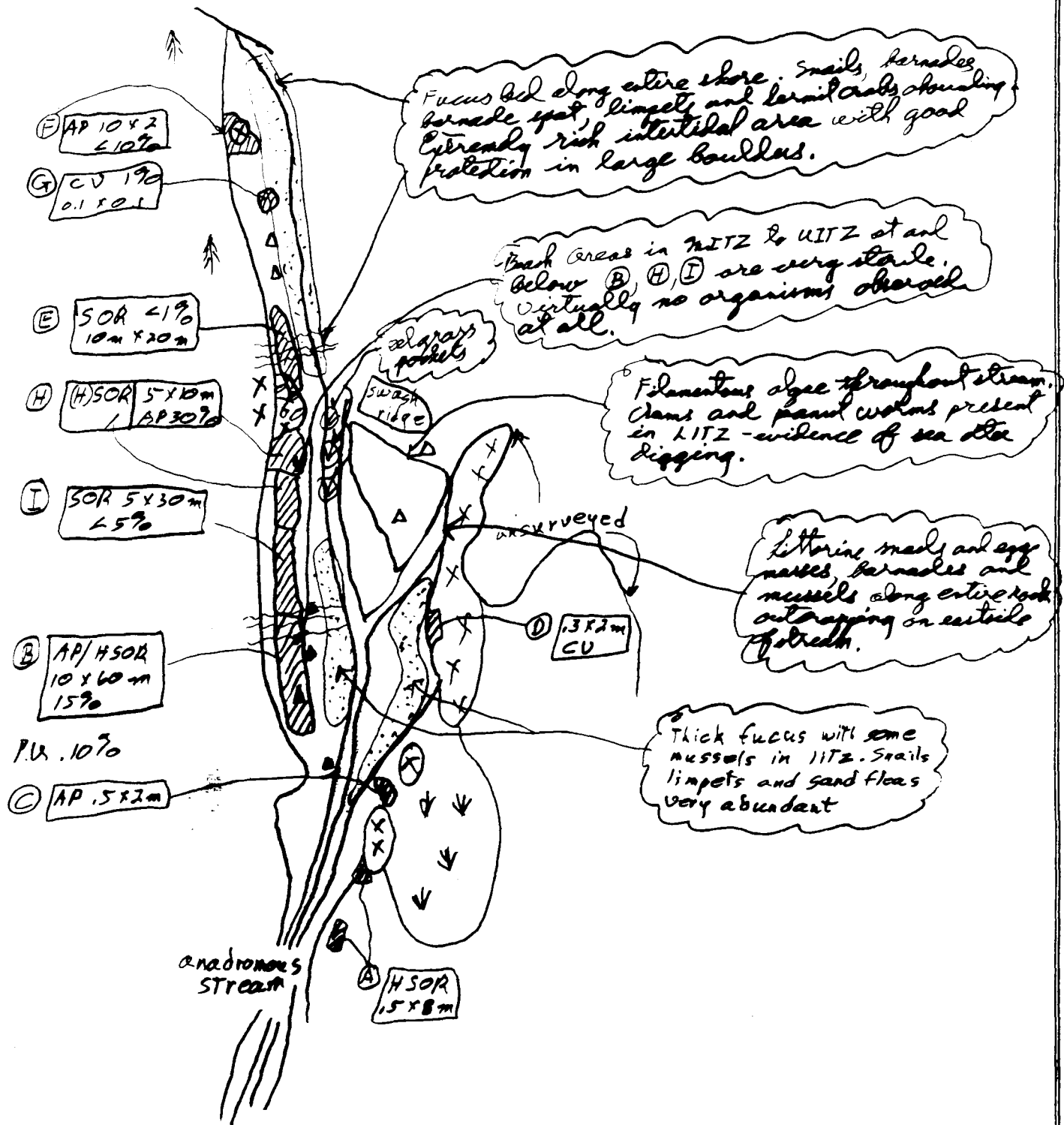
MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters			
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

REVIEWS: 5/7/91 MC
 Rev'd 5/10/91

KN-132-B 5/01/91
 Bio. Map T.R. Schroeder
 0805-0945

0 25 50
 meters



ADEC / USFS

NAME Tom Crowe

SIGNATURE [Signature]

☐ NTR ☒

THIS LOW ENERGY BEACH AREA HAS GREATLY IMPROVED OILING CONDITIONS SINCE LAST TREATED IN 1990. HOWEVER THERE STILL REMAINS A SIGNIFICANT LAYER OF OILING ADJACENT TO THE ANADROMOUS STREAM THAT TRAVERSES THIS SEGMENT. AN EFFORT SHOULD BE MADE TO REDUCE OR REMOVE THE OIL REMAINING. SUGGESTED TREATMENT OF MECHANICAL TILLING SUCH AS USED TO TILL THIS AREA IN 1990. THIS METHOD HAS PROVEN TO BE VERY EFFECTIVE.

EXXON

NAME Scott A. Nauman

SIGNATURE [Signature]

☒ NTR

Oiling on this subdivision is limited to the surface - pits were all free of oil with the exception of one shallow hole (10 cm). Surface band is patchy sor and AP. The AP present adjacent to the stream was collected to its practical limit during the survey. Moving north down the beach, the shoreline gains more angular cobbles and boulders. The practicality of recovering the isolated patches in this area is low (would involve boulder flipping, etc). I see no benefit to treatment.

LANDMANAGER

NAME Aimee Weseman OF ADFG

SIGNATURE [Signature]

☐ NTR ☒ Treatment Recommended

This productive Anadromous fish stream still contains appreciable amounts of AP, HSOR sediments along the stream bank. The resident ADFG personnel report that when the sun comes out, the oil liquifies & "oozes" out of the ground-downhill towards the channel. At the very least the AP HSOR sediments should be removed. A more thorough treatment would include mechanically tilling these areas as well as the MOR oil located closer to the channel.

USCG/NOAA

NAME CWO SPURR / Rebecca Hoff

SIGNATURE [Signature]

☐ NTR

Areas with remaining oil in upper intertidal could be manually turned over & remaining asphalt pieces picked up. However, this activity should be restricted to upper & mid tid zones, eg areas E, H, I + B. Mechanical tilling is not called for & would be too intrusive. Care should be taken not to impact marsh/peat areas, such as those above stream bed in 132-C.

5/15/71 Discrepancy List

4

Review

KN132B 226-15-16982

HABOG

Site 1

- Agree -

Site A

Site 2

Site B

10 x 60 m

- Δ -

10 x 30 m

15%

15%

AP/HSON

AP/HSON

-

0-15 cm depth

Site 3

- AGREE -

Site C

Site 4

- AGREE -

Site D

Site 5

Site E

< 10%

- Δ -

< 1%

Site 6

Site F

< 10%

- Δ -

< 1%

Site 7

- AGREE -

Site H

Site 8

- AGREE -

Site I

Site 9

- HAB: Res. resolution

60 x 25 m

(looks like extent pit 8 - 13)



- No site # (surface)

HAB is 2 patches of ~2 x 5 m

other noted N for pit 7

HAB is more like

0

0

0

ADF&G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16982

Date: 6 7 91

Stream Name: _____

Observer: TOM CROWE &
AIMEE WESEMAN

Segment-Sub Unit KN132 B

Location: HERRING BAY

Anad. Stream Permit Issued? Y ☒ N

Date: _____

Work Order Issued: ☒ Y N

Date: 5/20/91

Demob Date: 6/4/91

Oil Characteristics (circle appropriate ones)

Surface: ☒ AP, MS, TB, ☒ SOR, CV, CT, ST, FL, DB, None
Subsurface: ☒ OP, HOR, ☒ MOR, ☒ LOR, OF, TR, None

Treatment Techniques:

Manual Removal ☒
Manual Raking ☒
Spot Wash
Other

Bioremediation & Type CUSTOM
Mechanical Tilling
Header Flood (Hot/Cold)

Crew Size: 10

Lbs. or Bags of Oil/Sediment Removed ?

Other Agency Reps, and Names: DEBBIE WALTERS (DEC)

Photos Y ☒ N

Roll #

Frames

Video

Tape #

Start

End

NONE

Sediment/Oil Samples (Y ☒ N)

Collection Number

Purpose of Trip * SEE COMMENTS

* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.

Describe extent of remaining oil (any comments on expected completion of cleanup).

HSOR, AP AND SUBSURFACE OILING (7cm) LOR REMAINING. AP AND SOR LEFT UPSTREAM 100M. OIL PENETRATION TO 10cm 12cm MOR IN SEVERAL AREAS.

Comments: (Are work order procedures being followed?, etc.)

AREAS IN MITZ AND WITZ REMAIN OILED. OILING CONDITIONS RANGE FROM OP/AP, HSOR AND SUBSURFACE MOR. WORK ORDERS FOR THIS AREA MAY HAVE BEEN FOLLOWED HOWEVER SERIOUS AMOUNTS OF OIL REMAIN ADJACENT TO THIS ANADROMOUS STREAM. FISH & GAME REPRESENTATIVES WERE NOT PRESENT WHEN THE CLEANUP EFFORT WAS CONDUCTED. THIS SURVEY WAS DONE DURING A HOT SUNNY PERIOD WHEN OILING CONDITIONS WERE EASILY OBSERVED. THE ENTIRE SEGMENT SMELLED OF CRUDE OIL. SUGGESTION IS THAT THIS STREAM BE REASSESSED BY TAG FOR POSSIBLE MECHANICAL TILTING AS MANUAL WORK APPEARS TO BE INADEQUATE.

WASH RANCH 1425

A:OPRESP
April 2, 1991

MAYSAP
Stream

226-10-16482



1991 MAYSAP EVALUATION

SEGMENT: KN 132 SUB: B REGION: PWS SURVEY DATE: 5/1/91

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:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

Richard Don Dale

5/14/91

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

Y

Y

Manual Pickup (Check as Req.)

X

X

Spot Washing

X

X

Bio-Customblen Only

X

X

Bio-Inipol/Customblen

X

X

Other MANUAL RAKE + TILL

X

X

Other

COMMENTS:

INITIAL: NTK

EXXON
05/01/91

05/14/91

05/20/91

TAG WILL ASSESS FOLLOWING TREATMENT TO ASSESS THE NEED FOR FURTHER TILLING

TAG: MANUAL PICKUP OF AP/HSOR (EASILY ACCESSIBLE LOCATIONS) FOLLOWED BY MANUAL RAKE/TILL + CUSTOMBLEN. EXXON RECOMMENDS INIPOL HOWEVER ADFGC REQUESTED NOT TO APPLY INIPOL DUE TO PROXIMITY TO

FOSC: MANUAL PICKUP, BIO/CUSTOMBLEN, FISH CAMI
MANUAL RAKE + TILL

TAG APPROVAL DATE: MAY 14 1991

FOSC APPROVAL DATE: 5/20/91

ADEC *John Bauer*

FOSC

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

EXXON *Real*

USCG *T.M. Murphy*

NOAA *Long*

1991 STATE WORK ORDER
EXXON VALDEZ OIL SPILL PROJECT
STATE OF ALASKA

PRINCE WILLIAM SOUND



SEGMENT: KN0132
anadromous fish stream

SUBDIVISION: B

SITE:

RECOMMENDED TREATMENT:

Throughout entire subdivision:

- Manually remove AP and SOR.
- Following AP and SOR removal, manually till remaining oiled sediments.

In areas B and I:

- ~~Mechanically~~ till OR sediments to the depth of the oil during an incoming tide.
- Deploy snare/sorbents to collect and control sheens.

MANUAL
OR

Following above treatment, evaluate the need
for mechanical treatment

ENVIRONMENTAL SENSITIVITIES:

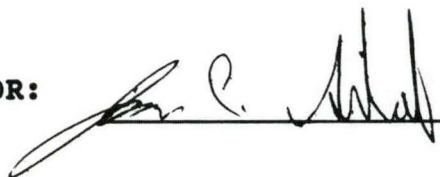
anadromous fish stream

WORK WINDOW: 05/15/91 - 07/10/91

CLEANUP PLAN AND COST ESTIMATE DUE:

DATE SUBMITTED: 05/14/91

STATE ON SCENE COORDINATOR:

 for E. Piper

TRIP REPORT

Tom Crowe
Fish & Wildlife Tech III
Oil Spill Response
Habitat Division

June 7, 1991

Stream site KN 132B

Aimee Weseman and I visited this site where cleanup was conducted 6/4/91 by an EXXON crew. ADF&G monitors were not on site when this work was done. Weather conditions today were hot and sunny making oil observations conclusive and thorough. We observed various excavated areas where cobble was cleared and oiled debris removed. These areas were scattered through the upper and mid intertidal area adjacent to stream flow.

We initially observed that substantial oiled gravel had been left behind. Oil in excavated areas was not completely removed and customblen was generously applied to left over MOR saturated gravel. A buried oil lens shown on the work orders to be tilled remained untouched as it is doubtful that a crew was physically able to accomplish tilling angular cobble with a shovel. AP, HSDR was still prevalent in the work area. Pits that we dug outside the excavated areas revealed buried MOR gravel 7 to 10 cm. Hot sunshine was causing the AP deposits to ooze OP oil on the surface and the smell of crude oil was prevalent. Obviously further treatment at this area should be considered.

Later Aimee and I discussed with Chris Katsimpalis (EXXON) the work order for KN 500A and B. He asked us what the (R) reassessment on the work order meant. Although I was unclear as to what it does mean, I told him it meant that if manual work is inadequate that he should recommend mechanical tilling. Aimee stayed to observe the work conducted at these segments which is happening later today. I returned to Anchorage via helicopter.

1991 MAYSAP EVALUATION

SEGMENT: KN132 SUB: B REGION: PWS SURVEY DATE: JULY 8 -TAG**ENVIRONMENTAL SENSITIVITIES:**

Work Window(s) _____

Ecological/Constraints (see page two for details) _____

ARCHAEOLOGICAL CONSTRAINTS:If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.SHPO Signature: Timothy J. SmithDate: 7/9/91**RECOMMENDATIONS:**

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N) NN

Manual Pickup (Check as Req.) _____

Spot Washing _____

Bio-Customblen Only _____

Bio-Inipol/Customblen _____

Other _____

Other _____

COMMENTS:

INITIAL: _____

TAG: NO FURTHER MANUAL TREATMENT REQUIRED, INIPOL APPLICATION
NOT RECOMMENDED DUE TO PRESENT LAND USE - ADF+G CAMP
AND AT THE REQUEST OF ADF+G

FOSC: _____

TAG APPROVAL DATE: July 9, 1991

FOSC APPROVAL DATE: _____

ADEC [Signature]

FOSC _____

EXXON [Signature]USCG Z. M. Murphy & T

NOAA _____



KN132B 5/01/91 NO814



2
Segment No KN132 Subdivision B
Date 5/1/91 Log Frame No 1
Photographer Rebecca Hoff
Location _____
Comments looking down to base of
stream from upper intertidal

Roll No MAYSAP- 6-04 Neg. No 2
Control No 847 (Office Use Only)

3
Segment No KN132 Subdivision B
Date 5/1/91 Log Frame No 2
Photographer Rebecca Hoff
Location _____
Comments looking across stream to
peat bog on east side of stream (in
132A

Roll No MAYSAP- 6-04 Neg. No 3
Control No 847 (Office Use Only)

4
Segment No KN132 Subdivision B
Date 5/1/91 Log Frame No 3
Photographer Rebecca Hoff
Location _____
Comments looking down stream at
ADFG fyke net

Roll No MAYSAP- 6-04 Neg. No 4
Control No 847 (Office Use Only)

5
Segment No KN132 Subdivision B
Date 5/1/91 Log Frame No 4
Photographer Rebecca Hoff
Location _____
Comments Looking north towards
end of segment at large boulder

Roll No MAYSAP- 6-04 Neg. No 5
Control No 847 (Office Use Only)



2

Segment No KN132 Subdivision B

Date 5/1/91 Log Frame No 1

Photographer Rebecca Hoff

Location _____

Comments looking down to base of
stream from upper intertidal

Roll No MAYSAP- 6-04 Neg. No 2

Control No 847 (Office Use Only)



3
Segment No KN132 Subdivision B
Date 5/1/91 Log Frame No 2
Photographer Rexcen Hoff
Location _____
Comments Looking across stream to
peat bog on east side of stream (in
132A)

Roll No MAYSAP-- 6-04 Neg. No 3
Control No 847 (Office Use Only)



4
Segment NO KN152 Subdivision 12
Date 5/1/91 Log Frame No 3
Photographer Rebecca Hoff
Location _____
Comments Looking down stream at
ADFG fyke net

Roll No MAYSAP-6-04 Neg. No 4
Control No 847 (Office Use Only)



KN132B 5/01/91 NO847

6
Segment No KN132 Subdivision B
Date 5/1/91 Log Frame No 5
Photographer Rebecca Hoff
Location _____
Comments Overview of entire segment
including stream and flycatcher

Roll No MAYSAP-6-04 Neg. No 6
Control No 847 (Office Use Only)

nk frame #7

7
Segment No KN132 Subdivision B
Date 5/1/91 Log Frame No 6
Photographer Rebecca Hoff
Location _____
Comments Surface oil residue in
area E

Roll No MAYSAP-6-04 Neg. No 7
Control No 847 (Office Use Only)

1991 STREAM FILE LOG
HABITAT

STREAM CATALOG # : 226-10-16982
STREAM NAME : Knight Island

LOCATION : P.W.S.
SEGMENT : KN-132B

[illegible]

P.01

ADF&G MULTI-ASSESSMENT FORM
1991 GENERAL ENTRY CHECKLIST

STREAM#: 2261016982
SEGMENT: KN132

PAGE 2

DATE PRINTED: 08/26/91

LOCATION: KNIGHT ISLAND, HERRING BAY, WEST SIDE

SURVEY TYPE: 91 POST TREATMENT - SS

METHOD: GROUND

DATE: 08/01/91

TEAM RECORDER: FINK

START TIME: 1240

OBSERVERS: KUWADA MIDDLETON WESEMAN

END TIME: 1445

TIDES: ²⁻⁶ ~~A2~~ ²⁻⁶ ~~A6~~
OG/HAB DISCREPANCIES: -

AGENCY: FG

PHOTOS TAKEN: N

STATION: 2261016982

ROLL#: -0-

FRAME: -0-

VIDEO TAKEN: N

TAPE#: -0-

START: -0-

END: -0-

SAMPLES TAKEN: N

SAMPLE NUMBERS: -0-

-0-

-0-

-0-

-0-

-0-

OIL IN STREAM BED: N

OVERALL OIL IMPACT: -0-

OIL ON BEACH BY MOUTH: Y

WAVE EXPOSURE: MOD

SHORELINE TYPE: HEADLAND BEACH COVE
MARSH

SUBSTRATE TYPE: BEDROCK Y

BOULDER Y

COBBLE Y

VEGETAT -0-

GRAVEL Y

SAND Y

MUD/SILT Y

GRANULE -0-

ANADROMOUS FISH PRESENT: Y

SPECIES: PINK SALMON

COUNT: -0-

-0-

-0-

-0-

-0-

-0-

-0-

-0-

-0-

ADF&G MULTI-ASSESSMENT FORM
1991 OILING ENTRY CHECKLIST

PAGE 2

DATE PRINTED: 08/26/91

STREAM# : 2261016982
SEGMENT# : KN132

SURVEY TYPE : 91 POST TREATMENT - SS LOCATION: KNIGHT ISLAND, HERRING BAY,
DATE: 08/01/91 WEST SIDE
TIMES: 1240 - 1445 TEAM RECORDER: FINK

-- OILING EXTENT --

SITE#	SITE TYPE	DEPTH (cm)	LENGTH (m)	WIDTH (m)	AREA (m)	%	THICK (cm)	PEN (cm)	OIL TYPE CODES
A	SURF	-0-	8	10	80	5	-0-	-0-	AP HSOR
B	SURF	-0-	21	10	210	30	>5	-0-	AP HSOR
C	SURF	-0-	36	5	180	35	-0-	-0-	AP HSOR
D	SURF	-0-	40	5	200	40	-0-	-0-	AP HSOR
E	SURF	-0-	30	5	150	40	-0-	-0-	AP HSOR
F	SURF	-0-	1	1	1	100	-0-	-0-	AP
G	SUBS	-0-	20	5	100	-0-	5	-0-	MOR LOR
H	SUBS	-0-	5	36	180	-0-	10	-0-	HOR MOR
I	SUBS	-0-	5	40	200	-0-	20	-0-	HOR MOR
J	SUBS	-0-	6	6	36	-0-	10	-0-	HOR

ADF&G MULTI-ASSESSMENT FORM
1991 OILING ENTRY CHECKLIST

PAGE 3

DATE PRINTED: 08/26/91

COMMENTS:

SURFACE OIL (AP/HSOR) LOCATED THROUGHOUT SEGMENT FROM THE WEST SIDE OF STREAM NORTH TO THE FIRST BEDROCK OUTCROP. SUBSURFACE OIL (MOR TO LOR) LOCATED NEAR GRASSY POINT, SOUTHWEST END ADJACENT TO STREAM. HOR LOCATED IN SEGMENT FROM FIRST RUN OFF STREAM (ENTRANCE TO CAMP), NORTH TO BEDROCK OUTCROP. PINKS OBSERVED JUMPING NEAR THE MOUTH, BUT NO PINKS HAVE MOVED PAST THE WEIR. *SURVEY FOCUSED ON DOCUMENTED OILING TREATED IN 1991. NEEDS REASSESSMENT IN SPRING OF 1992.

ADF&G MULTI-ASSESSMENT FORM
1991 POST TREATMENT PIT INFO

PAGE 2

DATE PRINTED: 08/26/91

STREAM# : 2261016982
SEGMENT#: KN132

SURVEY TYPE : 91 POST TREATMENT - SS LOCATION: KNIGHT ISLAND, HERRING BAY, WEST SIDE
DATE:
TIMES: 1240 - 1445
TEAM RECORDER: -0-

-- PIT DETAILS ---

SITE#	SITE TYPE	TOT DP (cm)	OIL DP (cm)	CLEAN BELOW	SHEEN	W/T (cm)	SEDIM CODES	TIDE ZONE	OIL TYPE CODES	PIT-SPECIFIC COMMENTS
9	PIT	20	12-18	Y	-0-	-0-	SGPC	UITZ	MOR	-0-
G1	PIT	19	10-16	Y	N	-0-	SGPC	UITZ	MOR	-0-
G2	PIT	15	5-10	Y	N	-0-	SGPC	UITZ	MOR	-0-
G3	PIT	20	10-15	Y	N	-0-	SGPC	UITZ	MOR	-0-
H4	PIT	20	0-16	Y	-0-	-0-	SGPC	UITZ	HOR MOR	-0-
H5	PIT	21	0-16	Y	-0-	-0-	SGPC	UITZ	HOR MOR	-0-
H6	PIT	20	0-10	Y	-0-	-0-	SGPC	UITZ	HOR MOR	-0-
H7	PIT	11	0-10	Y	-0-	-0-	SGPC	UITZ	LOR HOR	0-5 LOR, 5-10 HOR
H8	PIT	18	7-13	Y	-0-	-0-	SGPC	UITZ	HOR	-0-
I10	PIT	22	0-20	Y	-0-	-0-	SGPC	UITZ	HOR	-0-
I11	PIT	11	3-6	Y	-0-	-0-	SGPC	UITZ	LOR	-0-
J12	PIT	13	0-10	Y	BLACK BEADS	10	CPGB	UITZ	HOR	-0-

2261016982

ADEC DAILY SHORELINE ASSESSMENT

(rvsc 4-15-91)

LOCATION KNIGHT ISLAND SEGMENT KN132 SUBSEG BDATE 06/04/91 TIME: Begin 0715 End 1725 SITE A-IWEATHER: Cloudy Rain Fog Snow Sunny Other WINDMONITOR(S) DEBORAH WALTERSENVIRONMENTAL CONSTRAINTS INADVERTENT STREAM

DESCRIPTION OF TREATMENT SITE:

SHORE COMPOSITION

Surface sediments: R % B 70 % C 20 % P 5 % G 5 % S %Subsurface sediments: R % B 10 % C 60 % P 10 % G 10 % S 10 %Wave Exposure: Low Moderate High

OIL CHARACTERISTICS Before Treatment

Surface: Mousse Tarball/Patty Pavement Cover Coat StainSubsurface: OP HOR MOR LOR OF Depth: 0-10 Thickness: 1-5Across Tidal Zone: Low Mid Upper Supra

TREATMENT PERFORMED:

MANUAL REMOVAL Type: MS TB AP SOR OP OR OFMANUAL RAKING MECHANICAL TILLING WITH/WITHOUT TIDAL FLUSHBERM RELOCATION BIOREMEDIATION granular 75 lbs Inipol 0 galOTHER EQUIPMENT USED WORKERS ON SITE: # ORTS 12 OTHER BILL BANE - VECO SUPROTHER REPRESENTATIVES: EXXON JOHN CZARNECKIUSCG KERWIN DREHEROTHER VISIT FROM DALE GARDNER & GARY HAYDENMETHOD TO CONTAIN/COLLECT OIL NUMBER OF BAGS COLLECTED: Oiled Sediments 255 Oiled Debris
Oiled Vegetation Unoiled Debris Oiled Logs Present NO

SEGMENT N1328 MONITOR DEBORAH WALTERS DATE 6/4/91

PHOTOGRAPHS: Roll # N/A Frames _____ Reason _____

VIDEO: TAPE # N/A Reason _____

COMMENTS: (Observations, problems & efforts made to correct, etc.)

THE WEATHER CONDITIONS WERE NOT CONDUCTIVE TO
LAYING OUT BOOM TO CONTAIN SHEENING. I PHONED
DEC BASE AND ASKED FOR THIS TO BE WAIVED.
ERDIE PIPER GAVE ME PERMISSION TO USE MY
DISCRETION. SHEENS WERE NOT FREQUENT AND HAND/
HAVE ACTION GUARANTEED THAT ANYTHING ^{RELEASED} ~~DISPERSED~~ _{DISP}
SHOULD BE DISPERSED QUICKLY. CARE WAS TAKEN
NEAR THE ANAD SITE. CUSTOMBLEND WAS NOT
APPLIED NEAR THE STREAM. ADF & G PERSONEL
WERE ON SITE TAGGING FISH. THEY WERE INFORMED
OF OUR ACTIVITY AND GIVEN MSDS'S ON CUSTOMBLEND.

OIL CHARACTERISTICS After Treatment

Surface: Mousse (Tarball/Patty) Pavement (Cover) (Coat) (Stain)

Subsurface: OP HOR (MOR) (LOR) (OF) Depth: 0-7 Thickness: 0-3

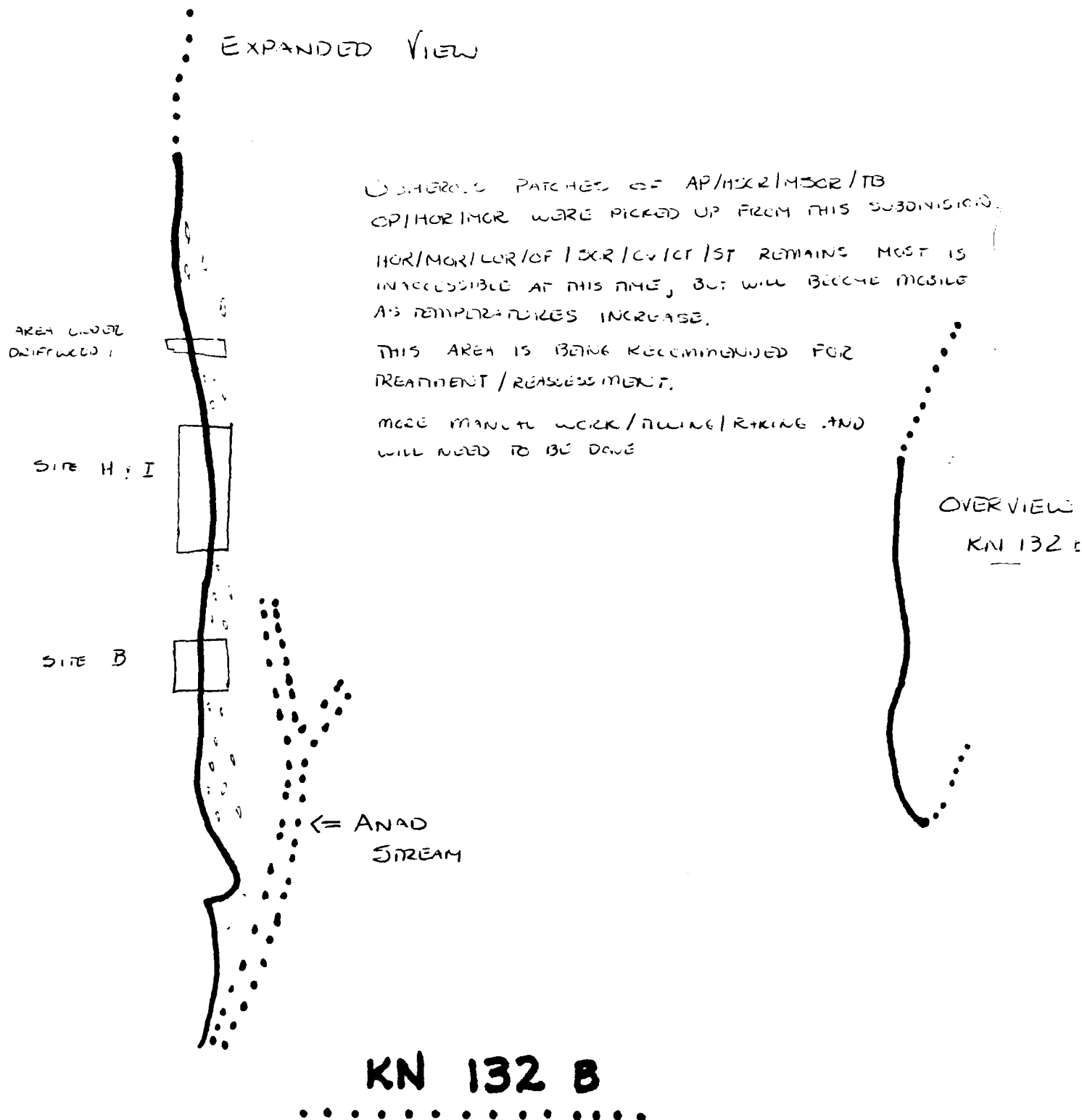
TAG WORK ORDER COMPLETED? NO (YES) COMMENTS STATE WORK ORDER
COMPLETED, MINUS BOOM

WORK ORDER MODIFICATION REQUESTED? (NO) YES DATE _____

RECOMMEND FOR FUTURE REASSESSMENT? NO (YES) (include map
identifying treatment performed and oil remaining)

SIGNATURE Deborah S. Walters

TREATMENT TYPE : MANUAL, TILL, RAKE, CUSTOMERLEN



25/11

ADF&G MULTI ASSESSMENT DATA FORM (1992-A)

Anad Fin

ASC#: 226-10-16982DATE: 5/22/92RECORDER: M. FinkSEGMENT#: KA132 SUB#: BTIME: 0955 - 1135OBSERVERS: Kuwaka, Sundet, WesemanLOCATION: Herring Bay, Knight IWAVE EXPOSURE: H ☒ M ☐ LAGENCIES: ADF&GPWSPHOTOS ? : ☒ Y ☐ N ROLL#: P9LMFO01VFRAMES: 14-15OIL W/I 50M OF STREAM ? : ☒ Y ☐ NVIDEOS ? : ☐ Y ☒ N TAPE#: _____

METER#: _____ - _____

OIL IN STREAM ? : ☐ Y ☒ NSAMPLES ? : ☒ Y ☐ N ID#: S92AW003V

ANADROMOUS FISH ? : ☐ Y ☒ NSUBSTRATE %: BEDROCK _____ BOULDER _____ GRAVEL ☒ SAND ☒ COBBLE ☒ MUD/SILT _____

SITE#	TYPE	L (m)	W (m)	DEPTH INT (cm)	%	THICK	OIL TYPE	SITE COMMENTS
A	sub	4	3	5-8	—	—	m/HOR	West bank, adjacent to stream, near small, grassy knoll (UITZ).
B	surf	53	8	—	3	3	AP/H5OR	Area includes area A to small run-off rivulet at path to ADF&G camp. (UITZ)
C	sub	5	3	5-15	—	—	M/LOR	Within surface area B near small run-off rivulet. (UITZ)
D	surf	36	5	—	7	5	AP/H5OR	West bank, adjacent to and north of area B. Probably more AP/H5OR under cobble
E	sub	10	5	10-20	—	—	LOR	Located under surface area D adjacent to subsurface area C
F	surf	60	5	—	25	1-5	AP/H5OR	West bank, UITZ. Extends from area D, north to bedrock outcrop

COMMENTS: This beach has been treated several times from 1990-91 (manual removal and tilling, mechanical tilling, and bioremediation). In 1991, manual removal of AP/H5OR occurred, and the subsurface oiling was identified after treatment. Surface oiling has not changed substantially since August, 1991. The asphalt is getting very hard. AP/H5OR probably runs fairly continuous in the UITZ of the west beach (areas D and F) under the cobble armor (as suggested by continuous

→
on page 2

Continued.

ADF&G MULTI ASSESSMENT DATA FORM (1992-A)

Anad Fin

ASC#: 226-10-16982

DATE: 5/22/92

RECORDER: M. Fink

SEGMENT#: KN132 SUB#: B

TIME: 0955 - 1135

OBSERVERS: _____

LOCATION: Herring Bay, Knight Is.
P425

WAVE EXPOSURE: H M L

AGENCIES: _____

PHOTOS?: Y N ROLL#: _____

FRAMES: _____

OIL W/I 50M OF STREAM?: Y N

VIDEOS?: Y N TAPE#: _____

METER#: _____ - _____

OIL IN STREAM?: Y N

SAMPLES?: Y N ID#: _____

ANADROMOUS FISH?: Y N

SUBSTRATE %: BEDROCK _____ BOULDER _____ GRAVEL _____ SAND _____ COBBLE _____ MUD/SILT _____

SITE#	TYPE	L (m)	W (m)	DEPTH INT (cm)	%	THICK	OIL TYPE	SITE COMMENTS
G	sub	60	5	5-18	-	-	mor	Under surface area F

COMMENTS: ap/sor found in a 1x1 m plot). Treatment needed to clean this area would include mechanical tilling along the beach (UIT2) on the west side of the stream.

* This survey focused on oiled areas previously identified in August, 1991.

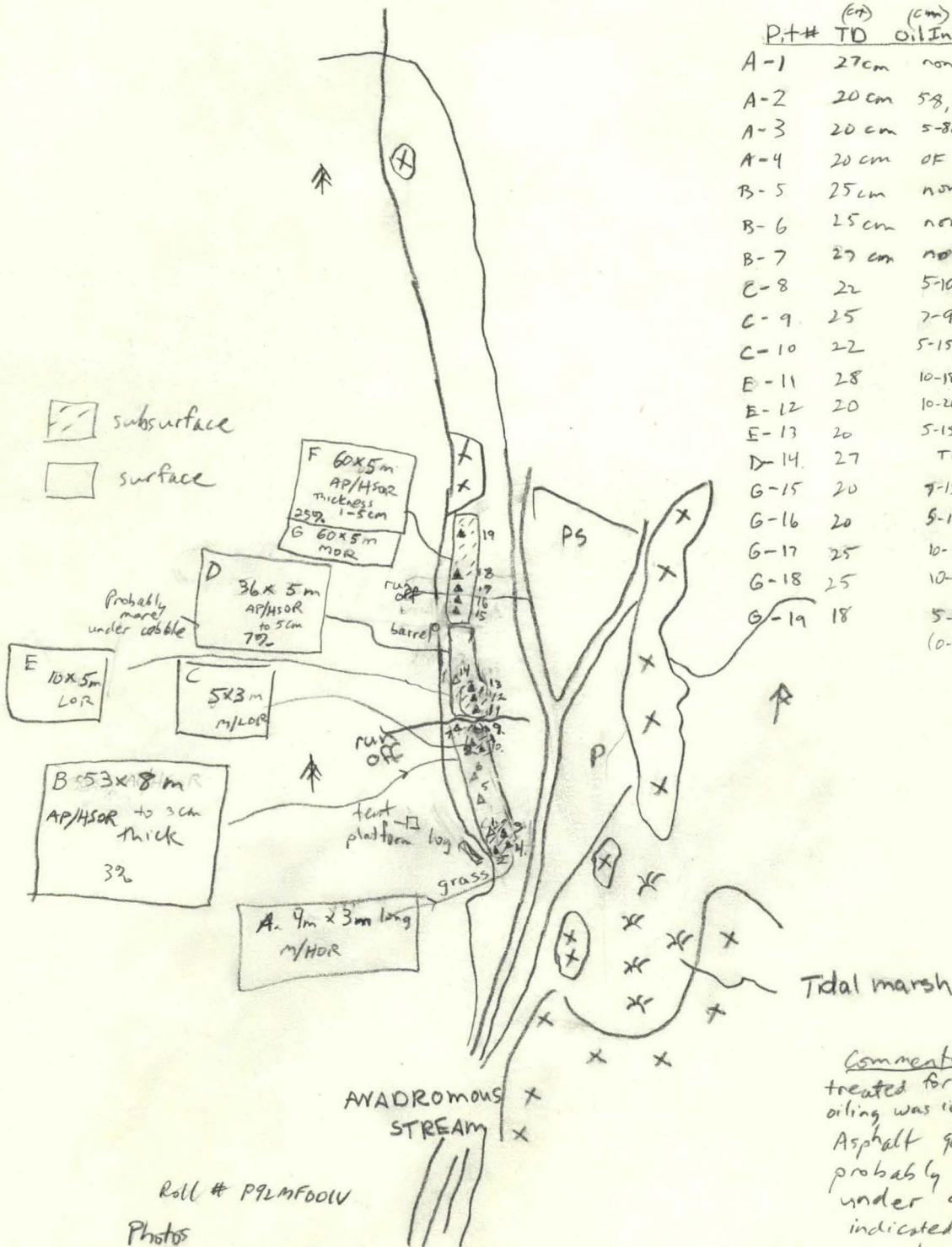
0 25 50
Meters



KN132-B
ASC# 226-10-16982
5/22/92
9:55 - 11:35
FINK, ADP+C

ANADFIN Survey

xx - Bedrock
x - tidal marsh
▲ - pit



Pit#	(cm) TD	(cm) oil Int	clean below	WT	Shells	sed	Zone
A-1	27cm	none	—	—	SPC	WITZ	
A-2	20cm	58, MOR	Y	—	SPC		
A-3	20cm	5-8cm MOR	Y	—	SPC		
A-4	20cm	OF	—	—	SPC		
B-5	25cm	none	—	—	SPC		
B-6	25cm	none	—	—	SPC		
B-7	27cm	none	—	—	SPC		
C-8	22	5-10, MOR	Y	—	SPC		
C-9	25	7-9, LOR	Y	—	SPC		
C-10	22	5-15, m/LOR	Y	—	SPC		
E-11	28	10-18, LOR	Y	—	SPC		
E-12	20	10-20, m/LOR	Y	—	SPC		
E-13	20	5-15, LOR	Y	—	SPC		
D-14	27	TR	—	—	SPC		
G-15	20	7-15, MOR	Y	—	SPC		
G-16	20	5-15, MOR	Y	—	SPC		
G-17	25	10-18, MOR	Y	—	SPC		
G-18	25	10-18, MOR	Y	—	SPC		
G-19	18	5-9, MOR (0-5 AP)	Y	—	SPC	WITZ	

Comment: This beach was manually treated for ASPH in 1991. The subsurface oiling was identified after treatment. Asphalt getting very hard. Areas D + F probably has continuous SOR under cobble armor (1m plot indicated continuous SOR). This area has not changed much since last August, 1991. Treatment needed would include mechanical tilling along west side of the stream.

SKETCH:

Roll # P92MFO01V
Photos
#14, oiled pit #3
#15, " " " + relationship to stream in Area A
Oil sample #592AW003V from pit #3

ADF&G MULTI ASSESSMENT DATA FORM (1992-A) Anad Fin

ASC#: 226-10-16982

DATE: 5/22/92

RECORDER: M. Fink

SEGMENT#: KN132 SUB#: B

TIME: 0955 - 1135

OBSERVERS: Kuwada, Sundet, Weseman

LOCATION: Herring Bay, Knight I

WAVE EXPOSURE: H (M) L

AGENCIES: ADF&G

PWS

PHOTOS ? : (Y) N ROLL#: P9LMFO01V

FRAMES: 14-15

OIL W/I 50M OF STREAM ? : (Y) N

VIDEOS ? : Y (N) TAPE#:

METER#:

OIL IN STREAM ? : Y (N)

SAMPLES ? : (Y) N ID#: S92AW003V

ANADROMOUS FISH ? : Y (N)

SUBSTRATE %: BEDROCK _____ BOULDER _____ GRAVEL ✓ SAND ✓ COBBLE ✓ MUD/SILT _____

SITE#	TYPE	L (m)	W (m)	DEPTH INT (cm)	%	THICK	OIL TYPE	SITE COMMENTS
A	sub	4	3	5-8	-	-	M/HOR	West bank, adjacent to stream, near small, grassy knoll (UIT2)
B	surf	53	8	-	3	3	AP/H5OR	Area includes area A to small run-off rivulet at path to ADF&G camp. (UIT2)
C	sub	5	3	5-15	-	-	M/LOR	Within surface area B near small run-off rivulet. (UIT2)
D	surf	36	5	-	7	5	AP/H5OR	West bank, adjacent to and north of area B. Probably more AP/H5OR under cobble
E	sub	10	5	10-20	-	-	LOR	Located under surface area D adjacent to subsurface area C
F	surf	60	5	-	25	1-5	AP/H5OR	West bank, UIT2. Extends from area D, north to bedrock outcrop

COMMENTS: This beach has been treated several times from 1990-91 (manual removal and tilling, mechanical tilling, and bioremediation). In 1991, manual removal of AP/H5OR occurred, and the subsurface oiling was identified after treatment. Surface oiling has not changed substantially since August, 1991. The asphalt is getting very hard. AP/H5OR probably runs fairly continuous in the UIT2 of the west beach (areas D and F) under the cobble armor (as suggested by continuous

Continued.

ADF&G MULTI ASSESSMENT DATA FORM (1992-A) Anad Fin

ASC#: 226-10-16982

DATE: 5/22/92

RECORDER: M Fink

SEGMENT#: KN132 SUB#: B

TIME: 0955 - 1135

OBSERVERS: _____

LOCATION: Herring Bay, Knight Is.
PWS

WAVE EXPOSURE: H M L

AGENCIES: _____

PHOTOS?: Y N ROLL#: _____

FRAMES: _____

OIL W/I 50M OF STREAM?: Y N

VIDEOS?: Y N TAPE#: _____

METER#: _____ - _____

OIL IN STREAM?: Y N

SAMPLES?: Y N ID#: _____

ANADROMOUS FISH?: Y N

SUBSTRATE %: BEDROCK _____ BOULDER _____ GRAVEL _____ SAND _____ COBBLE _____ MUD/SILT _____

SITE#	TYPE	L (m)	W (m)	DEPTH INT (cm)	%	THICK	OIL TYPE	SITE COMMENTS
G	sub	60	5	5-18	—	—	mor	Under surface area F

COMMENTS: AP/SOR found in a 1x1m plot). Treatment needed to clean this area would include mechanical tilling along the beach (UIT2) on the west side of the stream.

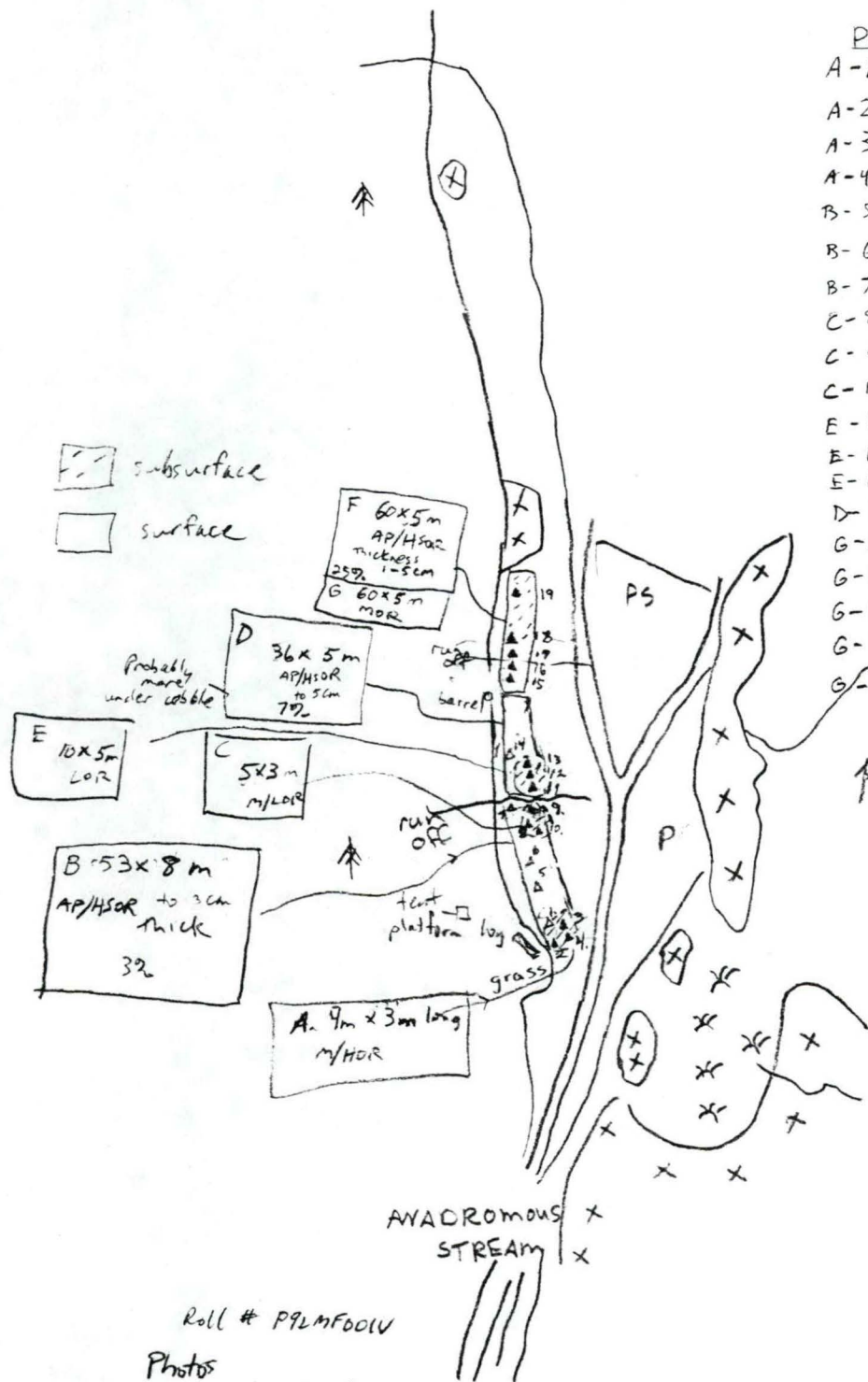
* This survey focused on oiled areas previously identified in August, 1991.

0 25 50
Meters



KN132-B
ASC# 226-10-16982
5/22/92
9:55- 11:35
FINK, ADRC
ANADFIN Survey

- xx - Bedrock
- xc - tidal marsh
- ▲ - pit



Pit #	TD (ft)	Oil Int (cm)	clean below	WT	Shore sed	Zone
A-1	27cm	none	—	—	SPC	WT
A-2	20cm	5-9, HOR	Y	—	SPC	
A-3	20cm	5-8cm HOR	Y	—	SPC	
A-4	20cm	OF	—	—	SPC	
B-5	25cm	none	—	—	SPC	
B-6	25cm	none	—	—	SPC	
B-7	27cm	none	—	—	SPC	
C-8	22	5-10, MOR	Y	—	SPC	
C-9	25	7-9, LOR	Y	—	SPC	
C-10	22	5-15, M/LOR	Y	—	SPC	
E-11	28	10-18, LOR	Y	—	SPC	
E-12	20	10-20, M/LOR	Y	—	SPC	
E-13	20	5-15, LOR	Y	—	SPC	
D-14	27	TR	—	—	SPC	
G-15	20	7-15, MOR	Y	—	SPC	
G-16	20	5-15, MOR	Y	—	SPC	
G-17	25	10-18, MOR	Y	—	SPC	
G-18	25	10-18, MOR	Y	—	SPC	
G-19	18	5-9, MOR (5-5 AP)	Y	—	SPC	WT

Tidal marsh

Comment: This beach was manually treated for ASPOR in 1991. The subsurface oiling was identified after treatment. Asphalt getting very hard. Areas D + F probably has continuous SOR under cobble armor (1 m plot indicated continuous SOR). This area has not changed much since last August, 1991. Treatment needed would include mechanical tilling along west side of the stream.

Roll # P9LMFO0IV
Photos
#14, oiled pit #3
#15 " " " + relationship to stream in Area A
Oil sample #592AW003V from pit #3

SKETCH:

2261016982 segment: KN132 B location: KNIGHT ISLAND, HERRING BAY, WEST SIDE
 H89: H SCAT 89: M DEC Fall Walk: H
 H90: H
 H91: M/H (SUBSURFACE OIL PRESENT)

05/22/92		ANADFIN		agency: HAB		FINK		OIL w/i 50m: Y	OIL IN STREAM: N
record#	SITE	W x L (m) SITE TYPE	PERCENT OIL	THICKNESS & PENETR. (cm)	OIL TYPES, DEPTH INTERVAL(cm)	SITE SPECIFIC COMMENTS			
4064	A	3 x4 SUBSURF			MOR HOR 5-8	WEST BANK ADJACENT TO STREAM, NEAR SMALL GRASSY KNOLL IN UITZ.			
4071	A01	PIT			NONE				
4072	A02	PIT			HOR 5-8				
4073	A03	PIT			HOR 5-8				
4074	A04	PIT			OF				
4065	B	8 x53 SURFACE	3	3	AP HSOR	AREA INCLUDES AREA A TO SMALL RUN-OFF RIVULET AT PATH TO ADF+G CAMP (UITZ).			
4075	B05	PIT			NONE				
4076	B06	PIT			NONE				
4077	B07	PIT			NONE				
4066	C	3 x5 SUBSURF			MOR LOR 5-15	WITHIN SURFACE AREA B NEAR SMALL RUN-OFF RIVULET (UITZ).			
4078	C08	PIT			MOR 5-10				

2261016982

KN132 B

KNIGHT ISLAND, HERRING BAY, WEST SIDE

4079	C09	PIT			LOR 7-9	
4080	C10	PIT			MOR LOR 5-15	
4067	D	5 x36 SURFACE	7	5	AP HSOR	WEST BANK, ADJACENT TO- AND NORTH OF AREA B. PROBABLY MORE AP/SOR UNDER COBBLE.
4084	D14	PIT			TRACE	
4068	E	5 x10 SUBSURF			LOR 10-20	LOCATED UNDER SURFACE AREA D ADJACENT TO SUBSURFACE AREA C.
4081	E11	PIT			LOR 10-18	
4082	E12	PIT			MOR LOR 10-20	
4083	E13	PIT			LOR 5-15	
4069	F	5 x60 SURFACE	25	1-5	AP HSOR	WEST BANK IN UITZ. EXTENDS FROM AREA D NORTHWARD TO BEDROCK OUTCROP.
4070	G	5 x60 SUBSURF			MOR	UNDER SURFACE AREA F.
4085	G15	PIT			MOR 7-15	
4086	G16	PIT			MOR 5-15	
4087	G17	PIT			MOR 10-18	

4088	G18	PIT			MOR 10-18	
4089	G19	PIT			AP,MOR 0-5,5-9	

OG/HAB COMPARISON:

COMMENTS:

THIS BEACH HAS BEEN TREATED SEVERAL TIMES FROM 1990-1991 (MANUAL REMOVAL AND TILLING, MECHANICAL TILLING, AND BIOREMEDIATION). IN 1991, MANUAL REMOVAL OF AP/SOR OCCURRED, AND THE SUBSURFACE OILING WAS IDENTIFIED AFTER TREATMENT. SURFACE OILING HAS NOT CHANGED SUBSTANTIALLY SINCE AUGUST 1991. THE ASPHALT IS GETTING VERY HARD. AP/HSOR PROBABLY RUNS FAIRLY CONTINUOUS IN THE UITSZ OF THE WEST BEACH (AREAS D AND F) UNDER THE COBBLE ARMOUR (AS SUGGESTED BY CONTINUOUS AP/SOR FOUND IN A 1M x 1M PLOT). TREATMENT NEEDED TO CLEAN THIS AREA WOULD INCLUDE MECHANICAL TILLING ALONG THE BEACH (UITSZ) ON THE WEST SIDE OF THE STREAM. THIS SURVEY FOCUSED ON OILED AREAS PREVIOUSLY IDENTIFIED IN AUGUST OF 1991.

2261016982

KN132 B

KNIGHT ISLAND, HERRING BAY, WEST SIDE

MARILYNE SIGMEN
ALASKA DEPT. OF FISH AND GAME

On behalf of Exxon Corp. I request authorization to work within the enclosed area near the stream bed located in segment KN-132.

The area that requires work is an outcropping of boulders surrounded by cobble on a section of beach that we were directed by RAT not to treat. Within this outcropping of boulders there is free pools of oil and heavy staining on the boulders. The section needing treatment is approximately 20 yards by 10 yards.

The method we will employ shall be purely manual, using snares and pads.

Your consideration of this proposal is appreciated. Please respond in writing as soon as possible.

Sincerely

Wm C Baird

Wm C Baird
EXXON 2

FILE COPY

ALASKA DEPT. OF
FISH & GAME

JUL 22 1989

VALDEZ/R II
HABITAT DIVISION

Number

Serial Number

Permittee's Representative), of (Organization)

Date and Time

Area

Location and Section of Work

☐ Authorization to Proceed

☐ Non Conformance

☐ ADEC Permit

☐ ADF&G Permit

☐ ADNR Permit

☐ Other

Expiration Date

State Representative

Permittee Representative

Action Taken by Permittee

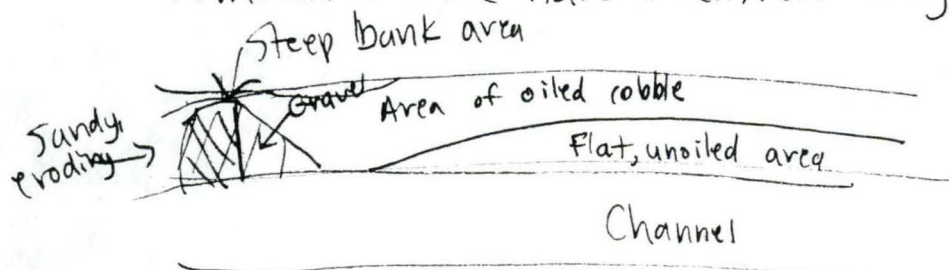
DISTRIBUTION:

White—State Pipeline Coordinator; Green—Permittee Representative; Yellow—Originator; Pink—State Pipeline Coordinator, Fairbanks; Goldenrod—Field Files.

When we laid out a tape along the bank and measured depth of penetration every 5 m. for 25 m., it was uniformly 5-6 cm. of brown, runny mousse, with the substrate changing from sand to gravel to cobble as distance from the stream outlet increased. Mousse ~~was~~ covers boulders in the stream channel for 1-3' that is submerged at various tide levels. Also, a large, v. heavily oil drift log is embedded in the stream channel. We were concerned that a washing operation would cause sedimentation of the stream. The area of potential contamination continues along the E. side of the rove to the point. Slumping under the stream is progressing.

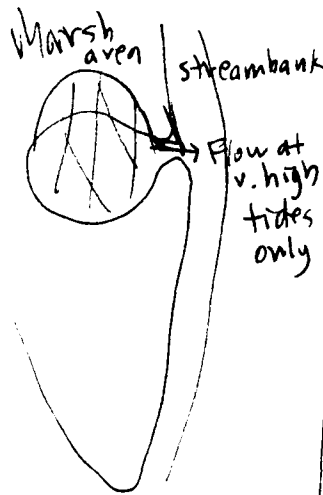
We met w/ the Tongass Ranger RAT in Herring Bay (Donke Hill, PS; Dick Franke, MVS; and David Adams, CG) near **RN 132**. We all went to the site and discussed manual removal of an ^{oiled} portion of the bank with Harold Russell, Exxon & Frank Bruner, Riedel ^{Env.} Services. I agreed with the RAT/CG recommendation that no hot water wash of the east bank occur due to the short time period left before the 7/10 deadline, potential for sedimentation, and the relative stability of the oil. Donke Hill and I indicated an area on the E. bank for manual removal which Harold Russell flagged.

7/2/89
Mandy
Sigmund



the crew had implemented several measures to minimize oiling of the stream: containment boom at mouth, traffic control w/ sorbent pathways, snare boom perpendicular to stream & parallel to channel at base of contaminated area, "guards" to enforce traffic control.

They were also working in a small sedge marsh I had not observed previously on the east bank. The small marsh had an



outlet which drained into the stream and had pooled oil in patches and oil sheen on the raised water table. Workers were using shovels to dig up oiled sedges + sediments in the

patches. Russell said they were working in a "downstream" direction to avoid recontamination by water flow and would boom the outlet if a storm occurred.

I expressed concerns to Donlee Hill, saying removal of marsh vegetation was generally not recommended. This area was apparently missed by SCAT & the ISCC and should be reassessed following treatment.

We went with the RAT and Exxon personnel to the stream in Kiv-129 (Sw Herring Bay #226-10-16910). The area no longer had pooled oil, but there were still patches of oiled grass and oiled rocks. The perimeter of the tidal pool had no visible oil. The flow was very low, with only one channel flowing (on the w.) They said an omni-boom had been used and they had cut & baked the grass while flushing with 1150' water.

6/12/89.

Flight to Herring Bay, Northwest Bay, and Latouche Is with DEC. Keith Muell (DEC) and Ann Walker (DEC/Nome Nugget). Left Valdez 1240 Sheen was coming off the north tip of Eleanor Is and the heavily oiled east shoreline. Still a considerable amount of oil floating in the bay and oil was still leaking past many of the booms.

landed at Herring Bay KN-132, on the west side of the bay at the site of an anadromous fish stream. This stream is a study site for Pentec/Damest Moore/Exxon. Pentec had a weir on the stream and at least 2 guys were doing a trap efficiency study with pink fry, fin clipping them & releasing them in the stream & retrapping them. Shoreline cleanup was occurring about 150 m north of the stream. Randy (Exxon rep on site) said the current work location was as close to the stream ^{that} as they were allowed to get as Exxon has a fish study site here and didn't want the stream area cleaned. He said they couldn't clean there for a couple of weeks.



west bank oiled from high tide to lower intertidal - in some places adjacent to stream. A string of pompoms are placed adjacent to the stream. More sorbents will need to be placed in the stream to pick up any oil from cleanup of the west bank. East side appears relatively free of oil at this time.

not a fish stream. Whelks had good traction times. ... included some pooled mussels.

Observed a boom left on beach in this segment.

Also observed a boomed area on NE Ingot - appeared to be a marsh.

Returned to Valdez @ 5:30 p.m.

Marilyn Sigmom

5/17/84

3:25 p.m. Leave Valdez via floatplane for Herring Bay. (checked out 2 anadromous fish streams:

#226-10-16920-Stream about mid-way down west side

is a pink stream. Oiling was heavy north of the stream, but only black oil on tops of rocks near stream, gravel appeared to be free of oil on surface. A band $\approx 30'$ wide of unciled sediments was between the oiled zone & stream at slack tide (+3.9 at high low).

Some mousee blobs also, with green, healthy *Fucus* downstage of the oil. This is an area where no instream work is needed, but some barrier (sorbent boom) to oil migration at bottom of oiled zone into unciled sediments or stream. ^{This stream may have been info from Exxon} (#226-10-16910)

Stream at head of south arm is also a pink stream. There are two different outlets separated by a small rise. The western stream has heavy oil accumulations adjacent to the channel and within on rocks in the channel, on ^{small} vegetated islands in the floodplain. Oil on the island is pooled to several inches. Sheens ~~are~~ appeared on the water surface with the agitation provided by walking in the channel. This stream area should definitely be treated, although gravel within the channel ^(10-15' wide) appears oil-free. The floodplain is $\approx 75'$ wide. Herring Bay had considerable surface sheens

Changed to 16982 KN 132B #1

(version 5/02/89)

SHORELINE CLEANUP PROGRAM

DATE May 8, 1989

SHORELINE SEGMENT KN-132

LOCATION: (see enclosed map) Knight Island/Herring Bay

ADEC NO. _____ SHORELINE ASSESSMENT DATE: 5/4/89

Recommended Cleanup Activity(ies):

Rake and shovel up mouse patches.

Hot water wash for beaches and rock faces.

Priorities Considerations:

Beaches (3) - medium priority

Rock faces - low priority

Ecological Constraints (from site survey):

Avoid large stream as it is probably anadromous.

Avoid streams or banks of streams unless the Resource

Advisory Team Biologist authorizes cleanup on a site-specific basis.

Archeological Constraints (from site survey):

Archaeological monitoring is needed during cleanup of central 1/3 of segment if cleanup is conducted.

Charles E. Holmes
State Historic Preservation Officer *

Date: May 10, 1989

EXXON: _____

Date: 5-14-89

FOSC: _____

Date: 5-21-89

* Signature required to satisfy stipulations in Alaska DNR
land use permits for tide and submerged lands .

SHORELINE CLEANUP PROGRAM

DATE May 8, 1989

SHORELINE SEGMENT KN-132

LOCATION: (see enclosed map) Knight Island/Herring Bay

ADEC NO. _____ SHORELINE ASSESSMENT DATE: 5/4/89

Recommended Cleanup Activity(ies):

Rake and shovel up mouse patches.

Hot water wash for beaches and rock faces.

KN 132 §

Priorities Considerations:

Beaches (3) - medium priority

Rock faces - low priority

KN 301 OVERLAP

Ecological Constraints (from site survey):

Avoid large stream as it is probably anadromous.

Archeological Constraints (from site survey):

If heretofore undiscovered cultural materials are uncovered during cleanup, contact Exxon's Archeological Field Director and take actions prescribed in the Operational Guidelines for Shoreline Cleanup dated 4/21/89 as amended.

State Historic Pres

EXXON: _____

FOSC: _____

* Signature required
land use permits for

5/18/89

Anadromous fish stream

Requested 48-hour notification
to DFG

See 5/17 Sigman field notes

ECOLOGICAL EVALUATION

LOCATION: Knight Is. SITE: — OBSERVER: SM BarnLOCATION PREFIX: KN SEG. NO.: 132 LENGTH: 800 (M)DATE: 5/4/8 TIME (HHMM): 1045 TIDE HT.: + 3-3 1/2 (M)OILED ZONE: Splash High Medium LowSUBSTRATUM: Rocks Boulder Cobble Gravel Sand Mud

LIVE BIOTA

Fucus (algae): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NHealthy in subtidalMytilus (Mussels): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NMore dense in subtidal areaBalanus (Barnacles): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NMore dense in subtidalLittorinaPatchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NSeveral oiledLimpets: Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NOTHER OBSERVATIONS: Oiled debris far upstream of beach 3CLEANUP PRECAUTIONS: Avoid stream in Beach 3MAMMALS: Otters — Harbor Seals — Sea Lions — Whales —
Other NoneBIRDS: MerganserGENERAL OBSERVATIONS: Three beaches, mod-heavy on Beach 1, Moderate on beaches 2+3

2 380 000
FEET

756

780

HERRING

BAY

HERRING

SOIL COVE

Knight Island

Disk Island

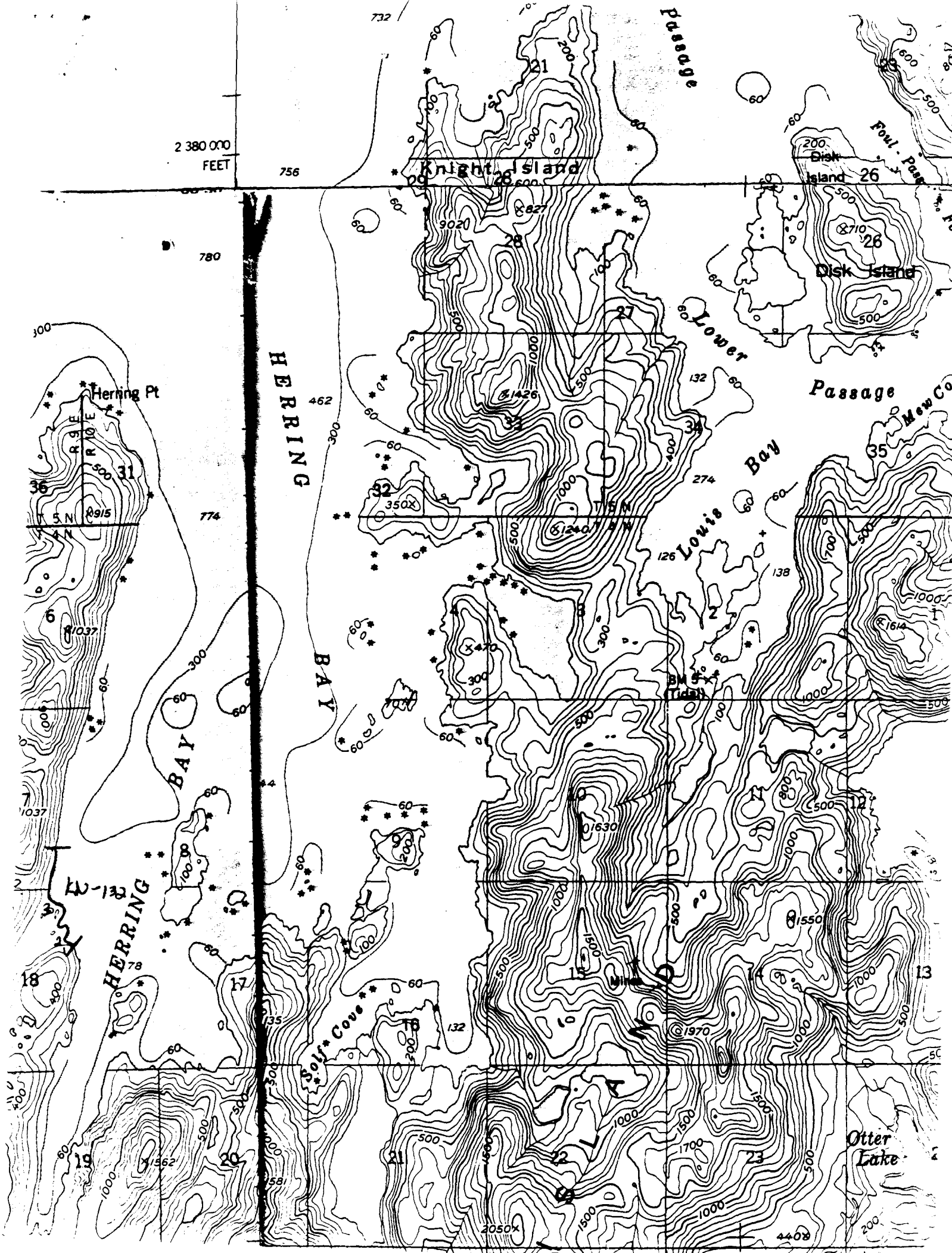
Disk Island

Lower

Passage

Louis Bay

Otter Lake



SHORELINE CLEANUP PROGRAM

DATE May 8, 1989

SHORELINE SEGMENT KN-132

LOCATION: (see enclosed map) Knight Island/Herring Bay

ADEC NO. _____ SHORELINE ASSESSMENT DATE: 5/4/89

Recommended Cleanup Activity(ies):

Rake and shovel up mouse patches.

Hot water wash for beaches and rock faces.

KN 132 §

Priorities Considerations:

Beaches (3) - medium priority

Rock faces - low priority

KN 301 OVERLAP

Ecological Constraints (from site survey):

Avoid large stream as it is probably anadromous.

Archeological Constraints (from site survey):

If heretofore undiscovered cultural materials are uncovered during cleanup, contact Exxon's Archeological Field Director and take actions prescribed in the Operational Guidelines for Shoreline Cleanup dated 4/21/89 as amended.

State Hist

EXXON: _____

FOSC: _____

* Signature
land use ;

5/18/89

Anadromous fish stream

Requested 48-hour notification
to DFG

See 5/17 Sigman field notes

SHORELINE OIL EVALUATION

Date: 4 May / Time: 1045

Observer: R. Dugan

Surveyed From: Foot/Boat/Helio/Plane

Weather: Sun/Cloud/Rain/Snow/Fog

LOCATION

LOCATION _____ SEGMENT NUMBER KN-132

LENGTH OF SHORELINE SEGMENT: 800 m

ACCESS: Foot/Vehicle/Boat/Barge/Helio/Float Plane

SHORELINE:

Shoreline Type: SPI/3BEA/COV/HLD/STRT

Slope: LANG/HANG/VER

Wave Exposure: High/Med/Low

Sediment: B 20% / C 15% / P 10% / G ___% / S 5% / M ___% / R 50%

Drift Debris on Beach: Yes/No Supra/Upper/Mid/Lower Type seaweed logs

OIL

Degree of Oiling: Heavy/Moderate/Light/No Oil/Unobserved

Area of Beach Impact: SU / SP / H / M / L

Continuous: Y/N % of Segment 100 Width of Band: 2-30 m

Sporadic: Y/N % of Segment _____

Est. Oil Thickness where > 1cm: _____ cm Est. Oil Penetration: 5 cm

Pooled Oil: _____% "Free" Oil: _____% Coated: H 100% / M 70% / L 20%

Fresh _____% Mousse _____% Tar Formation: 100%

Drift Debris Oiled? Yes/No Supra/Upper/Mid/Lower Amount: H M / L/

Comments:

- 3 beaches in Segment T - all are moderately oiled

- need rakes & shovels for heavy globs, hot-pressures for the rest

DOCUMENTATION:Map/Aerial photo marking segment boundaries AttachedVTR: Y N Tape Number(s) NonePhotography: Y N Roll Number(s) TI SMB-6Sample Numbers Collected: None

ECOLOGICAL EVALUATION

LOCATION: Knight Is. SITE: — OBSERVER: SM BarnLOCATION PREFIX: KN SEG. NO.: 132 LENGTH: 800 (M)DATE: 5/4/8 TIME (HHMM): 1045 TIDE HT.: +3-3 1/2 (M)OILED ZONE: Splash High Medium LowSUBSTRATUM: Rocks Boulder Cobble Gravel Sand Mud

LIVE BIOTA

Fucus (algae): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NHealthy in subtidalMytilus (Mussels): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NMore dense in subtidal areaBalanus (Barnacles): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NMore dense in subtidalLittorinaPatchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NSeveral oiledLimpets: Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/NOTHER OBSERVATIONS: Oiled debris far upstream of beach 3CLEANUP PRECAUTIONS: Axis Stream in Beach 3MAMMALS: Otters — Harbor Seals — Sea Lions — Whales —
Other NoneBIRDS: MerganserGENERAL OBSERVATIONS: Three beaches, mod-heavy on Beach 1, Moderate on beaches 2+3

(version of 4/25/89)

CULTURAL RESOURCE EVALUATION FOR OILED SHORELINE

Date 5/4/89 Location Bugut Island Site _____
Location Prefix KN Segment # KN-132 Length 800

Survey Method:

Air _____ (A - indicate on map) Boat _____ (A - indicate on map)
Ground ✓ (G - indicate on map)

Known cultural resources (AHRS #) None Data Source None

Oil conditions/beach visibility moderate

Width of beach zone surveyed 2-3m Tree fringe surveyed 10

Cultural resources observed in beach zone (AHRS code) None FCR

Cultural resources observed in tree fringe (AHRS code) None

General observations justifying survey method and segment's site probability:

Shore Profile moderate beach

Fresh Water Sources two streams

Sea Exposure northeast/protected

Access/Safety good

Probability of undiscovered sites in beach zone (circle one) 1 2 3 4 5

Monitoring during cleanup needed yes/no Collection yes/no

Photos: Color Roll # CW-6 Frames 31, 32, 33

B/W Roll # _____ Frames _____

Observer(s) C. Wilson

Time survey started 1045 Time survey ended 1130

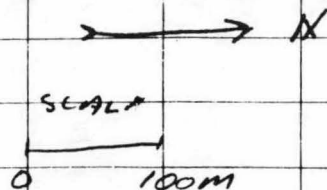
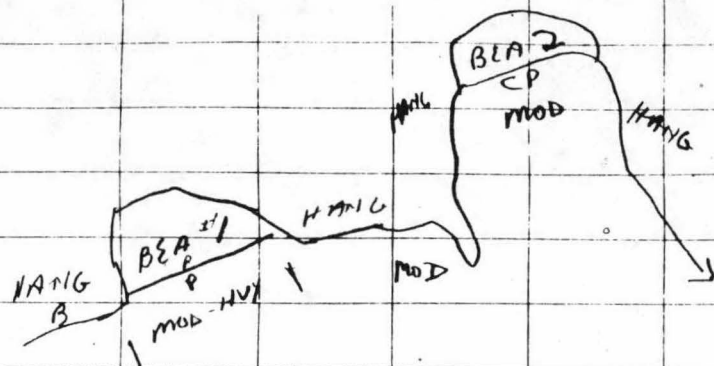
Cultural resource considerations/restraints:

People should be kept out of the northern part of beach 3 on the north side of the creek near the small gravel bank. If hereafter undiscovered cultural resources are uncovered during cleanup notify Exxon archaeologist, C. Mobley, immediately.

4/ MAY 89

KM 132

TIME: 1045



BEA #1 : mod/heavy oil w/ 10% mure
in H, M, LITZ
: tang-moassy globby pools

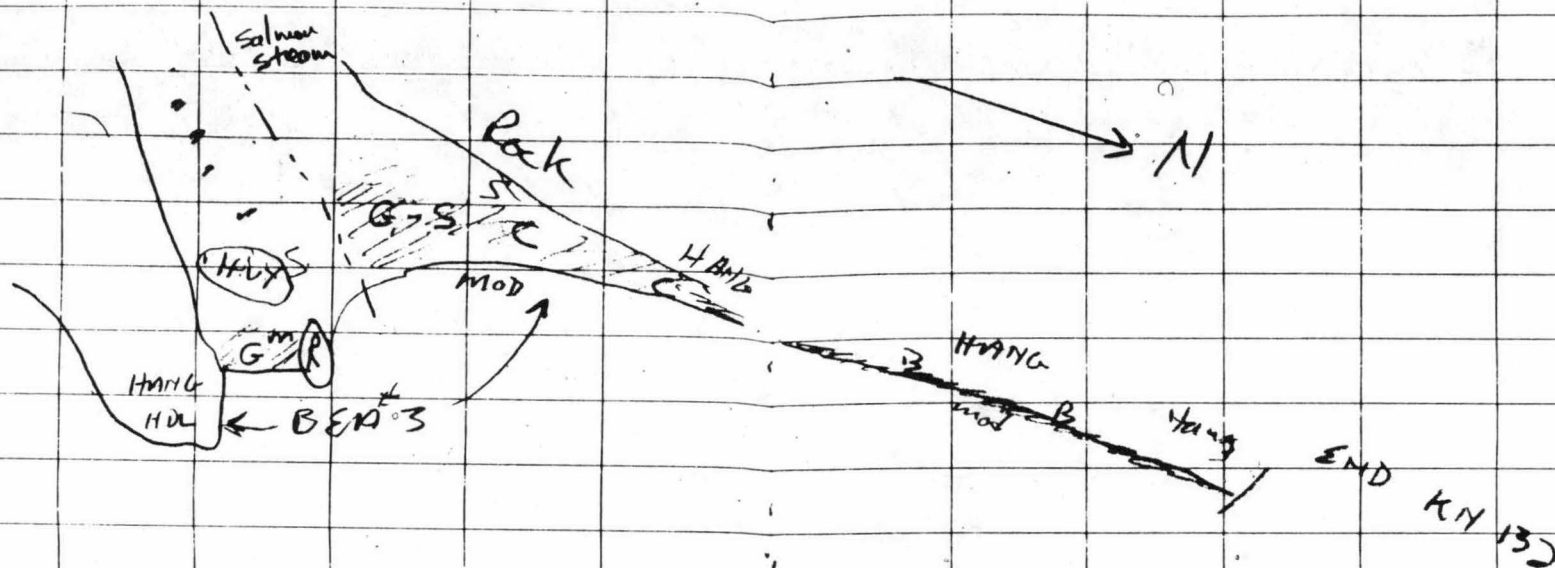
BEA #2 : More patches & tangy to 3 in
in pools
: similar to BEA #1
: H, M, LITZ, C, P
: 3 in penetration

NEED : SHOVEL Rake
HOT 1150
Pressure

medium priority

KN 132 (cont)

SCALE
0 100 m

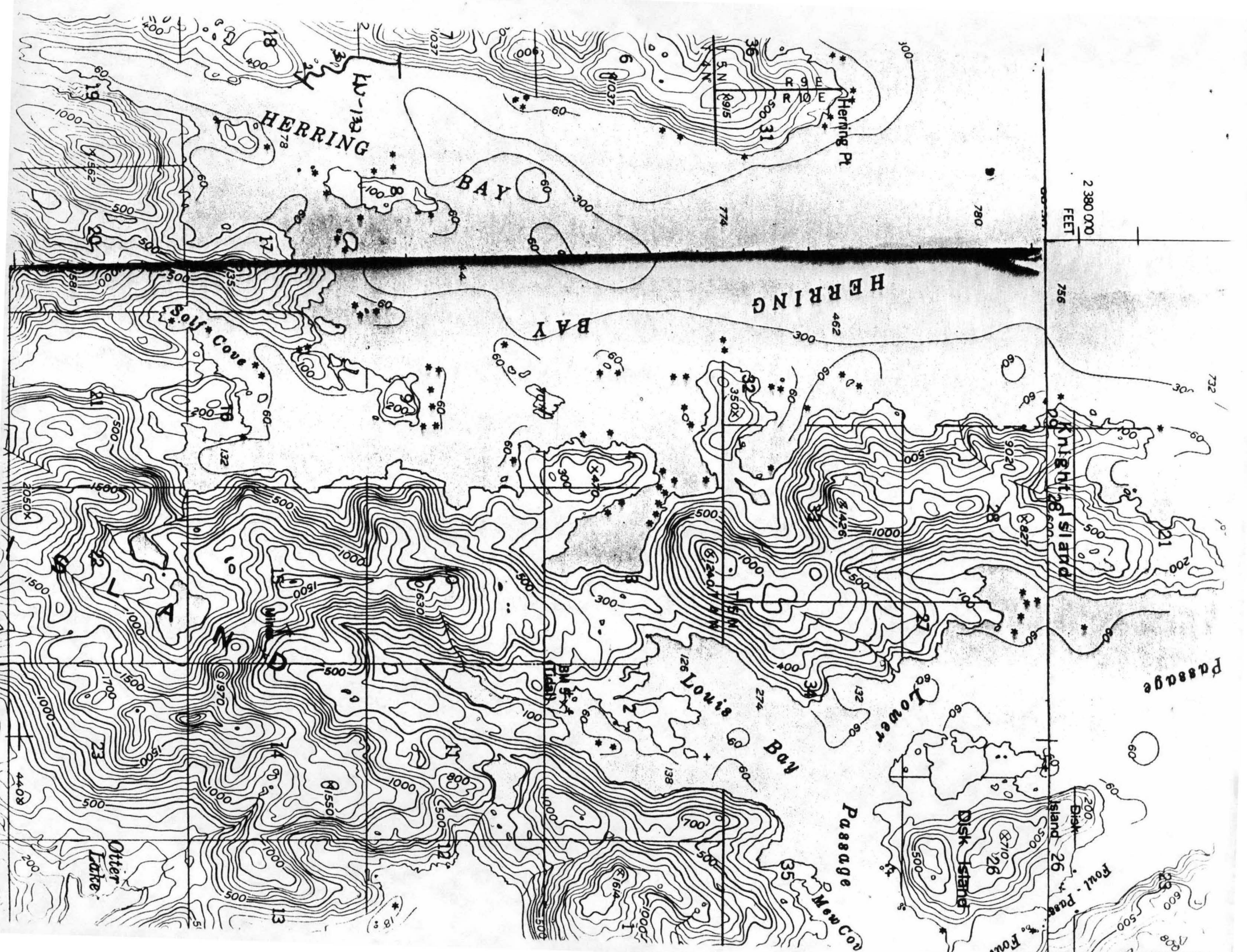


BER #3

- Mod oil w/ some pods 200m upstream
- Mod @ H,M
- organic debris

MODERATE PRIORITY

Need Rake shovels
H₂O



46-Sport/Com Fish Survey Spring 89

ASSESSMENT OF INTERTIDAL SPAWNING AREAS AFFECTED
BY THE PRINCE WILLIAM SOUND OIL SPILL

NAME: Knight I herring bay

USGS MAP: Seward (D-3)

MAP #:

DATE: 4-26-89

TIME OF SURVEY: 1535

LOW TIDE _____ TIME 1139

COLLECTORS:

ASC# 226-10-16982

NO OIL
SHEEN
MOUSSE
BLACK OIL

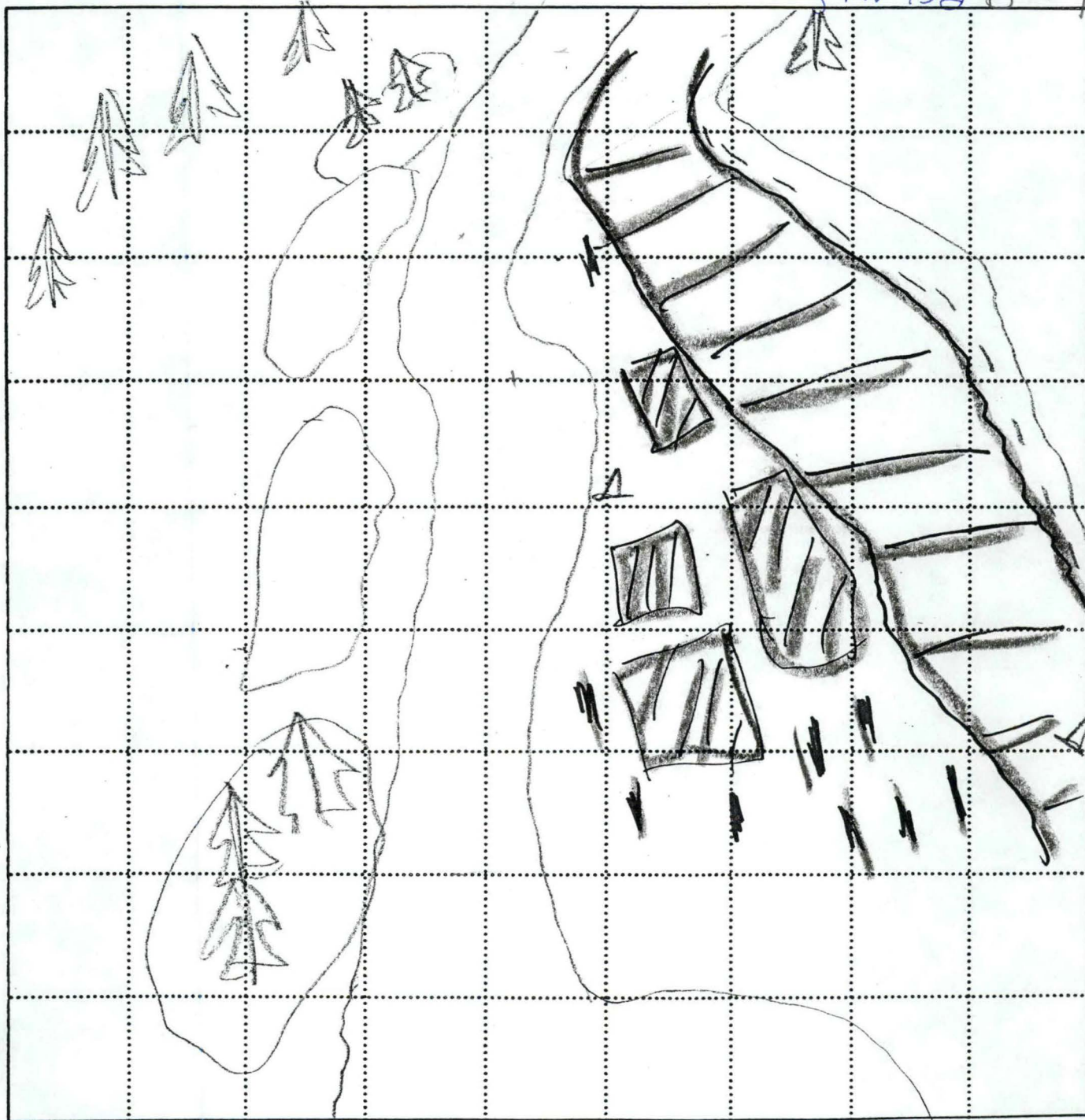
OIL TYPES PRESENT (1 2 3 4)

PHOTO #: 34, 35, 36

STREAM CATALOG #: 16920 roll 15 now 16982

SCALE: ONE GRID EQUALS

seq KN 132 B #



COLOR CODE: 1) NO OIL - BLANK 2) SHEEN - GREEN 3) MOUSSE - BROWN 4) BLACK OIL - BLACK

COMMENTS: 400 yds back from shore there is oil
oil penetration around small rocks