[Shoreline evaluations, 1991].

Prince William Sound FA-01 to FL-05

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OILING LENGTHS TO BE PROVIDED AT A LATER DATE
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/PA-01

SUBDIVISIONS: A (1 OF 1)
PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

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

SEGMENT ST: FA 1   SUBDIVISION: A   DATE: 4/9/90

USCG  NAME: GARY OTT  SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED  ☐ TREATMENT SUGGESTED

COMMENTS

ADEC  NAME: MICHAEL J. EBEL  SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED  ☐ TREATMENT SUGGESTED

COMMENTS

FA-1-A: Small splatters of interstitial pooled tar were found along (very infrequently) the bedrock point with about the same number of occurrences for tarballs. Splashes of covers, coats, and stains were also few and confined to point areas. The high exposure to this area has done a thorough job cleansing it. No treatment recommended.

LAND MANAGER - USDA FOREST SERVICE  NAME: DON BREITINGER  SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED  ☐ TREATMENT SUGGESTED

COMMENTS

[Signature] 4/10/80
SHORELINE OILING SUMMARY

REVISION NO: 05/22/90

OG Randy McBrady USGS NORT HT OFF SEGMENT ST/ FA-1
BIO Lewis Storck LAND REP USGS Dr. Bierig/er SUBDIVISION A
EXXON Leonard Herbst ADEC Michael Emel TIME 17:00 to 19:04
TEAM NO: 12 TIDE LEVEL: 10.1 to 12 DATE 06/16/90
EST. SUBDIVISION LENGTH: 2779 m ☑ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
UPLANDS DESCRIPTION: ☑ Grass ☑ Forest ☑ Rock SURVEYED FROM: ☑ Foot ☑ Boat ☐ Helo WORKING DIRECTION: East to west
SURFACE SEDIMENTS: R 30% B 30% G 25% P 10% G 4% S 0% M 0% V 0% SLOPE: Lang 5% Hang 65% Vert 30% WAVE EXPOSURE: ☑ Low ☑ Med ☑ High
OIL CATEGORY LENGTH: W 0 m M 0 m N 0 m VL 640 m NO 2139 m

SURFACE OIL

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<th>DISTRIBUTION</th>
<th>OIL / FILM COLOR</th>
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PAVEMENT: H F S 0 sq. m by 0 or
PATTIES/TARBALLS 1 BAGS
NEAR SHORE SHEEN? NO BR RW SL TL

OILED DEBRIS AMOUNT
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DEBRIS COLLECTED
☑ YES ☐ NO

PHOTOGRAPHS:
Roll No. ST-12-7
Frames 1

SUBSURFACE OIL

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COMMENTS

FA-1 A is characterized by coarser-grained beaches (boulders and cobbles) and high angle slopes with some fines grained pocket beaches. Overall, oiling was very non-resistant except for some very isolated areas of very light. All the very light oiling was characterized by splash and distributions (see database). Falls Bay is exposed to moderate wave energy, wave exposure, and the NE due to the large high winds available across the Northern end of Knight Island Passage.
Pit Locations along FA-1-A

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

ADEC Segment Length: 2634m

Map Key: PWS-235b

Name: Randy McBride

Date: 4/18/90

Data Entered: 5/9
Pit locations along FA-1-A

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

ADEC Segment Length: 2634m

Map Key: PWS-235a
Name: Randy McBride
Date: 4/10/90
Data Entered: 6/19
**SHORELINE ECOLOGICAL SUMMARY**

Segment ST1 FA-1 Subdivision A Date (mo/day/yr) 4/9/90

Time (24 hr) 1700-1900 Biologist SHARMAN

(A) Substrate type and % of segments:
   (1) Bedrock 30 (2) Boulder 30 (3) Cobble 25 (4) Pebble 10 (5) Sand 5 (6) Silt

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

(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-12-7
   Frames 1

### BARNACLES

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**NOT PRESENT**

**Wildlife Observations/ General Comments:**
5 sea otter, 1 porcupine muggling in algal debris,isky seat on bedrock point at E. end of segment, 2 ravens, 4 crows, 15 murres, 1 pair murrelets, 10 pairs harlequin ducks, 25 pairs barnacle geese (± 40 pairs rafted at head of bay - W. end of segment) at extreme north. This is clearly a very high-energy beach, with considerable fotal from the NE. (Cot.)

**Ecological Considerations:**
According to the Priorities and Windows tables, this segment is assigned an environmental ranked priority of 1, due primarily to use of the area as a Main Bay Hatchery release site (sensitivity code 1E) and the presence of bald eagle nests (sensitivity code 5T, constraint (constructs 1+2, tactical priority 2))

5, treatment priority 2. We did not observe any eagle nests on this survey. These are my particular critical ecological sensitivities (code above General Comments),
General Comments (cont.):

A significant portion of the segment is dominated by boulders. The E. point, in particular, is very rich and productive intertidally, with dense Fucus communis, and a visually diverse LTF. Much of the remaining E. 1/4 of the segment is a bed of large boulders atop the continuous bedrock platform, and this intertidal habitat is noticeably depauperate owing to wave action and chiefly boulder/cobble scouring (boulders are not embedded in fine sediments). There is absolutely no detectable impact from the very light and discontinuous oiling that the beach apparently received. Boulders underlie harbored barnacle growth, sometimes abundant amphipods, and littorines with egg masses, as well as rare Capitata in feeding on barnacles. Rhodoma joins Fucus in the low and mid-intertidal zone (mostly harbored and stabilized boulder substrate). There is generally fair to good barnacle and Fucus recruitment this far. This is a normal and healthy intertidal zone, given its physical parameters and environment.
Pit Locations along FA-1-A

EcoLogy MAP

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

FA-1

Map Key: PWS-235b
Name: Randy McBride
Date: 4/18/90
Data Entered: 5/19
XXX Wide
/// Medium
--- Narrow
TTTT Very Light
0000 No Oil
SEGMENT ST/FA-01 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
1E Main Bay Hatchery release (4/20 to 5/10)
1L Set net sites (6/11 to 7/25)
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6U Recreation: Tent sites (6/1 to 9/15)
6V Recreation: Anchorages (6/1 to 9/15)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Eagle nest in Subdivision A.

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

SHPO SIGNATURE: __________________________ DATE: 4/20/90

OILING CATEGORIZATION:
Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 404 m: No Oil 2229 m
Subsurface Oil Observed: Yes X No Maximum Depth 20+ CM

RECOMMENDATIONS:
X No Treatment Recommended
_____Treatment Recommended
_____Manual Pickup
_____Bioremediation
_____Tarmat: Breakup
_____Removal
Snare/Absorbent Booms
Oil Snakes (pom poms)
Absorbents (pads, rolls, etc)
Spot Washing: Wands
Beach Cleaner
Other (see comments)

COMMENTS:


TAG COMMENTS:


TAG APPROVAL DATE: 8/36/90
ADEC Joan Baver
EXXON
NOAA Gary Blevin
USCG
FOSC: __________________________ DATE: 5/7/90
Pit Locations along FA-1-A

XXX Wide
/// Medium
--- Narrow
TTT Very Light
0000 No Oil

FA-1

Map Key: PWS-235b
Name: Randy McShea
Date: 4/16/90
Data Entered: 5/19
Pit locations along FA-1-A

XXX Wide  FA-1
/// Medium
---- Narrow ADEC Segment Length: 2634m
TTTT Very Light
0000 No Oil

Map Key: PWS-235c
Name: Randy McBride
Date: 4/10/90
Data Entered: 6/19
Pit Locations along FA-1-A

Ecology MAP

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

ADEC Segment Length: 2634m

Map Key: PWS-235b
Name: Randy McBride
Date: 4/16/90
Data Entered: 5/19
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/FA-02

SUBDIVISIONS: A (1 OF 1)
SHORELINE EVALUATION

SEGMENT ST_/ FA-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADF&G anadromous stream no. 225-20-15050.
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1E Main Bay Hatchery release (4/20 to 5/10)
1L Set net sites (6/11 to 7/25)
9BB Privately developed lands
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Eagle nest near border in MA-10.

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

SHPO SIGNATURE: ________________ DATE: __________________

OILING CATEGORIZATION:
Wide 0 m: Medium 229 m: Narrow 0 m: V.Light 944 m: No Oil 1406 m
Subsurface Oil Observed: Yes X No Maximum Depth 27+ cm

RECOMMENDATIONS:
X 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:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

TAG COMMENTS:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

TAG APPROVAL DATE: __________ 
ADEC ___________________________ FOSC: __________ DATE: __________ 
EXXON __________________________ NOAA __________________________ 
USCG __________________________
PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

Salmon stream mouth - fry outmigration (3/1 to 5/15)
Salmon stream mouth - spawning (7/10 to 8/31)
No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.

Salmon fry nursery area (4/31 to 7/31)
Esther Hatchery release (4/15 to 6/1)
Main Bay Hatchery release (4/20 to 5/10)
Sawmill Bay Hatchery release (4/15 to 6/1)
Cannery Creek Hatchery release (4/21 to 6/1)
Remote release site
Gill net area (6/7 to 8/31)
Purse seine area (7/20 to 9/30)
Purse seine hook-off (7/20 to 9/30)
Set net sites (6/11 to 7/25)
For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.

Herring spawning (4/1 to 6/15)
Restrict boat traffic to essential minimum. Avoid damage to unrolled intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.

Harbor seal and sea lion pupping (5/15 to 7/1)
Harbor seal and sea lion molting (6/15 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.

Seabird colony (5/1 to 9/1)
Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.

Shorebird/waterfowl concentration (4/1 to 5/15)
Restrict all activity to essential minimum, especially air traffic.

Recreation:
Tent sites (6/1 to 9/15)
Anchorage (6/1 to 9/15)
Forest Service cabins (6/1 to 9/15)
Lodge (6/1 to 9/15)
Special use destination

Subsistence area: Salmon harvesting (5/1 to 9/30)
Finfish harvesting
Deer harvesting (8/15 to 2/28)
Invertebrate harvesting
For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.
FIELD SHORELINE COMMENT SHEET

SEGMENT ST/FAZ SUBDIVISION: A DATE 4/10/90

USCG
NAME GARY OTT SIGNATURE

☐ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED

COMMENTS

Very scattered oil observed. In coats, is stable.

ADEC
NAME MICHAEL J. EBEL SIGNATURE Michael J. Ebel

☐ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED

COMMENTS

FA-2-A: Scattered asphalt patches were found along the peripheral inflection of the UTZ in a pocket cove (immediately south of Hana Cove Village). It was mostly a thin, loose veneer, still shing-like black found in an intermittent band composed of scattered deposits some up to a couple cm thick (most = 0.75 cm). We broke up what were widely the heaviest with one pass and noted the substrate with pits #4,5,6 of these, #5 showed DBH resid oil 4 cm thick in a band from 19-23 cm down. The others only film, likely a small pool (yes, under pit #5). We also found scattered sand, wax, film and occasional tarballs (<1 lb). (cont.)

LAND MANAGER: USDA FOREST SERVICE
NAME DON BREITINGER SIGNATURE Don J. Breitinger 5/6/90

☐ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED

REV/DA NO 03/21/90
... FA-2-A (cont.)

My recommendation to this area would be to let the
natural flushing of this shoreline finish the cleaning and
to make no further impact of any kind. Michael F. M. 4/10/4
ADEC
## SHORELINE OILING SUMMARY

**REVISION NO.: 02/22/90**

**NAME:**
- Randy McBride (USGS)
- Gary Oft (NOAA)
- Michael Ebel (ADEC)
- Leonard Herbst (EXXON)

**LOCATION:**
- SEGMENT: ST. EA-2
- SUBDIVISION: A

**TIDE LEVEL:**
- Date: 09/11/90
- Time: 07:17 to 08:45
- TIDE: 17' to 19'11/24

**UPLANDS DESCRIPTION:**
- Grass
- Forest
- Sun
- Clouds
- Fog
- Rain
- Snow

**SURVEYED FROM:**
- Foot
- Boat
- Helo

**WORKING DIRECTION:** SW to NE

**SURFACE SEDIMENTS:**
- % Asphalt paving
- % Pooling
- % Cover
- % Coat
- % Stain
- % Mousses
- % Patties

**OIL CATEGORY LENGTH:**
- W: 0 m
- M: 290 m
- N: 0 m
- V: 10 m

**US 1060**

**PAVEMENT:**
- Broken up w/shovel

**NEAR SHORE SHEEN?**
- No

**PIT NUMBER**

<table>
<thead>
<tr>
<th>PIT NO.</th>
<th>PIT DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED INTERVAL (cm-Cm)</th>
<th>OILED INTERVAL (cm)</th>
<th>OIL / FILM COLOR</th>
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**SUBSURFACE OIL CHARACTER**
- C, P, G, S
- Organic

**OILED INTERVAL**
- C, P, G

**OIL / FILM COLOR**
- X

**IMPACTED ZONES**
- U, I, M, U

**APPLICATION**
- C, P, G, S, M

**SUBSURFACE SEDIMENTS**
- B, C, P, G, Rich

**COMMENTS**

A P's broken up w/shovel, in most areas, predominantly.

Overall, FA-2-A is characterized by very light and no oiling except for two areas categorized as medium oiling. The medium oiling is characterized by asphalt pavement, pooled, covered, and coated oiling with splashed distributions. In some areas, the medium oiling is characterized by skinned and patching distributions. Most of these areas were broken up using shovels. A small portion of FA-2-A was not surveyed 9/11/90.

**DATE**
- 11/10/90

**REVIEWED**
- 4/15/90
**SHORELINE ECOLOGICAL SUMMARY**

Segment ST FA - 2  Subdivision A  Date (mo/day/yr) 4/9/90

Time (24 hr) 1400-2030  Biologist SHARMA

(A) Substrate type and % of segments:
- Bedrock 30
- Boulder 10
- Cobble 30
- Pebble 20
- Sand 10
- Silt

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

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

### Photographs:
- Roll No. ST-12-7
- Frames 2, 3

### BARNACLES

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Wildlife Observations/ General Comments: 2 adult eagles, I subadult eagle, 1 piper gouldae
lagoon, deer tracks in intertidal zone on pebble beach, 1 seagull regurgitating in breakfast

Ecological Considerations:
- According to the Priorities and Windows table, this segment is assigned an environmentally
  ranked priority of 1, based primarily on ecological sensitivity I.E (Main Bay Hotspot
  release site) and 5I (Build Eagle route). These have Constraints 1-2, and 5I,
  respectively, for a treatment priority of 2. We saw no eagle route or the area above.
  
  additional: 16/19
General Comments (cont.):

Intuitively, this segment appears normal and healthy except for very local
problems in a couple bedrock/boulder areas where adult barnacle mortality
is >50% within the oiled band (e.g. a 15% mortality within the barnacle zone
where there is no oil). Barnacle net seems to be quite good on this segment
(much better than on the exposed beaches of adjacent FA-1). Mussel recruitent,
and Fucus/Rhodoma recruitent, seems to be pretty good (certainly compared
to FA-1). Also, on this better protected segment, cobbles support barnacles,
Fucus, and gastropods (vs. FA-1). I observed newly-settled barnacle
cyprids numerous here! The LTZ, as in FA-1, highly productive. There are
numerous rich bedrock tidepools with coralline algae, anemones, clions, etc. Additionally
Mussel and Littorina are laying eggs both on protected bedrock surfaces and
beneath boulders.
FA-2

Pit locations along FA-2-A

Map Key: PWS-236a
Name: Randy McBride
Date: 4/10/90
ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B  Salmon Stream  ADF&G catalogued anadromous stream (225-20-15050) is present in Segment. No constraint to manual pickup and tarmat removal.

5T  Bald Eagle Nest  NO CONSTRAINT. Bald eagle nest is in Segment MA-10 and more than 400m from work area.

1E  Main Bay Hatchery Release  No constraint to manual pickup and tarmat removal.

1I  Gill Net Area  No constraint to manual pickup and tarmat removal.

1L  Set Net Sites  No constraint to manual pickup and tarmat removal.

OTHER ECOLOGICAL CONSIDERATIONS

No disturbance of stream bed or banks. Restrict boat and air traffic to essential minimum. When set net sites are present restrict beach operations to essential minimum. Restrict air traffic and all disturbance to essential minimum. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Avoid any unnecessary disturbance or damage to unooled biota and substrate.

TAG APPROVAL DATE  5/24/90
ADEC  A.R.W.  Wilson  Date  5/24/90
EXXON  W.B.  Ralston  FOSC  Date  5/24/90
NOAA  M.  S.  Vroom  USCG  Date  5/24/90

Prepared by  Andrew  Date  5/22/90
SHORELINE EVALUATION

SEGMENT ST/ FA-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADFG anadromous stream no. 225-20-15050.
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1E Main Bay Hatchery release (4/20 to 5/10)
1L Set net sites (6/11 to 7/25)
9BB Privately developed lands
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Eagle nest near border in MA-10.

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 prior (564-3657, 564-3658 or 564-3276).

SHPO SIGNATURE: [Signature] DATE: 5/2/90

OILING CATEGORIZATION:
Wide 0 m; Medium 229 m; Narrow 0 m; V.Light 944 m; No Oil 1406 m
Subsurface Oil Observed: Yes X No Maximum Depth 27+ cm

RECOMMENDATIONS:
X Treatment Recommended
X Manual Pickup
X Bioremediation
X Tarmat: Breakup
X Removal

Snare/Absorbent Booms
Oil Snare (pom poms)
Absorbents (pads, rolls, etc)
Spot Washing: Wands
Beach Cleaner
Other (see comments)

COMMENTS: Manual pickup of asphalt patties/tarballs as indicated on sketch

TAG COMMENTS:

TAG APPROVAL DATE: 4/25/90
ADEC [Signature] DATE: 5-9-90
EXXON [Signature] FOSSC: [Signature] DATE: 5-9-90
NOAA [Signature]
USCG [Signature]
SHORELINE EVALUATION

SEGMENT ST/ FA-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
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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's required prior (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: [Signature] DATE: 5/2/90

OILING CATEGORIZATION:

Wide 0 m: Medium 229 m: Narrow 0 m: V.Light 944 m: No Oil 1406 m
Subs 表面 Oil Observed: Yes X No Maximum Depth 27+ cm

RECOMMENDATIONS:

X Treatment Recommended
X Manual Pickup
X Bioremediation
X Tarmat: Breakup
X Removal

Other (see comments)

COMMENTS: MAINT. PICKUP OF ASHANTI PATTIES / FIREBALLS AS INDICATED ON SKETCH

TAG COMMENTS:

TAG APPROVAL DATE: 4/25/90
ADEC [Signature] DATE: 5-9-90
EXXON [Signature] FOSS: [Signature] USCG [Signature]
1991 MAYSAF EVALUATION

SEGMENT: FA 002  SUB: A  REGION: PWS  SURVEY DATE: 5/14/91

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

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

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

SHPO Signature: __________________________  Date: __________________________

RECOMMENDATIONS:

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Manual Pickup (Check as Req.)  ______  ______  ______
Spot Washing  ______  ______  ______
Bio-Customblen Only  ______  ______  ______
Bio-Inpibol/Customblen  ______  ______  ______
Other  ______  ______  ______
Other  ______  ______  ______

COMMENTS:
INITIAL:
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TAG:
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FOSC:
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TAG APPROVAL DATE:  ______  FOSC APPROVAL DATE:  ______
ADEC  ______  FOSC  ______
EXXON  ______
USCG  ______
NOAA  ______
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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


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

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.
TEAM NO. 1  SEGMENT FA002  SUBDIVISION A  DATE 5/14/91

ADEC
NAME: JEFF STANUS  SIGNATURE: ❍

• NTR
ONLY REMAINING OIL IS TRACE RESIDUES ON SURFACE
CAUGHT BEHIND BEDROCK UPRISERS THAT OFFER A DEGREE OF
PROTECTION. RECOVERABLE OIL REMOVED (SITE D2). NO BENEFIT
FROM FURTHER TREATMENT. NO SUBSURFACE OIL

EXXON
NAME: RANDALL K. BOYER  SIGNATURE: ❍

• NTR
I WAS WITH THE SQUAD THAT PERFORMED THE MANUAL
PICKUP ON THIS SUBDIVISION IN 1990. THE TREATED AREAS
LOOK HEALTHY. SEVERAL SMALL PATCHES OR ☐/m² WERE
PICKED UP ON THIS SURVEY. NO FURTHER TREATMENT IS
WARRANTED ON THIS SUBDIVISION. SEVERAL PODES OR DUCKS
WERE SEEN IN THE VICINITY. THIS ACTIVE FISHING AREA WILL
NOT BE AFFECTED BY ANY RESIDUE THAT REMAINS ON SHORE.

LANDMANAGER
NAME: MARSHA HALL  SIGNATURE: ❍

• NTR
Area E has non distinct oil mixed w/ peat. Small
patches were removed at Area D1.

USCG/NOAA
NAME: SOUTHELL  SIGNATURE: ❍

• NTR
RESIDUE ONLY FOUND IN TRACE AMOUNTS. NO FURTHER TREATMENT
NECESSARY

Low angle Polcieft Beach surrounded by steep beo rock outcrops.
Oil observed as to Sor below i between boulders o Post Rock
undercut - at US Base - CT 35' Offset or Vertical Rock faces.
No subsurface oil detected.
**Surface Oil Character**

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<th>SURFACE SEDIMENT</th>
<th>SHORE SLOPE</th>
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**Distribution:**

- C = 91-100%
- B = 61-90%
- P = 11-60%
- S = 1-10%
- T = <1%

**Slope:**
- V = Vertical
- H = High Angle
- M = Medium Angle
- L = Low Angle

**Photo Roll # MAYBAP-1 - 22**

**Frames:**

**Notes:**

**Subsurface Sediments:**

- AP-RGM
- CB-RGM
- BC-RGM
- PG-GPC
- PC-GMV
- CG-GMV
- PG-GMV

**Sheen Color:**
- B = Brown
- R = Rainbow
- S = Silver
- N = None

**OG Comments:**

Low relief embayment w/ rocky headlands; re-emerged forest floor over R typical.

Surface oil only, as to soil splats and patches up. HLF usually between BC armor on peat/L, w/o occurrences associated coar on steep I (C).
This subdivision contains rugged bedrock outcrops, channels, and benches at various levels, small BlCP pocket beaches, and one sizeable cove with BlCP/PLG sediments. The upper and mid-intertidal levels of the beaches are relatively depauperate (sparse to moderately abundant limpets, barnacles, Fucus, with amphipods, worms, and isopods, beneath rocks) which is typical of low energy beaches in this region. Boulder and bedrock areas at either ends of beaches have much more diverse and abundant biota, as does low intertidal zone on the beaches (patches of dense mussel beds, infaunal clams (3-4 spp.), young sea urchins (S. drobachiensis), top snails (collisostoma, leptoclinum), starfish (Pycnopodia, Dermasterias, Leptasterias hexactis and j. arctica), whelks, siphanarians, nudibranchs, and several species of red, brown, and green algae). Tide pools on bedrock benches and in channels have typically dense algae and limpets, plus eels, limpets, sculpins, hermit crabs, etc. See accompanying sketch map for descriptions of biota in vicinity of each oiled site.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS

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MARINE MAMMALS

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<td>Pinnipeds (specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LAND MAMMALS

<table>
<thead>
<tr>
<th>MAMMALS</th>
<th># OBSERVED</th>
<th>SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shoreline subdivision map showing important biological features attached.

Reviewed M.B. 5/18/91
state very well, few away
Trace of very south end of ocean
Pocket beach +10-12 ft just above
Sparsely rock led/many lumps
Dense rock led 3 m either side of
Shoreline - also litt'l lumps
A sparse barnacle
all sea urchin skull - no teeth
pool w/ dense 11 H C11 green
Sparsely thickly sandy, etc 10 m downhere
Tomb of Field w/ patchy barnacles, Fucus
Mussel, whelk in M12 - L12 also
cladophora, saxifraga - other craters - pyrenomycete brown
Lepidopus echinus (black), punkles
(collections fig. 11 on Tumelage in L12)
- dense barn spot in M12-L12
large all thinelle encrusted
- decaying crabs, lepidesmus
- drowned araneae fossil at end
of subarcan - dense Fucus on BR
5 m away at same level +10 ft
not verticle - little wave breaking
end and 8955
ENVIRONMENTAL SENSITIVITIES:
Work Window(s): RESTRICTED 3/1 - 9/15

Ecological/Constraints (see page two for details) Eagles nest,
Fry release, Fish harvest area, Anadromous stream

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

SHPO Signature: __________________________ Date: 5/14/91

RECOMMENDATIONS:

TREATMENT REQUIRED (Y or N) N

Manual Pickup (Check as Req.)
Spot Washing
Bio-Customblen Only
Bio-Inipol/Customblen
Other

COMMENTS:
INITIAL: __________________________

TAG: __________________________

FOSC: __________________________
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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


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

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.
ONLY REMAINING OIL IS TRACE RESIDUES ON SURFACE
CAUGHT BEHIND BDECOCK UPRISES THAT OFFER A DEGREE OF
PROTECTION. RECOVERABLE OIL REMOVED (SITE D2). NO BENEFIT
FROM FURTHER TREATMENT. NO SUBSURFACE OIL

I WAS WITH THE SQUAD THAT PERFORMED THE MANUAL
PICKUP ON THIS SUBDIVISION IN 1990. THE TREATED AREAS
LOOK HEALTHY. SEVERAL SMALL PATCHES OF OIL \textless{} 1 in \textsuperscript{2}
WERE PICKED UP ON THIS SURVEY. NO FURTHER TREATMENT IS
WARRANTED ON THIS SUBDIVISION. SEVERAL PATCHES OF OIL
WERE SEEN IN THE VICINITY. THIS ACTIVE FISHING AREA WILL
NOT BE EFFECTED BY ANY RESIDUE THAT REMAINS ON SHORE.

AREA E has non distinct oil mixed up pent. Small
patches were removed at Area D1.

RESIDUE ONLY FOUND IN TRACE AMOUNTS. NO FURTHER TREATMENT
NECESSARY

LOW ANGLE POLICET: Beach surrounded by steep Beo Rock outcrops,
Oil observed as low on beach & between Beo & Top; Cable on Pent & Rk
undermog - AF UE ROLE - CT 1ST LOCATION ON VERTICAL RIG FACES.
No Subsurface Oil Detected.
**MAYSAP SHORELINE OILING SUMMARY**

**TEAM NO. 1**
OG G. MacDonnell
ADEC J. Ginalias
EXXON R. Boyer
BIO M. Fawcett
LANDMANAGER M. Hall for DNR
USCG/NOAA Schultz/Chadis

**TIME** 07:45 to 09:50
**TIDE LEVEL** -0.9 to 0.0 ft.
**ENERGY LEVEL**:
- **H**
- **M**
- **X**

**SURVEYED FROM**:
- **X** FOOT
- **BOX**
- **HELO**

**WEATHER**:
- **SUN**
- **CLOUDS**
- **FOG**
- **RAIN**
- **SNOW**

**SURFACE OIL CHARACTER**

<table>
<thead>
<tr>
<th>LOC</th>
<th>AS</th>
<th>MS</th>
<th>TB</th>
<th>SOR</th>
<th>CV</th>
<th>CT</th>
<th>ST</th>
<th>FL</th>
<th>DB NO</th>
<th>SURFACE OIL CHARACTER</th>
<th>SURFACE SEDIMENT TYPE</th>
<th>SLOPE YHML</th>
<th>AREA</th>
<th>ZONE</th>
<th>NOTES</th>
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<tbody>
<tr>
<td>A</td>
<td>P</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>B</td>
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<td></td>
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<tr>
<td>C</td>
<td>S</td>
<td></td>
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<td></td>
<td></td>
<td>CL L 1 1 X</td>
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<td>&lt;10%</td>
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<td>T</td>
<td>S</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>RGM L 1⁄2 1 X</td>
<td>2 discrete patches</td>
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<td>D1</td>
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<td>S</td>
<td></td>
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<td></td>
<td></td>
<td>BMG L 1 B X</td>
<td>up. HTZ/bog</td>
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<tr>
<td>E</td>
<td>P</td>
<td>T</td>
<td>T</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>GMV L 2 5 XX</td>
<td>up. HTZ/bog</td>
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</tbody>
</table>

**DISTRIBUTION**: C = 91-100%; B = 81-90%; P = 1-50%; S = 1-10%; T = <1%

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

**PHOTO ROLL**: MAYBAP-1 - 22
**FRAMES**: 5-9

**PIT NO. DEPTH**

<table>
<thead>
<tr>
<th>PIT NO.</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED ZONE</th>
<th>CLEAN</th>
<th>BURNT</th>
<th>H2O</th>
<th>SHEEN</th>
<th>PIT ZONE</th>
<th>SURFACE-SUBSURFACE SEDIMENTS</th>
<th>NOTES</th>
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<tbody>
<tr>
<td>1 20</td>
<td></td>
<td></td>
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<td></td>
<td>OP-RGM</td>
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<td></td>
<td></td>
<td>CB-RGM</td>
</tr>
<tr>
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<td>BC-RGM</td>
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<td>PG-GPC</td>
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<td>5 25</td>
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<td>PC-GMV</td>
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<td>7 10</td>
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<td>RC-GMV</td>
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<tr>
<td>8 10</td>
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<td></td>
<td></td>
<td></td>
<td>PC-GMV</td>
</tr>
</tbody>
</table>

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

**OG COMMENTS**: Low relief embayment w/ rocky headlands; re-emerged peat forest floor over R typical.
Surface oil only, as lo ssilt and patches E up HTZ, usually between BC armor on peat/L, w/ occas. associated coal on steep LCE

**REVISED** May 18
**REVISIONS**

**0.5" in.**

---

**DATE** 5/14/91

**SUBDIVISION**: A
COMMENENTS/OBSERVATIONS (to be completed in oiled subdivisions only):
This subdivision contains rugged bedrock outcrops, channels, and benches at various levels, small BClO pocket beaches, and one sizable cove with BClO sediments. The upper and mid-intertidal levels of the beaches are relatively depauperate (sparse to moderately abundant) limpets, barnacles, and, with amphipods, worms, and isopods beneath rocks, which is typical of low-energy beaches in this region. Boulder and bedrock areas at either ends of beaches have much more diverse and abundant biota, as does lower intertidal zone on the beaches (patches of dense mussel beds, urchins, clams (3-4 spp.), young sea urchins (S. droebachiensis), top snails (Calliostoma ligatum), starfish (Pycnopodia helianthoides, Leptasterias hexactis and L. arctica), whelks, siphonarians, nudibranchs, and several species of red, brown, and green algae). Tide pools on bedrock benches and in channels have typically dense algae and limpets, plus chitons, limpets, scallops, hermit crabs, etc. See accompanying sketch map for descriptions of biota in vicinity of each oiled site.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED</th>
<th>SPECIES PRESENT</th>
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<tbody>
<tr>
<td>Eagles</td>
<td></td>
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<td></td>
<td>black prickleyback</td>
</tr>
<tr>
<td>Seabirds</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Waterfowl</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Gulls/Kittiwakes</td>
<td>1</td>
<td>2</td>
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<td></td>
</tr>
<tr>
<td>Shorebirds</td>
<td></td>
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</tr>
<tr>
<td>Corvids</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Other Birds</td>
<td></td>
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<table>
<thead>
<tr>
<th>MARINE MAMMALS</th>
<th># OBSERVED</th>
<th>SPECIES</th>
<th># OBSERVED</th>
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<tbody>
<tr>
<td>Sea Otters</td>
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<tr>
<td>Pinnipeds(specific)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turtles(specific)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Shoreline subdivision map showing important biological features attached.

Reviewed M.B. 5/18/____
FA 007A 14 May 91  Faure II

Start 0745

Shore Palafoai, low evening
Trace CT at south end of swamps
Pocket beach + 10-12 ft just above
Sparse vegetation among mangroves
Dense rock wall 3 m inland side 4
m down slope - also littlings
Sparse barren
- All sea urchins skull - no teeth
Pool of dense wilted green
Sparse Stenogepa, etc 10 m down slope
- Spoodlefield of patchy barreness, muck
- Clumps in MTZ 1 - 12 - also
- Clumps (Porphyra, Sarcodones) - other
- Crusts - Pyrrocoma, Dianella
- Erythrolepis, Breo (cork), pyches
- Calliostoma ligulum, Tornellia in MTZ
- Large barn snails in MTZ 1 - 12
- Large all Miura emergents
- Decorate crabs, large
- Drowned area just at end
- of Sundaeum - dense Fucus on BR
- 5m away at same level +10 ft
- not submerged - 1km north breeding
- nest end 0055
Bio. Sketch Map
FA 002-A 5/14/91
M. H. Fawcett

N

Approx. 150 m

sparse young rockweed, isopods, Littorinids, limpets, amphipods on B/C among SOR; dense rockweed on BR 50 m away; Littorinid eggs under rocks on SOR.

same biota as B

sparse barnacles, limpets, Littorinids; amphipods, Oligochaetes near SOR; same downshore

sparse barnacles, limpets, Littorinids; amphipods, Oligochaetes near SOR; same biota more dense downshore, + mussel-like clams below mussels, sea urchin, starfish (3 SPA), whelks, crabs, pricklebacks, Calliostoma ch-

stream
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/FL-01

SUBDIVISIONS: A (1 OF 1)
SHORELINE EVALUATION

SEGMENT ST/ PI-01 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
No specific constraints identified.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

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

SHPO SIGNATURE: ______________________ DATE: ______________________

OILING CATEGORIZATION:

Wide 0 m: Medium 64 m: Narrow 398 m: V.Light 30 m: No Oil 57 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
__ X Removal ______ Other (see comments)

COMMENTS: Recommend manual pick up of oiled debris and tarmat removal. Also recommend bioremediation of oil coated and oil covered areas.

_____________________________________________________

TAG COMMENTS:

_____________________________________________________

_____________________________________________________

_____________________________________________________

TAG APPROVAL DATE: ____________

ADEC ______________________ FOSC: ____________ DATE: ____________

EXXON ______________________

NOAA ______________________

USCG ______________________
FIELD SHORELINE COMMENT SHEET

USCG
NAME LARRY FLETCHER SIGNATURE

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

COMMENTS

1. MANUALLY REMOVE ASPHALT AND TAR PATIES.
2. POSSIBLE BIO-REMEDICATION

ADEC
NAME DAVID M. SACE SIGNATURE

☒ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

COMMENTS

☐ MANUALLY REMOVE TAR PATIES, DEBRIS AND ASPHALT FROM SURFACE AND SUBSURFACE SEDIMENTS, INCLUDING BETWEEN BOULDERS.
☐ REMOVE GROSS CONTAMINATION, COVER OTHER THAN STAIN, FROM BOULDER + BOULDERS
☐ BIOAMENRATE ONLY WITH CONCURRENCE OF CHEEQA VILLAGE RESIDENTS AND/OR CORPORATION.

LAND MANAGER
NAME STEVE WARD SIGNATURE

☒ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

COMMENTS

I CONSIDER THE DATA ABOVE TO BE VERY ACCURATE AS TO EXISTING CONDITIONS ON THE BEACH.
SHORELINE OILING SUMMARY

OG: Richard Marky  USCG: Larry Fletcher  SEGMENT ST: FL-01
BIO: Bob Lemon  LAND REP:  SUBDIVISION: A
EXXON: Jon Czapinski  ADEC: Dave Salk  TIME 07:20 10 April 1990
TEAM NO.: 10  TIDE LEVEL: -0.1 m (0.10 m (P))  DATE 07/10 April 1990
EST. SUBDIVISION LENGTH: 527 m  Sun  Clouds  Fog  Rain  Snow
SURVEYED FROM:  Foot  Boat  Helo  WORKING DIRECTION: N to S
UPLANDS DESCRIPTION:  Grass  Forest  Rock
SURFACE SEDIMENTS: R 60% B 10% C 10% P 10% G 5% S 2% M 0% V 0%
SLOPE: Lang 20% Hang 30% Vert 40%
WAVE EXPOSURE: Low  Med  High
OIL CATEGORY LENGTH: W m M 1 m N 336 m VL 15 m NO 15 m

SURFACE OIL

<table>
<thead>
<tr>
<th>CHARACTER</th>
<th>DISTRIBUTION</th>
<th>OIL/FILM COLOR</th>
<th>IMPACTED ZONES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPHALT PAVEMENT</td>
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</tr>
<tr>
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<td></td>
<td></td>
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</tr>
<tr>
<td>COVER</td>
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</tr>
<tr>
<td>COAT</td>
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<td>X</td>
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</tr>
<tr>
<td>STAIN</td>
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</tr>
<tr>
<td>MOUSSE</td>
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</tr>
<tr>
<td>PATTIES</td>
<td>X</td>
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</tr>
<tr>
<td>TARBALLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILM</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>NO OIL</td>
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PAVEMENT: H F 27 sq. m by 3 cm
PATTIES/TARBALLS: BAGS
NEAR SHORE SHEEN? BR RW SL TL

OILED AMOUNT

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<tr>
<th>Debris</th>
<th>SM</th>
<th>MD</th>
<th>LG</th>
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<tr>
<td>Vegetation</td>
<td>X</td>
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</tr>
<tr>
<td>Trash</td>
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<td>Debris</td>
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Photographs:
Roll No. ST/10/11
Frames 27-36

SUBSURFACE OIL

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<thead>
<tr>
<th>PIT NO.</th>
<th>DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED INTERVAL</th>
<th>BELOW</th>
<th>OIL/FILM COLOR</th>
<th>PIT ZONE</th>
<th>ANA</th>
<th>SUBSURFACE SEDIMENTS</th>
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<td>30</td>
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<td></td>
<td>Coarse Sand</td>
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<td>Clay, Silt, Rock</td>
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<tr>
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<td></td>
<td></td>
<td>X</td>
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<td>Coarse Sediment</td>
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</tbody>
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COMMENTS

Page 1 of ___

REVIEWED DATE ___
SHORELINE ECOLOGICAL SUMMARY

Segment ST/FL 1 | Subdivision | Date (mo/day/yr) | 4/10/84

Time (24 hr) | Biologist | Lemon

A.
Substrate type and % of segments:
1. Boulders
2. Cobble
3. Pebble
4. Sand
5. Silt

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

C.
Density, substrate preference, vertical zonation of major taxa:

GASTROPODS

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<thead>
<tr>
<th>Dense</th>
<th>Moderate</th>
<th>Sparse</th>
<th>Rare</th>
<th>NOT PRESENT</th>
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<td>1U 1M 1L</td>
<td>1U 1M 1L</td>
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</table>

FUCUS

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<th>Sparse</th>
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<th>NOT PRESENT</th>
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<td>1U 1M 1L</td>
<td>1U 1M 1L</td>
<td>1U 1M 1L</td>
<td>1U 1M 1L</td>
</tr>
</tbody>
</table>

Wildlife Observations/General Comments:
Low zone used by minnows (fish) and herring. Presence of Drosaria (asteroides, Asterocnemis, Halicula, Echinulina) common. The mid zone also had a variety of species, including Nassa (annulata), Natica (annulata), Antedon (Antedon), and Siphonaria (Gastropoda). Generally, this zone is very rich and varied in its biology.

Ecological Considerations:
Streams spawning salmon occur in this segment, though it appears that the spawning stream is in segment FL 2.
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<tr>
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<tr>
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\[
\begin{align*}
\text{5/8} & \text{m} \\
\text{5/7} & \text{m}
\end{align*}
\]

FL-1A

---

XXX Wide

/// Medium

---- Narrow

TTTT Very Light

0000 No Oil

ADEC Segment Length: 5357m

Map Key: PWS-242g
Name: [Signature]
Date: 7-10-90
Date Entered:
SHORELINE EVALUATION

SEGMENT ST/ FL-01 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
No specific constraints identified.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

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

SHPO SIGNATURE: Charles B. Holman DATE: 4/20/90

OILING CATEGORIZATION:
Wide 0 m: Medium 64 m: Narrow 398 m: V.Light 30 m: No Oil 57 m
Subsurface Oil Observed: Yes No X Maximum Depth_______

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

COMMENTS: Recommend manual pick up of oiled debris and tarmat removal. Also recommend bioremediation of oil coated and oil covered areas.

TAG COMMENTS:

TAG APPROVAL DATE: 4/19/90
ADEC Art Westner Art Wente
EXXON L.W. Carter C.M. Fosco
NOAA Buell supplier Buell supplier
USCG Kenneth Burns
<table>
<thead>
<tr>
<th>No</th>
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XXX Wide
/// Medium
---- Narrow
TTTT Very Light
0000 No Oil

Map Key: PWS-242g
Name: Ford Marty
Date: 7 April 1990
Data Entered:
**ADDENDUM: SUBDIVISION CONSTRAINTS**

SEGMENT FL-1 SUBDIVISION A (1 of 1)

<table>
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<tr>
<td>Manual Pickup</td>
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<tr>
<td>Tarmat Removal</td>
</tr>
<tr>
<td>Bioremediation</td>
</tr>
</tbody>
</table>

**ARCHAEOLOGICAL STANDARD CONSTRAINT**

If cultural resources are uncovered, PHONE 564-3274.

**APPLICABLE ECOLOGICAL TIME CONSTRAINTS**

No time-dependent ecological constraints.

**OTHER ECOLOGICAL CONSIDERATIONS**

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

---

TAG ADDENDUM DATE: 5/16/90

ADEC: Art Weaver  Art Weiner

EXXON: Andy Tesh  Bill

NOAA: [Signature]  [Signature]

USCG: [Signature]  [Signature]

FOSC: [Signature]  [Signature]

DATE: 5/17/90

Prepared by: [Signature]  Date: 5/14/90
SHORELINE EVALUATION

SEGMENT ST/ FL-01 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
No specific constraints identified.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiied biota and substrate.

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

SHPO SIGNATURE: [Signature] DATE: 4/20/90

OILING CATEGORIZATION:

Wide 0 m: Medium 64 m: Narrow 398 m: V.Light 30 m: No Oil 57 m
Subsurface Oil Observed: Yes X No Maximum Depth

RECOMMENDATIONS:

X Treatment Recommended
X Manual Pickup
X Bioremediation
X Tarmat: Breakup X Removal

Snare/Absorbent Booms
Oil Snares (pom poms)
Absorbents (pads, rolls, etc)
Spot Washing: Wands
Beach Cleaner
Other (see comments)

COMMENTS: Recommend manual pick up of oiled debris and tarmat removal. Also recommend bioremediation of oil coated and oil covered areas.

TAG COMMENTS:

TAG APPROVAL DATE: 4/19/90
ADEC [Signature] FOSC: [Signature]
EXXON [Signature] DATE: 5/1-90
NOAA [Signature]
USCG [Signature]
1991 MAYSAP EVALUATION

SEGMENT: FL 001  SUB: A  REGION: FWS  SURVEY DATE: 5/12/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s) 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:

<table>
<thead>
<tr>
<th>TREATMENT REQUIRED (Y or N)</th>
<th>INITIAL</th>
<th>TAG</th>
<th>FOSC</th>
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</thead>
<tbody>
<tr>
<td>N</td>
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</tbody>
</table>

Manual Pickup (Check as Req.)
Spot Washing
Bio-Custombien Only
Bio-Inipol/Custombien
Other __________________________
Other __________________________

COMMENTS:
INITIAL: _______________________

TAG: _______________________

FOSC: _______________________

TAG APPROVAL DATE: ___________ FOSC APPROVAL DATE: ___________

ADEC _______________________
EXXON _______________________
USCG _______________________
NOAA _______________________
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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

NTR Surface oil and subsurface oiling here was light to moderate. A patch of AP was picked up revealing the oiling to SO#1. The remainder of the oil observed was SO1, CV, CT, and FL. No treatment recommended here at this time.

EXXON
NAME: John Dean SIGNATURE: [signature]

NTR 1 bag oily sediment recovered by survey team. Any remaining is not recoverable.

LANDMANAGER
NAME: [name] OF CUC SIGNATURE: [signature]

NTR A ring of asphalt 3" wide ½" thick remains around some large rocks. Very little of this recoverable oil. The most damaging oil in this subdivision is a layer of oil on the face of the 10' cliffs that will certainly run when the weather heats up. Sparse needles are mixed into this oil. Little Sub-Surface oil found. Very little trash, no bio on this Sub.Div.

USCG/NOAA
NAME: [name] SIGNATURE: [signature]

NTR Further cleanup operations would cause more environmental harm than the oil to be removed.

Light CT & ST is common; doesn't warrant further cleanup. Most of the remaining SO1 occurs in some shadows of boulders.
MAYSAP SHORELINE OILING SUMMARY

TEAM NO.  
OG: CHANEY  
BIO: CRANK  
ADEC: HAYES  
LANDMANAGER: WARD  
EXON: DEAN  
USCG/NOAA: DREHER/CLINE  

SEGMENT: FL-1  
SUBDIVISION: A  
DATE: May 12, 1991  
TIME: 06:55 to 08:35  
TIDE LEVEL: -1.5 ft to 0 ft  
ENERGY LEVEL: [ ] H [ ] M [ ] L  
SURVEYED FROM: [ ] FOOT [ ] BOAT [ ] HELO  
WEATHER: [ ] SUN [ ] CLOUDS [ ] FOG [ ] RAIN [ ] SNOW  
TOTAL LENGTH SHORELINE SURVEYED: 549 m  
NEAR SHORE SHEEN: [ ] BR [ ] RB [ ] SL [ ] NONE  
EST. OIL CATEGORY LENGTH: W: — m; M: 30 m; N: 12 m; V: 10 m; NO: 297 m; US: 0 m

<table>
<thead>
<tr>
<th>LOC</th>
<th>AP</th>
<th>MS</th>
<th>TB</th>
<th>SOR</th>
<th>CV</th>
<th>GT</th>
<th>ST</th>
<th>FL</th>
<th>DB NO</th>
<th>TYPE</th>
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<th>WIDTH</th>
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<td>H</td>
<td>1</td>
<td>10</td>
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<td>Lee of Sea Stack</td>
</tr>
</tbody>
</table>

DISTRIBUTION: C = 91-100%; B = 81-90%; P = 71-80%; S = 1-10%; T = <1%
SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE
PHOTO ROLL # MAYSAP- 5 - 13 FRAMES 1-6

<table>
<thead>
<tr>
<th>PIT NO.</th>
<th>PIT DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED ZONE cm-cm</th>
<th>OILED ZONE</th>
<th>CLEAN BELOW</th>
<th>N2O LEVEL</th>
<th>SHEEN COLOR</th>
<th>PIT ZONE</th>
<th>SURFACE-SUBSURFACE SEDIMENTS</th>
<th>NOTES</th>
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<td>15</td>
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<td>N</td>
<td>PG-PB</td>
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</table>

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

OG COMMENTS:
Pit 3 was dug in between large boulders in a bedrock crack. MOR condition follows along area C in pockets of AP between boulders.

(See Note on 2nd Page)
**Maysar Shoreline Oilings Summary (Cont.)**

**Team No. 5**

**Segment FL-1**

**Subdivision A**

**Date May 12, 1991**

<table>
<thead>
<tr>
<th>Pit No.</th>
<th>Pit Depth (cm)</th>
<th>Subsurface Oil Character</th>
<th>Oiled Zone</th>
<th>Clean H2O Below Level</th>
<th>Sheen Color</th>
<th>Pit Zone</th>
<th>Surface-Subsurface Sediments</th>
<th>Notes</th>
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</thead>
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<tr>
<td>9 35</td>
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<td></td>
<td></td>
<td></td>
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<td>SP-SP</td>
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</tbody>
</table>

**Sheen Color:**
- B = Brown
- R = Rainbow
- S = Silver
- N = None

**OG Comments:**

Oilings along this subdivision is primarily restricted to the protected sides of boulders and bedrock outcrops. Sporadic coat & cover with spruce needles forms most of the oiled surface area. The largest volume of oil was observed in area C. This was primarily in the form of patches between bedrock and boulders.
TEAM # 5
DATE 12 MAY '91
SEGMENT # FL-1
TIDAL HEIGHT (range) -1.0 > +1
SUBDIVISION A
BIOLOGIST Crank
SEA STATE O >1'
WIND SPEED/DIRECTION ~5 knots/West
PHOTOGRAPHS: ROLL # 
FRAME # 
COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):
(A) Area is a 1m x 10m band in the VITZ located on the lee side of a sea stack.
   There is an approximate 10% benthos cover in this area including filamentous green
   algae and barnacles with rare recruits. Directly below this band barnacle
   recruits become more concentrated with a space to moderate density.

(B) Area is located in a mussel field 20+ 15m behind and to the west of 'A' in the VITZ.
   There is an approx. 40% benthos cover in this area. Both adult and recruit barnacle
   had a moderate concentration.
   There are rare adult mussels; 1 year old mussels and a moderate concentration of
   were dense. Concentrated mussels are sparse, Fucus is moderately
   bore-tidal; spar elss and recruits are sparse. Starfish are
   race. The spot algae is present.

In the VITZ below 'A' and 'B' there is a rich algae cover (~70% of surface
seaweeds), filamentous red, green, diatom red seaweed (including Ulva : Phymata).
Scytophila and Fucus are common. The Fucus plants are small and
they do not appear to be reproducing at all at this time.

(C) Area is a 1m x 25m band in the inner VITZ located in the lee of large boulders ~50m
   West of 'B'. Within the site there is less than 5% benthos cover over an area similar
   tide-exposed rocks. 1 year old mussels are sparse. In addition to 5m
   barnacle cover is ~25%. Fucus sporangia can be seen. Starfish are present. Spar elss are
   race. There are 2-3 large mussel, far spot algae: 1-2 year green algae are rare.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
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<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
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</tr>
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<td>Seabirds</td>
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<tr>
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<td>Shorebirds</td>
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<tr>
<td>Corvids</td>
<td>1 - Crow, 1st-year</td>
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<tr>
<td>Other Birds</td>
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<table>
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<tr>
<td>Pinnipeds(specify)</td>
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<td>Black bear on e.</td>
</tr>
<tr>
<td>Whales(specify)</td>
<td>1</td>
<td>Polar bear on e.</td>
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</tbody>
</table>

Shoreline subdivision map showing important biological features attached.
Comments (cont.)
Below 'C' is a gravel/cobble/boulder pocket beach. On the gravel there is <1% biota cover, on the cobble there is ~1% biota cover including barricades, mussels, *Fucus* and *Palmaria* a red alga. On boulders in the L1TZ biota cover is ~80%.
There are densely concentrated juvenile mussels. The majority of these mussels are in the 1 yr age class. Adult mussels are rarely concentrated. Barricade recruits are present. Algae present includes: *Fucus*, *Palmaria*, *Cladophora*, *Scytosiphon*, *Ulva/Muricastrum* and *Sphecopsamia*.

In west corner of the pocket beach is a densely covered (~95%), cliff face. Recruitment is high. In the L1TZ M1TZ juvenile mussels are densely concentrated, adults are sparse. At ~7' tide level *Fucus* sporelings become sparse to moderately concentrated. From ~+4' to +1' tide level there is a tremendous mussel recruitment.

Mussels are densely concentrated and in the 1 year age class. Below the mussels, algae is dense with bladed red and green **Halia* (kelp) is also present. Throughout the M1TZ and L1TZ black, leather chitons (*Katharina tunicata*), Sunflower stars (*Pycnopodia*) and leather stars (*Dermasteria*) are found.
Area is a 1m x 7m band high in the ULTZ in the lee of a bedrock outcrop. Within the band there is ~20% biota cover. There is a new set of barnacles, a sparsely concentrated adult barnacles, a sparse adult mussel concentration, filamentous green algae, and a rare *Fucus* concentration. Within 1m below site biota cover increases to ~60%. *Fucus* is dominant. Both maturing conceptacles and sporelings are present. Many of the mature plants have epiphytic plants growing on the stalks. Adult barnacles and limpets are also present.

(E) Area is a 1x70m band in the ULTZ. There is ~20% biota cover on the surface sediments. *Fucus* is sparse, both sporelings and maturing conceptacles are present. Adult barnacles are sparse. There is also a moderate to dense concentration new set of barnacles present. Mussels and also sparse with various age classes. Concentrations are found in cracks and crevices. Approx 1m below site barnacles have a moderate concentration and algae (*Fucus*, *Chondrus*, *Cystophora*, *Brachio*), ~3% ~5% occurred, *Idanthera* ~30% ~40%.
Comments (cont.)

(CF) Area is located high in the U1TZ. Barnacles, Fucus sporlings and filamentous green algae are present in rare concentration. Biota cover <1%. Below site, in U1TZ, no biota found in gravel. Cobble and bedrock located on gravel. Much <17% biota cover of Fucus and barnacles.

(G) Area is a 1x10m band in the U1TZ. Within site biota is similar to area 'F'. In the U1TZ below site there is dense algae cover (~90%) and a clam bed with Protomus (little neck clam), Saxidomus (butter clam) and Hiattella.

(H) Area is a 1x10m band in the U1TZ located in the lee of a rock outcrop. Barnacles cover ~1% of the surface sediments with in band. Less than 1m below band is a patch of Fucus sporlings. Two meters below band there is ~70% biota cover including a concentration of Fucus, mussels (saxaouages) and barnacles. (a new set is present).

(Pit 6) Within 1m east and west of pit there are intergravel mussels (U1TZ) near the bases of cobbles and boulders Fucus and barnacles cover ~20% of the cobble/boulder surface area. The L1TZ has a clam bed under cobble veneer.
Comments (cont.)

(I) Area is located in the UITZ along bedrock. Within the site there is <1% barnacle and *Fucus* sporeling cover. Beginning 12 m below site there is a moderate concentration of barnacles (various age classes); sparse mussels; a rare to sparse concentration of *Fucus* with both sporelings and maturing capsules; tarspot algae; and rare gastropod concentrations (*Littorina* and limpets). Biotia cover is ~50%.

(J) Area is located in the SUPRA and UITZ. In the SUPRA there are mosses and black lichen, biota cover is <1%. In the high tide UITZ there are barnacles and *Fucus* sporelings. Biotia cover is <1%. Low in UITZ biota cover is ~10% including barnacles (new set present), mussels (various age classes; *Nucula*), *Fucus* (mature plants do not appear to be reproductively active at this time; sporelings are present), and Glimpeptis (algae). Below site in the MITZ, there is ~1% biota cover including the species *Lithodes* in UITZ and the algae *Ulva*, *Porphyra*, *Chlorophora* and *Scytosiphon*. The east side of the UITZ is a cove and located under a cobble veneer. The west side of the UITZ is a gravel beach. Biotia was not seen in gravel; some cover similar to MITZ.

Revise, M.3. 5/06/14
(K) Area is located high in the U1TZ along boulder bases. Within the site there are Black lichen, moss and oligochaete worms covering 41% of surface sediments. Two meters below site, in the low U1TZ, Elcos sporelings and a rare barnacle concentration cover ~15% of the surface sediments. 15 m below site is the M1TZ. Biota is same as describe in 'J'; cover ~40%. On the L1TZ gravel, no biota was found, the cobble cover was similar to MITZ.

This subdivision has high recruitment occurring in the barnacle and mussel populations. The biota appears to be healthy. Clam beds and dense algal growth in L1TZ would be sensitive to trampling.
Dense recruitment of mussels (1 yr age class) and barnacles. Many sea stars present.

Algae cover in LITZ (low biota) active.

In the LITZ below high algae cover (~70% of surface sediments) Fuwus plants are small, retroactively active at this time. Species are present.

LITZ is a clam bed also dense algal cover on surface sediments (~70%)

30-40% barnacle and algae cover in MIZ (LITZ or beach)

Drift pocket for Fuwus and bivalve shells (clams, mussels).

Clam bed under cobble veneer

Gravel LITZ low biota

FLEMING ISLAND

LEGEND

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>MEANING</th>
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<tbody>
<tr>
<td>B</td>
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<tr>
<td>F</td>
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<tr>
<td>V</td>
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</tr>
<tr>
<td>G</td>
<td>DRIFT LOG</td>
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<td>Y</td>
<td>GRABB</td>
</tr>
<tr>
<td>D</td>
<td>BRUSH</td>
</tr>
<tr>
<td>C</td>
<td>OILED PIT</td>
</tr>
<tr>
<td>O</td>
<td>NO OIL PIT</td>
</tr>
<tr>
<td>P</td>
<td>PHOTO</td>
</tr>
</tbody>
</table>

SCALE

100 METERS APPROXIMATELY
SEGMENT: FL 001  SUB: A  REGION: PWS  SURVEY DATE: 5/12/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s) 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: [Signature] Date: 5/24/91

RECOMMENDATIONS:

<table>
<thead>
<tr>
<th>TREATMENT REQUIRED (Y or N)</th>
<th>INITIAL</th>
<th>TAG</th>
<th>FOSC</th>
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</thead>
<tbody>
<tr>
<td>N</td>
<td></td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

Manual Pickup (Check as Req.)
Spot Washing
Bio-Customblen Only
Bio-Inipol/Custmblen
Other
Other

COMMENTS:
INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: MAY 24 1991  FOSC APPROVAL DATE: 5/3/91

ADEC

EXXON

USCG

NOAA

E. E. PAGE, CDR, USCG
CHIEF OF STAFF, FOSG
Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.
MAYSAP FIELD SHORELINE COMMENT SHEET

TEAM NO. 5  SEGMENT FL-1  SUBDIVISION A  DATE 5/12/91

ADEC
NAME: John Hayter  SIGNATURE: 
- NTR Surface oil and subsurface oiling here was light to moderate. A patch of AP was picked up reducing the oiling to SOR#. The remainder of the oil observed was SOR, CU, CT, or FL. No treatment recommended here at this time.

EXXON
NAME: Jeff Dean  SIGNATURE: 
- NTR 1 bag oily sediment recovered by survey team. Any oil remaining is not recoverable.

LANDMANAGER
NAME: NAME OF CUC  SIGNATURE: 
- NTR A ring of asphalt 0.5" wide ½" thick remains around some large rocks. Very little of this recoverable oil. The most damaging oil in this subdivision is a layer of oil on the face of a berm that will certainly run when the weather heats up. SOR needles are mixed into this oil. Light Sub-Surface oil found. Very little trash. No Bio. on this Sub O.I.

USCG/NOAA
NAME: DREHER/CLENE  SIGNATURE: 
- NTR Further cleanup operations would cause more environmental harm than the oil tube removed. Light CT and ST is common; doesn’t warrant further cleanup. Most of the remaining SOR occurs in some shadows of boulders.
**MAYSAP SHORELINE OILING SUMMARY**

**TEAM NO. 5**

**OG** CHANEY  **BIO** CRANK  **LANDMANAGER** WARD  **USCG/NOAA** DREHER/CLINE

**ADEC** HAYES  **SEGMENT** FL-1  **DATE** May 12, 1991

**EXXON** DEAN  **SUBDIVISION** A  **TIDE LEVEL** -1.5 ft. to 0 ft.

**TIME** 08:55 to 08:35  **ENERGY LEVEL** H M L

**SURVEYED FROM:**
- Foot: Yes
- Boat: No
- Helo: No

**WEATHER:**
- Sun: Yes
- Clouds: Yes
- Fog: Yes
- Rain: No
- Snow: No

**TOTAL LENGTH SHORELINE SURVEYED:** 549 m  **NEAR SHORE SHEEN:**
- BR: None
- RB: None
- SL: None

**EST. OIL CATEGORY LENGTH:**
- W: 0 m
- M: 30 m
- N: 112 m
- VL: 110 m
- NO: 297 m
- US: 0 m

### Surface Oil Character

| LOC | AP | MS | TB | BOR | CV | CT | ST | FL | DB | NO | SURFACE OIL CHARACTER | SURFACE SEDIMENT | SLOPE | WIDTH | LENGTH | ZONE | NOTES |
|-----|----|----|----|-----|----|----|----|----|----|----|-----------------------|-----------------|-------|-------|--------|--------|------|-------|
| A   | K  | 5  | 6  | 7   | 8  | 9  | 10 | 11 | 12 | 13 | Lee of Sea Stack       | Boulders        |       |       |        |        |      |       |
| B   | 7  | 3  | 4  | 5   | 6  | 7  | 10 | 11 | 12 | 13 | Boulders              | Lee of Larg Boulders |       |       |        |        |      |       |
| C   | K  | 6  | 7  | 8   | 9  | 10 | 11 | 12 | 13 | 14 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |
| D   | 7  | 3  | 4  | 5   | 6  | 7  | 10 | 11 | 12 | 13 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |
| E   | 2  | 5  | 6  | 7   | 8  | 9  | 10 | 11 | 12 | 13 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |
| F   | 7  | 3  | 4  | 5   | 6  | 7  | 10 | 11 | 12 | 13 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |
| G   | 2  | 5  | 6  | 7   | 8  | 9  | 10 | 11 | 12 | 13 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |
| H   | 2  | 5  | 6  | 7   | 8  | 9  | 10 | 11 | 12 | 13 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |
| I   | 2  | 5  | 6  | 7   | 8  | 9  | 10 | 11 | 12 | 13 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |
| J   | 2  | 5  | 6  | 7   | 8  | 9  | 10 | 11 | 12 | 13 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |
| K   | 2  | 5  | 6  | 7   | 8  | 9  | 10 | 11 | 12 | 13 | Lee of Bedrock Outcrop| Random Pitcher in Rocks |       |       |        |        |      |       |

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

**SLOPE:**
- V = Vertical
- H = High Angle
- M = Medium Angle
- L = Low Angle

**PHOTO ROLL #:** MAYSAP - 5 - 13

**FRAMES 1-6**

### Pit Subsurface Oil Character

<table>
<thead>
<tr>
<th>PIT NO</th>
<th>PITH</th>
<th>DEPTH</th>
<th>OIL CHARACTER</th>
<th>OILED ZONE</th>
<th>CLEAN H2O LEVEL</th>
<th>SHEEN COLOR</th>
<th>PIT ZONE</th>
<th>SURFACE-SUBSURFACE SEDIMENTS</th>
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<td>2</td>
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<td>5-10 Y</td>
<td>Y</td>
<td>PG-P</td>
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</tbody>
</table>

**SHEEN COLOR:**
- B = Brown
- R = Rainbow
- S = Silver
- N = None

**OG COMMENTS:**

Pit 3 was dug in between large boulders in a bedrock crack. HOR condition follows along area C in pockets of AP between boulders.

Pit 6 MOR condition was limited to approximately 2 m² behind bedrock outcrop.

(See note on 2nd page)
### OG COMMENTS:

Oiling along this subdivision is primarily restricted to the protected sides of boulders and bedrock outcrops. Sporadic coat & cover with spruce needles forms most of the oiled surface area. The largest volume of oil was observed in area C. This was primarily in the form of patches between bedrock and boulders.
TEAM #: 5
SEGMENT #: FL-1
SUBDIVISION: A
SEA STATE: 1

DATE: 12 MAY '91
TIDAL HEIGHT: (-range) -1.0 > +1
BIOLOGIST: Crank
WIND SPEED/DIRECTION: ~5 knots/West

PHOTOGRAPHS: ROLL #: FRAME #

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

(A) Area is a 1m x 10m band in the UITH located on the lee side of a sea stack.
There is an approximate 12% bivalve cover in the band including filamentous green
algae and barnacles with rare recruits. Directly below the band barnacle
recruits become more concentrated with a sparse to moderate density.

(B) Area is located in a barnacle field about 15 m behind and to the west of 'A' in the UITH:
MIII. There is an approx. 40% bivalve cover in this area. Barnacle and recruit barnacle
have a moderate concentration. Barnacles quickly rise their inner plates when stimulated.
There are rare adult mussels and gaper mussels have a moderate concentration and
were densely concentrated along cracks and crevices. Fucus is moderately
concentrated in the crevices and red algae and red corals are present. Limpets are
rare. No spot signal is present.

In the UITH below 'A' and 'B' there is a rich algae cover (~70% of surface
sediments). Filamentous red algae, Please red corals (including Ula: Alaria)
Scyphosoma and Fucus are present. The Fucus plants are small and
do not appear to be reproductive active at this time.

(C) Area is a 1m x 25m band in the high UITH located on the lee of large boulders ~50 m
west of 'B'. Within the site there is less than 10% bivalve cover on surface sediments:
including: rass, black alginen and filamentous green algae. On boulders ~5m in
depth bivalves is ~25%. Fucus spattering are rare. Also present: sparse corals.
35 sparry in a 1-2 year old mussel. Fucus spattering, filamentous green algae, and rare lms.

WILDLIFE OBSERVATIONS: Area includes Pit 3.

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS

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<th>Total Birds</th>
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<td>Seabirds</td>
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<tr>
<td>Waterfowl</td>
<td>1 - Geese</td>
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<tr>
<td>Gulls/Kittiwakes</td>
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<td>Shorebirds</td>
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MARINE MAMMALS

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<td>Pinnipeds(specific)</td>
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<td>Pocket beach on</td>
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<tr>
<td>Whales(specific)</td>
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<td>Bear bridge 15 across</td>
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LAND MAMMALS

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</table>

Shoreline subdivision map showing important biological features attached.

Reviewed M.B. 5/16/91
Below 'C' is a gravel/cobble/boulder pocket beach. On the gravel there is <1% biota cover; on the cobble there is ~1% biota cover including barnacles, mussels, *Fucus* and *Palmaria* (a brown red alga). On boulders in the LITZ biota cover is ~80%. There are densely concentrated juvenile mussels. The majority of these mussels are in the 1 yr age class. Adult mussels are rarely concentrated. Barnacle recruits are present. Algae present includes: *Fucus*, *Palmaria*, *Cladophora*, *Scytosiphon*, *Ulva*, *Mnium* and *Spongilliforma*.

1/2 west boundary of the pocket beach is a densely covered (~90%is) cliff face. Recruitment is high. In the UITZ to MITZ juvenile barnacles are densely concentrated, adults are sparse. At ~7' tide level *Fucus* sporelings become sparse to moderately concentrated. From ~+4' to +11' tide level there is a tremendous mussel recruitment. Mussels are densely concentrated and in the 1yr age class. Below the mussels, alga is dense with bladed red and green spirogyra. *Alaria* (kelp) is also present. Throughout the MITZ and LITZ black, leather chitons (*Kathetina tunicata*), Sunflower stars (*Pycnopodia*) and leather stars (*Dermasteria*) are found.
Comments (cont.)

(D) Area is a 1m x 7m band high in the UITZ in the lee of a bedrock outcrop. Within the band there is ~20% biva cover. There is a new set of barnacles, a sparsely concentrated adult barnacles, a sparse adult mussel concentration, filamentous green algae; and a rare Fucus concentration. Within 1m below site biva cover increases to ~60%. Fucus is dominant. Both maturing conceptacles and sporelings are present. Many of the mature plants have epiphytic plants growing on the stalks. Adult barnacles and limpets are also present.

(E) Area is a 1x7m band in the UITZ. There is ~20% biva cover on the surface sediments. Fucus is sparse, both sporelings and maturing conceptacles are present. Adult barnacles are sparse. There is also a moderate to dense concentration of new set of barnacles present. Mussels are also sparse. With various age classes, concentrations are found in cracks and crevices. Approx 1m below site barnacles have a moderate concentration and algae (Fucus, Pseudophora, Scolosiphon, Diadema, Halosaccion, Odonthalia) are present. Biva: ~30 > 40%.

Reviewed: M.B. 5/11/91
Comments (cont)

(F) Area is located high in the UITZ. Barnacles, Fucus sporelings and filamentous green algae are present in rare concentration. Bioti cover ~19%. Below site, in UITZ, no biota found in gravel. On cobble and bedrock located on gravel which ~1% ~19% biota cover of Fucus & barnacles.

(G) Area is a 1x10m band in the UITZ. Within site biota is similar to area 'F'. In the LITZ below site there is dense algae cover (~90%) and a clam bed with Prototreta (little neck clam), Saxidomus (butter clam) and Hiatella.

(H) Area is a 1x10m band in the UITZ located in the lee of a rock outcrop. Barnacles cover ~1% of the surface sediments within band. Less than 1m below band is a large patch of Fucus sporelings. Two meters below band there is ~70% biota cover including a marine concentration of Fucus, mussels (various ages) and barnacles (a new set is present).

(Pit le) Within 1m east and west of pit there are inter-gravel mussels near the bases of cobbles and boulders. Fucus and barnacles cover ~20% of the cobble/boulder surface area. The LITZ has a clam bed under cobble veneer.
(I) Area is located in the U1T2 along bedrock. Within the site there is <1% barnacle and Fucus sporeling cover. Beginning 1/4 m below site there is a moderate concentration of barnacles (various age classes); sparse mussels; a rare to sparse concentration of Fucus with both sporelings and maturing concepacies; tarspot algae; and rare gastropod concentrations (Littorina and limpets). Biota cover is ~ 50%.

(J) Area is located in the SUPRA and U1T2. In the SUPRA there are mosses and black lichen. Biota cover is <1%. In the high-mid U1T2 there are barnacles and Fucus sporelings. Biota cover is <1%. Low in U1T2 biota cover is ~10% including barnacles (new set present), mussels (various age classes), gastropods (Littorina, limpets; Nucella), Fucus (mature plants do not appear to be reproductively active at this time; sporelings are present), and Gloiopeltis (algae). Below site in the MITZ, there is ~40% biota cover including the organisms found in U1T2 and the algae Ulva, Porphyra, Cladophora and Scytosiphon. The east side of the MITZ is a clam bed located under a cobble veneer. The west side of the MITZ is a gravel beach. Biota was not found in gravel; cobble cover similar to MITZ.
Comments (cont.)

(K) Area is located high in the U1TZ along boulder bases. Within the site there are Black lichen, moss and oligochaete worms covering ~4% of surface sediments. Two meters below site, in the low U1TZ, Eucus sporelings and a rare barnacle concentration cover ~15% of the surface sediments. 15 m below site is the M1TZ. Biota is same as described in "J." cover ~40%. On the L1TZ gravel, no biota was found.

The cobble cover was similar to M1TZ.

This subdivision has high recruitment occurring in the barnacle and mussel populations. The biota appears to be healthy. Clam beds and dense algal growth in L1TZ would be sensitive to trampling.
MAYBAP 1991
OG SKETCH MAP: Bio Sketch Map
GREG CHANEY: Crank
TEAM 5
SEGMENT: F2 A
DATE: 12 MAY 1991
AIR P. #: PIMC 005 195

KNIGHT ISLAND
PASSAGE

LEGEND

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<th>BRUSH</th>
<th>FOREST</th>
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</tbody>
</table>

SCALE 100 METERS APPROXIMATELY

LITZ is a clam bed also dense algal cover on surface sediments (90%)

30-40% barnacle and algae cover in M17: LITZ on beach

Drift pocket for Fuus and bivalve shells (clams/mussels)

Dense recruitment of mussels (~yr age-class)
and barnacles. Many Seastars present.

In the LITZ below A: 10' rich algae
cover (~70% of surface sediments)

Fuus plants are small
neorepos actively active at this time. Species
present, moderate concentration of 1yr age-class mussels.

Clam bed under cobble veneer

Gravel LITZ low biota

Low benthic cover in U17

Class intergravel mussel bed
ASAP FOLLOWUP RECOMMENDATIONS

Conditions Observed: SPACES BETWEEN Boulders AND COBBLES CONTAINED AP & MS THAT WERE TREATED IN MAY. MANY Boulders (small) were NOT MOVED IN PREVIOUS TREATMENT AND ON UNDER NEATH HAS MOVED TO OPEN SPACES CREATED BY PREVIOUS MANUAL CREW. BIO CREW HAS ASKED HERE ALSO. ASAP VEGO CREW SPENT A FULL DAY & Removed 2-3 Full Super Sacks OF oiled Sediment.

Followup Recommendations: ASAP VEGO CREW HAS COMPLETED MANUAL P/N OF MS AND AP PATCHES & CUSTOMISED THE SITE. A BIO SQUAD NEEDS TO CHECK FOR INITIAL APPLICATION AND RETILING PRIOR TO INITIAL APPLICATION.

Completed by Pickup Crew: ☒ YES ☐ NO

Priority for Addressing in 1990: ☒ High ☐ Mod. ☐ Low

DEC

Comments:

Exxon

Comments: I CONCUR WITH THE CONDITIONS OBSERVED AND FOLLOWUP RECOMMENDATIONS.

USCG

Comments:

Land Rep.

Comments: ASAP CREW HAS COMPLETED manual. I agree with above.
SEGMENT AS / FL-1/ SUBDIVISION: A SITE: 1 DATE 8/5/90

SCG NAME: Don Davison USCG SIGNATURE:

☑ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:
- Scattered tar patches, mostly invisible, but heavy in some parts. Most are well protected by rock cutaways and may remain until winter. Low priority reassessment in 1991.
- Old work area in middle pocket beach should be checked in 1991.

ADEC NAME: Bob McCready SIGNATURE: Robert B. McCready

☑ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:
- Two pocket beaches at North end. 2 segments normally treated by a summer '90 crew. Some residual AP remains and some new tar mat seen to have formed probably from subsurface oil 'pumping up.' Below existing tar mat is OR subsurface oil to approx 32m. Remaining oil is not enough to warrant further treatment, but should be observed during after spring '91 assessment. Manual removal should occur.

LAND MANAGER NAME: Steve Cho CUC SIGNATURE: J. B. Cun

☑ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:
- There is unidentified sub surface oil present below lower SIP. Enough oil remains to warrant '91 survey. Summer crew could have been better informed in Helen.

EXXON NAME: Randall K. Boyer SIGNATURE: Randall K. Boyer

☑ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:
- Two pocket beaches on this subdivision has AP/IP & Mousse between boulders which required our ASAP to spend 1 day in recovering oil. It was manually treated in May however some MS has moved into areas that will previously opened up. Another look in '91 would be warranted. Not a high priority in 1991.
**SURFACE OIL**

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<tr>
<th>CHARACTER</th>
<th>DISTRIBUTION</th>
<th>OILED ZONES</th>
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**SUBSURFACE OIL**

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<th>SITE NO</th>
<th>PIT NO</th>
<th>PIT DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED INTERVAL</th>
<th>CLEAN BELOW (Y/N)</th>
<th>PIT ZONE</th>
<th>SURFACE OIL/SUBSURFACE SEEDMENTS</th>
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</table>

**COMMENTS**

- CT/SF/CV 4-15 were found in pocket beaches. The CT/CV 4-15 were worked (areas, broken, cutouts) by the fill crew.

---

**REVISED**

8/6/90 J. Wo
Note: Area identified for bio was described as "with visible oil." Site 2 was identified as needing bio.

Site 1

Site 2

Legend

- Manual treatment (pick-up/custom/mixed) conducted by field crew

8/5/90

NO 4/15
CT 10
ST 10
CU 10
US 10

- Sand, pebble, gravelly - pebbles, pebbles, sand, gravelly
- Beach, beach, beach, beach, beach
- 15 m band of sand, 420 m long
- Crosshatch: Trent infilling under beach
- Builders: One small bay
- 8/10

0.5 m band of stain (patchy) on beach, cliffs, grade to nothing on exposed bedrock

- Reds: Sand, pebbles, gravelly - pebbles, pebbles, sand, gravelly
- Beach, beach, beach, beach, beach
- 15 m band of sand, 420 m long
- Crosshatch: Trent infilling under beach
- Builders: One small bay
- 8/10

On computer length: 10' 40' 50' 60' 70' 80' 90' 100' 200' 300' 400' 500' 600' 700' 800' 900' 1000' 1100' 1200'
ASAP FOLLOWUP RECOMMENDATIONS

ment: AS/FL-1  Subd:  A  Site:  1  Date:  8/5/90  1990

Conditions Observed: SPACES BETWEEN BOULDERS AND COBBLES CONTAINED A&MS THAT WERE TREATED IN MAY. MANY BOULDERS (SMALL) WERE NOT MOVED IN PREVIOUS TREATMENT AND ON UNDER HAY HAS MOVED TO OPEN SPACES CREATED BY PREVIOUS MANUAL CREW-BIO CREW HAS ADDED HERE ALSO. ASAP VEEDO CREW SPENT A FULL DAY A REMOVED 2+ FULL SUPER SACKS OF DRIED SEDIMENT.

Followup Recommendations: ASAP VEEDO CREW HAS COMPLETED MANUAL P/N OF MS AND AP PATCHES & CUSTOM BLENDED THE SITE. A BIO SQUAD NEEDS TO CHECK FOR INSECT/PLANT APPLICATION AND RETILLING PRIOR TO INITIAL APPLICATION.

Completed by Pickup Crew: ☑ YES ☐ NO  Priority for Addressing in 1990: ☑ High ☐ Mod. ☐ Low

IBC  (name)  (signature)

Comments:

Exxon  Randall K. Boyce  (name)  (signature)

Comments: I CONCUR WITH THE CONDITIONS OBSERVED AND FOLLOW UP RECOMMENDATIONS

USCG  (name)  (signature)

Comments:

Land Rep.  Colm CUC  (name)  (signature)

Comments: ASAP CREW HAS COMPLETED MANUaland APPPLY WITH WAVER
SEGMENT AS / FL-1 SUBDIVISION: A SITE: 1 DATE 8/5/90

CG
NAME: David W. Pinckney SIGNATURE: David W. Pinckney

Yes [X] No [ ] PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:

Scattered tar patches, mostly inisistential, not heavy in some parts. Most areas are well protected by rock outcrops and very remnant and winter. Old priority reassessment in 1991.

Old work area in middle packed beach should be checked in 1991.

ADEG
NAME: Bob McCready SIGNATURE: Robert McCready

Yes [X] No [ ] PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:

Two pocket beaches at north end of segment were normally treated by a summer 90 crew. Some residual AP remained and some new tar mats seem to have formed probably from subsurface oil "pumping up." Below existing tar mats is OR subsurface oil to approx. 3 cm. Remaining oil is not enough to warrant further treatment, but should above described remain after spring 91 assessment manual removal should occur.

LAND MANAGER
NAME: Steve Chilewski SIGNATURE: Steve Chilewski

Yes [X] No [ ] PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:

There is uncertainty Sub surface oil present. Above work site enough oil remains to warrant 91 survey. Summer crew could have been better informed in 90.

EXXON
NAME: Randall K. Boyer SIGNATURE: Randall K. Boyer

Yes [X] No [ ] PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:

Two pocket beaches on this subdivision has AP/IP & mouse between boulders which required cor ASAP to spend 1 day in recovering oil. It was manually treated in May however some MS has moved into areas that were previously opened up. Another look in 91 would be warranted. Not a high priority in 91.
### Surface Oil

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### Subsurface Oil

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### Comments

- CT/ST/CU YS5 were found in pocket beaches. The CT/CU YS5 were worked (raked, broken, customization) by the Pitcrew.

- Reviewed 8/6/90 YW

- Photographs:
  - Roll No: 0
  - Frames: 0

- REVISION NO. 1/2/90
Note: Area identified for bio was described as "with no visible bio." Site 2 was identified as needing bio.
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/FL-02

SUBDIVISIONS: A (1 OF 1)
SHORELINE EVALUATION

SEGMENT ST/FL-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

● SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
  ADF&G anadromous stream no 226-40-16390, 16388, 16384.
  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.

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

SHPO SIGNATURE: ______________________ DATE: ______________________

OILING CATEGORIZATION:
Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 1303 m: No Oil 293 m
Subsurface Oil Observed: Yes X No ___ Maximum Depth 55+ cm

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

COMMENTS: Recommend tarmat removal, manual pick up of oiled trash and
debris. At pit 2 location (see sketch map), recommend manual reloca-
tion of 25cm x 15m x 2m of sediment from the UILZ to the MITZ, followed
by bioremediation. Use snare boom during relocation operation. Work
should be conducted after 5/1 as long as bioremediation work is not
within 100m of stream.

TAG COMMENTS: ______________________________________________________
  ______________________________________________________
  ______________________________________________________

TAG APPROVAL DATE: ______________________

ADEC EXXON FOSC: __________ DATE: __________
NOAA ______________________
USCG ______________________
Salmon stream mouth - fry outmigration (3/1 to 5/15)
Salmon stream mouth - spawning (7/10 to 8/31)
No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage.
No bioremediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.

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

Esther Hatchery release (4/15 to 6/1)

Main Bay Hatchery release (4/20 to 5/10)

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

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

Remote release site

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

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

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

Set net sites (6/11 to 7/25)
For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.

Herring spawning (4/1 to 6/15)
Restrict boat traffic to essential minimum. Avoid damage to uncultured intertidal and subtidal algae and seagrass.
Contact ADF&G for specific dates and locations.

Harbor seal and sea lion pupping (5/15 to 7/1)
Harbor seal and sea lion molting (8/15 to 9/15)
Restrict boat and aircraft to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.

Seabird colony (5/1 to 9/1)
Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.

Shorebird/waterfowl concentration (4/1 to 5/15)
Restrict all activity to essential minimum, especially air traffic.

All Bald Eagle nests (3/1 to 6/1)
Active Bald Eagle nests (3/1 to 9/1)
Restrict all traffic to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 600m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.

Recreation:
Tent sites (6/1 to 9/15)
Anchorage (6/1 to 9/15)
Forest Service cabins (6/1 to 9/15)
Lodge (6/1 to 9/15)
Special use destination

Subsistence area:
Salmon harvesting (5/1 to 9/30)
Finfish harvesting
Deer harvesting (8/15 to 2/28)
Invertebrate harvesting

For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.
FIELD SHORELINE COMMENT SHEET

SEGMENT ST1 FL-02 SUBDIVISION: A DATE 09 APRIL 90

☐ NO TREATMENT RECOMMENDED ☑ TREATMENT SUGGESTED

COMMENTS

1. MANUALLY REMOVE ASPHALT AND TAR PATTIES.
2. POSITIVE BIO-REMEDIATION.

☐ NO TREATMENT RECOMMENDED ☑ TREATMENT SUGGESTED

COMMENTS

1. MANUALLY REMOVE TAR BALLS, ASPHALT AND OILED PEBBLES.
2. REMOVE RESIDUAL OIL FROM BETWEEN BOULDERS AND IN SEDIMENTS.

CUL R.G.G. NOTED DISCOLORATION IN LIVERS OF DEER TAKEN WHILE FORAGING ON ISLANDS OF BEACH. APPLICATION OF BIOREMEDIATION OR OTHER CHEMICALS SHOULD ONLY BE WITH CUL APPROVAL.

RENTIER REVIEW SHOULD BE MADE OF OILED GRAVELS NEXT LAND MANAGER TO ANOMYNOMOUS STAFF.

☐ NO TREATMENT RECOMMENDED ☑ TREATMENT SUGGESTED

COMMENTS

Enclosed data collected very professionally, very accurate.
SHORELINE OILING SUMMARY

DATE: 07/14/90
TIME: 03:30:10
TIDE LEVEL: +0.7m (1.10 + 1.7m (6.3))

TEAM NO.: 10

EST. SUBDIVISION LENGTH: 1440 m

SURFACE OIL

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PAVEMENT: H | P | 6 sq.m by 3 cm

PATTERNS/TARBALLS: 2 BAGS

NEAR SHORE SHEEN: NO

SUBSURFACE OIL

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COMMENTS

% OIL CONSTITUENT SUBSURFACE OIL

Page 1 of

REVIEWED DATE

SHORELINE ECOLOGICAL SUMMARY

Segment ST/1 Subdivision A Date (mo/day/yr) 4/4/80

Time (24 hr) 08:30 100

Biotage Lemon

(A) Substrate type and % of segments:

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

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

BARNACLES

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FUCUS

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Wildlife Observations/General Comments: Water along shore has less clarity than seen at earlier times in place. This study has investigated a phytoplankton bloom seems most (2) Stream had rust color due to drift of some mussel shells. In some places the highest fruiting ever seen (photo) at one of these many mussel beds. The shellfish in these zones are varied and include Protobea, BIVALVES of Subspecies importance. Other species had been identified. Tulip shell is about 2.5%.

Ecological Considerations: High zone included pleurobrachia. Low zone included Demerittia, Mitra, and several Anaspidea and Nucella in numbers. A humus and some fowl have been found. 2 waterfowl sighted.

Eagle nest and stream spawning area.
15 m / NARROW OIL

FL-2

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

ADEC Segment Length: 1597m

Map Key: PWS-239
Name: GM for RM
Date: 4/4/90
Data Entered:
ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT FL-02 SUBDIVISION A (1 of 1)

WORK WINDOW

<table>
<thead>
<tr>
<th>Manual Pickup</th>
<th>OPEN</th>
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<tr>
<td>Tamat Removal</td>
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</table>

| Bioremediation | Over 100m From Stream |
| Manual Relocation | Other Approved Treatment |
| OPEN | |

ARCHAEOLOGICAL INSPECTION/CONSULTATION REQUIRED.

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

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B Salmon Stream NO CONSTRAINT. ADF&G catalogued anadromous streams (226-40-16390, 16388, 16384) present in Subdivision A are more than 100m from recommended treatment areas.

OTHER ECOLOGICAL CONSIDERATIONS

No disturbance to stream bed or banks. Avoid any unnecessary disturbance or damage to uncollied biota and substrate.

SEE ANADROMOUS FISH STREAM EVALUATION ADDENDUM (STREAM NO. 226-40-16390) FOR ADDITIONAL CONSTRAINT INFORMATION

TAG APPROVAL DATE 5/24/90
ADEC Art Weiner Art Weiner
EXXON Andy Turner
NOAA Roy Riedl
USCG
Prepared by Andrea May Date 5/22/90
FOSC Date 5/29/90
SHORELINE EVALUATION

SEGMENT ST/ FL-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADFG anadromous stream no 226-40-16390, 16388, 16384.
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 uncoiled biota and substrate.

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

SHPO SIGNATURE: [Signature] DATE: 4/20/90

OILING CATEGORIZATION:
Wide 0 m; Medium 0 m; Narrow 0 m; V.Light 1303 m; No Oil 293 m
Subsurface Oil Observed: Yes X No Maximum Depth 55+ cm

RECOMMENDATIONS:

 X No Treatment Recommended
 X Treatment Recommended
X Manual Pickup
X Bioremediation
X Tarmat  Breakup
 X Removal

X Snare/Absorbent Booms
Oil Snares (pom poms)
Absorbents (pads, rolls, etc)
Spot Washing: Wands
Beach Cleaner
Other (see comments)

COMMENTS: Recommend tarmat removal, manual pick up of oiled trash and debris. At pit 2 location (see sketch map), recommend manual relocation of 25cm x 15m x 2m of sediment from the UITZ to the MITZ, followed by bioremediation. Use snare boom during relocation operation. Work should be conducted after 5/1 as long as bioremediation work is not within 100m of stream. [See Constraint Addendum Date 5/21/90]

TAG COMMENTS:


TAG APPROVAL DATE: 4/20/90
ADEC ART WIEBER ART (00)
EXXON AWAY TEMP
NOAA REW WEISFOTT
USCG
SHORELINE EVALUATION

SEGMENT ST/ FL-02 SUBDIVISION A (1 OF 1) DATE 4/2/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADFG anadromous stream no 226-40-16390, 16388, 16384.
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.

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:  [Signature]
DATE: 4/20/90

OILING CATEGORIZATION:
Wide 0 m; Medium 0 m; Narrow 0 m; V.Light 1303 m; No Oil 293 m
Subsurface Oil Observed: Yes X No Maximum Depth 55+ cm

RECOMMENDATIONS:
No Treatment Recommended
X Treatment Recommended
X Manual Pickup
X Bioremediation
X Tarmat: Breakup
X Removal
X Snare/Absorbent Booms
X Oil Snare (pom poms)
Absorbents (pads, rolls, etc)
Spot Washing: Wands
Beach Cleaner

COMMENTS: Recommend tarmat removal, manual pick up of oiled trash and
debris. At pit 2 location (see sketch map), recommend manual relocation
of 25cm x 15m x 2m of sediment from the UITT to the MITZ, followed
by bioremediation. Use snare boom during relocation operation. Work
should be conducted after 5/1 as long as bioremediation work is not
within 100m of stream.

TAG COMMENTS:

TAG APPROVAL DATE: 4/20/90

ADEC  [Signature]  DATE: 5/1/90
EXXON  [Signature]
NOAA  [Signature]
USCG  [Signature]

FOSC: [Signature]
Granules and cobbles appear to be coated with a light film of oil. Locally a silver sheen can be produced from the sediments. This is difficult to map.

1.5m band of coat
n 30% Contaminant pores in shelled areas are oil filled of regurgitated "oyster" materials. Some objects (pre-existence) are also on shores.

1.5m patchy band of coat at high high water shore line.

Patchy ashpalt between rocks.

Local accumulations of pebbles and cobbles on shallow bedrock. There is some oiling under cobbles of the shells.

Oil Character Length (m) NP 15 PO CV OT 170 ST 100 MG PT TB FL NO
SHORELINE EVALUATION

SEGMENT ST/ FL-02 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADF&G anadromous stream no 226-40-16390, 16388, 16384.
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 unciled biota and substrate.

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

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

OILING CATEGORIZATION:
Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 1303 m: No Oil 293 m
Subsurface Oil Observed: Yes X No Maximum Depth 55+ cm

RECOMMENDATIONS:

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

X Removal X Other (see comments)

COMMENTS: Recommend tarmat removal, manual pick up of oiled trash and debris. At pit 2 location (see sketch map), recommend manual relocation of 25cm x 15m x 2m of sediment from the UMTZ to the MITZ, followed by bioremediation. Use snare boom during relocation operation. Work should be conducted after 5/1 as long as bioremediation work is not within 100m of stream.

TAG COMMENTS:


TAG APPROVAL DATE: 4/20/90
ADEC: Art Wexler
EXXON: Tony Telfer
NOAA: Bud Westcott
USCG: [Signature]

FOSC: [Signature] DATE: 5-1-90

Do not bioremediate near stream bank.
Iaw lo's desires.
Granules and cobbles appear to be coated with a light film of oil. Locally a silver sheen can be produced from the sediments. This is difficult to map.

LEGEND

1

2

P- No Subsurface Oil

P- Subsurface Oil

CT/C Continuous Distribution

CT/P Broken Distribution

CT/SP Patchy Distribution

Oil: Vegetation

Piezo location, direction, and number

Oil Character Length (m) 15. PO CV 170 100 MG FT TB FL NO.
1991 MAYSAP EVALUATION

SEGMENT: FL 002  SUB: A  REGION: PWS  SURVEY DATE: 5/12/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s)  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:

<table>
<thead>
<tr>
<th>TREATMENT REQUIRED (Y or N)</th>
<th>INITIAL</th>
<th>TAG</th>
<th>FOSC</th>
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<tr>
<td>N</td>
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</table>

Manual Pickup (Check as Req.)
Spot Washing
Bio-Custombien Only
Bio-Inipol/Custombien
Other
Other

COMMENTS:

INITIAL: ______________________________________________________

TAG: ______________________________________________________

FOSC: ______________________________________________________

TAG APPROVAL DATE: ____________________  FOSC APPROVAL DATE: ____________________

ADEC
EXXON
USCG
NOAA
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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

☑ NTR Vertial R+B surveyed by staff and CIT/S was observed. Walking part of survey we observed a 1x1m patch of AP that was picked up, and a spatial frequency of random turhulls distributed along the UERZ between boulders. Two plastic bags + some banding was picked up. No treatment recommended here at this time.

EXXON
NAME: John Dean
SIGNATURE: [Signature]

☑ NTR 1 bag oily scenarios and 1/2 bag oily debris recovered.

LANDMANAGER
NAME: Steve Ward of CUC
SIGNATURE: [Signature]

☐ NTR A very lite ring of asphalt, ground Search by Rocks. This area has been worked before and the crew did a good job. No Sub oil found. No Bio. on this Sub. Div.

USCG/NOAA
NAME: Dreher/Cline
SIGNATURE: [Signature]

☑ NTR Further cleanup operations would cause more environmental harm than the oil remaining. No sheening. Future mobilization is nil.

Oil is primarily viscous and sticky. A small number of AP patches were removed during survey. Further treatment is unlikely to help.
**MAYSAP SHORELINE OILING SUMMARY**

**TEAM NO.**

**OG** CHANEY  **BIO** CRANK  **LANDMANAGER** HARD  **USCG/NOAA** DREHER/CLINE

**EXON DEAN**

**SEGMENT:** FL-2  **SUBDIVISION:** A

**DATE:** May 12, 1991

**TIME:** 08:40 to 10:15  **TIDE LEVEL:** 1 ft. to 6 ft.

**SURVEYED FROM:**  [ ] FOOT  [ ] BOAT  [ ] HELO  **WEATHER:**  [ ] SUN  [ ] CLOUDS  [ ] FOG  [ ] RAIN  [ ] SNOW

**TOTAL LENGTH SHORELINE SURVEYED:** 750 m  **NEAR SHORE SHEEN:**  [ ] BR  [ ] RB  [ ] SL  [ ] NONE

**EST. OIL CATEGORY LENGTH:**

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<tr>
<th>L</th>
<th>SURFACE OIL CHARACTER</th>
<th>SURFACE SEDIMENT</th>
<th>SHORE SLOPE</th>
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**DISTRIBUTION:** C = 91-100%; B = 81-90%; P = 61-80%; S = 1-10%; T = <1%

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

**PHOTO ROLL # MAYSAP-5 - 13 FRAMES 7-12**

**PIT NO. DEPTH (cm)**

<table>
<thead>
<tr>
<th>PIT</th>
<th>OIL CHARACTER</th>
<th>OILED ZONE</th>
<th>CLEAN BELOW</th>
<th>H2O LEVEL</th>
<th>SHEEN COLOR</th>
<th>PIT ZONE</th>
<th>SURFACE- SUBSURFACE SEDIMENTS</th>
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</table>

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

**OG COMMENTS:** NO SUBSURFACE OIL OBSERVED ON THIS SUBDIVISION, OILING CONSISTED PRIMARILY OF CT ON PROTECTED SIDES OF BEDROCK AND BOULDER. SOME SOR WAS OBSERVED IN PATCHES AROUND THE BASES OF BOULDER. IN GENERAL OIL WAS NOT CONCENTRATED IN ANY PARTICULAR LOCATION.
HIYSAP BIOLOGICAL SUMMARY FORM

DATE: 12 May 1991

TEAM: # 5
SEGMENT: FL - 2
SUBDIVISION: A
SEA STATE: 0-1

TIDAL HEIGHT (Range): +1.5 - +1.0
WIND SPEED/DIRECTION: ~5 knots / West

PHOTOGRAPHS: ROLL: #13
FRAME: #9

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):
(A) Area is located in the SUPRA on a vertical face. It is a 0.3 x 0.3 m "bathtub ring". Within the site, only black lichen is present. In the UITZ and MITZ densely concentrated "barnacles are present (various age classes). The motile sea urchin (Eestheries) and whales (Nivosia) and sparse Fucus are also present. Biotp cover ~ 90%. In the UITZ algae dominate, including filamentous red and green, Perna, Ulva, Macrocystis, Sargassum, and Fucus. Fucus visually appeared to be unhealthy. Unable to touch plants due to difficult access. Biotp cover ~ 80%.

(B) Area is a 1 x 1 m band located high in the UITZ. Within the site, black lichen cover 5% of the surface sediments. Low in UITZ ~ 2 m below site, through the MITZ biota cover is 80%. There is a sparse concentration of barnacles; a sparse to moderate concentration of Fucus with sparse algae and masticating concepts are present; a rare concentration of mussels; sparse Littorina and limpets; and sparse Fucus present. In addition to the MITZ, biota the LITZ also has blade and filamentous red and green algae. Biotp cover is LITZ ~ 80%.

WILDLIFE OBSERVATIONS
to be completed in all subdivisions

<table>
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<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>WILD OBSERVED SPECIES PRESENT</th>
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<tr>
<td>Eagles</td>
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<tr>
<td>Seabirds</td>
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<tr>
<td>Waterfowl</td>
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<tr>
<td>Gulls/Kittiwakes</td>
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<tr>
<td>Shorebirds</td>
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<td>Corvids</td>
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<td>Other Birds</td>
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<th>MARINE MAMMALS</th>
<th># OBSERVED</th>
<th>SPECIES</th>
<th># OBSERVED</th>
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<tr>
<td>Sea Otters</td>
<td>2</td>
<td>Bear, Deer tracks</td>
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<tr>
<td>Pinnipeds (specify)</td>
<td></td>
<td>Possible River otter den</td>
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</tr>
<tr>
<td>Whales (specify)</td>
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</table>

Shoreline subdivision map showing important biological features attached.
Comments (cont.)

(C) Area is a 3x10m band located in the SUPRA and high ULIT.

Sprouting rye grass, mosses and black lichen cover ~5% of the surface. Customblen casings are present.

Approx. 1% of the moss population is brown, does not appear to be alive, but it is still attached to sediment suite.

Ten meters below site, in the MITZ, there is a moderate to densely concentrated Fucus bed, sporelings are present as are maturing conceptacles.

There are also moderately concentrated, littorina, sparse, barnacles. A recent barnacle set is present. Biota cover is ~70%. See photo roll MAVSAP 5 roll 13 frame 9 for view of Fucus bed.

(D) Area is a 1x15m band of CT located high in the ULIT.

No intertidal biota was found within the site. In the MITZ there is a moderate Fucus cover; plants are reproductive (i.e. conceptacles are maturing) and recruiting (sporelings present). There is also a sparse to moderate cover of barnacles with various age classes; recent set is dense. Littorina and limpets are sparsely concentrated. Biota cover is ~50%.
Comments (cont.)

(F) Area is a 1x15m band of CT located in the U1T2. There is less than 1% biota cover within the site including filamentous green algae and Fucus sporelings. Less than 12m below site biota increases up to 70% cover. There are moderate to sparsely concentrated barnacles of various ages; sparse Littorina and limpets; Osbornia (an alga), filamentous green and red algae and Fucus sporelings; and reproductively active mature plants. Approx 5% of the Fucus plants are 'stipe-only'.

(F) Area is a 1m² patch of CV located in the U1T2. Moss and black lichen cover ~5% of the surface sediments. Two meters downshore there are Fucus sporelings and 'stipe-only' Fucus plants present in the M1T2. Barnacles dominant with a sparse to moderate cover. A sparsely concentrated recent set is present. Sparsely concentrated juvenile mussels and Scyphosiphon lomentaria are also present. The M1T2 has an intergravel mussel bed and sparse gastropods (Nucella, Littorina and limpets). Biota cover below site is 40-60%.
Comments (cont.)

(G) Area is a 3x30 m band in the SUPRA and ULITZ. At the
top edge of the site, moss and black lichen are present.
At the bottom margin there are barnacles with various age classes. Fucus sporangia and filamentous green algae. Biota cover is ~1%. One meter below site water biota cover is ~30%, including Fucus (sporangia, maturing conceptacles and 'stipe-only' plants present), sparse barnacles (various age classes including a recent set), sparse littoral and limpet, and tar-spot algae.

(H) Area is a 1x25 m zone in the ULITZ. Amphipods and a 1x2 m patch of sprouting rye grass are present within the site. <1% biota. Approx 5 m below site biota cover is ~20-40% with sparse to moderately concentrated barnacles with a recent set, patches of Fucus with maturing conceptacles along stream bank and a sparse intercobble/gravel mussel bed that is difficult to see. At +4' tide level (underwater during survey) there is a dense 10x25 Fucus patch at the stream mouth.

This is a low energy subdivision with recruitment occurring in the barnacle, mussel and Fucus populations. The biota, with the exception of a few Fucus plants, appears to be healthy. Decreasing tracks were evident on the beaches and a probable river otter den.
1991 MAYSAP EVALUATION

SEGMENT: FL 002  SUB: A  REGION: FWS  SURVEY DATE: 5/12/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s)  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:  [Signature]  Date: 5/24/91

RECOMMENDATIONS:

<table>
<thead>
<tr>
<th>TREATMENT REQUIRED (Y or N)</th>
<th>INITIAL</th>
<th>TAG</th>
<th>FOSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td></td>
<td>N</td>
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</tbody>
</table>

Manual Pickup (Check as Req.)
Spot Washing
Bio-Custombien Only
Bio-Inipol/Customeblen
Other

COMMENTS:

INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: MAY 24 1991  FOSC APPROVAL DATE: 5/31/91

ADEC

FOSC  E. E. PAGE, CDR, USCG

BAXON  CHIEF OF STAFF, FOSC

USCG

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

TEAM NO. 5  SEGMENT FL-2  SUBDIVISION 4  DATE 5/12/91

ADEC
NAME John Hoyes  SIGNATURE /John Hoyes/

☐ NTR Vertical R+R surveyed by staff and CFS was observed. Walking part of survey we observed a 1 X 1m patch of AP that was picked up as a spatial frequency of random turbids distributed along the USTZ, between boulders. Two plastic bags + some banding was picked up. No treatment recommended here at this time.

EXXON
NAME JOHN DOWAN  SIGNATURE /John Dowan/

☐ NTR 1 bag oily sediments and 1/2 bag oily debris recovered.

LANDMANAGER
NAME STEVE WARD  OF CVC  SIGNATURE /Steve Ward/

☐ NTR A Deaf Lite Ring on Asphalt Thread Scattered by Rocks. This area has been worked before and the crew did a good job. No Sub Oil Found.

NO BIO. ON THIS SUB. DIV.

☐ NTR No further cleanup operations would cause more environmental harm than the oil removal. No sheening, future mobilization is nil.

Oiling is primarily covers and debris. A small number of AP patches were removed during survey. Further treatment is unlikely to help.

USCG/NOAA
NAME DREHER/CLINE  SIGNATURE /Dreher/Cline/
OG CHANEY
ADEC HAYES
EXXON DEAN

TIME 08:40 to 10:15
TIDE LEVEL 7 ft. to 9 ft.
ENERGY LEVEL: □ H □ M □ L
SURVEYED FROM: □ FOOT □ BOAT □ HELO
WEATHER: □ SUN □ CLOUDS □ FOG □ RAIN □ SNOW
TOTAL LENGTH SHORELINE SURVEYED: 750 m
EST. OIL CATEGORY LENGTH: W____ m M____ m N32 m V 85 m N63 m US 846 m

<table>
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<tr>
<th>PIT</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>SEDIMENT TYPE</th>
<th>SLOPE V.H.W.L</th>
<th>WIDTH</th>
<th>LENGTH</th>
<th>AREA</th>
<th>ZONE</th>
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</table>

DISTRIBUTION: C = 91-100%; B = 61-90%; P = 11-60%; S = 1-10%; T = <1%
SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE

OG COMMENTS: NO SUBSURFACE OIL OBSERVED ON THIS SUBDIVISION.
OILING CONSISTED PRIMARILY OF CT ON PROTECTED SIDES OF BEDROCK AND BOULDERS. SOME SOR WAS OBSERVED IN PATCHES AROUND THE BASES OF BOULDERS. IN GENERAL OIL WAS NOT CONCENTRATED IN ANY PARTICULAR LOCATION.
**WYSP Biological Summary Form**

Team #: 5  
Segment #: FL-2  
Subdivision: A  
State: 0-1  
Photographs: Roll #13, Frame #9  
Date: 12 May 1991  
Tidal Height (Range): +1.5 - +6.0  
Biologist: Crank  
Wind Speed/Direction: ~5 knots/West

**Comments/Observations** (to be completed in oiled subdivisions only):

A. Area is located in the SUPRA on a vertical face. It is a 0.3 x 10 m "pawprint" cut.
   - Within the site, only black lichen is present. In the U172 and M172, densely concentrated "barncakes" are present (various age classes). The rotifer star (Evasterias), dog worms (Nucleus), and spores Fucus are also present. Biota cover ~ 90%. In the L172, algae dominate, including filamentous red algae, Lamaria Ulva/Mangostera, Spatocystis, and Fucus. Fucus usually appeared to be unhealthy. Unable to touch plants due to difficult access. Biota cover ~ 80%.

B. Area is a 1 x 1 m band located high in the U172, within the surf zone.
   - No black lichen cover ~ 19% of the surface sediments. Low in U172, ~2 m below site, through the M172. Biota cover is ~ 30%. There is a sparse concentration of barncakes; a sparse to moderate concentration of Fucus with sporangia and matorial concepts present.
   - A rare concentration of mussels. Space Lithanthes and Aiptasia and tetracton algae present. In addition to the M172, other the L172 also has bladed and filamentous red and green algae. Biota cover is L172 is ~ 80%.

Between sites 'A' & 'C', there were several signs of other/shell hash, scat etc. Close to site 'C', a possible den was spotted. A well worn path is present. This area should be avoided to lessen disturbance to the otters. The animal itself was not observed.

**Wildlife Observations**

To be completed in all subdivisions

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<th>Biota</th>
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<tr>
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<tr>
<td>Gulls/Kittiwakes</td>
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<td></td>
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<tr>
<td>Shorebirds</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corvids</td>
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<tr>
<td>Other Birds</td>
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**Land Mammals**

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<td>A</td>
<td>Bear/Deer tracks</td>
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<tr>
<td>Pinnipeds(specific)</td>
<td></td>
<td>Possible river otter den</td>
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<tr>
<td>Whales(specific)</td>
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</table>

Shoreline subdivision map showing important biological features attached.
(C) Area is a 3x10m band located in the SOPPA and high UITZ.
Sprouting eelgrass, masses and black lichen cover ~5% of the surface. Customblen casings are present.
Approx. 1% of the mussel population is brown, does not appear to be alive, but it is still attached to sediment surface.
Ten meters below site, in the MITZ, there is a moderate to densely concentrated Fucus bed. Sporelings are present as are maturing conceptacles. There are also moderately concentrated littorina, sparse concentrates limpets and barnacles. A recent barnacle set is present. Biota cover is ~70%. See photo roll MAVSAP 5 roll 13 frame 9 for view of Fucus bed.

(D) Area is a 1x15m band of CT located high in the UITZ. No intertidal biota was found within the site. In the MITZ there is a moderate Fucus cover; plants are reproductive (i.e., conceptacles are maturing) and recruiting (sporelings are present). There is also a sparse to moderate cover of barnacles with various age classes. Recent set is densely Littorina and limpets are sparsely concentrated. Biota cover is ~50%.
Comments (cont.)

(E) Area is a 1x15m band of CT located in the U172. There is less than 1% biota cover within the site including filamentous green algae and Fucus sporelings. Less than 1.2m below site, biota increases up to 70% cover. There are moderate to sparsely concentrated barnacles of various ages, sparse Littorina and limpets; Odontalia (an alga), filamentous green and red algae and Fucus sporelings and reproductively active mature plants. Approx. 5% of the Fucus plants are 'stipe-only'.

(CF) Area is a 1m² patch of CV located in the U172. Moss and black lichen cover ~5% of the surface sediments. Two meters downshore there are Fucus sporelings and 'stipe-only' Fucus plants present. In the M172 barnacles dominant with a sparse to moderate cover as a sparsely concentrated recent set is present. Sparsely concentrated juvenile mussels and Scyotosiphon lala are also present. The U172 has an intergravel mussel bed and sparse gastropods (Nucella, Littorina and limpets). Biotica cover below site is 40-60%.
Area is a 3x30 m band in the SUPRA and UITZ. At the top edge of the site moss and black lichen are present; at the bottom margin there are barnacles (with various age classes); Fucus sporlings and filamentous green algae biota cover is ~1%. One meter below site to water biota cover is ~30%, including Fucus (sporlings, maturing conceptacles and 'stripe only' plants present); sparse barnacles (various age classes including a recent set); sparse Littorina and limpets and far spot algae.

Area is a 1x25 m band in the UITZ. Amphipods and a 1x2 m patch of sprouting rye grass are present within the site; <1% biota cover. Approx 5 m below site biota cover is ~20-40% with sparse to moderately concentrated barnacles with a recent set, patches of Fucus with maturing conceptacles along stream bank and a sparse intercobble/gravel mussel bed that is difficult to see. At ~+4' tide level (under water during survey) there is a dense 10x15 Fucus patch at the stream mouth.

This is a low energy subdivision with recruitment occurring in the barnacle, mussel and Fucus populations. The biota, with the exception of a few Fucus plants, appears to be healthy. Deer/boar tracks were evident on the beaches and a probable river otter den is present.
MAYSAP 1991
SG SKETCH MAP: BiocMap
GREG CHANEY
TEAM 5
SEGMENT: FL-2-A
DATE: MAY 12, 1997
AIR P. #: PIM-6-005-197

LEGEND

BEDROCK
BOULDER
FINE BED
DRIFT LOG
GRABB
BRUSH
FOREST
OILED PIT
NO OIL PIT
PHOTO

SCALE

50 METERS
APPROXIMATELY

SEE ENLARGEMENT AT RIGHT

~80% biota cover in the LITZ and ~30% in the MITZ

Probable River Otter Den: Area should be avoided to lessen disturbance to occupants

Bear Tracks

10x10m Fucus patch at stream mouth at high tide level

Moderate to densely concentrated Fucus bed with sporangia and maturating conceptacles

No biota found w/ site D

DENSY CORAL

1x15m CV 30% Behind Boulders and Bedrock

Ave. Beach Width 15m

CT 20%

3x10m SOR/H ~3%

CV 5%

CT 5%

SMALL POCKET COVE

3xm10mBathtubring on Bedrock Face

CT 5%

1x15m Behind Boulders and Bedrock

1x10m CV 20%

Boulders Pocket

FLEMING ISLAND

FLEMING ISLAND

FL-2A

CT 15%

1x6m

Drift cover at vertical face

~90%

80% boulders. Rich algae. Fucus may be unhealthy. Difficult access - will not touch.
ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ FL-02 A  STREAM NO: 226-40-16390  DATE 4/23/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
Three catalogued streams: 226-40-16390, 226-40-16388, 226-40-16384
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 within Subdivision FL-002A

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

SHPO SIGNATURE: [Signature]
DATE: 5/8/90

Subsurface Oil Observed: Yes ___ No X ___ Maximum Depth ___

RECOMMENDATIONS:
| X  | No Treatment Recommended | Snare/Absorbent Booms |
| ___ | Treatment Recommended | Oil Snares (pom poms) |
| ___ | Manual Pickup | Absorbents (pads, rolls, etc) |
| ___ | Bioremediation | Spot Washing: Wands |
| ___ | Tar mat: Breakup | Beach Cleaner |
| ___ | Removal | Other (see comments) |

COMMENTS: __________________________________________
____________________________________________________
____________________________________________________

TAG COMMENTS: ______________________________________
____________________________________________________
____________________________________________________

TAG APPROVAL DATE: 5/7/90
ADEC [Signature] DATE: 5/18/90
EXXON [Signature] FOSC: [Signature]
NOAA [Signature]
Recommendations: No treatment required.

I agree with recommendations. No treatment.

Oil Distribution Diagram:
- Bedrock Outcrop
- Heavy stain on vertical face
- Tar splatters
- Bedrock

The taken to frame # and direction.
ANADROMOUS FISH STREAM ASSESSMENT

REGION: PRINCE WILLIAM SOUND

SEGMENT: FL-02

STREAM NO: 226-40-16390
ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/FL-02 A STREAM NO: 226-40-16390 DATE 4/23/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
Three catalogued streams: 226-40-16390, 226-40-16388, 226-40-16384
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 within Subdivision FL-002A

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

SHPO SIGNATURE: ___________________ DATE: ___________________

Subsurface Oil Observed: Yes____ No X_____  Maximum Depth_____

RECOMMENDATIONS:
__X__ 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: ____________________________________________________
______________________________________________________________
______________________________________________________________

TAG COMMENTS: ________________________________________________
______________________________________________________________
______________________________________________________________

TAG APPROVAL DATE: __________
ADEC ____________________________ FOSC: ___________ DATE: __________
EXXON __________________________
NOAA __________________________
USCG __________________________
Salmon stream mouth - try outmigration (3/1 to 5/15)
Salmon stream mouth - spawning (7/10 to 8/31)
No disturbance of stream bed or banks unless authorized byADF&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 Inpol 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 Inpol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.

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

1D Esther Hatchery release (4/15 to 6/15)
1E Main Bay Hatchery release (4/20 to 6/15)
1F Sawmill Bay Hatchery release (4/15 to 6/1)
1G Cannery Creek Hatchery release (4/21 to 6/1)
1H Perrotta release site
No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inpol 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

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 unoiied intertidal and subtidal algaes and seagrasses. If plans for treatment include methods such as hot water wash or Inpol 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 (6/15 to 7/1)
3O, 3Q Harbor seal and sea lion molting (6/15 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 Inpol within two weeks of arrival dates (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 Rothe 267-2205

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

Recreation:
6J Tent sites (6/1 to 9/15)
6V Anchorage (6/1 to 9/15)
6W Forest Service cabin (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
7I 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 Inpol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.

AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2359
FIELD SHORELINE COMMENT SHEET

SEGMENT ST 1F-002 SUBDIVISION: 16590 DATE 4/23/90

USCG NAME: CWO McElhanon SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED

☐ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED

APCO NAME: [Name] SIGNATURE: [Signature]

LAND MANAGER NAME: [Name] SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED ☐ TREATMENT SUGGESTED
Alaska Department of Fish and Game

ANADSCAT Observations and Recommendations
Team 15 - Michael Windmer and Tom Crowe

23 April 1990

ASC # 226-40-16451
Segment BA-002

Observations: This large cove has a gradual gradient with a large grassy meadow in the supratidal zone. The intertidal substrate is shale gravel and cobble. East of the channel, extensive tar mats ring the high tide line. West of the channel, widely scattered tar patties dot the upper-intertidal zone. No obvious subsurface oil was identified. Two to three tar patties were observed above the storm berm in the grassy lagoon area.

Treatment Recommendations: Manually remove tar mats and patties.

ASC # 226-40-16400
Segment FL-005

Observations: The intertidal zones surrounding this stream channel are confined to a small area by bedrock walls. Boulder rubble borders the bases of these walls. Along the north side of the channel, a sticky oil film coats a portion of the underside of some of the shale boulders. No obvious oil penetration of the substrate was noted. Narrow tar bands ring the boulder outcrops south of the channel.

Treatment Recommendations: Manually turn over the shale boulders to enhance the weathering of the oiled surfaces. This was completed by the ANADSCAT crew, therefore further treatment is not required. No treatment is recommended for the tar rings on the bedrock outcrops.

ASC # 226-40-16390
Segment FL-002

Observations: The intertidal zone surrounding this stream is very confined by bedrock walls on either side. Scattered tar splatters dot the bedrock and associated bedrock rubble on the east side of the channel. A heavy tar stain coats a significant
SMOKE LINE OILING SUMMARY (ANAD.)

OIL: WILLIAM R. LIND USCG 3RC 1 Mc Mahon SEGMENT & FLOOD

SIO: MICHAEL FAULKETT LAND REP: TORME

EXXON: GOM GARCIA ADRF: MIKE WOOD

TEAM #1 15 TIDE LEVEL: 2.5 ft DATE: 23/4/80

EST. SUBDIVISION LENGTH: 25 m ☐ Sun ☐ Cloudy ☐ Fog ☐ Rain ☐ Snow

UPLANDS DESCRIPTION: ☐ Grass ☐ Forest ☐ Rock

SURVEYED FROM: ☐ Foot ☐ Boat ☐ Hole

SURFACE SEDIMENTS: R % B % C % P % G % ☐ % S ☐ % M ☐ % V ☐

SLOPE: Long ☐ Hang ☐ Vertical ☐

OIL CATEGORY LENGTH: W m M m N m V L m NO: 27

SURFACE OIL

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PAVEMENT H F S eq. m by...

PATTIES / TARBALLS BA/

NEAR SHORE SHEEN? NO BR RW SL 1

OILED AMOUNT

| OILED DEBRIS | AMOUNT | SM | MD | LB | Did You Collect DEBRIS | YES ☐ NO ☐ |
|--------------|--------|----|----|----|------------------------|白雪皑皑 |%
| LOGS | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| VEGETATION | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| TRASH | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| DEBRIS | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| TYPE | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Photographs:

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SUBSURFACE OIL

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COMMENTS

REVIEWED: JW DATE: 4-25-90
ADPQ MULTI-ASSESSMENT DATA FORM

1. SURVEY TYPES: ES (GS) GE TS AVG SOCA HOMB PTA
2. REGION: CP5 CP3 CP KAP

METHOD: Aerial

3. DATE: 4/23/90
4. START TIME: 17:10
5. STOP TIME: 17:25

6. SECTOR #: FL-007
7. STATION #: 226-40-14290

8. K-UNIT: 2
9. STAT AREA:

10. LAT: 
11. LONG: 

12. SOURCE: New Lorne
13. LOCATION:

14. DESCRIPTION:

EXTENT OF OIL

<table>
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<tr>
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<tbody>
<tr>
<td>L</td>
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<tr>
<td>L</td>
<td>Y</td>
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</table>

27. SURFACE COVERAGE

| 30 | 25 | <1 | 25 | .1 | 0 |

28. SURFACE THICKNESS

| 27 |
| LMA |

29. PENETRATION

| 26 |
| 0 |

30. OVERALL OIL IMPACT

| 35 | 1 | 2 | 3 | 4 |

31. OIL TYPES

| 36. OILED DEBRIS |
| Pooled | Mousse | Tar | Asphalt | Sticky |
| Y | N |

32. OILED DEBRIS

| 33. SHORELINE TYPES |
| Headland | Low-lying Rocks | Beach | Cove |
| Y | N |

34. WAVE EXPOSURE

| 35. WAVE EXPOSURE |
| High | Moderate | Low |
| Y | N |

36. SUBSTRATE TYPES

| 37. SUBSTRATE TYPES |
| Bedrock | Boulder | Cobble |
| Craval | Sand | Mud/soil |

38. CATALOGED ANAHER FISH SPECIES

| 39. CATALOG #: 226-40-14290 |

39. OIL IN STREAM BED

| 40. OIL ON STREAM BANKS |

41. OIL ON BEACH ADJACENT TO MOUTH

42. OIL WITHIN 1 MILE OF STREAM

43. ANAHER FISH PRESENCE

| 44. ANAHER FISH OBSERVATION |

Species: Aerial Ground

COMMENTS:

HEAVY STAIN ON PROTECTED VERTICAL WALL OF BEDROCK OUTFLOW. VERY SCATTERED STAINS ELSEWHERE.
Recommendations: No treatment required.
I agree with recommendations. Noted.

Diagram:
- Bedrock Outcrop
- Heavy stain on vertical face
- Tar splatters
- Bedrock

Note: Taken on frame 9 and 10.
Segment FL002
Stream 226-40-16390
Ecological Summary

This is a small, steep stream, the potential spawning area only about 30 m long. The stream crosses a narrow cobble beach bounded by bedrock walls on each side. A few mussels are scattered among the cobbles, along with dense patches of Fucus and barnacles. The only oiling found consists of stains on the bedrock, cleanup not advised.
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/FL-03

SUBDIVISIONS: A (1 OF 1)
SHORELINE EVALUATION

SEGMENT ST/ FL-03 SUBDIVISION A (1 OF 1) DATE 4/20/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
Anadromous streams reported but uncatalogued.
3N,3P Harbor seal and sea lion pupping (5/15 to 7/1)
30,3Q Harbor seal and sea lion molting (8/15 to 9/15)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Eagle nest immediately north of FL-03 at south end of FL-04.

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

SHPO SIGNATURE: ___________________________ DATE: ___________________________

OILING CATEGORIZATION:
Wide 0 m; Medium 0 m; Narrow 572 m; V.Light 1882 m; No Oil 659 m
Subsurface Oil Observed: Yes ___ No X ___ Maximum Depth ___

RECOMMENDATIONS:

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

COMMENTS:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

TAG COMMENTS:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

TAG APPROVAL DATE: __________
ADEC ____________________________ FOSC: __________________________ DATE: __________
EXXON ____________________________
NOAA ____________________________
USCG ____________________________
Salmon stream mouth - try outmigration (5/1 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 water quality or toxicity levels, such as hot water wash or inipol application, prior to July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore water quality 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

1G Salmon fry nursery area (4/31 to 7/31)
No use of methods which might affect nearshore water quality or toxicity levels, such as hot water wash or inipol application, prior to July 1 unless authorized by ADF&G. Treatment which will not affect nearshore water quality 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 Swan Island 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 water quality or toxicity levels, such as hot water wash or inipol application, prior to July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore water quality 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: ADF&G, Larry Peltz, 424-3214

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 water quality 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 uncult idual and subtidal algal and seagrass. If plans for treatment include methods such as hot water wash or inipol application which might affect nearshore water quality or toxicity levels, contact ADF&G for consultation and authorization.
AGENCY CONTACT PERSON: ADF&G, Evelyn Biggs, 424-3235

3R Harbor seal and seal lion pupping (5/15 to 7/1)
Harbor seal and sea lion molting (6/15 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, 588-7235

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

6T All Bald Eagle nests (3/1 to 6/1)
Active Bald Eagle nests (3/1 to 9/1)
Restrict boat traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.
AGENCY CONTACT PERSON: USFWS, Jill Parker, 786-3377

6U Recreation:
   Tent sites (8/1 to 9/15)
   Anchorage (8/1 to 9/15)
   Forest Service cabins (8/1 to 9/15)
   Lodge (8/1 to 9/15)
   Special use destination

7D Subsistence area: Salmon harvesting (5/1 to 9/30)
7H Finfish harvesting
7T Deer harvesting (8/15 to 2/28)
7U Invertebrate harvesting
Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic to essential minimum. If plans for treatment include methods such as hot water wash or application of inipol which might affect intertidal or nearshore water quality or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.
AGENCY CONTACT PERSON: ADF&G, Jim Fall, 267-2359
SEGMENT ST FL03 SUBDIVISION: A  DATE 4/21/90

☐ NO TREATMENT RECOMMENDED  ☑ TREATMENT SUGGESTED

RECOMMEND BIOREMEDICATION. AREAS WHERE THARRY SPLATTER COAT MEET LOW ANGLE BEACH.
IN AREAS COAT CONSISTS OF A BANDING ALONG ROCKS IN HIGH INTERTIDAL AREA NO TREATMENT
HERE IS RECOMMENDED

NO SUBSURFACE OILS NOTED

☐ NO TREATMENT RECOMMENDED  ☑ TREATMENT SUGGESTED

MANUAL REMOVAL OF THARRY COATED SEDIMENTS BOTH ON
LOW ANGLE PEBBLE/COBBLE BEACHES AND IN AREAS WHERE
OIL HAS COATED SEDIMENTS AROUND BEDROCK AND BOULCERS.
OIL STAIN - "BATHING BUNE" - ON HI-ANGLE ROCKS SEEMS TO
BE HI- MOBILE AND NOT REQUIRING TREATMENT UNLESS
WEATHER CAUSES MOBILITY

☐ NO TREATMENT RECOMMENDED  ☑ TREATMENT SUGGESTED

2/19/22
# SHORELINE OILING SUMMARY

**DATE:** 4/21/90  
**FROM:** BRAZOS SEAHORSE  
**TO:**  
**REVISION NO.:** 06/13/90  
**PAGE:** P.12  
**REV:**

**OG:** R. Marty  
**BIO:** R. Lampa  
**EXXON:** J. Garonchik  
**TIME:** 12:00  
**DATE:** 4/21/90  
**ST. SUBDIVISION LENGTH:** 3114 m  
**SURFACE SEDIMENTS:** R 60% B 20% C 10% P 5% G 4% S 1% M 0% V 0%  
**SLOPE:**  
**OIL CATEGORY LENGTH:** W 0 m M 0 m N 490 m VL 1902 m NO 291 m

## SURFACE OIL

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<tr>
<th>CHARACTER</th>
<th>DISTRIBUTION</th>
<th>OIL/FILM COLOR</th>
<th>IMPACTED ZONES</th>
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<tr>
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## PAVEMENT H F S O sq. m by cm

## OILED DEBRIS

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## SURFACE-POOLED DEBRIS

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## SURFACE-SUBSURFACE SEDIMENTS

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<th>PIT NO.</th>
<th>PIT DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED MATERIAL</th>
<th>BELOW OIL/FILM COLOR</th>
<th>PIT ZONE</th>
<th>SUBLINE SHEEN (CM)</th>
<th>SUBLINE OILING DESCRIPTION</th>
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## COMMENTS

Surface oiling is primarily minor. Locally coated sediments are present between 0 and 5 cm. Oil is generally quite tarry.

**REVIEWED**

4/22/90
**SHORELINE ECOLOGICAL SUMMARY**

Segment ST: 10/63 Subdivision: B Date (mo/day/yr): 4/19/90

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

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

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

---

**BARNACLES**

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**MYTILUS**

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**GASTROPODS**

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**FUCUS**

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Wildlife Observations/General Comments:

- Slotty substrate has low diversity relative to other rock types
- Many areas of Fucus appear stressed, especially at the top of its range.

---

Ecological Considerations:

- Substantial streams with salmon spawning potential were mapped as noted. offshore rocks may be pillaged by hawks, but this could not be confirmed. Bald eagle nests were not confirmed either; no eagles nearby.

---

17922
ECOLOGY MAP

- Splattered terry coat
- Terrysplatter 2m (width CT on clasts from 0-3cm)
- Band of splatter ~ 2m wide (cat)
- Small pocket beaches
- Narrow C, B, P, G
- Beach
- Isolated splatter & widely scattered tar patches
- Patchy terryspall on boulders 1.5m
- Wide runoff
- Small tar mat 1m x 2cm - removed
- Some splatter
- Widely scattered splatter and tar balls (removed)
- Terrysand - 15 cm wide 15% surface cover
- Sporadic splattering of oil coat <1% cover
- Terrys dark brown
- No oil

- Slate B, C, P beached; Chris are anymore poorly sorted
- Slate Bedrock is living position but dead
- Well sorted pebble pocket beach
- Vertical rock faces
- Broken 1m bed of CT

Note: Scale is 51% of standard
SHORELINE EVALUATION

SEGMENT ST/FL-03 SUBDIVISION A (1 OF 1) DATE 4/20/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
Anadromous streams reported but uncatalogued.
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).
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Eagle nest immediately north of FL-03 at south end of FL-04.

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

SHPO SIGNATURE: [Signature] DATE: 5/5/90

OILING CATEGORIZATION:
Wide 0 m: Medium 0 m: Narrow 572 m: V.Light 1882 m: No Oil 659 m
Subsurface Oil Observed: Yes ___ No X ___ Maximum Depth ______

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

COMMENTS:

__________________________________________________________
__________________________________________________________
__________________________________________________________
__________________________________________________________

TAG COMMENTS:

__________________________________________________________
__________________________________________________________
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__________________________________________________________

TAG APPROVAL DATE: 5/4/90.
ADEC Art Weener Art Brown
EXXON [Signature] [Signature]
NOAA [Signature] [Signature]
USCG [Signature] [Signature]
FOSC: [Signature] DATE: 5-18-90
OILING LENGTHS
TO BE PROVIDED
AT A LATER DATE
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/FL-04

SUBDIVISIONS: A (1 OF 2)
SHORELINE EVALUATION

SEGMENT ST/ FL-04 SUBDIVISION A (1 OF 2) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADF&G anadromous stream no. 226-40-16381
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
5T-2 All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
6Y Recreation: Special use destination
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to uncoiled biota and substrate. Anadromous stream 226-40-16381 in Subdivision A (see ecology map). 2 eagle nests in Subdivision B > 800m from work area.

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

SHPO SIGNATURE: ______________________ DATE: ______________________

OILING CATEGORIZATION:
Wide__ m: Medium____ m: Narrow___ m: V.Light____ m: No Oil___ m
Subsurface Oil Observed: Yes X No____ Maximum Depth 8 cm

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

COMMENTS: Recommended treatment includes 1) manual removal of tarmac, 2) manual pick up of oiled trash and debris, 3) bioremediation of areas shown on attached sketch map. No bioremediation within 100m of anadromous stream without approval from ADF&G. Work should be conducted between 5/15 and 7/10 based on salmon constraints.

TAG COMMENTS:

________________________________________________
________________________________________________
________________________________________________

TAG APPROVAL DATE: __________
ADEC ______________________ FOSC: ______________ DATE: ______
EXXON ______________________
NOAA ______________________
USCG ______________________
PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

Salmon stream mouth - fry outmigration (3/1 to 5/15)
Salmon stream mouth - spawning (7/10 to 8/31)
No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bio remediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.

Salmon fry nursery area (4/31 to 7/31)
Esther Hatchery release (4/15 to 6/1)
Main Bay Hatchery release (4/20 to 5/10)
Sawmill Bay Hatchery release (4/15 to 6/1)
Cannery Creek Hatchery release (4/21 to 6/1)
Remote release site
Gill net area (6/7 to 6/31)
Purse seine area (7/20 to 9/30)
Purse seine hook-off (7/20 to 9/30)
Set net sites (6/11 to 7/25)
For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.

Herring spawning (4/1 to 6/15)
Restrict boat traffic to essential minimum. Avoid damage to unveiled intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.

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

Seabird colony (5/1 to 9/1)
Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.

Shorebird/waterfowl concentration (4/1 to 5/15)
Restrict all activity to essential minimum, especially air traffic.

All Bald Eagle nests (6/1 to 6/1)
Active Bald Eagle nests (6/1 to 9/1)
Restrict air traffic to essential minimum. No personnel within 400m/3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.

Recreation:
Tent sites (6/1 to 9/15)
Anchorages (6/1 to 9/15)
Forest Service cabins (6/1 to 9/15)
Lodge (6/1 to 9/15)
Special use destination

Subsistence area:
Salmon harvesting (5/1 to 9/30)
Finfish harvesting
Deer harvesting (9/15 to 2/28)
Invertebrate harvesting

For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.
FIELD SHORELINE COMMENT SHEET

SEGMENT ST / FL-04  SUBDIVISION: A  DATE: 09 APRIL 90

☐ NO TREATMENT RECOMMENDED  ◐ TREATMENT SUGGESTED

COMMENTS
1. MANUALLY REMOVE ASPHALT AND TAR PAYES.
2. POSSIBLE BIO-REMEDIATION.

☐ NO TREATMENT RECOMMENDED  ◐ TREATMENT SUGGESTED

ADEC
NAME: DAVID M. SAWE  SIGNATURE: [Signature]

COMMENTS
① Remove manually the balls, asphalt and debris.
② Remove sediments from beneath boulders or any other places where contamination appears.
③ Bioremediation with approval of CUC and village residents.

LAND MANAGER
NAME: STEVE LEWALD  SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED  ◐ TREATMENT SUGGESTED

COMMENTS
Endland data very accurate. Professionally analyzed.
**SHORELINE OILING SUMMARY**

OG: Richard Marty USCG
BIO: Bob Lemon LAND Rep
EXXON: Jan Czerniak ADEC: Dave Sale
TEAM NO: 10 TIME: 19:00 to 20:30
EST. SUBDIVISION LENGTH: 1265 m SURVEYED FROM:
TIDE LEVEL: +1.85 m (L) +0.30 m (H)
DATE: 27/1 April 1990

**SURFACE OIL**

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**SUBSURFACE OIL**

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**COMMENTS**

Oil ≤ 5mm deep may contribute subsurface oil.
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**COMMENTS**
SHORELINE ECOLOGICAL SUMMARY

Segment ST/10/FL4 Subdivision B Date (mo/day/yr) 4/19/90
Time (24 hr) 1000 - 1900 Biologist

(A) Substrate type and % of segments:
- Bedrock: 40%
- Boulder: 15%
- Cobble: 20%
- Pebble: 10%
- Sand: 25%

(B) Overall % cover of biota (% of segment):
- Dense
- Moderate 50%
- Low

(C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa:
- (upper-U; mid-M; low tidal-L):
- Juveniles/adults (X), new settlement (0)

Photographs:
- Roll No. ST/10/12
- Frames 20-31

BARNACLES

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FUCUS

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Wildlife Observations/General Comments: The lower zone includes Palmaea, Halosaccus, and other red algae with Fucus. A few greens make a 40% cover on the larger cloths. Zonata and Glossochordia (Savalia) shells were seen from the shore. A mussel zone included Anthocidaris and P. salina. The upper Zonata zone is a place of frequent Fucus. The zone is generally covered by large Fucus. A sunken boulder is a common site.}

Ecological Considerations: (not drift) mussel photos. 7 Oct. 3rd shift while steaming a site.
OILING LENGTHS
TO BE PROVIDED
AT A LATER DATE
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/FL-04

SUBDIVISIONS: B (2 OF 2)
SHORELINE EVALUATION

SEGMENT ST/FL-04 SUBDIVISION B (2 OF 2) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADFG anadromous stream no. 226-40-16381
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
ST-2 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
6Y Recreation: Special use destination
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Subdivision B has 2 bald eagle nests (see ecology map). Anadromous stream in Subdivision A > 100m from work area.

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

SHPO SIGNATURE: ___________________ DATE: ___________________

OILING CATEGORIZATION:

Wide___m: Medium___m: Narrow___m: V.Light___m: No Oil___m
Subsurface Oil Observed: Yes___ No X___ Maximum Depth______

RECOMMENDATIONS:

X___No Treatment Recommended ___Snare/Absorbent Booms
X___Treatment Recommended ___Oil Snares (pom poms)
X___Manual Pickup ___Absorbents (pads, rolls, etc)
X___Bioremediation ___Spot Washing: ___Wands
X___Tarmat: X___Removal ___Beach Cleaner
                   ___Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of asphalt, 2) bioremediation of area shown on attached sketch map. Work should be conducted after 6/1 with the approval of USFWS regarding eagle nest constraints.

TAG COMMENTS:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

TAG APPROVAL DATE: _____________
ADEC _______________________
EXXON _______________________
NOAA _______________________
USCG _______________________
FOSC: _____________________ DATE: _____________
PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

Salmon stream mouth - fry outmigration (3/1 to 5/15)
Salmon stream mouth - spawning (7/10 to 8/31)
No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bio remediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.

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

Esther Hatchery release (4/15 to 6/1)

Main Bay Hatchery release (4/20 to 5/10)

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

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

Remote release site

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

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

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

Set net sites (6/11 to 7/25)
For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.

Herring spawning (4/1 to 6/15)
Restrict boat traffic to essential minimum. Avoid damage to unoffied intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.

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

Harbor seal and sea lion molting (8/15 to 9/15)
Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.

Seabird colony (5/1 to 9/1)
Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.

Shorebird/waterfowl concentration (4/1 to 5/15)
Restrict all activity to essential minimum, especially air traffic.

All Bald Eagle nests (3/1 to 6/1)
Active Bald Eagle nests (3/1 to 9/1)
Restrict air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.

Recreation:

Tent sites (6/1 to 9/15)

Anchorages (6/1 to 9/15)

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

Lodge (6/1 to 9/15)

Special use destination

Subsistence area:
Salmon harvesting (5/1 to 9/30)
Finfish harvesting
Deer harvesting (6/15 to 2/28)

Invertebrate harvesting
For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.
SEGMENT 1 E6-04  SUBDIVISION:  B  DATE 09 April 90

USCG  
NAME: LARRY FLETCHER  SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED  ☒ TREATMENT SUGGESTED

COMMENTS
1. MANUALLY REMOVE ASPHALT, AND TAR PATTIES.
2. POSSIBLE BIO-RENEUATION

ADEC  
NAME: DAVID M. SALLY  SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED  ☒ TREATMENT SUGGESTED

COMMENTS
1. REMOVE MANUALLY OILED DEBRIS, ASPHALT + TAR BAUS.
   [NOTE: ASPHALT ON PUMBS AT END OF SEGMENT IS ON THICK
   SHELL FRAGMENT ACCUMULATIONS. REMOVAL OF ASPHALT WILL
   RELEASE HS, BUT OIL-BAUS SHOULD STILL BE REMOVED.]
2. REMOVE TURBOSED DEBRIS BETWEEN BOULLERS AND HIGH
   COVER ON ISLANDS BY MANUAL REMOVAL AND WASHING,
   RESPECTIVELY
3. BIOREMEDIATE WHEN OXYGEN LEVELS IN SEDIMENTS PERMIT

LAND MANAGER  
NAME: STEVE WARD  SIGNATURE: [Signature]

☐ NO TREATMENT RECOMMENDED  ☒ TREATMENT SUGGESTED

COMMENTS
Enclosed 10474 is Excelent.
### SHORELINE OILING SUMMARY

**OG**: Richard Marty, USCG  
**BIO**: Bob Lemon, Land Rep Stark  
**TEAM NO.**: 10  
**TIME**: 17:50 to 20:10  
**DATE**: 1990 April 19

**EST. SUBDIVISION LENGTH**: 150 m  
**IRELEVANT LEVEL**: +0.89 m  
**SURVEYED FROM**:  
- **LAND**: Forest  
- **AIR**: Helo  

**SURFACE SEDIMENTS**:  
- **R.**: 30%  
- **C.**: 20%  
- **P.**: 10%  
- **G.**: 10%  
- **S.**: 5%  
- **M.**: 5%  
- **V.**:  

**SURFACE OIL**:  
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<th>DISTRIBUTION</th>
<th>OIL FILM COLOR</th>
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**SURFACE OIL**:  
- **OILED DEBRIS**: ♦  
- **AMOUNT**: LG  
- **DEBRIS COLLECTED**: YES  
- **TYPE**: M.  
- **# BAGS**: 1

**NEAR SHORE SHEEN**: NO  
**BR**: RW  
**SL**: TL

**PAVEMENT**:  
- **H**:  
- **F**:  
- **$500 sq. m**:  
- **by**: 3 cm

** Photographs:**  
- **Roll No.**: 55/10/12  
- **Frames**: 32 - 36

### SUBSURFACE OIL

**PIT NO.**  
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**COMMENTS**: Oiled interval ≤ 5 cm in pit 2 does not constitute subsurface oil.

Page 1 of
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

Photo location, direction, and number

CHECKLIST

- H Acre
- Approx. Scale
- Seg/Sub Body
- Oil Class
- Wash
- Length
- % Cover
- Substrate Character
- Est. HWAL/ML
- SSL
- Profile Location(s)
- Probe(s)
- Pit Location(s)
- Photo Location(s)

DATE 9/1 Apr'90

- Light splattered tarry coat on rock
- Pebble beach with tar balls
- Pebble granule beach: very lightly oiled, one 'mousse' patch.
- Very few tar balls + splatter.
- Some splatter + well sorted pebble beach, splatter + tar patches
- No oil

- 4m wide x 20m long x 30% cover
- Slate cobbles in water
- Isolated splatters
- 5m x 20m x 30%
- Pavement
- 0.5m broken band

- Remove Asphalt
- Remove Pavement

Oil Character Length (m): AP 70 PO CV CT NSD ST MS PT 200 TB 1000 FL NO
SHORELINE ECOLOGICAL SUMMARY

Segment ST/10/FL 4  Subdivision F  Date (mo/day/yr) 4/9/90
Time (24 hr)  1900-2030  Biologist Lemon

(A) Substrate type and % of segments:
   (1) Bedrock 50  (2) Boulder 10  (3) Cobble 10  (4) Pebble 20  (5) Sand  (6) Silt

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

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

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NOT PRESENT

Wildlife Observations/General Comments: Low zone has a cover of mixed red and green algae.

Ecological Considerations:
Stream spawning. Inspected stream w/ waterfall, no fish or fish food on riff.
ECOLOGY MAP

A

SUBLN. A

5m & NARROW OIL

5m & MEDIUM OIL

5m & WIDE OIL

FL-4

20m & MEDIUM OIL

15m & WIDE OIL

SUBLN. B

FL-4

XXX Wide

/// Medium

--- Narrow

TTT Very Light

000 No Oil

ADEC Segment Length: 2004m

Map Key: PWS-241

Name: GM for RM

Date: 4/13/90

Date Entered: 

replaces RM/4.9.90
ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT FL-4 SUBDIVISION A (1 of 2)

WORK WINDOW

<table>
<thead>
<tr>
<th>Manual Pickup</th>
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<tr>
<td>Tarmat Removal</td>
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<tr>
<td>Bioremediation More Than 100m From Stream</td>
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<tr>
<td>Bioremediation Less Than 100m From Stream</td>
<td>WORK PRIOR TO 7/10 (ADF&amp;G MONITOR REQ.)</td>
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</table>

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B  Salmon Stream  ADF&G catalogued anadromous stream (226-40-16381) is present in this subdivision. This subdivision is closed to bioremediation less than 100m from stream 7/10 to 8/31. Before 7/10, bioremediation is permitted less than 100m from stream with on-site ADF&G monitor or ADEC alternate present. No constraint to bioremediation more than 100m from stream. No constraint to manual pickup and tarmat removal.

5T  Bald Eagle Nest  NO CONSTRAINT. Work area more than 400m from active nest

OTHER ECOLOGICAL CONSIDERATIONS

No disturbance to stream bed or banks. No flushing of pollutants or sediments into stream drainage; do not allow Inipol to enter stream flow. On-site examination and consultation by ADF&G monitor is required prior to bioremediation in order to authorize a setback distance from the stream during chemical application; if ADF&G monitor’s presence is impossible, authorization may be given by the ADEC monitor. Avoid rich biota in intertidal zones during bioremediation.

TAG APPROVAL DATE

ADEC  Kelly Manns 6/90
EXXON  Anny Tarr 6/90
NOAA  
USCG  

FOSC  
DATE 6 June 90

(10)
SHORELINE EVALUATION

SEGMENT ST/ FL-04 SUBDIVISION A (1 OF 2) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADFG anadromous stream no. 226-40-16381
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
5T-2 All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
6Y Recreation: Special use destination
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Anadromous stream 226-40-16381 in Subdivision A (see ecology map). 2 eagle nests in Subdivision B > 800m from work area.

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: 4/28/90

OILING CATEGORIZATION:
Wide 0 m; Medium 24 m; Narrow 308 m; V.Light 652 m; No Oil 106 m
Subsurface Oil Observed: Yes X No Maximum Depth 8 cm

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

COMMENTS: Recommended treatment includes 1) manual removal of tarmat, 2) manual pick up of oiled trash and debris, 3) bioremediation of areas shown on attached sketch map. No bioremediation within 100m of anadromous stream without approval from ADFG. Work should be conducted between 5/15 and 7/10 based on salmon constraints.

TAG COMMENTS: AVOID RICH BIOTA IN INTEGRAL ZONE DURING ECO.

TAG APPROVAL DATE: 4/26/90
ADEC JOHN DAVIES _______ DATE: 5/5/90
EXXON ____________ ____________
NOAA ____________ ____________
USCG ____________ ____________
ADDENDUM: SUBDIVISION CONSTRAINTS
SEGMENT FL-4  SUBDIVISION  B  (2 of 2)

WORK WINDOW

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</table>

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B Salmon Stream

ADF&G catalogued anadromous stream (226-40-16381) is in Subdivision B. This subdivision is closed to bioremediation less than 100m from stream 7/10 to 8/31. Before 7/10, bioremediation is permitted less than 100m from stream with on-site ADF&G monitor or ADEC alternate present. No constraint to bioremediation more than 100m from stream. No constraint to manual pickup and tarmat removal.

5T Bald Eagle Nest

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

OTHER ECOLOGICAL CONSIDERATIONS

No disturbance to stream bed or banks. No flushing of pollutants or sediments into stream drainage; do not allow inpol to enter stream flow. On-site examination and consultation by ADF&G monitor is required prior to bioremediation in order to authorize a setback distance from the stream during chemical application; if ADF&G monitor’s presence is impossible, authorization may be given by the ADEC monitor. Avoid any unnecessary disturbance or damage to unoiled biota and substrate.
SHORELINE EVALUATION

SEGMENT ST/ FL-04 SUBDIVISION B (2 OF 2) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

ADFG anadromous stream no. 226-40-16381
1A Salmon stream mouth - fry outmigrating (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
5T-2 All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
6Y Recreation: Special use destination

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Subdivision B has 2 bald eagle nests (see ecology map). Anadromous stream in Subdivision A > 100m from work area.

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

SHPO SIGNATURE: Charles J. Dimen DATE: 4/26/90

OILING CATEGORIZATION:

Wide 18 m: Medium 60 m: Narrow 0 m: V.Light 675 m: No Oil 91 m
Subsurface Oil Observed: Yes ☑ No ☑ 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
☐ Tarmac: ☐ Removal ☐ Beach Cleaner
☐ Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of asphalt, 2) bioremediation of area shown on attached sketch map. Work should be conducted after 6/1 with the approval of USFWS regarding eagle nest constraints.

TAG COMMENTS:

TAG APPROVAL DATE: 4/26/90

ADEC: John Beaver DATE: 5/8/89
EXXON: [Signature]
NOAA: Gary Peterson DATE: 5/6/90
USCG: Kenneth Keenan DATE: 5/6/90

FOSC: [Signature] DATE: 5/6/90

CVC now VERIFIED and documentation. Enquire CVC rep on same. CC arrange for Teplication & listing.
SHORELINE EVALUATION

SEGMENT ST/ FL-04 SUBDIVISION A (1 OF 2) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

- ADF&G anadromous stream no. 226-40-16381
- 1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
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- 6Y Recreation: Special use destination

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Anadromous stream 226-40-16381 in Subdivision A (see ecology map). 2 eagle nests in Subdivision B > 800m from work area.

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, 564-3276).

SHPO SIGNATURE: Charles H.銮 DATE: 4/28/90

OILING CATEGORIZATION:

Wide 0 m: Medium 94 m: Narrow 308 m: V. Light 652 m: No Oil 106 m
Subsurface Oil Observed: Yes X No____ Maximum Depth 8 cm

RECOMMENDATIONS:

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

COMMENTS: Recommended treatment includes 1) manual removal of tarmat, 2) manual pick up of oiled trash and debris, 3) bioremediation of areas shown on attached sketch map. No bioremediation within 100 m of anadromous stream without approval from ADF&G. Work should be conducted between 5/15 and 7/10 based on salmon constraints.


TAG APPROVAL DATE: 4/26/90

ADEC _______ EXXON _______ NOAA _______ USCG _______

FOSC: _______ DATE: 5-8-90

CVC rep to be on scene 3G arrange transportation & funding.
Some tarry oil in bedrock.
- Downward migration limited by mud, multiple detortions of bedrock.
- Quite crumbly oil coats throughout.
- Small pocket beach, splattered oil on bedrock.
- No oil on sediments.
- 1 bag misc.
- Track at MHWS.
- Rock headlands with 1.5m oil band (patchy).
- Angular cobble pebble beach.

Tarry oil: 3m wide patchy (55%)
- Gradual west to local areas of pore filling oil.
- Shallow water (2m), Stained rocks across the beach.

Tarry splatter on rocks.
- Tar balls and splatter, booth 1m band of tarry coat.
- Scattered tar balls, patches of asphalt.
- Tar balls with tar balls.
- Patches of asphalt.
- 2m asphaltic band.
- Patchy asphalt 6m wide 6% cover across bottom.
- Scattered asphalt on beach.

Very few tar balls + splatter.
- Un-weathered 20% 2m wide asphalt.
- Very light asphalt on beach.
- Good asphalt development, asphaltic 6m wide x 60% x 1m.
SHORELINE EVALUATION

SEGMENT ST/ FL-04 SUBDIVISION B (2 OF 2) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADF&G anadromous stream no. 226-40-16381
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
5T-2 All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
6Y Recreation: Special use destination
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Subdivision B has 2 bald eagle nests (see ecology map). Anadromous stream in Subdivision A > 100m from work area.

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: 4/9/90

OILING CATEGORIZATION:
Wide 18 m: Medium 60 m: Narrow 0 m: V.Light 675 m: No Oil 91 m
Subsurface Oil Observed: Yes No X Maximum Depth

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

COMMENTS: Recommended treatment includes 1) manual removal of asphalt, 2) bioremediation of area shown on attached sketch map. Work should be conducted after 6/1 with the approval of USFWS regarding eagle nests constraints.

TAG COMMENTS:

TAG APPROVAL DATE: 4/26/90
ADEC JOHN BROWN
EXXON
NOAA GARY PETTEY
USCG KENNETH KEEN

FOSC: DATE: 5-8-90
CVC NOW VENUE WITH BIOREMEDIATION. ENSURE
CVC IP IN SAME. CG ARRANGE FOR TRANSPORTATION
+ BEITHING.
Pebble Granule beach:
very lightly oiled, one 'mouse' patty.

Light splattered tarry coat on rock.

Asphalt F "bioc.
Pebble beach with tar balls

Very few tar balls + splatter.

Some splatter well sorted pebble beach

Splatter + tar patties

No oil

Oiled Vegetation

Photo location, direction, and number

Oil Character Length (mi): AP 70 PO CV CT MSD ST MS PT 200 TB 1000 FL NO

Remove asphalt

0.5m broken band

1m wide broken band

Remove Pavement

Pavement: 5m x 30m x 30% cover

Slake cobble beach with isolated splatters

Silver sheet in water

Good asphalt development 6m wide x 60% cover x 10m long. Underlying Sediments are anaerobic and give off large amounts of H2S when disturbed.
XXX Wide
/// Medium
---- Narrow
TTTT Very Light
0000 No Oil

FL-4

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Map Key: PWS-241
Name: W. Mars
Date: 09 Apr 1990
Date Entered:
1991 MAYSAP EVALUATION

SEGMENT: FL 004 SUB: A REGION: FWS SURVEY DATE: 5/12/91

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

Ecological/Constraints (see page two for details) Eagle nest, Anadromous stream

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

SHPO Signature: Timothy Smith Date: 5/31/91

RECOMMENDATIONS:

<table>
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<th>TREATMENT REQUIRED (Y or N)</th>
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<th>TAG</th>
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<td>Y</td>
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Manual Pickup (Check as Req.)
Spot Washing
Bio-Customblen Only
Bio-Inipol/Customboleen
Other
Other

COMMENTS:

INITIAL:

TAG:

FOSC: Oil in situ may too extensive to recover during survey - required to complete cleanup of patchy fashion at site 2. (7/7/91

TAG APPROVAL DATE: MAY 31 1991 FOSC APPROVAL DATE: 5/31/91

ADEC
EXXON
USCG
NOAA

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

The state will reevaluate the need for treatment on this subdivision.
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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

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.
<table>
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**TREATMENT RECOMMENDED**

- Areas M-N-O: Manual picking of AP.
- Area of q.4 #5: Expose subsurface by manually taking away pebbles.
- Manual removal of OP sediments in this 5m² area.
- Good area for small crew.

<table>
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<th>EXXON</th>
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**TREATMENT RECOMMENDED**

- All surface oil observed was well weathered and presents little threat, most was in unrecoverable state on location.

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<th>LANDMANAGER</th>
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<tr>
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**TREATMENT RECOMMENDED**

- This area needs little or no manual picking of AP. Needs heavy manual work has been worked on but should be finished. Area #5 showed heavy subsurface and should be cleaned up. This subsurface area is too square and will liquefy when the sun comes out. Cheroso Local Reserve.

- NO Biod.

<table>
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<th>USCG/NOAA</th>
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<tr>
<td>NAME</td>
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<tr>
<td>SIGNATURE</td>
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</tbody>
</table>

**TREATMENT RECOMMENDED**

- Further cleanup of this area would cause more environmental harm than the oil to be removed.

- Oil found at site A was removed, however at sites M & N, AP was too extensive for pickup during survey; further manual treatment is desirable. Rest of survey does not appear to warrant further treatment. Date.
**MAYSAP SHORELINE OILING SUMMARY**

**TEAM NO.**
OG: **CHANLEY**  
BIO: **CRANK**  
LANDMANAGER: **WARD** for **CUC**  
USCG/NOAA: **DREHER/CLINE**

**SEGMENT**
FL - 4  
**SUBDIVISION**
A  
**DATE**
MAY 12 1991

**TIME**
17:45 to 20:20  
**TIDE LEVEL**
2.0 ft. to 3.0 ft.  
**ENERGY LEVEL**
☐ H  
☐ M  
☐ T

**SURVEYED FROM:**
☐ FOOT  
☐ BOAT  
☐ HELO

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

**TOTAL LENGTH SHORELINE SURVEYED:**
10.98 m  
**NEAR SHORE SHEEN:**
☐ BR  
☐ RB  
☐ SL  
☐ NONE

**EST. OIL CATEGORY LENGTH:**
W - m  M - m  N 210 m  VL 360 m  NO 528 m  US 210 m

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### Surface Oil Character

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

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

**PHOTO ROLL & MAYSAP**
5 - 13  
**FRAMES**
13 - 21

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### Subsurface Oil Character

<table>
<thead>
<tr>
<th>PIT NO</th>
<th>PIT DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED ZONE</th>
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<th>K2O LEVEL</th>
<th>SHEEN COLOR</th>
<th>PIT ZONE</th>
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**SHEEN COLOR:**
B = BROWN; R = RAINBOW; S = SILVER; N = NONE

---

**OG COMMENTS:**
- **AREA:** Broad band along tombolo to bedrock ridge on adjacent island. Weathered splatters of CT + CV on bedrock. Small patches SOR/H (patties AP recovered) on pebbles & boulders. Subsurface oil on shallow bedrock in poorly sorted sediments. Thin lens OP on bedrock in area of pit 5. Approximately 5m². AREAS ☑ & ☑ DISTINCT PATTIES IN A BAND ☑ BEGINS AT SMALL STREAM & RUNS N,E ~20m.

**REVISED:** 5/19/91

**Reviewed:** F.W. 5/21/91
### MAYSAP SHORELINE OILING SUMMARY (cont.)

#### TEAM NO. 5

#### SEGMENT FL-4

#### SUBDIVISION A

#### DATE: May 12, 1991

<table>
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<th>LOC</th>
<th>SURFACE OIL CHARACTER</th>
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**DISTRIBUTION:** C = 91-100%; B = 81-90%; P = 71-80%; S = 1-10%; T = <1%

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

**PHOTO ROLL # MAYSAP 5-13**

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<tr>
<th>PIT NO.</th>
<th>DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED ZONE</th>
<th>CLEAN BELOW</th>
<th>H2O LEVEL</th>
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**SHEEN COLOR:** B = BROWN; R = RAINBOW; S = SILVER; N = NONE

### OG COMMENTS:

An AP Pattie was recovered from Area 5 which was 15cm thick and roughly 30cm in diameter. The rest of Area 5 consisted of a narrow band of CT on bedrock & boulders.

Pit 10 was in S.W. corner of pocket cove and revealed an hor lense roughly 5m². This corresponds with the location & dimensions of an AP Mat reported in SSAT Report.

In Area V there was heavy sor in the highest point in the fissure cove between boulders for a total of ~0.5m²

**Revised:** 5/19/91

**Revised:** 5/21/91
MAY 31AP BIOLOGICAL SUMMARY FORM

TEAM: 5
SEGMENT: FL-4
SUBDIVISION: A
TIDAL HEIGHT (Range): +2 to +5
BIOLOGIST: Cranl
WIND SPEED/DIRECTION: 5 knots

PHOTOGRAPHS: ROLL 1

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

(A) A 6cm x 6cm 'bath tub ring' located high in U17 along a cobble.

Site is no more than 1 meter below the high water mark. Site is located in soft mud. The site has no current. Concenation of fish is present at the site. Mussels and barnacles should be present. There is no evidence of disturbance. There is a moderate concentration of barnacles. Fucus is present at the water's edge. Littorina and Limpets are present.

(B) Area is located high in U17 along a pocket beach. Within the area there is block lichen and moss covering 10% of the surface sediments. The M17 has 75% biota cover. Barnacles are dominant with a moderate concentration of adults and recent set. Fucus is present at the water's edge. Littorina and Limpets are rare. Mussels are sparse, various age classes present.

(C) Area is located high in U17 along a vertical rock face. There is approximately 20% biota cover within the area including:

- A sparse concentration of adult barnacles
- A rare concentration of barnacle spat
- A sparse concentration of Littorina
- A rare concentration of Fucus with sporangia

- Mussels and barnacles are present. Approx 5% of the Fucus plants appear unhealthy with torn blades and 'sterile' plants. The remaining 95% appear healthy. Directly below the site, biota cover is 30%.

- The increase is mainly attributed to an increase in barnacle concentrations, in'96

WILDLIFE OBSERVATIONS

TO B: COMPLETED IN ALL SUBDIVISIONS

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<th>BIRDS</th>
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<td>Les (specify)</td>
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Shoreline subdivision map showing important biological features attached.
The MITZ below areas (C) and (D) has ~50% biota cover. Barnacles dominate the surface sediments with a moderate concentration. Limpets and Litorina also have moderate concentrations. Littorina egg masses are common. Fucus and Egregia (algae) are both sparsely concentrated. Around the boulder bases, various ages of intergravel mussels are sparsely concentrated. Nemertean and Oligochaete worms are also present.

(E) Area is located in the MITZ. There is ~10% barnacle cover on the surface sediments with the site. Below site 1m, there is a Fucus patch with sporangia and mature conceptacles. The MITZ is similar to that described for areas (C) and (D).

(F) Area is located in the SUPRA on a boulder on a tomb below. There is less than 1% biota cover within the site including Littorina, limpets, and Fucus. The Fucus plants are not yet reproductive, MITZ biota similar to that described for (E) and (D). Fucus is a bit more prominent. Biota cover ranges from 30-50%, increasing in density toward area G.
Comments (cont.)

(G) Area is located in the UITZ, also includes site 6.
There is ~10% benthic cover within the site, including:
- sparse barnacles that tightly seal their inner plates
- mussel bed density increases to moderate. About a 1/3 of
- the mussels are juveniles (post-spill age). The UITZ is
- a clam bed dominated by Macoma (beach-nourishment);
- Prototheca (little-neck) is also present. Oyster digs
are prominent throughout clam bed.
Clam and mussel beds are sensitive to trampling.
If treatment should occur in this area, transportation
to the sites in the UITZ should be done at a low tide
or higher to protect the beds.

(H) Area is located in the UITZ on the exposed face of a boulder.
Benthic cover within the site is <20% including:
- sparse barnacles with spat. Barnacles tightly sealed their inner
- plates when stimulated. Sparsely concentrated Littorina and
- rare juvenile mussels also present in site. Limpets were
- observed on ool. Ten centimeters below site there are
- sparse Fucus sporelings. Two meters below, in the UITZ, benthic cover
- is ~40%. Algae is dominant with Fucus, Scytosiphon, Odonthalia, Ulva,
- and filamentous greens.
Comments (cont.)

(I) Area is a band, across boulders, in the U1T2. Biotba cover is ~20% including a sparse concentration of mussels with various ages, a rare to sparse concentration of barnacles with a recent spot settlement, moderate Littorina, sparse limpets, and patches of Fucus. Below the site, from the base of the boulder, crossing the beach, is a moderate to densely concentrated intergravel mussel bed with various age classes.

(Pit 5) Within 10 m of the pit there are rare to sparsely concentrated barnacles. 10 m below pit is the top of the intergravel mussel bed described in (I). The L1T2 is a clam bed foraged by others.

(J) Area is located in the U1T2. Biotba within site is similar to area (I). Below the site there is a patch of stipe-only Fucus 1x2 m. Fucus sporelings are present around the edges of the stipe patch. Also present below the site are dense to moderately concentrated limpets and Littorina. Littorina egg masses are common.
Comments (cont.)

(K) Area is located in the ULTZ and MITZ. Within the site, there is ~15% bista cover of barnacles, limpets and Littorina. Lower in the MITZ, concentrations increase to moderate and cover increases to ~50%. Littorina egg masses are common. Rare Fucus is also present.

(L) Area is located in the ULTZ. Within the site, sparsely concentrated barnacles, limpets and Littorina and rarely concentrated mussels and Fucus are present. Bista cover is 25%. Percent bista cover remains constant to water line. At the +2` tide level, Fucus and mussels increase to a sparse concentration and Littorina are dense.

(M, N) Areas are found in the SUERA and high ULTZ. Sprouting rye grass, moss and black lichen are found within the site. In the MITZ, below the sites, there is a moderately concentrated intergravel mussel bed; a sparse concentration of barnacles and a 20 x 15 m Fucus bed, NE of stream with dense Littorina and limpets. Before the Fucus bed biomass cover is ~30%; in the Fucus bed biomass cover is ~50%; Below the Fucus is a clam bed with other diggs. Young Macoma clams were present.
Comments (cont.)

(6) Area is in the ULTZ above Fucus patch described in (M; N). Within the site, biota is similar to area (I). Barnacles are the dominant species. Biota cover is 20%.

(P) Area is located in the ULTZ. There are: sparse barnacles (several age classes); moderate Littorina and limpets; a sparse to moderately concentrated intercobble mussel bed (several age classes). Just below the site is the top edge of the clam bed. The area is covered with many empty clam and mussel shells and hash. Typical of a low energy beach.

Pit #9: Pit is located in the ULTZ. There are rare to sparsely concentrated barnacles located within 10m of the pit.

(8) Area is located in the ULTZ (includes pit #9). There are barnacles within the site covering from <1% to 10% of the surface sediments. Two meters below the site, barnacles cover ~20% of the surface. Sparse Littorina, limpets, and mussels are also present. Ten meters below the site, in the MLTZ, there is a moderate to sparsely concentrated intercobble mussel bed and barnacle cover. Littorina are dense to moderate, and Fucus is sparse to rare with maturing conceptacles. Biota cover is 30-50%.
Comments (cont.)

(R) Area is located in the UIIZ. Within the area there is a sparse barnacle concentration. Biota cover is 10%.

Below the site, in the MITZ, there is moderately concentrated intercobble mussels and Littorina and sparsely concentrated barnacles and Fucus. Biota cover is 50%.

(S) Area is on a gravel/cobble pocket beach, located high in the UIIZ. No macrobiota was located in the area or around pit #10. Below the site there is a rare barnacle concentration. Low in the MITZ there are intercobble mussels, and along the bordering rock faces moderate barnacles, and sparsely concentrated mussels and Fucus. Cover ~30% of the rock face.

(T) Area is located in the SPPA and UIIZ. Sparse concentrated biota cover ~20% of the sediment surface. Recruits were observed in the barnacle, mussel and Littorina populations.

In the nearshore there is an eelgrass and a Laminaria kelp bed.
Comments (cont.)

(U) Area is a band in the U172 along a rockface. Sparsely concentrated barnacles are the dominant species within the site. The animals tightly sealed their inner... when stimulated and a recent spat settlement is present. Tar spat algae and sparse Littoria are also present. Bista cover varied between 10-20%. Within 1 m below the site there are mussels of various ages and a moderate barnacle concentration. Bista cover is 50%.

(V) Area is located in the U172. Within the site there are rare barnacles covering <1% of the surface sediments. Below the site, barnacles are sparse to moderate, a recent settlement is present. Littoria are in dense aggregates with egg masses and in association with hermit crabs; mussels are sparse. Bista cover is 50%. On bedrock there is sparse Fucus with sporulating.

In this subdivision recruitment was observed... the Fucus, Littoria, barnacle, mussel and clam populations.
LEGEND
BEDROCK
BOULDERS
FINE BED
DRIFT LOG
GRASS
BRUSH
FOREST
OILED PIT
NO OIL PIT
PHOTO

SCALE
80 METERS
APPROXIMATELY

MA  1991
DD SKETCH MAP & BIO SKETCH MAP
GREG CHANEY  & CRANK
TEAM S
SEGMENT: FL4A
DATE: MAY 12 1991
AIR P. H.: PIMCOOS 193

FLEMING ISLAND

TREES

Molasses to Denses concentration of mussels at boulder bases - various age classes present
Clam bed with many
Dense mussel patches
Clam Bed with many empty shells present - typical of
Intercoastal mussel beds. Many &
A low energy site. Keep Bed
Eggs present

Recent Barnacle set present

80 METERS
APPROXIMATELY

SOUTH

LITZ & MIZTZ - Eggs Bed in the
MIZZT and LITZ, Cladingo
are increasing.

Some 34 eggs Bed in the
MIZTZ and LITZ, Cladingo
are increasing.

Some 34 eggs Bed in the
MIZTZ and LITZ, Cladingo
are increasing.

Some 34 eggs Bed in the
MIZTZ and LITZ, Cladingo
are increasing.

Some 34 eggs Bed in the
MIZTZ and LITZ, Cladingo
are increasing.
1991 MAYSAP EVALUATION

SEGMENT: PL 004  SUB: A  REGION: PWS  SURVEY DATE: 5/12/91

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

Ecological/Constraints (see page two for details)  Eagle nest, Anadromous stream

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

SHPO Signature: __________________________ Date: __________________

RECOMMENDATIONS:  INITIAL  TAG  FOSC

TREATMENT REQUIRED (Y or N)  N
Manual Pickup (Check as Req.)
Spot Washing
Bio-Customblen Only
Bio-Inipol/Customblen
Other
Other

COMMENTS:
INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE: __________  FOSC APPROVAL DATE: __________

ADEC
EXXON
USCG
NOAA
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 100' vertical and 1/4 mile horizontal buffer.

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

TEAM NO. 5  SEGMENT FL-4  SUBDIVISION A  DATE 5/12/91

ADEC NAME: John Hayes
SIGNATURE: [Signature]

☐ NTR: TREATMENT RECOMMENDED
  Areas M-N-O - Manual pickup of AP.
  Good crew for small crew.

EXXON NAME: John Dean
SIGNATURE: [Signature]

☐ NTR: All surface oil observed was well weathered and presents little threat, most was in unrecoverable state on location.

LANDMANAGER NAME: Steve Ward of CVC
SIGNATURE: [Signature]

☐ NTR: This area needs little to no manual work as M-N-O need heavy manual. This area has been worked before and should be finished. P.t. #5 showed heavy subsurface and should be cleaned up, this subsurface area is 30 square and will be finished when the sun comes out. Chemical Local Response NO NO.

USCG/NOAA NAME: Dreher/Cline
SIGNATURE: [Signature]

☐ NTR Further cleanup of this segment would cause more environmental harm than the oil to be removed.

AP found at site 6 was assessed, however site M & N AP was too extensive for pickup during survey. Further manual treatment is desirable. Rest of oiling does not appear to warrant further treatment. DCC.
**MAYSAP SHORELINE OILING SUMMARY**

**SEGMENT** FL-4

**SUBDIVISION** A

**DATE** May 12, 1991

**TIME** 17:45 to 20:20

**TIDE LEVEL** 2.0 ft to 3.0 ft

**ENERGY LEVEL** □ H □ M □

**SURVEYED FROM:** □ FOOT □ BOAT □ HELO

**WEATHER:** □ SUN □ CLOUDS □ FOG □ RAIN □ SNOW

**TOTAL LENGTH SHORELINE SURVEYED:** 10.98 m

**NEAR SHORE SHEEN:** □ BR □ RB □ SL □ NONE

**EST. OIL CATEGORY LENGTH:** W—m M—m N 210 m V 360 m NO 528 m US 210 m

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<th>SURFACE SEDIMENT</th>
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**DISTRIBUTION:** C = 01-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = ≤1%

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

**PHOTO ROLL:** # MAYSAP-5-13 FRAMES 13-2

**PIT NO.** | **PIT DEPTH (cm)** | **SUBSURFACE OIL CHARACTER** | **OILED ZONE** | **CLEAN H2O BELOW ZONE** | **SHEEN COLOR** | **PIT ZONE** | **SURFACE-SUBSURFACE SEDIMENTS** |
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**SHEEN COLOR:** B = BROWN; R = RAINBOW; S = SILVER; N = NONE

**OG COMMENTS:** AREA: Broad band along tombolo to bedrock ridge on adjacent island. Weathered splatters of CT/CV on bedrock. Small patches SOR/H (patties AP recovered) on pebbles & boulders. Sub surface oil on shallow bedrock in poorly sorted sediments. Thin lens of OP on bedrock in area of pit 5. Approximately 5m². AREAS (M) & (N) Distinct Patties in a band (N) begins at small stream & runs N.E. ~20 m.

**REVISED 5/19/91 9U**

**REVIEWED:** C.W. 5/19/91
MAYSAP SHORELINE OILING SUMMARY (cont.)

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**NOTES**
- FADING BAND OF ROOF
- BAND TAPER'S OUT
- PROTECTED FISSURE CON
- BEDROCK FACE CON

**DISTRIBUTION:** C = 61-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = <1%

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

**PHOTO ROLL # MAYSAP-5-13 FRAMES 13**

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<th>PIT NO.</th>
<th>DEPTH (cm)</th>
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<th>CLEAN BELOW LEVEL</th>
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<td>V</td>
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**SHEEN COLOR:** B = BROWN; R = RAINBOW; S = SILVER; N = NONE

OG COMMENTS:

AN AP PATTIE WAS RECOVERED FROM AREA S WHICH WAS 15 cm THICK AND ROUGHLY 30 CM IN DIAMETER. THE REST OF AREA S CONSISTED OF A NARROW BAND OF CTY CV ON BEDROCK & BOULDERS.

PIT 10 WAS IN S.W. CORNER OF POCKET COVE AND REVEALED AN HORIZ LENSE ROUGHLY 5 m². THIS CORRESPONDS WITH THE LOCATION & DIMENSIONS OF AN AP MAT REPORTED IN SSAT REPORT.

IN AREA V THERE WAS HEAVY SOR IN THE HIGHEST POINT IN THE FISSURE COVE BETWEEN BOULDERS FOR A TOTAL OF ~ 0.5 m².
MAYAP BIOLOGICAL SUMMARY FORM

TEAM # 5
SEGMENT # FL-4
SUBDIVISION A
SEA STATE 0

DATE 6 May 79
WIND SPEED/DIRECTION <5 knots
TIDAL HEIGHT (Range) +2 to +5

BIOLOGIST Crew

PHOTOGRAPHS: ROLL # FRAME #

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):
(A) Area is 8m x 6m 'patch turpentine' located in U17 along a sandy beach. There is a very thin layer of surficial sediments. There is a sparse concentration of barnacles present. There is also a sparse concentration of littorina and diadaphones. The area is 50% covered by vegetation. Barnacles are present, but they are not very dense.

(B) Area is located in U17 along a rocky beach. Within the unit there is a high density of barnacles, but the surface sediments are not visible. There is a moderate concentration of adults and recent set. Fucus is present at the water's edge. Littorina and limpets are sparse.

(CD) Areas are bands located in the U17 along a vertical rock surface. There is approximately a 20% barnacle cover within the site. Including: a sparse concentration of adult barnacles, a rare concentration of barnacles of different age, a sparse concentration of littorina, a rare concentration of juveniles (post-settlement) and a sparse concentration of Fucus with sporelings and new fronds. Approximately 95% of the Fucus plants appear healthy, but only 5% of the barnacle concentrations. There is a moderate increase in barnacle concentrations in the area.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS

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FISH OBSERVED

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MARINE MAMMALS

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LAND MAMMALS

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Shoreline subdivision map showing important biological features attached.
The MITZ below areas (C) and (D) has ~50% biota cover. Barnacles dominate the surface sediments with a moderate concentration. Limpets and Littorina also have moderate concentrations. Littorina egg masses, Fucus, and Endocladia (algae) are both sparsely concentrated. Around the boulder bases, various ages of intergravel mussels are sparsely concentrated. Nemertean and Oligochaete worms are also present.

(E) Area is located in the MITZ. There is ~10% barnacle cover on the surface sediments with the site. Below site 1m, there is a Fucus patch with sporlings and mature concepts. The MITZ is similar to that described for areas (C) and (D).

(F) Area is located in the SUPER on a boulder. There is less than 1% biota cover within the site including: Littorina, barnacles, and Fucus. The Fucus plants are not yet reproducing actively. MITZ biota similar to that described for (C) and (D). Fucus is a bit more prominent. Biota cover range from 30-50%, increasing in density toward area G.
Comments (cont.)

(G) Area is located in the U1T2; also includes pit G. There is ~10% biota cover within the site, including sparse barnacles that tightly seal their inner plates when stimulated, and sparse inter gravel mussels of various age classes. Directly below site, to the water (~2 mussel bed density increases to moderate. About a 1/3 of the mussels are juveniles (post-spill age). The U1T2 is a clam bed dominated by Macoma (soft orange clams); Prototheca (little-neck) is also present. Other digs are prominent throughout clam bed.

Clam and mussel beds are sensitive to trampling. If treatment should occur in this area, transportation to the sites in the U1T2 should be done at a 1/2 tide or higher to protect the beds.

(H) Area located in the U1T2 on the exposed face of a boulder. Barnacle cover within the site is ~20% including sparse barnacles with spat. Barnacles tightly sealed their inner plates when stimulated. Sparsely concentrated littering and rare juvenile mussels also present in site. Limpets were observed on all. Ten centimeters below site there are sparse Fucus sporings. Two meters below in the U1T2, biota cover is ~40%. Algae is dominant with Fucus, Scytophakia, Odonthalia, Ulva, and filamentous greens.
Comments (cont.)

(I) Area is a band, across boulders, in the UITZ. Biota cover is ~20% including: a sparse concentration of mussels with various ages; a rare to sparse concentration of barnacles with a recent spat; and, moderate Littorina; sparse limpets and patches of Fucus. Below the site, from the base of the boulder, crossing the beach, is a moderate to densely concentrated intergravel mussel bed with various age classes.

(Pit 5) Within 10 m of the pit there are rare to sparsely concentrated barnacles. 10 m below pit is the top of the intergravel mussel bed described in (I). The UITZ is a clam bed foraged by otters.

(J) Area is located in the UITZ. Biota within site is similar to area (I). Below the site there is a patch of 'stipe-only' Fucus 1x2 m. Fucus sporelings are present around the edges of the stipe patch. Also present below the site are dense to moderately concentrated limpets and Littorina. Littorina egg masses are common.
Team # 5
Segment # FL-4
Subdivision A
Sea State 0

Date 12 May 1991
Tidal Height +2.75
Biologist Crank
Wind Speed (Direction <5 knots)

Comments (cont.)

(K) Area is located in the U1TZ and M1T2. Within the site, there was ~10% M1T2 cover. In general, lower in the M1T2, there is a moderate to moderate and cover increases to ~50%. Littorina and mussels are common. Rare Fucus is also present.

(L) Area is located in the U1TZ. Within the site, sparsely concentrated barnacles, limpets, and Littorina, and rarely concentrated mussels and Fucus are present. Biotica cover is 2-7%. Present biota cover remains consistent to waterline. At the 1-2' low level, Fucus and mussels increase to a sparse concentration and Littorina are dense.

(M, N) Areas are found in the SVERA and high U1TZ. Sprouting rye grass, muss and black lichen are found within the site. In the M1T2, below the site, there is a moderately concentrated, intergrasi. mussel bed; a sparse concentration of barnacles, and a 20x15m Fucus bed. NE of stream with dense Littorina, and limpets. Before the Fucus bed biota cover is ~30%. In the Fucus bed biota cover is ~50%. Below the Fucus is a clam bed with other clams. Young Macoma clams were present.
Comments (cont.)

6) Area is in the ULTZ above Fucus patch described in (M.N.) Within the site, Bista is similar to area (I). Barnacles are the dominant species. Bista cover is 20%.

7) Area is located in the ULTZ. There are: sparse barnacles (several age classes), moderate. Littorina and limpets. A sparse to moderately concentrated intercobble mussel bed (several age classes). Just below the site is the top edge of the clam bed. The area is covered with many empty clam and mussel shells and hash. Typical of a low energy beach.

Pit #9. Pit is located in the ULTZ. There are rare to sparsely concentrated barnacles located within 10m of the pit.

8) Area is located in the ULTZ (includes pit #9). There are barnacles within the site covering from 1% to 10% of the surface sediment. Two meters below the site, barnacles cover ~20% of the surface. Sparse Littorina, limpets and mussels are also present. Ten meters below the site, in the MLTZ, there is a moderate to sparsely concentrated intercobble mussel bed and barnacle cover. Littorina are dense to moderate and Fucus is sparse to rare with maturing conceptacles. Bista cover is 30-50%.
Comments (cont.)

(R) Area is located in the U17Z. Within the area there is a sparse barnacle concentration. Biota cover is 10%. Below the site, in the M17Z, there is a moderately dense intertidal mussel and littoral and sparsely concentrated barnacles and Fucus. Biota cover is 50%.

(S) Area is on a gravel/cobble pocket beach, located high in the U17Z. No macrobiota was located in the area or around pit #10. Below the site there is a rare barnacle concentration. Low in the M17Z there are intertidal mussels, and along the bordering rock face, sparse barnacles, and sparsely concentrated mussels and Fucus cover ~30% of the rock face.

(T) Area is located in the SUPA and U17Z. Sparse concentrated biota cover ~20% of the sediment surface. Recruits were observed in the barnacle, mussel and littoral populations. In the nearshore there is an eelgrass and a Laminaria kelp bed.
(U) Area is a band in the U172 along a rockface. Sparse cover, varied carrageen are the dominant species on the site. The animals tightly sealed their inner... when stimulated and a recent spat settlement is present. Tar spat algae and sparse Littorina are also present. Bista cover...varies between 10-20%. Within 1m below the site...there are mussels of various ages and a moderate barnacle concentration. Bista cover is 50%.

(V) Area is located in the U172. Within the site, rare barnacles covering <1% of the surface seaweeds. Below the site, barnacles are sparse to moderate, a recent settlement is present. Littorina are in clumps aggregates...with egg masses...and in association with hermit crabs...mussels are sparse. Bista cover is 50%. On bedrock...there is sparse Fucus with sporing.

In this subdivision recruitment was observed...the Fucus, Littorina, barnacle, mussel and clam populations.
1991 MAYSAP EVALUATION

SEGMENT: FL 004   SUB: B   REGION: FWS   SURVEY DATE: 5/5/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s) **RESTRICTED 3/1 - 9/1**

Ecological/Constraints (see page two for details) **Eagle nest**

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

SHPO Signature: __________________________ Date: ______________________

RECOMMENDATIONS:

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Manual Pickup (Check as Req.)
Spot Washing
Bio-Customblen Only
Bio-Inipol/Customblen
Other
Other

COMMENTS:
INITIAL:

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TAG:

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FOSC:

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TAG APPROVAL DATE: __________ FOSC APPROVAL DATE: __________

ADEC ______________________ FOSC ______________________

EXXON ______________________

USCG ______________________

NOAA ______________________
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

Eagle Nest: Access restricted from 3/1 to 9/1. USFWS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.
**MAYSAP FIELD SHORELINE COMMENT SHEET**

**TEAM NO.** 5  **SEGMENT** FL - 4  **SUBDIVISION** B  **DATE** 5/1/91

<table>
<thead>
<tr>
<th>ADEC</th>
<th>NAME: John Haye</th>
<th>SIGNATURE:</th>
</tr>
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<tbody>
<tr>
<td></td>
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<tr>
<td>☑ NTR</td>
<td></td>
<td>Manual pickup is area K at on crest of tombolo over some areas west of tombolo between boulders. Recommend CUC LAP for this site as all work is manual.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXXON</th>
<th>NAME: Martucci, N.J.</th>
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</thead>
<tbody>
<tr>
<td>☑ NTR</td>
<td>Area looks good. Area &quot;K&quot; would be a good area for CUC. Local response as it does need some work.</td>
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<table>
<thead>
<tr>
<th>LANDMANAGER</th>
<th>NAME: Steve Ward</th>
<th>SIGNATURE:</th>
</tr>
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<tbody>
<tr>
<td>☑ NTR</td>
<td>Asphalt parking filled up. Life came on a few rocks. Some needles. There is an area looking like Site # that needs some soil cleanup. See OG Notes.</td>
<td></td>
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<table>
<thead>
<tr>
<th>USCG/NOAA</th>
<th>NAME: Drehers / Hodges</th>
<th>SIGNATURE:</th>
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</thead>
<tbody>
<tr>
<td>☑ NTR</td>
<td>Tar balls and patches were found on major tombolo – most tar patches were picked up. Tombolo pits showed subsurface oil in the peat layer. Northern most point shows oil coverage in rock layer and heavily oiled beach grass patch. Manual labor with muckout would reduce the oil in those specific spots in this segment.</td>
<td></td>
</tr>
</tbody>
</table>
**OG COMMENTS:** This segment consists primarily of two small embayments with low wave exposure.

Surface oiling is confined primarily to the southern area of the two embayments with several pockets of AP and SOR. These pockets (locations C-F; H) are on the northeast-facing beaches with an estimated...
<table>
<thead>
<tr>
<th>PIT NO.</th>
<th>OILED ZONE</th>
<th>CLEAN BELOW</th>
<th>H2O LEVEL</th>
<th>SHEEN COLOR</th>
<th>PIT ZONE</th>
<th>SURFACE-SUBSURFACE SEDIMENTS</th>
<th>NOTES</th>
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<tbody>
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<td>10</td>
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<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
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<td>11</td>
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<td>PC/SG</td>
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<td>12</td>
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<td>-</td>
<td>20</td>
<td>N</td>
<td>-</td>
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Sheen Color: B = Brown; R = Rainbow; S = Silver; N = None

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<tr>
<th>LOC</th>
<th>SURFACE OIL CHARACTER</th>
<th>SURFACE SEDIMENT</th>
<th>SLOPE</th>
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Peninsula, NC, 5/17/91

OG 24/6
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Sheen Color: B = Brown; R = Rainbow; S = Silver; N = None

OG Comments:

30 m² of asphalt remaining. Weathered drippings and splatters occur on some of the vertical rock faces in cracks and crevices. The northern embayment appears to have been relatively sheltered from the oiling – all oil traces were collected and the area appears wrapped as no oil.

Subsurface oiling was limited to the small funnel (location D-E). A very thin layer of H20 was identified in Pit #2 (H20 estimated at 5 x 75m) and MOR in Pit #3 (H20 estimated at 15 x 120m). The subsurface oil was low viscosity, dark brown in color, below angular pebbles and cobbles. Oil runs freely and pore space is filled with oil and water making estimates of pore filling difficult.

OG 349 6

Received 5/8/91
Endnotes: 5/8/91
TEAM # 3  
DATE 5/3/91 & 5/5/91  
SEGMENT # FL4  
TIDAL HEIGHT (Range) 2-3' x 3-4'  
SUBDIVISION B  
BIOLOGIST: Stoker/Grant  
SEA STATE 1-3' x 0-1'  
WIND SPEED/DIRECTION: SE 10-20 & NE 0-5

PHOTOGRAPHS: ROLL:  
FRAME: 

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

Subdivision consists of generally low energy mixed substrate beaches or pebble/cobble/shoal/barrock separated by sand headlands. A small stream traverses the beach in the W. portion of the subdivision.

Biota generally sparse in the upper intertidal (sparse barnacles, limpets, etc.), increasing downslip in both abundance and diversity. Biota on pebble/cobble/shoal/barrock beaches (MTL below) characterized by variable densities of patchily distributed fucus, filamentous green algae, seagrass, and barnacles/spat, moderate densities littorina with egg masses, generally sparse limpets (some clusters of small individuals), amphipods, and sometimes Nucella, harpaeformis and oligochaeetes. Sparse patches or attached mussels were found on larger boulders, with widespread and variable-density intermixed patches in pebble/cobble. Shells (Saxidomus, Protoreca, Nacoma) are common in the Li t as are gulls daily by sea otters foraging for clams.

Biota on sand headlands characterized by variable and often dense new-growth fucuses, barnacles, and spat, littorina, limpets, and generally sparse patches of small mussels. Overall, biota appears relatively healthy and abundant. Considerable variability in abundance was noted throughout, apparently unrelated to general substrate type or vertical zonation.

Comments relating to specific areas or remaining oil are on summary form 2 and attached sheet?  

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED SPECIES PRESENT</th>
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<tbody>
<tr>
<td>Eagles</td>
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<tr>
<td>Seabirds</td>
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<tr>
<td>Waterfowl</td>
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<tr>
<td>Gulls/Kittiwakes</td>
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<td>70</td>
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<td>Shorebirds</td>
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<td>Corvida</td>
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<tr>
<td>Other Birds</td>
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</table>

<table>
<thead>
<tr>
<th>MARINE MAMMALS # OBSERVED</th>
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<tbody>
<tr>
<td>Sea Otters</td>
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<tr>
<td>Pinnipeds (specify)</td>
<td>LOON-2</td>
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<tr>
<td>Whales (specify)</td>
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<thead>
<tr>
<th>LAND MAMMALS</th>
<th># OBSERVED</th>
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Shoreline subdivision map showing important biological features attached.
MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 5  DATE: 3 MAY 1991
SEGMENT # FL-4  TIDAL HEIGHT (Range): +2 to +5'
SUBDIVISION B  BIOLOGIST: Biologist
SEA STATE: 1-3'  WIND SPEED/DIRECTION: 10-20 knots/SE
PHOTOGRAPHS: ROLL # MAYSAP 9  FRAME #: 25

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

(A) Area is located high in UITZ on a vertical rock face. No intertidal macro-biota present within site. Approx. 12 m below site, there is a sparse concentration of Fucus majority of plants are stipit only. The next 12 m drop has a sparsely concentration of Fucus sporangia. The LITZ has ~60% Fucus cover. Plants appear healthy.

(B) Area is located along a rockface in the UITZ. There is ~30% barnacle cover in the site. An oil stain is present on the shells. Animals tightly sealed their inner plates when stimulated. Directly below the site barnacle cover dropped to 20%. Barnacle concentrations lessen, however, juvenile mussels, Fucus sporangia Uria and Scyratephus (algae) were present. Possess clam bed in the LITZ.

(C) Areas are located on a tombolo. Biota cover is ~10%. There is a race to sparsely concentrated intertide mussel bed. Majority of the mussel were ~2 years old. Most shells were empty. The LITZ is a clam bed, subsurface sediments have a high percentage of mussel shell hash.

(D) Area is located low in the UITZ. There is ~10% biota cover with filamentous green algae, barnacles and mussels. The MITZ has ~30% barnacle cover and a sparse to moderately concentrated mussel bed (various age classes). The LITZ is a clam bed with ~50% barnacle cover on surface sediments. On the rock outcrop there is ~50% algae cover.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED</th>
<th>SPECIES PRESENT</th>
</tr>
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<tbody>
<tr>
<td>Eagles</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Seabirds</td>
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<td>Waterfowl</td>
<td>2</td>
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<tr>
<td>Gulls/Kittiwakes</td>
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<td>~70</td>
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<tr>
<td>Shorebirds</td>
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<td>Corvids</td>
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<tr>
<td>Other Birds</td>
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<tr>
<th>MARINE MAMMALS</th>
<th># OBSERVED</th>
<th>SPECIES</th>
<th># OBSERVED</th>
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<tbody>
<tr>
<td>Sea Otters</td>
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<td>Pinnipeds (specify)</td>
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<tr>
<td>Iles (specify)</td>
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</tbody>
</table>

Shoreline subdivision map showing important biological features attached.

Reviewed: MC 5/8/91
Comments (cont.)

(F) Area is located in the ULTZ. Fucus sporelings and Ficaria green algae cover <1% of the sediment. One meter below site biota cover is ~40% including Fucus and mussels. ULTZ is a clam bed.

(H) Area is located in the SUPRA and high ULTZ. Mosses with fruiting bodies are present. Below the site there is ~40% Fucus cover. Approx. 10% of the plants are 'stipe-only'.

(I) Area is located in the southwest corner of a pocket beach. There is ~40% Fucus sporeling cover. The ULTZ is a clam bed utilized by otters; otter digs are present.

(J) Area is located in the high ULTZ. Black lichen, moss, and tarry algae is present. 1 meter below site biota cover is ~40% including Fucus and barnacles. Fucus sporelings and stipe-only plants are present. ULTZ is a clam bed.

Recolonization is occurring in the mussel, barnacle and Fucus populations on this subdivision. Eagle nest is present until to determine whether it was active/inactive. Reviewed: 09/11/97.
KL - No warm water benthic community relatively abundant, composed of dense non-growth Fuens barnacles and spat, Littorina, limpets.

M-A - Sparse benthic within/adjacent to oiled areas [sparse barnacles, limpets]. Benthic increases downslope in abundance and diversity, characterized primarily by moderate-dense barnacles and spat, patchily dense non-growth Fuens, Littorina and limpets, and sparse patches of small attached Mytilus.
1991 MAYSAP EVALUATION

SEGMENT: FL 004    SUB:   B    REGION:   PWS    SURVEY DATE:   5/5/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s)   RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details)   Eagle nest

ARCHAEOLOGICAL CONSTRAINTS:
If cultural resources are uncovered during shoreline
treatment, stop work in the vicinity, mark the location of the
find, and contact Exxon's Cultural Resource Program immediately:
564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

RECOMMENDATIONS:

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<th>TREATMENT REQUIRED (Y or N)</th>
<th>INITIAL</th>
<th>TAG</th>
<th>FOSC</th>
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<td>Other</td>
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</table>

COMMENTS:

INITIAL:

TAG:
MANUAL PICKUP OF AP/HSOR AT LOCATIONS C, D + E
THAT IS EASILY ACCESSIBLE. PICK UP OILED
BEACH GRASS IN UITZ/SUP. UITZ AT LOCATION K

FOSC:

TAG APPROVAL DATE:   5/17/91
ADEC
EXXON
USCG
NOAA

FOSC APPROVAL DATE:   5/25/1991
E. E. PAGE, COR, USCG
CHIEF OF STAFF, FOSC
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.
MANUAL Picking in area K & all on crest of Tombolo also some 50 yards west of Tombolo between boulders. Recommended CUC LAP for this site as all work is manual.

Area looks good. Area (Area-K) would be a good area for CUC. Local response as it does need some work.

Asphalt materials kicked up, little cover on ASH RULES. Sparse needles. There is an area listed as site #K that needs some manual clean-up. See OG Notes.

Tar balls and patches were found on major tombolo—most tar patches were picked up. Tombolo pits showed subsurface oil in the peat layer. Northernmost point shows oil coverage as rock layer and heavily oiled beach grass patch. Manual labor (with raking) would reduce the oil in these specific spots in this segment.
**MAYSAP SHORELINE OILING SUMMARY**

**TEAM NO.**
- Chaney
- Crank
- Hayes

**BIO**
- Harper
- Ward

**LANDMANAGER**
- Hayes

**SEGMENT**
- FL-4

**SUBDIVISION**
- 3

**DATE**
- 3 May 91

**TIME**
- 12:30 to 14:30 (gmt)

**TIDE LEVEL**
- +1.5 ft. to 2.5 ft.

**ENERGY LEVEL**
- M

**SURVEYED FROM**
- Foot

**WEATHER**
- Rain

**TOTAL LENGTH SHORELINE SURVEYED**
- 1615 m

**EST. OIL CATEGORY LENGTH**
- W 0 m

**SURFACE OIL CHARACTER**
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<td></td>
<td>R</td>
<td>V</td>
<td></td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>

**DISTRIBUTION:**
- C = 01-100%; B = 51-60%; P = 11-50%; S = 1-10%; T = <1%

**ZONE NOTES**
- DRIPS ON ROCK FACE
- NE TOMBOLI RIDGE TOP
- GREEN ALGAE ON Boulders

**SUBSURFACE OIL CHARACTER**

**OILED ZONE**

**CLEAN BELOW**

**H2O LEVEL**

**SHEEN COLOR**

**PIT ZONE**

**SURFACE-SUBSURFACE SEDIMENTS**

**NOTES**

**OG COMMENTS:**

This segment consists primarily of two small embayments with low wave exposure.

Surf ace oiling is confined primarily to the southern of the two embayments with several pockets of AP and SOR. These pockets (locations C-F; H) are on the northeast facing beaches with an estimated...
### MAYSAP SHORELINE OILING SUMMARY (cont.)

**TEAM NO. 5**

**SEGMENT FL-48**

**SUBDIVISION B**

**DATE 5 MAY 1991**

<table>
<thead>
<tr>
<th>PIT NO.</th>
<th>PIT DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED ZONE (cm-cm)</th>
<th>CLEAN BELOW</th>
<th>H2O LEVEL</th>
<th>SHEEN COLOR</th>
<th>PIT ZONE (S U I M L)</th>
<th>SURFACE-SUBSURFACE SEDIMENTS</th>
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<td>15</td>
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<td>X</td>
<td>X</td>
<td>R/SG</td>
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SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

---

### SURFACE OIL CHARACTER

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<tr>
<th>LOC</th>
<th>SURFACE OIL CHARACTER</th>
<th>SURFACE SEDIMENT TYPE</th>
<th>SLOPE</th>
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<tr>
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<td>T T T</td>
<td>R V</td>
<td>1 2</td>
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<td>DRIP LINE</td>
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<tr>
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<td>R V</td>
<td>2 5</td>
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**Prepared: MC 5/18/91**

**Rev. 2 of 6**
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<th>OILED ZONE</th>
<th>CLEAN ABOVE LEVEL</th>
<th>OIL COLOR</th>
<th>SHEEN</th>
<th>PIT ZONE</th>
<th>SURFACE SUBSURFACE SEDIMENTS</th>
<th>NOTES</th>
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</tbody>
</table>

**OG COMMENTS:**

30 m² of asphalt remaining. Weathered drips and splatters occur on some of the vertical rock faces in cracks and crevices. The northern embayment appears to have been relatively sheltered from the oiling - all oil trace was collected and the area was wrapped as no oil.

Subsurface oiling was limited to the small tombolo (location D-E). A very thin layer of HDR was identified in Pit #2 (HDR estimated at 5 x 75 m) and MOR in Pit #3 (MOR estimated at 15 x 120 m). The subsurface oil was low viscosity, dark brown in color, below angular pebbles and cobbles. Oil runs freely and pore space is filled with oil and water making estimates of pore filling difficult.
MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 3  DATE 5/3/91 & 5/5/91
SEGMENT # FL 4  TIDAL HEIGHT (Range) 2-5' & 7-4'
SUBDIVISION B  BIOLOGIST Stoker/Grant
SEA STATE 1-3' & 0-1'  WIND SPEED/DIRECTION SE 10-20 & NE 0-5
PHOTOGRAPHS: ROLL #  FRAME #

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

Subdivision consists of generally low energy mixed substrate beaches or
groove/cobble/bedrock/drift separated by rock headlands. A small stream
traverses the beach in the west portion of the subdivision.

Biota generally sparse in the upper intertidal (sparse barnacles, limpets,
Fucoids), increasing shriveling in both abundance and diversity. Biota on
groove/cobble/bedrock beaches (HIT & Below) characterized by variable
densities of patchily distributed Fucus, filamentous green algae, seaweed,
and barnacles/spot; moderate densities of limpets with egg masses, generally
sparse limpets (some clusters at small individuals), amphipods, and sometimes
nudibranchs. Echinoderms and oligochaetes. Sparse patches of attached mussels were
found on larger boulders with widespread and variable-density interbedded
patches at groove/cobble. Clam shells (Saxidomus, Protobranch, Nucula) are
common in the ETZ as are gulls, gulls by sea otters foraging for clams.

Biota on rock headlands characterized by variable and often
dense low growth of fucoids, barnacles, and spot, limpets, limpets, and
generally sparse patches of small mussels.

Overall biota appears relatively healthy and abundant. Considerable
variability in abundance was noted throughout, apparently unrelated to
general substrate type or vertical zonation.

Comments relating to specific areas or remaining all blank on
summary form 2 and attached sheet 3.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED SPECIES PRESENT</th>
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<tbody>
<tr>
<td>Eagles</td>
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<td>2</td>
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<tr>
<td>Seabirds</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Waterfowl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gulls/Kittiwakes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shorebirds</td>
<td></td>
<td>1</td>
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</tr>
<tr>
<td>Corvids</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other Birds</td>
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MARINE MAMMALS

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<th># OBSERVED</th>
<th>SPECIES</th>
<th># OBSERVED</th>
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<tbody>
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<tr>
<td>Cetaceans</td>
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<td></td>
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</tr>
<tr>
<td>Whales</td>
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LAND MAMMALS

<table>
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<tr>
<td></td>
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<td>Roe Sear</td>
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Shoreline subdivision map showing important biological features attached.
MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 5  DATE 3 MAY 1991
SEGMENT # FL-4  TIDAL HEIGHT (Range) +2 → +5'
SUBDIVISION B  BIOLOGIST Biologist
SEA STATE 1-3'  WIND SPEED/DIRECTION 10-20 knots/SE
PHOTOGRAPHS: ROLL # MAYSAP 9  FRAME # 25

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

(A) Area is located high in UITZ on a vertical rock face. No intertidal macro-biota present within site. Approx. 1m below site, there is a sparse concentration of Fucus. Majority of plants are stipe-only. The next 1m drop has a sparsely concentration of Fucus sporelings. The LITZ has ~60% Fucus cover. Plants appear healthy.

(B) Area is located along a rock face in the UITZ. There is ~30% barnacle cover in the site. An all stain is present on the shells. Animals tightly sealed their inner plates when stimulated. Directly below the site, biota cover dropped to 20%. Barnacle concentrations lessen, however, juvenile mussels, Fucus sporelings, Ova and Scolosiphon (algae) were present. Possible clam bed in the LITZ.

(C) Areas are located on a tombolo. Biota cover is ~10%. There is a rare to sparsely concentrated intertidal mussel bed. Majority of the mussels were <2 years old (post spill age). Barnacles were rare; ~10% of the adult shells were empty. The LITZ is a clam bed; substrata sediments have a high percentage of mussel shell hash.

(D) Area is located low in the UITZ. There is ~10% biota cover with filamentous green algae, barnacles and mussels. The MITZ has ~30% barnacle cover and a sparse to moderately concentrated mussel bed (various age classes). The LITZ is a clam bed with ~50% barnacle cover on surface sediments. On the rock outcrop there is ~50% algae cover.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eagles</td>
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<td>2</td>
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<tr>
<td>Seabirds</td>
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<td>3</td>
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<tr>
<td>Waterfowl</td>
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<td>Gulls/kittiwakes</td>
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<td>Corvids</td>
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<tr>
<td>Other Birds</td>
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<th>MARINE MAMMALS</th>
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<th>SPECIES</th>
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</tbody>
</table>

Shoreline subdivision map showing important biological features attached.
Comments (cont)

(F) Area is located in the ULTZ. Fucus sporelings and filamentous green algae cover <1% of the sediments. One meter below site biota cover is ~40% including Fucus and mussels. LITZ is a clam bed.

(G) Area is located in the ULTZ along a rock face. No intertidal biota present in site.

(H) Area is located in the SUPRA and high ULTZ. Mosses with fruiting bodies are present. Below the site there is ~40% Fucus cover. Approx. 10% of the plants are 'stipe-only'.

(I) Area is located in the southwest corner of a pocket beach. There is ~40% Fucus sporeling cover. The LITZ is a clam area utilized by otters; otter digs are present.

(J) Area is located in the high ULTZ. Black lichen, moss, and turf algae are present. Within 1 m below site biota cover is ~40% including Fucus and barnacles. Fucus sporeling and stipe-only plants are present. LITZ is a clam bed.

Recolonization is occurring in the mussel, barnacle and Fucus populations on this subdivision. Eagle nest is present now.
KFL - No marine biota. Downslope community relatively abundant, composed of dense new-growth Fucale, barnacles and spat, Littorina, limpets.

M-E - Sparse biota within/adjacent to oiled areas (sparse barnacles, limpets). Biota increases downslope in abundance and diversity, characterized primarily by moderate-dense barnacles and spat, patchily dense new-growth Fucale, Littorina and limpets, and sparse patches of small attached Mytilus.
ASAP FOLLOW UP RECOMMENDATIONS

Segment: AS/ FL-4   Subd.: B   Site: 1   Date: 8/5/90   1990

Conditions Observed: SURFACE OIL IN AREAS WHERE THEMATS WERE REMOVED ARE PRESENT IN SEVERAL AREAS ON THE SUBDIVISION.

Followup Recommendations: MANUALLY TREAT AREAS OF SURFACE OILING WHERE AP Patches EXisted

Completed by Pickup Crew: [X] NO  Priority for Addressing in 1990: [X] Mod.

DEC  [Signature]

Comments: RECOMMEND THE MANUAL REMOVAL OF ALL REMAINING NP AND ND OIL AND OTHER HEAVY OIL RESIDUAL LEFT BY SMILING OPERATIONS FOLLOWED BY VIGOROUS VIOLATION TELLING AND DISINFECTION.

Exxon  [Signature]

Comments: BREAK UP AND EXPOSE SURFACE AREAS OF SEDIMENTS WHERE THEMATS WERE LIFTED EARLIER IN 1990. RE BI0 AS REQUIRED.

USCG  [Signature]

Comments: AGREE WITH ADDITIONAL

Land Rep.  [Signature]

Comments: AGREE WITH ABOVE
SEGMENT AS SUBDIVISION:  

DATE

CG
NAME:  
SIGNATURE:  
REASON:

YES  NO

PRIORITY SITE FOR REASSESSMENT IN 1991

☐ YES  ☐ NO

REASON:

☐ YES  ☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

☐ YES  ☐ NO

REASON:

☐ YES  ☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

☐ YES  ☐ NO

REASON:

☐ YES  ☐ NO

PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:

**Surface Oil**

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**Estimated Site Length:** 744 m

**Subsurface Oil**

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<th>Pit No.</th>
<th>Pit Depth (cm)</th>
<th>Subsurface Oil Character</th>
<th>Oiled Material</th>
<th>Clean Below (Y/N)</th>
<th>Pit Zone</th>
<th>Surface/Subsurface Sediments</th>
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**Comments:**

- Oil confined to two zones, (intentional) as CT/SS.
- Isolated film was also present in the upper intertidal portion of the profile.
- The areas appeared to be previously worked and the oil/soil segments appeared as easily workable — associated material.
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/FL-05

SUBDIVISIONS: A (1 OF 2)
SHORELINE EVALUATION

SEGMENT ST/ FL-05 SUBDIVISION A (1 OF 2) DATE 4/18/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADF&G anadromous stream no. 226-40-16400
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1K Purse seine hook-off (7/20 to 9/30)
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Eagle nest listed in Subdivision A but not confirmed. Anadromous stream supposedly in Subdivision A, but field reports indicated stream in Subdivision B looks more promising.

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

SHPO SIGNATURE: ______________________ DATE: ______________________

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 455 m: No Oil 2668 m
Subsurface Oil Observed: Yes___ No X___ Maximum Depth_____

RECOMMENDATIONS:

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

COMMENTS: _______________________________________________________

TAG COMMENTS: ___________________________________________________

TAG APPROVAL DATE: ___________________

ADEC ______________________ FO SC: ____________ DATE: ____________
EXXON ______________________
NOAA ______________________
USCG ______________________
PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

Salmon stream mouth - fry outmigration (3/1 to 5/15)
Salmon stream mouth - spawning (7/10 to 8/31)
No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream. Contact ADF&G Habitat Division prior to treatment for permits.

1C
Salmon fry nursery area (4/31 to 7/31)

1D
Esther Hatchery release (4/15 to 6/1)

1E
Main Bay Hatchery release (4/20 to 5/10)

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

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

1H
Remote release site

1L
Gill net area (6/7 to 8/31)

1J
Purse seine area (7/20 to 9/30)

2M
Herring spawning (4/1 to 6/15)
Restrict boat traffic to essential minimum. Avoid damage to uncoiled intertidal and subtidal algae and seagrasses. Contact ADF&G for specific dates and locations.

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.

5R
Seabird colony (5/1 to 9/1)
Restrict air traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance. Contact ADF&G and USFWS prior to treatment.

5S
Shorebird/waterfowl concentration (4/1 to 5/15)
Restrict all activity to essential minimum, especially air traffic.

8T
All Bald Eagle nests (3/1 to 6/1)
Active Bald Eagle nests (3/1 to 9/1)
Restrict air traffic to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.

6U
Recreation:
Tent sites (6/1 to 9/15)

6V
Anchorages (6/1 to 9/15)

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

6X
Lodge (6/1 to 9/15)

6Y
Special use destination

7Z
Subsistence area:
Salmon harvesting (5/1 to 9/30)

7 HH
Finfish harvesting

7M
Deer harvesting (8/15 to 2/26)

7JJ
Invertebrate harvesting
For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.
SEGMENT ST  FE 05  SUBDIVISION: A  DATE 4/30/90

NAME  Shawn Maas  SIGNATURE  

☐ NO TREATMENT RECOMMENDED  ☐ TREATMENT SUGGESTED

WHAT STAINING FOUND IN THIS SUBDIVISION CONSISTED OF LIGHT BANDING IN TWO AREAS. NOT EASY TO DETECT MOSTLY ON HIGH ANGLE ROCK FACE. NO SUBSURFACE OIL FOUND.

NAME  Dave Sale  SIGNATURE  

☐ NO TREATMENT RECOMMENDED  ☐ TREATMENT SUGGESTED

THE STAINING ON THE HI-ANGLE FACES DOES NOT REQUIRE TREATMENT. THE BAND IS PROBABLY NOT GOING TO BECOME MOBILE, AND WILL IN FACT HARDEN ON MORE AS IT WEATHERS. I HAVE POINTS, WITHOUT SCOURING AGENTS, WHETHER IT WILL REMOVE ENTIRELY. FULL-FUNCTIONED

THE THICK SOUTHERN IN THE SMALL ROCKS BENEATH BOULDERS AT MID-SUBSECTION WOULD BENEFIT FROM MANUAL REMOVAL.

NAME  Don Hopcroft  SIGNATURE  

☐ NO TREATMENT RECOMMENDED  ☐ TREATMENT SUGGESTED

39F 29
**SHORELINE OILING SUMMARY**

**OG:** R. Marty  
**USCG:** Shawn Mass  
**BIO:** B. Lamp  
**LAND REP:** D. Komp  
**SUBDIVISION:** A  
**TIME:** 19:35  
**DATE:** 18 April 90

**TEAM NO.:** 10  
**TIDE LEVEL:** +0.46 m  
**EST. SUBDIVISION LENGTH:** 31.3 m  
**SURVEYED FROM:** Foot  
**SURFACE SEDIMENTS:** R 20%, B 15%, C 10%, P 3%, G 2%, S 1%, M 0%, V 0%  
**SLOPE:** Lang 20%, Hang 30%, Var 30%  
**WAVE EXPOSURE:** Low  
**OIL CATEGORY LENGTH:** W 0 m M 0 m N 0 m V 0 m VL 374 m NO 3729 m

**SURFACE OIL**

<table>
<thead>
<tr>
<th>CHARACTER</th>
<th>DISTRIBUTION</th>
<th>OIL / FILM COLOR</th>
<th>IMPACTED ZONES</th>
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<tbody>
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<tr>
<td>Coat</td>
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<td>Stain</td>
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<td>Mousse</td>
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<td>Tarballs</td>
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**SUBSURFACE OIL**

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<tr>
<th>PIT NO.</th>
<th>PIT DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED INTERVAL</th>
<th>OILED DEBRIS</th>
<th>VARIOUS</th>
<th>OILED VEGETATION</th>
<th>OILED TRASH</th>
<th>OILED DEBRIS</th>
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</table>

**COMMENTS:** Segment primarily high angle rock, what oil there is is quite difficult to detect, and is very local.

**REVIEWED:** 7W  
**DATE:** 4/20/90
SHORELINE ECOLOGICAL SUMMARY

Segment ST/10/FL5 Subdivision A Date (mo/day/yr) 4/19/90
Time (24 hr) 1200-1600 Biologist Lemon wind 0, cloudy, no seas

(A) Substrate type and % of segments:
1. Bedrock 70 (2) Boulder (1) (3) Cobble 10 (4) Pebble 3 (5) Sand 3 (6) Silt

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

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

Photographs: Roll No. ST/10/13
Frames 0 - 3

<table>
<thead>
<tr>
<th>BARNACLES</th>
<th>Dense</th>
<th>Moderate</th>
<th>Sparse</th>
<th>Rare</th>
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</table>

Wildlife Observations/General Comments: Mytilus juv. dense only in bedrock cracks
Corncrake 1 water ouzel Fucus w/swelling conceptacles and new sporelings
4 bald eagles 1 gull Storm scavenging at the north end prevented occupation of smaller clasts
Steller's Jay

Ecological Considerations:
Eagle nest wasn't seen, presumably it's still there; purse seine huck.
<table>
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<tr>
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<th>UIITZ</th>
<th>MITZ</th>
<th>LITZ</th>
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<tr>
<td>Bossiella/Coralina</td>
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<td>in pools</td>
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<tr>
<td>Calliarthron/Coralina</td>
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<td>Cladophora SPP</td>
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<tr>
<td>Costaria SPP</td>
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<td>Endocladia muralplena</td>
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<td>Filamentous greens</td>
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<td>Halosaccion Glandiforme</td>
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<td>Grammida Amphipods</td>
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**AUNA:**

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<td>(semi) Balanus cariosus</td>
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<tr>
<td>Clams</td>
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<tr>
<td>Crabs</td>
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<td>Dermasterias imbricata</td>
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<td>Katharina tunicata</td>
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<td>Pagurus spp</td>
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<td>Polychaetes</td>
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<td>Searlesia dira</td>
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<td>Serpulids</td>
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<td>Siphonaria thersites</td>
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<tr>
<td>Tealia</td>
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<tr>
<td>Genti pede</td>
<td>2,3</td>
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<td>On oil</td>
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**DATE:** 19 Apr 90  **TIME:** 1600-1630  1730-1900  **TIDE HEIGHT:** 2.5'-3'-5'
REGION: PRINCE WILLIAM SOUND

SEGMENT: ST/FL-05

SUBDIVISIONS: B (2 OF 2)
SEGMENT ST/ FL-05 SUBDIVISION B (2 OF 2) DATE 4/19/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADFG anadromous stream no. 226-40-16400
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1K Purse seine hook-off (7/20 to 9/30)
5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Biologist feels Anadromous stream is in Subdivision B, not Subdivision A as originally mapped. Probable pinniped (seal) haulout nearshore near border of A and B. Eagle nest not confirmed.

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

SHPO SIGNATURE: __________________________ DATE: __________________________

OILING CATEGORIZATION:
Wide 0 m: Medium 0 m: Narrow 1644 m: V.Light 436 m: No Oil 228 m
Subsurface Oil Observed: Yes X No Maximum Depth 15+cm

RECOMMENDATIONS:

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

Other (see comments)

COMMENTS: Recommended treatment is bioremediation of surface and subsurface oil in areas shown on attached sketch map. Work should be conducted between 6/1 and 7/10 based on eagle nest and salmon constraints, after approval by ADF&G and USFWS regarding eagle nest.

TAG COMMENTS: ____________________________________________________________

TAG APPROVAL DATE: ________________
ADEC ________________ EXXON ________________ FOSC: ________________ DATE: ________________
NOAA ________________ USCG ________________
PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

1A Salmon stream mouth - fry outmigration (5/1 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 inlip 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 Birkenhead 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 inlip application, prior to July 1 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 Peitz 424-3214

1D Esther Hatchery release (4/15 to 6/15)
1E Main Bay Hatchery release (4/20 to 6/15)
1F Swan River Hatchery release (4/15 to 6/12)
1G Cannery Creek Hatchery release (4/21 to 6/11)
1H Remote release site
No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or inlip 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: ADF&G Larry Peitz 424-3214
PWS Aquaculture Association John McMillan or Bruce Suzuki 424-7511

2G Gill net area (6/7 to 8/31)
2H Purse seine area (7/20 to 9/30)
2L Purse seine hook (7/20 to 9/30)
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 all operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or inlip application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
AGENCY CONTACT PERSON: ADF&G James Brady 424-3250

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 unlined intertidal and subtidal sites and seagrass. Boats will probably proceed without adherence to time constraints. Contact ADF&G and USFWS prior to treatment for confirmation.
AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 566-7235
ADF&G Don Calkins 267-2403

3N, 3P Harbor seal and sea lion pupping (5/15 to 7/1)
3O, 3Q Harbor seal and sea lion molting (6/15 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 inlip 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 566-7235
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/waterbird concentration (4/1 to 5/15)
Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.
AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377
ADF&G Tom Roth 267-2200

5T All Bald Eagle nests (3/1 to 6/1)
Active Bald Eagle nests (3/1 to 6/1)
Restrict air traffic and all disturbance to essential minimum. No personnel within 800m. Aircraft to 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 Phoenix Island: Tent sites (6/1 to 9/15)
6V Anchorage (6/1 to 9/15)
6W Forest Service cabin (6/1 to 9/15)
6X Lodge (6/1 to 9/15)
6Y Special use destination

7Z Subsistence areas: Salmon harvesting (5/1 to 9/30)
7I Finfish harvesting (9/15 to 2/28)
7J Invertebrate harvesting (9/15 to 2/28)
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 inlip 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 267-2599
SEGMENT ST  FL 05

SUBDIVISION: B

DATE 4/20/90

NAME Shawn Maas

SIGNATURE

☐ NO TREATMENT RECOMMENDED  ☒ TREATMENT SUGGESTED

COMMENTS

Recommend bioremediation and some manual removal in pocket beaches where banding intersects them.

NAME Dave Sale

SIGNATURE

☐ NO TREATMENT RECOMMENDED  ☒ TREATMENT SUGGESTED

COMMENTS

1. Remove sticky, tacky coat from pocket beaches and low angle shorelines where oiled band crosses these lower angles. Manual removal is required.

2. Bioremediation where conditions allow. Low angle beaches with smaller cobbles and pebble sizes should have upper layer of boulders turned over to expose oiled rocks and sediments below before remediation.

NAME Don Kampkeff

SIGNATURE

☐ NO TREATMENT RECOMMENDED  ☒ TREATMENT SUGGESTED

COMMENTS
SHORELINE OILING SUMMARY

OG: R. Marty
USCG: S.H. Anno
MAPS: SEGMENT ST/FL-05
BIO: D. Lemn
LAND REP: D. Harper
SUBDIVISION: 8

EXXON: J. Zaremba
ADEC: D. Sola
TIME: 10.29.10, 16:30
TEAM NO.: 10
TIDE LEVEL: +1.4m (0.58') Date 10/1 April 1990
EST. SUBDIVISION LENGTH: 233 m
SURVEYED FROM: Foot 3
UPLANDS DESCRIPTION: Grass WORKING DIRECTION: N 10 S
SURFACE SEDIMENTS: 70% B 14% C 10% P 2% G 2% S 1% M 0% V 0% O
SLOPE: 50% Lang 50% Hang 50% Ven 50% WAVE EXPOSURE: Low Med High
OIL CATEGORY LENGTH: 000 m M 1798 m N 1798 m V 434 m NO 189 m

SURFACE OIL

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<tr>
<th>CHARACTER</th>
<th>DISTRIBUTION</th>
<th>OIL/FILM COLOR</th>
<th>IMPACTED ZONES</th>
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<tr>
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<tr>
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PAVEMENT:
- 0 sq. m by 60 cm (removed)
- 0 BAGS (removed)
NEAR SHORE SHEEN?
- NOT

OILED DEBRIS

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<tr>
<td>Trash</td>
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<tr>
<td>Debris</td>
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Type:
- Asphalt/Tar

Did you collect debris?
- Yes [ ]
- No [ ]

# BAGS < 1
(all detected debris was removed)

PHOTOGRAPHS:
- Roll No. ST/03/13
- Frames 4-14

SUBSURFACE OIL

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<th>PIT NO.</th>
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COMMENTS:
Segment is primarily high angle rock with very narrow bands of coat. Where the band intersects pocket beaches, there is residual oil beneath the surface to depths of up to 7cm. The oil is quite viscous and sticky with low mobility.

REVIEWED: [Signature] DATE: 4/99/90
SHORELINE ECOLOGICAL SUMMARY

Segment ST/10/ELS  Subdivision B  Date (mo/day/yr) 4/19/90

Time (24 hr) 1000-1630 - 1730 - 1900  Biologist Lemon  Wind E  Broken Clouds

No Sand

(A) Substrate type and % of segments:
   (1) Bedrock 10  (2) Boulder 14  (3) Cobble 10  (4) Pebble 3  (5) Sand 3  (6) Silt

(B) Overall % cover of biota (% of segment):  Dense  Moderate 55%  Low

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

Photographs:  Roll No. ST/10/13

Frames 4 - 14

BARNACLES

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MYTILUS

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FUCUS

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Wildlife Observations/ General Comments:

- Focus on swollen concretions and new sproutings

2 common eider 1 stellers 1 gull 1 habitat on eggs
2 alcids 1 mink  no unusual mortalities of any kind seen
1 river otter 2 osprey

Ecological Considerations:

- Pinniped haulout offshore rocks; anomalous stream needs to be relocated on map.
APR-20-1990-left LR FROM BRAHSUS SEAMORESE TO DUN WOODWARD R.LT

PWS 242 E

Reported Pinniped haul-out RX
Islands; none seen 19 Apr 90.
River otter seen here.

PWS 242 C

XXX Wide

/ / / Medium

----- Narrow  ADEC Segment Length: 5337 m

TTTT Very Light

0000 No Oil

Map Key: PWS-242 C
Name: D. Marty
Date: 19 April 1990

Date Entered:
ADDENDUM: SUBDIVISION CONSTRAINTS
SEGMENT FL-5 SUBDIVISION B (2 of 2)

WORK WINDOW

Bioremediation WORK PRIOR TO 7/20

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B Salmon Stream

ADFG cataloged anadromous stream (226-40-16400) is more than 100m from work site. No constraint to bioremediation.

1K Purse Seine Area

Closed to bioremediation after 7/20.

3N,O,P,Q Harbor Seal & Sea Lion Pupping and Molting

NO TIME CONSTRAINT. Authorized per memorandum dated 5/14/90 from Kathryn Frost/ADFG to Mark Kuwada/ADFG.

5T Bald Eagle Nest

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

OTHER ECOLOGICAL CONSIDERATIONS

Do not apply bioremediation to specific areas where seals are observed to haulout. Do not chase or harass seals or sea lions, and do not approach pups under any circumstances. When working on or near haulouts, complete the job as quickly as possible with minimum personnel, equipment, noise and disturbance. Keep boats and personnel as far from actual haulouts as is practical to do the work specified. Minimize air traffic near haulouts, maintain elevation as is practical, and avoid repeated overflights of the same haulout areas. Restrict air traffic and all disturbance to essential minimum. No personnel or boat traffic within 400m of active nests. Air approach and takeoff from and to seaward only; maintain 400m horizontal, 300m vertical distance from active nests. Avoid any unnecessary disturbance or damage to unoiled biota and substrate.

FOSC [Signature] Date 6-12-90

Prepared by [Signature] Date 6/11/90
SHORELINE EVALUATION

SEGMENT ST/ FL-05 SUBDIVISION B (2 OF 2) DATE 4/19/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

ADF&G anadromous stream no. 226-40-16400
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1K Purse seine hook-off (7/20 to 9/30)
5T-1 All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
See attached Ecological Constraint sheet for specific constraints and contacts.
3V/3P, 30, 3Q - Seal pupping and molting.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to unoiled biota and substrate. Biologist feels Anadromous stream is in Subdivision B, not Subdivision A as originally mapped. Pinnipeds (seal) haulout nearshore near border of A and B. Eagle nest not confirmed.

ARCHAEOLOGICAL CONSTRAINTS:

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

SHPO SIGNATURE: Charles E. Tilden DATE: 5/10/90

OILING CATEGORIZATION:

Wide 0 m; Medium 0 m; Narrow 1644 m; V.Light 436 m; No Oil 228 m
Subsurface Oil Observed: Yes X No _____ Maximum Depth 15+cm

RECOMMENDATIONS:

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

COMMENTS: Recommended treatment is bioremediation of surface and subsurface oil in areas shown on attached sketch map. Work should be conducted between 6/1 and 7/10 based on eagle nest and salmon constraints. After approval by ADF&G and USFWS regarding eagle nest.

TAG COMMENTS: ____________

TAG APPROVAL DATE: May 5, 1990

ADEC Art Weyer Antlik
EXXON M. Woolard M. N. Stellwart
FOSC ____________ DATE: 5-18-90
NOAA ____________
USCG G. A. Hietzendorf ____________ Note: stake 24 hrs prior to work
SHORELINE EVALUATION

SEGMENT ST/ FL-05 SUBDIVISION B (2 OF 2) DATE 4/19/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
ADFG anadromous stream no. 226-40-16400
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1K Purse seine hook-off (7/20 to 9/30)
5T-1 All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
See attached Ecological Constraint sheet for specific constraints and contacts.
3N, 3P, 3O, 3Q - Seal pupping and molting.

SUBDIVISION ECOCLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to uncoiled biota and substrate. Biologist feels Anadromous stream is in Subdivision B, not Subdivision A as originally mapped. No probable pinniped (seal) haulout nearshore near border of A and B. Eagle nest not confirmed.

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

SHPO SIGNATURE: [Signature] DATE: 5/5/90

OILING CATEGORIZATION:
Wide 0 m: Medium 0 m: Narrow 1644 m: V.Light 436 m: No Oil 228 m
Subsurface Oil Observed: Yes X No Maximum Depth 15+cm

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

COMMENTS: Recommended treatment is bioremediation of surface and subsurface oil in areas shown on attached sketch map. Work should be conducted between 6/1 and 7/10 based on eagle nest and salmon constraints, after approval by ADFG and USFWS regarding eagle nest.

TAG COMMENTS:


TAG APPROVAL DATE: May 5, 1990
ADEC [Signature] DATE: 5/15/90
EXXON [Signature] DATE: 5/15/90
NOAA [Signature] DATE: 5/15/90
USCG [Signature] DATE: 5/15/90

Note: Have 2d NES prior to work.
SHORELINE EVALUATION

SEGMENT ST/ FL-05 SUBDIVISION A (1 OF 2) DATE 4/18/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

ADF&G anadromous stream no. 226-40-16400
1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
1K Purse seine hook-off (7/20 to 9/30)
5T-1 All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to uncoiled biota and substrate. Eagle nest listed in Subdivision A but not confirmed. Anadromous stream supposedly in Subdivision A, but field reports indicated stream in Subdivision B looks more promising.

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

SHPO SIGNATURE: ........................................ DATE: 5/5/80

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 455 m: No Oil 2668 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

___X__No Treatment Recommended

___Treatment Recommended

___Manual Pickup

___Bioremediation

___Tarmat Removal

Snare/Absorbent Booms

Oil Snares (pom poms)

Absorbents (pads, rolls, etc)

Spot Washing: Wands

Spot Washing: Beach Cleaner

Other (see comments)

COMMENTS: ________________________________

________________________________________

________________________________________

TAG COMMENTS: ________________________________

________________________________________

________________________________________

TAG APPROVAL DATE: May 5, 1990

ADEC Art Weiber DATE: ______________

EXXON Mark E. West DATE: ______________

NOAA Gayle Peters DATE: ______________

USCG G. A. Reiter DATE: ______________
Tarry coating under beach.

Boulder cobble beach - angular shale fragments.

Major Stream - reported as continuous one.

30 cm wide, patchy coat of oil penetration in pockets.

2420

2420

Continuous 15 cm bed of coat extends 20 m.

Splattered coat 30 cm wide on rocks in Unit Z.

Splattered coat to patchy coat 30 cm wide.

No oil

No oil

Continued from page 12.

20929

3/4
earlier report of eaglenest here; not seen 19 Apr 90. However 2 eagles circling 19 Apr 90.
Reported Pinniped hoolout on islands; none seen 19 Apr 90. Ricer otter seen here.
1991 MAYSAP EVALUATION

SEGMENT: FL 005 SUB: B REGION: PWS SURVEY DATE: 5/1/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s) RESTRICTED 3/1 - 9/1

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

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

SHPO Signature: __________________________ Date: __________________________

RECOMMENDATIONS:

<table>
<thead>
<tr>
<th>TREATMENT REQUIRED (Y or N)</th>
<th>INITIAL</th>
<th>TAG</th>
<th>FOCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manual Pickup (Check as Req.)
Spot Washing
Bio-Customblem Only
Bio-Inipol/Customblem
Other _________________________
Other _________________________

COMMENTS:
INITIAL:
______________________________

TAG:
______________________________

FOCC:
______________________________

TAG APPROVAL DATE: ________ FOCC APPROVAL DATE: ________

ADEC ______________________ FOSC ______________________

EXXON ______________________

USCG ______________________

NOAA ______________________
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.
NTR Site is very lightly oiled and does not need work this season.

NTR No recoverable amount of oil either surface or subsurface further work would not have a wet environmental benefit.

NTR This beach shows no surface oil. Slight staining and a few splotches here and there. Lots of walking, no oil. Pits showed no sub oil. No sheen. Good beach.

NTR Minute traces - no ecological benefit. It would be gained by further entrope of this segment.

Very little if any, oil observed. No further clean up activities necessary. Eagle nest observed.
**Segment:** FL-5  
**Subdivision:** B  
**Date:** May 1, 1991

**Time:** 12:00 to 12:25  
**Tide Level:** 2.5 ft. to 4.0 ft.  
**Energy Level:** Y H  
**Surveyed From:** Y Foot  
**Weather:** C Clouds  
**Total Length Shoreline Surveyed:** 440 m  
**Near Shore Sheen:** Y  
**Estimated Oil Category Length:** W X m M Y m N Z m V L 35 m N O 405 m U S 1869 m

<table>
<thead>
<tr>
<th>L.O.</th>
<th>Surface Oil Character</th>
<th>Surface Shore Sediment Slope Width</th>
<th>Area</th>
<th>Zone</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>A</td>
<td>R</td>
<td>V</td>
<td>0.2</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>B</td>
<td>BR</td>
<td>H</td>
<td>5</td>
<td>20</td>
</tr>
</tbody>
</table>

**Notes:** Rare Dips on Boulders

**Distribution:** C = 51-100%; B = 51-30%; P = 11-60%; S = 1-10%; T = <1%

**Slope:** V = Vertical; H = High Angle; M = Medium Angle; L = Low Angle

**Photograph Roll # Maysap:** 5 - 8  
**Frames:** 1, 2

<table>
<thead>
<tr>
<th>Pit No.</th>
<th>Pit Depth (cm)</th>
<th>Subsurface Oil Character</th>
<th>Oiled Zone Clean Below Water Level Sheen Color Pit Zone Surf. Subsurface Sediments</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25</td>
<td>V</td>
<td>Y N (cm) BR S N S U I M L</td>
<td>PC-PCB</td>
</tr>
</tbody>
</table>

**Sheen Color:** B = Brown; R = Rainbow; S = Silver; N = None

**OG Comments:**

[Signature]  
[Reviewed by: CD (11 May)]
COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

(A) Area is located low in water 10m west of stream. There is rare Fucus, rare mussels (various age classes), rare limpets and rare Littorina present within the site. Less than 1% biota cover. Below site, near the stream, biota cover increases to 30%. Between the +4' +2' tide level there is a moderate to densely concentrated intergravel/hairball mussel bed (various age classes).

(B) Area is located in the high MITZ. There is ~10% biota cover including sparse barnacles, rare mussels, rare Fucus (serreledings present), and sparse Littorina and limpets. Biota below site similar to that found below site 'A'.

Active eagle nest located w/ 10 m of supRA. Eagle is incubating position was observed. No oil was found below nesting site.

Photo MAYSAP roll 8 frame 2 is a wide angle shot of tide including nest.

The biota on the subdivision appears to be healthy.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eagles</td>
<td>1</td>
<td>1 - on nest in incubating position</td>
<td></td>
</tr>
<tr>
<td>Seabirds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterfowl</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Gulls/kittiwakes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shorebirds</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Corvids</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Birds</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LAND MAMMALS

<table>
<thead>
<tr>
<th>MARINE MAMMALS</th>
<th># OBSERVED</th>
<th>SPECIES</th>
<th># OBSERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea Otters</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinnipeds(specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iles(specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shoreline subdivision map showing important biological features attached.

Reviewed 6/1/91
Reviewed M.B. 5/10/91
1991 MAYSAP EVALUATION

SEGMENT: FL 005  SUB: A  REGION: PWS  SURVEY DATE: 5/1/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s)  RESTRICTED 3/1 - 9/1

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

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

SHPO Signature: __________________________ Date: __________________________

RECOMMENDATIONS:

<table>
<thead>
<tr>
<th>TREATMENT REQUIRED (Y or N)</th>
<th>INITIAl</th>
<th>TAG</th>
<th>FOSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manual Pickup (Check as Req.)
Spot Washing
Bio-Customblen Only
Bio-Inipol/Customblen
Other
Other

COMMENTS:
INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE:          FOSC APPROVAL DATE:

ADEC

EXXON

USCG

NOAA
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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

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

☑️ NTR Oil spill observed on this segment consisted of
isolated SOR and subsurface oiling in the UITZ. NTR
as oiling was moderate, isolated (EX5) and in the matrix
of large boulders. Only a small portion of segment was surveyed by team.

EXXON
NAME: Mark N. Jr.

☑️ NTR High energy beach and large boulders with
some interstitial SOR. Cleanup of recovery is
impractical due to location. Type of oiling is
boulders.

LANDMANAGER
NAME: Steve Ward

☐ NTR Not much subsurface oil. Oil on lots of sheen. Oil found was
around base of boulders. There appears to be lots of
boulders, some large, near possible to big pits here. The only
Good news is this is at high energy beach.

USCG/NOAA
NAME: Dreher/Hodges

☑️ NTR Pit showed some light sheen. No other oil observed on beach.
## Maysap Shoreline Oiling Summary

**Team No.**

**OG:** Chaney  
**BIO:** Crank  
**ADEC:** Hayes  
**LANDMANAGER:** Ward  
**USCG/NOAA:** Dreher/Hodge

**Segment:** FL 5  
**Subdivision:** A  
**Date:** May 1, 1991

**Time:** 12:30 to 13:00  
**Tide Level:** +4 ft. to +5 ft.  
**Energy Level:** ✓ H ✓ M ✓ L  
**Surveyed From:** ✓ Foot ✓ Boat ✓ Helo  
**Weather:** ✓ Sun ✓ Clouds ✓ Fog ✓ Rain ✓ Snow  
**Total Length Shoreline Surveyed:** 100 m  
**Near Shore Sheen:** ✓ BR ✓ RB ✓ SL ✓ None  
**Est. Oil Category Length:** W - m M - m N - m V - 90 m R - 90 m US 2948 m

### Surface Oil Character

<table>
<thead>
<tr>
<th>LOC</th>
<th>AP</th>
<th>MS</th>
<th>TB</th>
<th>SO</th>
<th>CV</th>
<th>CT</th>
<th>ST</th>
<th>FL</th>
<th>DB</th>
<th>NO</th>
<th>Surface Oil Character</th>
<th>Zone</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PH H 0.2 0.3</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RH H 1 1</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>BH H 3 90</td>
<td>✓ ✓</td>
<td>RANDOM DROPS IV-U I-2</td>
</tr>
</tbody>
</table>

**Distribution:** C = 91-100%; B = 81-90%; P = 11-80%; S = 1-10%; T = 0%
**Slope:** V = Vertical; H = High Angle; M = Medium Angle; L = Low Angle

### Subsurface Oil Character

<table>
<thead>
<tr>
<th>PIT NO.</th>
<th>Pit Depth (cm)</th>
<th>Subsurface Oil Character</th>
<th>Oiled Zone</th>
<th>Clean Below</th>
<th>H2O Level</th>
<th>Sheen Color</th>
<th>Pit Zone</th>
<th>Subsurface Color</th>
<th>Sediments</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>2.5</td>
<td>✓</td>
<td>S - 20 N</td>
<td>20 RR</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>B - B66</td>
<td>B - B66</td>
<td></td>
</tr>
<tr>
<td>1B</td>
<td>25</td>
<td>✓</td>
<td>S - 20 N</td>
<td>20 RR</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>B - B66</td>
<td>B - B66</td>
<td></td>
</tr>
</tbody>
</table>

**Sheen Color:** B = Brown; R = Rainbow; S = Silver; N = None

### OG Comments:

This high energy Boulder Beach faces Knight Island Passage. The area around seems to retain mobile subsurface oil under the massive Boulder Armour. This oil is still producing Silver and Rainbow Sheens in tidal pools and Silver Films on boulders on the beach. The one pit we managed to dig showed subsurface oil in excess of 25 cm.
KNIGHT ISLAND PASSAGE

SILVER SHEEN IN TIDAL POOL UNDER BOULDER
SILVER FILM ON LOW ROCKS 1x1 m FL 60%

SILVER FILM 20x30 cm UNDER BOULDER

No Photos
Assume: 2x2 m NW

3x90 m
CV TRACE
CT TRACE
ST TRACE

LEGEND

<table>
<thead>
<tr>
<th>SYMBOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEDROCK</td>
</tr>
<tr>
<td>BOULDER</td>
</tr>
<tr>
<td>FINE BED.</td>
</tr>
<tr>
<td>DRIFT LOG</td>
</tr>
<tr>
<td>GRASS</td>
</tr>
<tr>
<td>BRUSH</td>
</tr>
<tr>
<td>FOREST</td>
</tr>
<tr>
<td>OILED PIT</td>
</tr>
<tr>
<td>NO OIL PIT</td>
</tr>
<tr>
<td>PHOTO</td>
</tr>
</tbody>
</table>

SCALE

50 METERS
APPROXIMATELY

FLEMMING ISLAND

MAP 1991
DG SKETCH MAP
GREG CHANEY
TEAM 5
SEGMENT: FL-5-A
DATE: MAY 1991
AIR P.H.: INT-O10
6/15/89-11
10G (399)

REVISED: MC 5/4/91
EG TENGEBLAD, MAP.
TEAM # 5  
DATE 1 May 1991

SEGMENT # FL - 5  
TIDAL HEIGHT (Range) +4 \( \rightarrow +5 \)

SUBDIVISION A  
BIOLeISTER (rank)

SEA STATE \( \theta \)  
WIND SPEED/DIRECTION 5 knots NE

PHOTOGRAPHS: ROLL #  
FRAME #

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

(A) Area is located in the UITZ along boulders. Filamentous green algae and black lichen present within site. Less than 1% biota cover.

(B) Area is the UITZ below sites 'A' and 'C'. Barnacles are the dominant species (new set is present). There is a sparse concentration of Fucus (sporeling are present) and a moderate Littorina and limpet concentration. Sparse pockets of mussels (various age classes) are also present. Biota cover is ~30%.

(C) Area is in the UITZ. Filamentous green algae and black lichen are present. Less than 1% biota cover.

The biota in this subdivision appears to be healthy. Recruitment is occurring in the barnacles, mussels and Fucus populations. UITZ was not exposed during survey.

WILDLIFE OBSERVATIONS  
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED SPECIES PRESENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eagles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seabirds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterfowl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gulls/kittiwakes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shorebirds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corvids</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Birds</td>
<td></td>
<td></td>
<td>Hearing terrestrial bird</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MARINE MAMMALS</th>
<th># OBSERVED</th>
<th>SPECIES</th>
<th># OBSERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea Otters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinnipeds (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whales (specify)</td>
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</tr>
</tbody>
</table>

LAND MAMMALS

<table>
<thead>
<tr>
<th>SPECIES</th>
<th># OBSERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shoreline subdivision map showing important biological features attached.
KNIGHT ISLAND PASSAGE

SEGMENT: FL-5-A
DATE: MAY 1, 1991
AIR P.N.: INT-010
G/15/89-II
10G (399)

SILVER SHEEN IN TIDAL POOL UNDER BOULDER
SILVER FILM ON LOW ROCKS 1/x m FL 60%

1% Biota cover in areas A and C.

B 
SOR 20 x 30 cm UNDER BOULDER
BIPPEN
30% Biota cover in the MITZ.
Barnacles are the dominant species

C 
3 x 90 m
CV TRACE CT TRACE ST TRACE

LEGEND

BEDROCK
BOULDER
FINE BED.
DRIFT LOG
GRABB
BRUSH
FOREST
OILED PIT
NO OIL PIT
PHOTO

SCALE

30 METERS
APPROXIMATELY

FLEMNING ISLAND
1991 MAYSAP EVALUATION

SEGMENT: FL 005  SUB:  A   REGION:  FWS   SURVEY DATE:  5/1/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s)  RESTRICTED 3/1 - 9/1

Ecological/Constraints (see page two for details)  Eagle nest.  Fish harvest area

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

SHPO Signature: ___________________________ Date: ______________________

RECOMMENDATIONS:

TREATMENT REQUIRED (Y or N)  N

Manual Pickup (Check as Req.)
Spot Washing
Bio-Customblen Only
Bio-Inipol/Customblen
Other__________________________
Other__________________________

COMMENTS:

INITIAL:
____________________________________
____________________________________
____________________________________

TAG:
____________________________________
____________________________________
____________________________________

FOSC:
____________________________________
____________________________________
____________________________________

TAG APPROVAL DATE:_________  FOSC APPROVAL DATE:_________

ADEC__________________________  FOSC__________________________
EXXON________________________
USCG________________________
NOAA________________________
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.
<table>
<thead>
<tr>
<th>TEAM NO.</th>
<th>5</th>
<th>SEGMENT</th>
<th>FL-S</th>
<th>SUBDIVISION</th>
<th>A</th>
<th>DATE</th>
<th>5/1/91</th>
</tr>
</thead>
</table>

### ADEC
**NAME:** John Heuer  
**SIGNATURE:** [Signature]

- **NTR:** Oiling observed on this segment consisted of isolated SOR and subsurface oiling. Oil in the UFLZ. NTR as oiling was moderate, isolated (exs...) and in the matrix of large boulders. Only a small portion of segment was surveyed by team.

### EXXON
**NAME:** Martireno, N.J.  
**SIGNATURE:** [Signature]

- **NTR:** High energy beach with large boulders. Some interstitial SOR. Away off recovery is impractical due to location of boulder.

### LANDMANAGER
**NAME:** Steve Ward  
**SIGNATURE:** [Signature]

- **NTR:** Not much surface oil. Lots of sheen. Oil found was around nose of large boulders. There appears to be fragments of SOR and subsurface except its too damn hard to dig pits here. The only good news is this is a high energy beach.

### USCG/NOAA
**NAME:** Present  
**SIGNATURE:** [Signature]

- **NTR:** Pit showed some light sheen. No other oil observed on beach.
**OG COMMENTS:** THIS HIGH ENERGY BOULDER BEACH FACES KNIGHT ISLAND PASSAGE. THE AREA AROUND 8 SEEMS TO RETAIN MOBILE SUBSURFACE OIL UNDER THE MASSIVE BOULDER ARMOUR. THIS OIL IS STILL PRODUCING SILVER AND RAINBOW SHEENS IN TIDAL POOLS AND SILVER FILMS ON BOULDERS ON THE BEACH. THE ONE PIT WE MANAGED TO DIG SHOWED SUBSURFACE OIL IN EXCESS OF 25 CM.
MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # S  DATE 1 May 1991
SEGMENT # FL-5  TIDAL HEIGHT (Range) +4 to +5
SUBDIVISION A  BIOLOGIST (Rank)
SEA STATE C  WIND SPEED/DIRECTION 5 knots NE
PHOTOGRAPHS: ROLL #  FRAME #

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

(A) Area is located in the UITZ along boulders. Filamentous green algae and black lichen present within site. Less than 1% biota cover.

(B) Area is the UI TZ below sites 'A' and 'C'. Barnacles are the dominant species (see Pit 1) present. Animals tightly sealed their inner plates when stimulated and a new set is present. There is a sparse concentration of Fucus (sporelings are present) and a moderate Littorina and limpet concentration. Sparse pockets of mussels (various age classes) are also present. Biota cover is ~30%.

(C) Area is in the UITZ. Filamentous green algae and black lichen are present. Less than 1% biota cover.

The biota in this subdivision appears to be healthy. Recruitment is occurring in the barnacle, mussel and Fucus populations. UITZ was not exposed during survey.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED SPECIES PRESENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eagles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seabirds</td>
<td></td>
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<tr>
<td>Waterfowl</td>
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<tr>
<td>Gulls/Kittiwakes</td>
<td></td>
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<tr>
<td>Shorebirds</td>
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<tr>
<td>Corvids</td>
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<tr>
<td>Other Birds</td>
<td>1</td>
<td>Heard territorial bid</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MARINE Mammals</th>
<th># OBSERVED</th>
<th>SPECIES</th>
<th># OBSERVED</th>
</tr>
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<tbody>
<tr>
<td>Sea Otters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinnipeds(specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shoreline subdivision map showing important biological features attached.
KNIGHT ISLAND PASSAGE

SEGMENT: FL-5-A
DATE: MAY 1 1991
AIR P.H.: INT-010
6/15/89 - II
106 (399)

B) SILVER SHEEN IN TIDAL POOL UNDER BOULDER
SILVER FILM ON LOW ROCKS 1 x 1 m FL 60%

A) SOR 20 x 30 cm UNDER BOULDER
30% Biota cover in the MITZ.
Barnacles are the dominant species

1% Biota cover in areas 'A' and 'C'

LEGEND

BEDROCK
BOULDER
FINE BED.
DRIFT LOG
GRASS
SHRUB
FOREST
OILED PIT
NO OIL PIT
PHOTO

SCALE

30 METERS
APPROXIMATELY

FLEMMING ISLAND
1991 MAYSAP EVALUATION

SEGMENT: FL 005  SUB:  B  REGION:  PWS  SURVEY DATE: 5/1/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s)  RESTRICTED 3/1 - 9/1

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

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

SHPO Signature:  [Signature]  Date:  5/21/91

RECOMMENDATIONS:

TREATMENT REQUIRED (Y or N)  INITIAL  TAG  FOSC

Manual Pickup (Check as Req.)  N  N  P
Spot Washing
Bio-Customblen Only
Bio-Inipol/Customblen
Other
Other

COMMENTS:
INITIAL:

TAG:

FOSC:

TAG APPROVAL DATE:  5/21/91  FOSC APPROVAL DATE:  6/1/91

ADEC  FOSC  E. E. PAGE, CDR, USCG
EXXON  CHIEF OF STAFF, FOSC
USCG
NOAA
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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

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

☒ NTR  Site is very lightly oiled and does not need
work this season.

EXXON
NAME Martinez N.D.  SIGNATURE

☒ NTR  No recoverable amount of oil either surface
+ subsurface further work would not have
a net environmental benefit.

LANDMANAGER
NAME Steve Lwig  OF CVC  SIGNATURE

☐ NTR  This beach shows no surface oil - slight stains and a few spots
here and there. Lots of washing, no oil - pits showed no sub oil. No sheens.
Good Beach.

USCG/NOAA
NAME Dreher/Hodges  SIGNATURE

☒ NTR  Minute traces - no ecological benefit would be gained by further entrosion of this
segment.

Very little, if any, oil observed. No further cleanup activities necessary. Eagle
nest observed.
**MAYAP SHORELINE OILING SUMMARY**

**TEAM NO:**
OG: CHANEY  
ADEC: HAYES  
EXXON: MARTINEZ

**BIO:** CRANK  
**LANDMANAGER:** WARD  
**USCG/NOAA:** DREHER/HODGES

**SEGMENT:** FL-5  
**SUBDIVISION:** B

**DATE:** May 1, 1991

**TIME:** 12:00 to 12:25  
**TIDE LEVEL:** 2.5 ft. to 3.0 ft.  
**ENERGY LEVEL:** □ H  □ M  □ L

**SURVEYED FROM:** □ FOOT □ BOAT □ HELO  
**WEATHER:** □ SUN □ CLOUDS □ FOG □ RAIN □ SNOW

**TOTAL LENGTH SHORELINE SURVEYED:** 440 m  
**NEAR SHORE SHEEN:** □ BR □ RB □ SL □ NONE

**EST. OIL CATEGORY LENGTH:** W—m, M—m, N—m, VL—m, NO—m, US—m

<table>
<thead>
<tr>
<th>LOC</th>
<th>SURFACE OIL CHARACTER</th>
<th>SURFACE SEDIMENT TYPE</th>
<th>SHORE SLOPE</th>
<th>AREA</th>
<th>ZONE</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rare Drapes, Boulders</td>
</tr>
</tbody>
</table>

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

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

**PHOTO ROLL # MAYSAP-**

<table>
<thead>
<tr>
<th>PIT NO.</th>
<th>PIT DEPTH (cm)</th>
<th>SUBSURFACE OIL CHARACTER</th>
<th>OILED ZONE</th>
<th>CLEAN AGE BELOW LEVEL</th>
<th>SHEEN COLOR</th>
<th>PIT ZONE</th>
<th>SURFACE SUBSURFACE SEDIMENTS</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FC-PCB</td>
<td></td>
</tr>
</tbody>
</table>

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

**OG COMMENTS:**

---

**Reviewed:** May 7

**Reviewed:** 06/16/91
MAYSAP BIOLOGICAL SUMMARY FORM

TEAM 5  DATE 1 May 1991
SEGMENT FL-5  TIDAL HEIGHT (Range) 1.25 -> 1.4
SUBDIVISION B  BIOLOGIST Grant
SEA STATE 0'  WIND SPEED/DIRECTION 3 Knots/E
PHOTOGRAPHS: ROLL # MAYSAP 8  FRAME # 2

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

(A) Area is located low in Mtz - 7 m west of stream. There is rare Fucus, rare mussels (various age classes), rare limpets and rare Littorina present within the site. Less than 1% biota cover. Below site, near the stream, biota cover increases to 30%. Between the 11' - 12' tide level there is a moderate to densely concentrated intergravel/rabble mussel bed (various age classes).

(B) Area is located in the high Mtz. There is ~10% biota cover including sparse barnacles, rare mussels, sparse Fucus (sporelings present), and sparse Littorina and limpets. Biota below site similar to that found below site 'A'.

Active eagle nest located 11/10 m of SUPRA. Eagle is incubating position was observed. No oil was found below nesting site. Photo MAYSAP roll 8 frame 2 is a wide angle shot of tree including nest.

The biota on the subdivision appears to be healthy.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eagles</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seabirds</td>
<td></td>
<td>1 on nest in incubating position</td>
<td></td>
</tr>
<tr>
<td>Watertowl</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Gulls/kittiwakes</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Shorebirds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corvids</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Other Birds</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MARINE MAMMALS</th>
<th># OBSERVED</th>
<th>SPECIES</th>
<th># OBSERVED</th>
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<tbody>
<tr>
<td>Sea Otters</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>Pinnipeds(specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whales(specify)</td>
<td></td>
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</tr>
</tbody>
</table>

LAND MAMMALS

Shoreline subdivision map showing important biological features attached.

REVIEWED CP 11 May
Reviewed M.B. 5/10/91
MAYSAP 1991
DG SKETCH MAP: Bie Sketch Map
GREG CHANEY & CRANK
TEAM S
SEGMENT: E 5 B
DATE: MAY 1991
AIR P. #: UNO
6/15/89 - 11
(399)

LEGEND
TEDD (
BEDROCK
BOULDLERS
FINE BED.
DRIFT LOG
GRASS
BRUSH
FOREST
OILED PIT
NO OIL PIT
PHOTO

SCALE
120 METERS
APPROXIMATELY

FLEMING ISLAND

ACTIVE EAGLE'S NEST
Eagle in incubating posture
was observed

SMALL WATER FALL

TRACE OF CT & ST
0.2 x 15m

TRACE OF SOR, CT & ST
5 x 20m

Moderate to densely concentrated
intergravel mussel bed
between the +4' to +2' tide level

FALLEN TREE

SURVEY

PRINCE OF WALES PASSAGE

ROCKS
1991 MAYSAP EVALUATION

SEGMENT: FL 005   SUB: A   REGION: PWS   SURVEY DATE: 5/1/91

ENVIRONMENTAL SENSITIVITIES:
Work Window(s)  RESTRICTED 3/1 - 9/1

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

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

SHPO Signature: Rebecca Owen  Date: 5/12/91

RECOMMENDATIONS:

<table>
<thead>
<tr>
<th>TREATMENT REQUIRED (Y or N)</th>
<th>INITIAL</th>
<th>TAG</th>
<th>FOSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual Pickup (Check as Req.)</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Spot Washing</td>
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</tr>
<tr>
<td>Bio-Customblen Only</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bio-Inipol/Customblen</td>
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<tr>
<td>Other</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Other</td>
<td></td>
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</tr>
</tbody>
</table>

COMMENTS:
INITIAL:

TAG:

FOSC:


ADEC  FOSC
EXXON
USCG
NOAA

E. E. PAGE, CDR, USCG
CHIEF GE STAFF, FOSC
ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES

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

Fish Harvest Area: Unlimited treatment unless otherwise directed by ADF&G. Sheen containment/recovery procedures required for mechanical treatment.
ADEC
NAME: John Hayter
SIGNATURE: [Signature]

☐ NTR Oil spill observed on this segment consisted of isolated 50R and subsurface oiling in the U15Z. NTR as oiling was moderate, isolated (405m), and in the matrix of large boulders. Only a small portion of segment was surveyed by team.

EXXON
NAME: Martin N. J.
SIGNATURE: [Signature]

☐ NTR High energy beach, all large boulders with some interstitial 50R. Spill recovery is impractical due to location and type of oiling & boulders.

LANDMANAGER
NAME: Steve WARD
SIGNATURE: [Signature]

☐ NTR Not much surface oil; lots of sheering. Oil found was around base of large boulders, there appears to be large amounts of subsurface except this damn area impossible to get in. Only good news is this is a high energy beach.

USCG/NOAA
NAME: Dreger/Hodges
SIGNATURE: [Signature]

☑ NTR Pit showed some light sheen. No other oil observed on beach.
**MAYSAP SHORELINE OILING SUMMARY**

**Team No.**
OG: CHANEY  
BIO: CRANK  
ADEL: HAYES  
EXON: MARTINEZ  

**Land Manager:** WARD for CVC  
**USCG/NOAA:** DREHER/HODGES  

**Segment:** FL 5  
**Subdivision:** A  
**Date:** MAY 1, 1991

**Time:** 12:30 to 13:00  
**Tide Level:** +4 ft. to +5 ft.  
**Energy Level:** ✓H  
**Surveyed From:** ✓Foot  
**Weather:** ✓SUN  
**Total Length Shoreline Surveyed:** 100 m  
**Near Shore Sheen:** ✓BR  
**Estimated Oil Category Length:** W __ m, M __ m, N __ m, V __ 90 m, NO __ 9 m, US __ 2942 m

<table>
<thead>
<tr>
<th>LOC</th>
<th>Surface Oil Character</th>
<th>Surface Sediment</th>
<th>Shore Slope</th>
<th>Width</th>
<th>Length</th>
<th>Area</th>
<th>Zone</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>C</td>
<td>PG H</td>
<td>0.2</td>
<td>0.3</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>T T T</td>
<td>B H</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>✓</td>
<td>RANDOM DROPS UNITZ</td>
</tr>
<tr>
<td>C</td>
<td>T T T</td>
<td>B H</td>
<td>3</td>
<td>90</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
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</tbody>
</table>

**Distribution:** C = 01-100%; B = 51-60%; P = 11-50%; S = 1-10%; T = <1%

**Slope:** V = Vertical; H = High Angle; M = Medium Angle; L = Low Angle

**Photograph Roll # MAYSAP 5-8 Frames 3-5**

<table>
<thead>
<tr>
<th>Pit No.</th>
<th>Subsurface Oil Character</th>
<th>Oiled Zone</th>
<th>Clean Below</th>
<th>H2O Level</th>
<th>Sheen Color</th>
<th>Pit Zone</th>
<th>Subsurface-Oil Sediments</th>
<th>Notes</th>
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<tbody>
<tr>
<td>A</td>
<td></td>
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<td></td>
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<tr>
<td>B</td>
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</tbody>
</table>

**Sheen Color:** B = Brown; R = Rainbow; S = Silver; N = None

**OG Comments:** THIS HIGH ENERGY BOULDER BEACH FACES KNIGHT ISLAND PASSAGE. THE AREA AROUND B SEEMS TO RETAIN MOBILE SUBSURFACE OIL UNDER THE MASSIVE BOULDER ARMOUR. THIS OIL IS STILL PRODUCING SILVER AND RAINBOW SHEENS IN TIDAL POOLS AND SILVER FILMS ON BOULDERS ON THE BEACH. THE ONE PIT WE MANAGED TO DIG SHOWED SUBSURFACE OIL IN EXCESS OF 25 CM.
MAY 1991
OG SKETCH MAP
GREG CHANEY
TEAM 5
SEGMENT: FL-5-A
DATE: MAY 1 1991
AIR P. #: INT-010
6/15/89 - II
106 (399)

KNIGHT ISLAND PASSAGE

B: SILVER SHEEN IN TLAL POOL UNDER BOULDER
SILVER FILM ON LOW ROCKS 1x1 m FL 60%

LEGEND
BEDROCK
BOULDER
FINE BED
DRIFT LOG
GRABB
BRUSH
FOREST
OILED PIT
NO OIL PIT
PHOTO

SCALE
50 METERS
APPROXIMATELY

FLEMING ISLAND
MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 5  DATE 1 May 1991
SEGMENT # FL-5  TIDAL HEIGHT (Range) +4 \( \rightarrow \) +5
SUBDIVISION A  BIOLOGIST (Rank)
SEA STATE 0'  WIND SPEED/DIRECTION 5 knots NE
PHOTOGRAPHS: ROLL #  FRAME #

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

(A) Area is located in the UITZ along builders. Filamentous green algae and black lichen present within site. Less than 1% biota cover.

(B) Area is the UITZ below sites 'A' and 'C'. Barnacles are the dominant species and Fucus are present. Animals tightly sealed their inner plates when stimulated and a new set is present. There is a sparse concentration of Fucus (sporeling and a moderate Littorina and limpet concentration. Sparse pockets of mussels (various age classes) are also present. Biota cover is ~30%.

(C) Area is in the UITZ. Filamentous green algae and black lichen are present. Less than 1% biota cover.

The biota in this subdivision appears to be healthy. Recruitment is occurring in the barnacle, mussel and Fucus populations. UITZ was not exposed during survey.

WILDLIFE OBSERVATIONS
TO BE COMPLETED IN ALL SUBDIVISIONS

<table>
<thead>
<tr>
<th>BIRDS</th>
<th># OF SPECIES</th>
<th>TOTAL BIRDS</th>
<th>FISH OBSERVED</th>
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</thead>
<tbody>
<tr>
<td>Eagles</td>
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<tr>
<td>Gulls/kiitiwakes</td>
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<tr>
<td>Shorebirds</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Corvids</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Birds</td>
<td></td>
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</tr>
</tbody>
</table>

Heard temporary bird

<table>
<thead>
<tr>
<th>MARINE MAMMALS</th>
<th># OBSERVED</th>
<th>SPECIES</th>
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</thead>
<tbody>
<tr>
<td>Sea Otters</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pinnipeds(specify)</td>
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<td></td>
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</tr>
<tr>
<td>Whales(specify)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>LAND MAMMALS</th>
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<tbody>
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</tbody>
</table>

Shoreline subdivision map showing important biological features attached.
ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ FL-05  STREAM NO: 226-40-16400  DATE  4/23/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:
1A  Salmon stream mouth - fry outmigraton (3/1 to 5/15)
1B  Salmon stream mouth - spawning (7/10 to 8/31)
1K  Purse seine hook-off (7/20 to 9/30)
3N,3P  Harbor seal and sea lion pupping (5/15 to 7/1)
30,3Q  Harbor seal and sea lion molting (8/15 to 9/15)
5T-1  All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. No additional ecological constraints. Subject stream is located in Subdivision A (1 of 2).

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

SHPO SIGNATURE: [Signature]  DATE: 5/8/90

Subsurface Oil Observed:  Yes  No  X  Maximum Depth

RECOMMENDATIONS:

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

COMMENTS:

________________________________________________________

________________________________________________________

________________________________________________________

________________________________________________________

TAG COMMENTS:

________________________________________________________

________________________________________________________

________________________________________________________

TAG APPROVAL DATE:  5/7/90
ADEC  Art Weinryb  DATE:  5/15/90
EXXON  Andy Terhune
NOAA  Gary Peterson  EPA
USCG  C.H. Seiter  NAVY
Recommendations:

Do not treat tar rings on bedrock.

Turn over shale boulders to spread oil to enhanced weathering.

Task is accomplished by survey crew - return visit not required.

I agree with recommendation.

Bedrock walls

Sticky film on undersurface of shale boulders

Tar rings

Bedrock outcrops
APPROXIMATE LOCATION OF SUBJECT STREAM LOCATED IN FL-5A (1 of 2)

Reported Pinched hollout in
Islands; none seen 19 Apr 90.
River after seen here 10 10 90.

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

ADEC Segment Length: 5357m
Map Key: PWS-242d

Name: R. Marty
Date: 19 April 1990
Data Entered: 1/6
ANADROMOUS FISH STREAM ASSESSMENT

REGION: PRINCE WILLIAM SOUND

SEGMENT: FL-05

STREAM NO: 226-40-16400
ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/FL-05  STREAM NO: 226-40-16400  DATE  4/23/90

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)
1K  Purse seine hook-off (7/20 to 9/30)
3N,3P Harbor seal and sea lion pupping (5/15 to 7/1)
30,3Q Harbor seal and sea lion molting (8/15 to 9/15)
5T-1 All bald eagle nests (3/1 to 6/1) - Active eagle nests (3/1 to 9/1)
See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:
Avoid any unnecessary disturbance or damage to unoiled biota and substrate. No additional ecological constraints. Subject stream is located in Subdivision A (1 of 2).

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

SHPO SIGNATURE: ___________________________ DATE: ___________________________

Subsurface Oil Observed: Yes ___ No ___ X  Maximum Depth ______

RECOMMENDATIONS:

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

COMMENTS: ______________________________

__________________________________________________________________________

TAG COMMENTS: ________________________________________________

__________________________________________________________________________

TAG APPROVAL DATE: __________________
ADEC _______________________________ FOSC: __________________ DATE: ______
EXXON ______________________________
NOAA ________________________________
USCG _______________________________
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 in-pool 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 or mechanical removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.
AGENCY CONTACT PERSON: ADF&G John Morison 267-2324

Salmon fry nursery area (4/31 to 7/31)
No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or in-pool application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.
AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214

Esther Hatchery release (4/15 to 6/15)
Main Bay Hatchery release (4/20 to 6/15)
Sawmill Bay Hatchery release (4/15 to 6/1)
Canyon Creek Hatchery release (4/21 to 6/1)
Remote release site
No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or in-pool 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 Suzomoto 424-7511

Gill net area (6/7 to 8/31)
Purse seine area (7/20 to 9/30)
Purse seine hook-off (7/20 to 9/30)
Set net sites (6/11 to 7/25)
Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. It plans for treatment include methods such as hot water wash or in-pool application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
AGENCY CONTACT PERSON: ADF&G James Brady 424-3212

Herring spawning (4/1 to 6/15)
Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to uncoiled intertidal and subtidal algae and seagrass. If plans for treatment include methods such as hot water wash or in-pool application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.
AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235

Harbor seal and sea lion pupping (5/15 to 7/1)
Harbor seal and sea lion molting (8/15 to 9/15)
Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of in-pool within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.
AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235 ADF&G Don Calkins 267-2403

Seabird colony (5/1 to 9/1)
Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.
AGENCY CONTACT PERSON: USFWS Jill Parker 766-3377

Shorebird/waterfowl concentration (4/1 to 5/15)
Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.
AGENCY CONTACT PERSON: USFWS Jill Parker 766-3377 ADF&G Tom Rothby 267-2208

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. 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 in-pool 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 Fell 267-2359

Recreation:
Tent sites (5/1 to 9/15)
Anchorage (6/1 to 9/15)
Forest Service cabins (6/1 to 9/15)
Lodge (8/1 to 9/15)
Special use destination

Subsistence areas: Salmon harvesting (5/1 to 9/30)
Pitkin harvesting (8/1 to 2/28)
Invertebrate harvesting (8/1 to 2/28)

AGENCY CONTACT PERSON: ADF&G Jim Fell 267-2359
FIELD SHORELINE COMMENT SHEET


USCG NAME:  Mc. Martin  SIGNATURE:  

☐ NO TREATMENT RECOMMENDED  ☐ TREATMENT SUGGESTED

COMMENTS

ADOC NAME:  MEMBER  SIGNATURE:  

☑ NO TREATMENT RECOMMENDED  ☒ TREATMENT SUGGESTED

COMMENTS

LAND MANAGER NAME:  MEMBER  SIGNATURE:  

☐ NO TREATMENT RECOMMENDED  ☐ TREATMENT SUGGESTED

COMMENTS
### Shoreline Oil Spill Summary

** genomicinfo **

** USCG McMahon **

** BIO: Michael Faust **

** Land Rep: Slim Park **

** Exxon: Gus Garcia **

** ADPC: Mike Voller **

** Team No. 15 **

** TIDE LEVEL: 4.5 FT **

** DATE: 2/3/95 **

** EST. SUBDIVISION LENGTH: 50 m **

** SURVEYED FROM: **

- [ ] Sun
- [ ] Clouds
- [ ] Fog
- [ ] Rain
- [ ] Snow

** UPLANDS DESCRIPTION: **

- [ ] Grass
- [ ] Forest
- [ ] Rock

** SURFACE SEDIMENTS: **

- [ ] Sand
- [ ] Clay
- [ ] Mud
- [ ] Rock
- [ ] Muck

** SLOPE: **

- [ ] Gentle
- [ ] Steep
- [ ] Very Steep

** WAVE EXPOSURE: **

- [ ] Low
- [ ] Med
- [ ] High

** OIL CATEGORY LENGTH: **

- [ ] W
- [ ] M
- [ ] N
- [ ] S
- [ ] C

### Surface Oil

<table>
<thead>
<tr>
<th>Character</th>
<th>Distribution</th>
<th>Oil/Film Color</th>
<th>Impacted Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPHALT PAVEMENT</td>
<td>POOLED</td>
<td>COVER</td>
<td>COAT</td>
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</table>

### Subsurface Oil

<table>
<thead>
<tr>
<th>Pit No.</th>
<th>Pit Depth (cm)</th>
<th>Subsurface Oil Character</th>
<th>Oil Color</th>
<th>Oiled Interior</th>
<th>Below</th>
<th>Oil/Film Color</th>
<th>Pit Zone</th>
<th>Anaerobic</th>
<th>Sheen (yn)</th>
<th>T</th>
<th>Subsurface Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>4</td>
<td>N</td>
<td>P/C/L</td>
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<tr>
<td>2</td>
<td>35</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>4</td>
<td>N</td>
<td>P/C/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>30</td>
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<td>4</td>
<td>N</td>
<td>P/C/L</td>
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<tr>
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<td>35</td>
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<td>4</td>
<td>N</td>
<td>P/C/L</td>
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</tr>
</tbody>
</table>

** Comments:**

Some sticky oil on undersides of boulders.

** Reviewed:**

DATE: 4-26-95
**ASPERG MULTI-ASSESSMENT DATA FORM**

**Survey Type:** SE 32 CO TS AVE SQA 4955 PTA

**Region:** PWS, KP, CI, KAP

**Methods:** Aerial, Ground, Boat

**Date:** 4/3/90

**High Tide Times:** 02:21, 11:25

**Tide HT:** 11:51, 10:51

**Low Tide Times:** 06:48, 18:55

**Log HT:** -0.81, 10.5

**Segment:** FL-405

**Station:** 226-40-16,400

**Tide HT at Survey:** 3:23

**Roll No.**

**Frame No.**

**Sample No.**

**K-Unit**

**Roll No.**

**Frame No.**

**Starts**

**Ends**

**Samples Taken:** Y

**Number**

**Sources:** Map, Lore

**Location:** EAST SIDE, FLEMING IS.

**Description:**

**Extent of Oil**

<table>
<thead>
<tr>
<th>Shoreline</th>
<th>Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>W</td>
</tr>
</tbody>
</table>

**Surface Coverage:** 50 | 50 | <1

**Surface Thickness:**

<table>
<thead>
<tr>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1mm, 5mm</td>
</tr>
</tbody>
</table>

**Overall Oil Impact:** H

**Oil Type:** Pooled, Mousse, Tar, Asphalt, Sticky, Spine

**Oiled Debris:** Y

**Shoreline Types:** Headland, Lowlying Rocks, Beach, Lagoon

**Wave Exposure:** High, Moderate, Low

**Substrate Type:** Bedrock, Boulder, Cobble, Gravel, Sand, Mud/silt

**Notes:**

- Sticky film on undersurface of shale boulders
- Along upper-intertidal zone
- Brown bathtub rings
- On bedrock outcrops
Recommendations: Do not treat tar rings on bedrock. Turn over shale boulders to expose oil to enhanced weathering. Task is accomplished by survey crew - return visit not required.

I agree with recommendation.

48 Oil Distribution Diagram

Sticky film on undersurface of shale boulders, bedrock walls, tar rings, bedrock outcrops.
Segment FLoos  
Stream 226-40-16400  

Ecological Summary

This is a small stream with a short beach (45-30m from wooded to mouth) composed of shale boulders, cobble and pebbles, with bedrock at each side of the cave. Eucus, barnacles, limpets, etc., are abundant on the bedrock and boulders, and a moderately dense mussel bed exists around the stream mouth. Oiling consists of light splashes on bedrock and some coat beneath boulders. Two sea lions swimming nearby.

Michael F. Faulkett
4/23/90
Approximate location of subject spill located in FL-5A (1 of 2).

Reported Pinniped haulout. Rookery islands; none seen 19 April 90. Rooker often seen here.

Map Key: PWS-242F
Name: R. Marty
Date: 19 April 1990
Date Entered:

Scale: 100 200 300 Meters

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