

EVOS  
GC  
1552  
.P75  
S42  
1990  
v.5

**[Shoreline evaluations, 1990].**

DA-01 – DW-01

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SHORELINE EVALUATION

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

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Invertebrate harvesting (7JJ) - contact ADF&G and Chenega Village Corp. for appropriate dates.

SUBDIVISION ECOLOGICAL CONSTRAINTS: No specific subdivision constraints.

SHPO SIGNATURE: UPPER 2 HAWKES DATE: APRIL 7, 1990

OILING CATEGORIZATION:

Wide 0 m: Medium 361m: Narrow 188m: V.Light 0 m: No Oil 0 m  
Subsurface Oil Observed: Yes X No      Maximum Depth 15 cm

RECOMMENDATIONS:

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

COMMENTS: Treatment activities are recommended as follows:

1) Manual pickup of debris on berm area located on attached sketch map, 2) Tar mat ~~breakup~~ removal where indicated on map, 3) Suggest bioremediation of area where cover is indicated on map.

MANUALLY REWORK SEDIMENTS BENEATH ASPHALT AREAS AS REQUIRED PRIOR TO  
CAUTION: PEAT MAT MUST NOT BE REMOVED, - MAY BE MISTAKEN AS A TAR MAT

TAG COMMENTS:     

TAG APPROVAL DATE: 4/9/90

ADEC JOHN BAUER

EXXON ANDY TETZ

NOAA Burl Prescott

USCG G.A. REITER

FOSC:     

DATE: 4-19-90

## FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ DA-1 SUBDIVISION: \_\_\_\_\_ DATE 01 APRIL 90

USCG

NAME LARRY FLETCHER SIGNATURE Larry R Fletcher☐ NO TREATMENT RECOMMENDED  
COMMENTS☒ TREATMENT SUGGESTED

1. MANUALLY REMOVE ASPHALT.
2. BIO-REMEDIATE COATED AREAS.

ADEC

NAME DAVID M. SAGE SIGNATURE David M Sage

NOTE: PEAT MAT MUST NOT BE REMOVED; MISTAKEN FOR TAR MAT

☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS

- ① manual removal of oiled debris [WILL REQUIRE CAREFUL SCRUTINY OF SUPRATIDAL TO ASSURE FINDING ALL DEBRIS]
- ② REMOVAL OF TARMAT ON BEACH PEBBLES/GRAVELS WITH MANUAL TECHNIQUES (I.E., SHOVELS, PICKS, ETC.); OR WITH LT. MACHINERY, SUCH A. A BOBCAT.
- ③ REMOVAL OF TAR ON GROOVED, FOLIATED BEDROCK WITH TROWELS, SHOVEL OR, BURNING OFF WITH WEED BURNERS.
- ④ TILLING + REMEDIATION.

LAND MANAGER

NAME Leigh Carlson SIGNATURE Leigh Carlson ADNR☐ NO TREATMENT RECOMMENDED  
COMMENTS☒ TREATMENT SUGGESTED

manual removal of asphalt and oiled debris.

(25)

## SHORELINE OILING SUMMARY

REVISION NO. 02/28/90

OG R. Marty USCG Larry Fletcher SEGMENT ST/DA 1  
 BIO B. Lumb LAND REP Leigh Carlson SUBDIVISION A (1 OF 1)  
 EXXON J. Czernicki ADEC Dive Sale TIME 12:00 to 13:00  
 TEAM NO.: 10 TIDE LEVEL: +2m (0' to +2m (10') DATE 04 / 01 / 90  
 EST. SUBDIVISION LENGTH: 1079 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WORKING DIRECTION: to various (from cen.  
 SURFACE SEDIMENTS: R 40 % B 10 % C 10 % P 10 % G 10 % S 10 % M 10 % V 10 %  
 SLOPE: Long 80 % Hang 20 % Vert 10 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 10 m M 675 m N 404 m VL 0 m NO 0 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |    |    |     | OIL / FILM COLOR |   |   |   |   | IMPACTED ZONES |   |   |   |
|------------------|--------------|----|----|-----|------------------|---|---|---|---|----------------|---|---|---|
|                  | 10           | 25 | 75 | 100 | 1                | 2 | 3 | 4 | 5 | SU             | U | M | U |
| ASPHALT PAVEMENT |              | X  |    |     |                  |   |   |   | X |                | X | X |   |
| POOLED           |              |    |    |     |                  |   |   |   |   |                |   |   |   |
| COVER            |              |    | X  |     |                  |   |   |   | X |                | X |   |   |
| COAT             |              |    |    |     |                  |   |   |   |   |                |   |   |   |
| STAIN            |              |    |    |     |                  |   |   |   |   |                |   |   |   |
| MOUSSE           |              |    |    |     |                  |   |   |   |   |                |   |   |   |
| PATTIES          |              |    |    |     |                  |   |   |   |   |                |   |   |   |
| TARBALLS         |              |    |    |     |                  |   |   |   |   |                |   |   |   |
| FILM             |              |    |    |     |                  |   |   |   |   |                |   |   |   |
| NO OIL           |              |    |    |     |                  |   |   |   |   | X              |   |   | X |

PAVEMENT: H F S 536 sq. m by 10 cm

PATTIES / TARBALLS 1 BAGS

NEAR SHORE SHEEN? ☒ BR RW SL TL

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

DEBRIS COLLECTED  
☒ YES ☐ NO

TYPE                     

#BAGS 1

Photographs:

Roll No. ST/10/4

Frames 9-17

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |   |   | A<br>N<br>A | SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|---|---|---|----------|---|---|---|-------------|----------------------|
|         |                | OF                       | OR | OL | OP | NO |                     | 10    | 20 | 1                | 2 | 3 | 4 | 5 | SU       | U | M | U |             |                      |
| 1       | 10             |                          |    |    |    | X  | NONE                |       | X  |                  |   |   |   |   | X        |   |   |   | N           | S, G                 |
| 2       | 15             | X                        |    |    |    |    | 0 - 15              |       | X  | X                |   |   |   |   | X        |   |   |   | X           | G, P                 |
|         |                |                          |    |    |    |    |                     |       |    |                  |   |   |   |   |          |   |   |   |             |                      |
|         |                |                          |    |    |    |    |                     |       |    |                  |   |   |   |   |          |   |   |   |             |                      |
|         |                |                          |    |    |    |    |                     |       |    |                  |   |   |   |   |          |   |   |   |             |                      |
|         |                |                          |    |    |    |    |                     |       |    |                  |   |   |   |   |          |   |   |   |             |                      |
|         |                |                          |    |    |    |    |                     |       |    |                  |   |   |   |   |          |   |   |   |             |                      |

COMMENTS

#1

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## SHORELINE ECOLOGICAL SUMMARY

REVISION: 000000

Segment ST/10/0A-1 Subdivision none Date (mo/day/yr) 4/1/90  
 Time (24 hr) 1100-1230 Biologist Bob Lemon

- (A) Substrate type and % of segments:  
 (1) Bedrock 40 (2) Boulder 10 (3) Cobble 20 (4) Pebble 10 (5) Sand 20 (6) Silt \_\_\_\_\_
- (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 (3)

Photographs:  
 Roll No. ST/10/4  
 Frames 9-17

## BARNACLES

| Dense |    |    | Moderate |              |    | Sparse |              |    | Rare |    |    |             |
|-------|----|----|----------|--------------|----|--------|--------------|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M           | 1L | 1U     | 1M           | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | <del>2</del> | 2  | 2      | <del>2</del> | 2  | 2    | 2  | 2  | NOT PRESENT |
| 3     | 3  | 3  | 3        | <del>3</del> | 3  | 3      | <del>3</del> | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4            | 4  | 4      | 4            | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5            | 5  | 5      | 5            | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6            | 6  | 6      | 6            | 6  | 6    | 6  | 6  |             |
| 6     | 6  | 6  | 6        | 6            | 6  | 6      | 6            | 6  | 6    | 6  | 6  |             |

## MYTILUS

| Dense |    |    | Moderate |    |    | Sparse |              |    | Rare         |    |              |             |
|-------|----|----|----------|----|----|--------|--------------|----|--------------|----|--------------|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M           | 1L | 1U           | 1M | 1L           |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | <del>2</del> | 2  | <del>2</del> | 2  | <del>2</del> | NOT PRESENT |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | <del>3</del> | 3  | <del>3</del> | 3  | <del>3</del> |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4            | 4  | 4            | 4  | 4            |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5            | 5  | 5            | 5  | 5            |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6            | 6  | 6            | 6  | 6            |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6            | 6  | 6            | 6  | 6            |             |

## GASTROPODS

| Dense |    |    | Moderate |              |    | Sparse |              |    | Rare |    |    |             |
|-------|----|----|----------|--------------|----|--------|--------------|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M           | 1L | 1U     | 1M           | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | <del>2</del> | 2  | 2      | <del>2</del> | 2  | 2    | 2  | 2  | NOT PRESENT |
| 3     | 3  | 3  | 3        | <del>3</del> | 3  | 3      | <del>3</del> | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4            | 4  | 4      | 4            | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5            | 5  | 5      | 5            | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6            | 6  | 6      | 6            | 6  | 6    | 6  | 6  |             |
| 6     | 6  | 6  | 6        | 6            | 6  | 6      | 6            | 6  | 6    | 6  | 6  |             |

## FUCUS

| Dense |    |    | Moderate |              |    | Sparse |              |    | Rare |    |    |             |
|-------|----|----|----------|--------------|----|--------|--------------|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M           | 1L | 1U     | 1M           | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | <del>2</del> | 2  | 2      | <del>2</del> | 2  | 2    | 2  | 2  | NOT PRESENT |
| 3     | 3  | 3  | 3        | 3            | 3  | 3      | 3            | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4            | 4  | 4      | 4            | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5            | 5  | 5      | 5            | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6            | 6  | 6      | 6            | 6  | 6    | 6  | 6  |             |
| 6     | 6  | 6  | 6        | 6            | 6  | 6      | 6            | 6  | 6    | 6  | 6  |             |

Wildlife Observations/ General Comments: There is a considerable enrichment of all biota as one moves to the eastern edge of this segment. The scoring above may not fairly reflect this change. *Littorina sitkana* was photographed laying eggs. Visibility 40' down from the shift, extensive *Mercurialis* beds offshore. Shift driver saw 4 others. Moderate # of amphipods in drift line.

Ecological Considerations: Invertebrate harvest

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oil Map

Med  
Narrow

| inches | = | unadj. | adj. |
|--------|---|--------|------|
| 40     | = | 667m   | 675m |
| 2.4"   | = | 400m   | 404  |
|        |   | 1066   | 1079 |

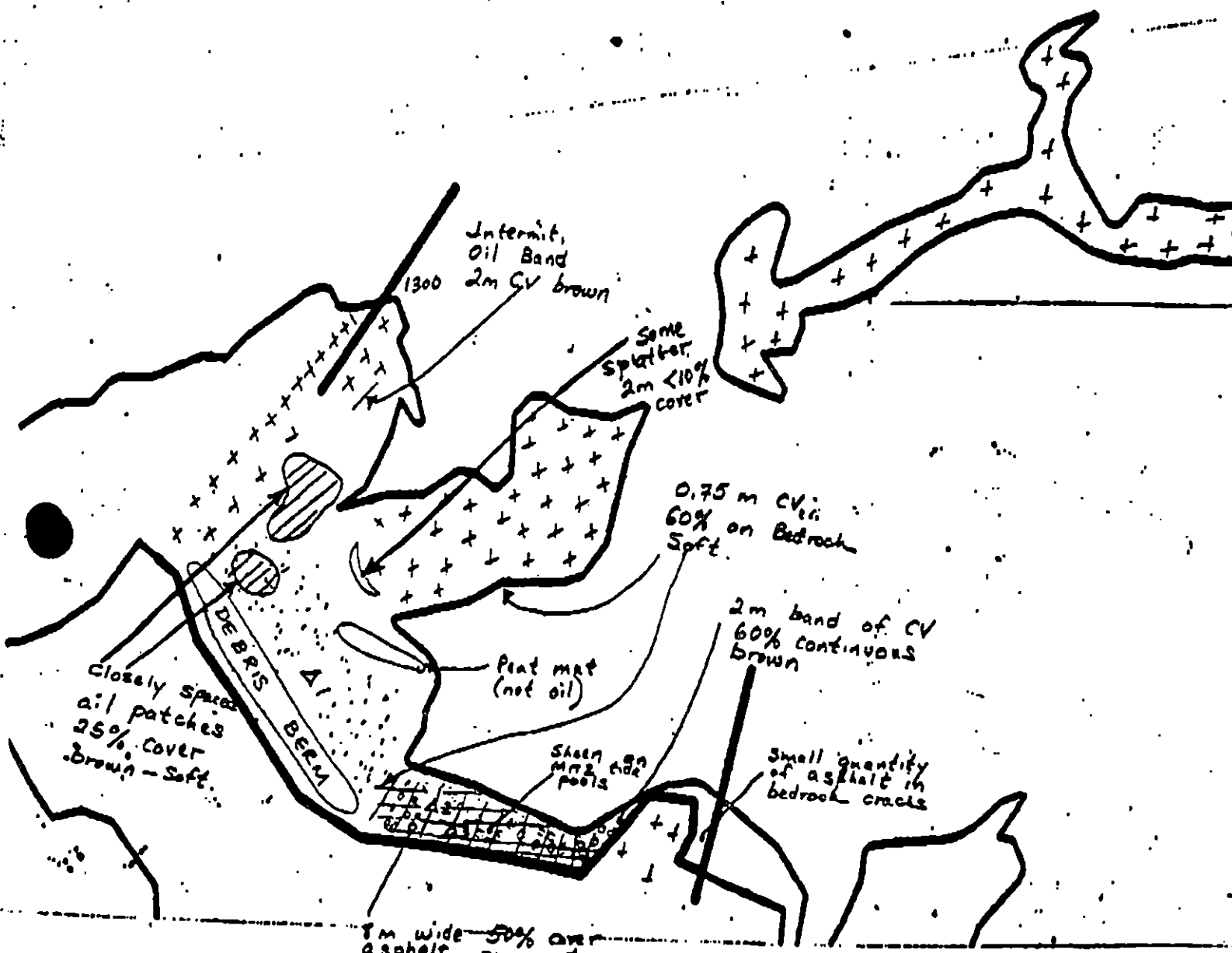
DA-1



(24)

1.8" = 300m

⇒ 1" = 166



1m wide 50% over asphalt pavement on west to 5m wide 60% cover on east end.  
Local Shallow bedrock  
300+ bags

**DA-1**

(23)



# ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT DA-1 SUBDIVISION A (1 of 1)

| WORK WINDOW                                  |      |
|----------------------------------------------|------|
| Manual Pickup<br>Tarmat Removal              | OPEN |
| Bioremediation<br>Manual Tilling (Reworking) | OPEN |

## ARCHAEOLOGICAL INSPECTION/CONSULTATION REQUIRED.

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

### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

|          |                                               |                                                                                                                                        |
|----------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 3N,O,P,Q | Harbor Seal & Sea Lion<br>Pupping and Molting | NO TIME CONSTRAINT. Authorized per memorandum dated 5/14/90 from Kathryn Frost/ADF&G to Mark Kuwada/ADF&G.                             |
| 5R       | Seabird Colony                                | NO TIME CONSTRAINT. Treatment area on DA-1A approved for work access by Mike Lockhart on 5/30/90 (USFWS Bald Eagle Impact Assessment). |
| 5T       | Bald Eagle Nest                               | NO CONSTRAINT. USFWS Bald Eagle Impact Assessment on 5/15/90 by Mike Lockhart verified nest is no longer present.                      |
| 7JJ      | Subsistence:<br>Finfish Harvesting            | No constraint to manual pickup and tarmat removal. Contact Chenega Village Corporation prior to bioremediation and manual tilling.     |

### OTHER ECOLOGICAL CONSIDERATIONS

Do not remove peat mat during tarmat removal treatment. Avoid arctic tern nesting area circled on attached map to the extent possible. Restrict boat and air traffic to essential minimum, and avoid accessing the south and southeast side of island where seabird colony is present. 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. Avoid repeated overflights of haulout areas and seabird colony. Avoid any unnecessary disturbance or damage to unrolled blots and substrate.

TAG APPROVAL DATE 5/30/90.  
ADEC Art Weiner  
EXXON AMY ISAL  
NOAA John Talbot  
USCG G.A. REITER

FOSC

Date

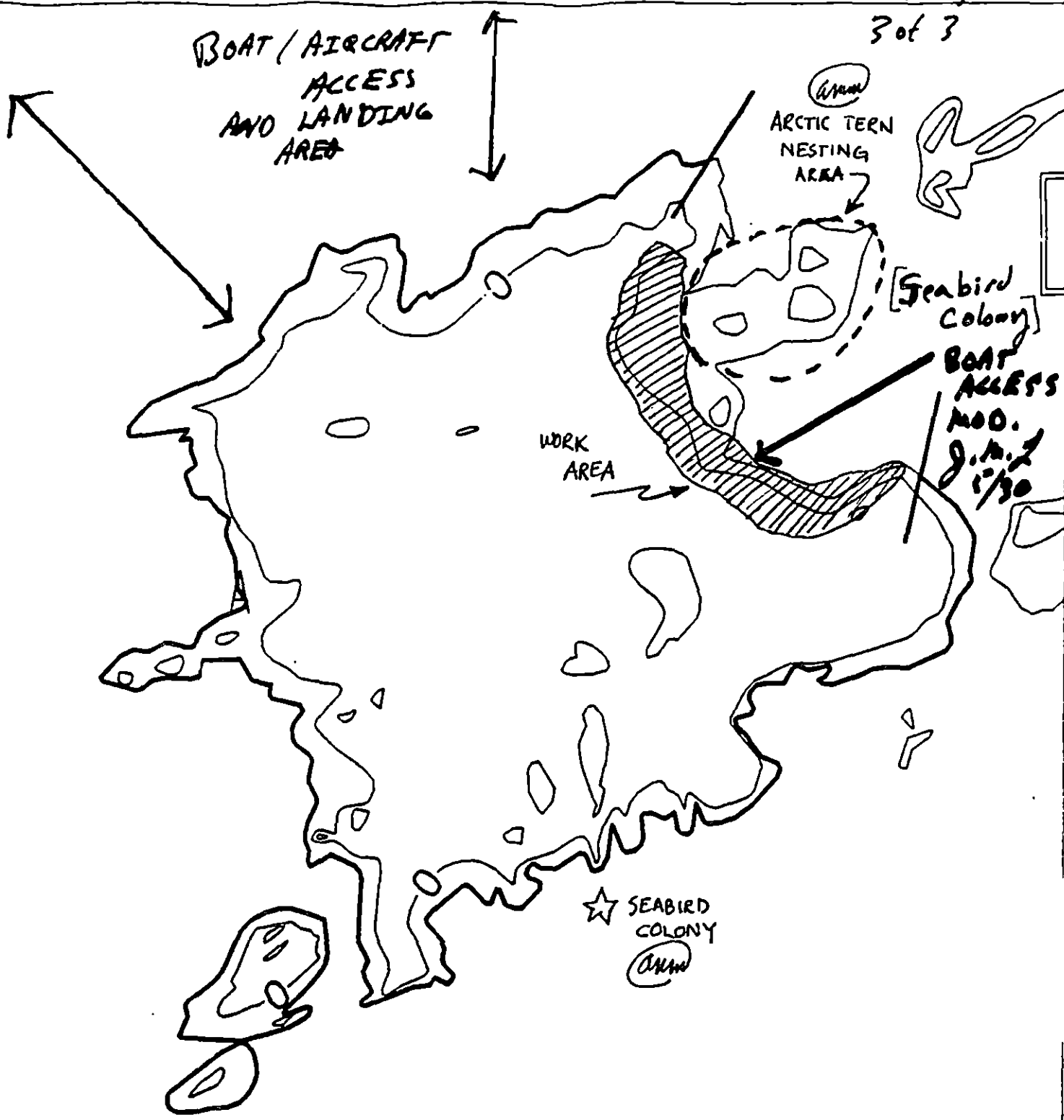
5/31/90

Prepared by

Anders Meyer

Date

5/30/90



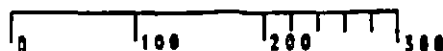
USFWS Bald Eagle Impact Assessment  
Survey 5/15/90 modified 5/30/90  
Mike Lockhard, USFWS



# SEGMENT DA-1A

Exxon Segment Length: 4324m

METERS



Map Key: PWS-DA-2

Exxon Company, USA

May 09, 1990

1 inch = 500 feet

SHORELINE EVALUATION

SEGMENT ST/ DA-02 SUBDIVISION A (1 of 1) DATE 4/1/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Seabird colony (5R) - 5/1 to 9/1; Invertebrate harvesting (7JJ) -  
contact ADF&G and Chenega Village Corp. for appropriate dates.

SUBDIVISION ECOLOGICAL CONSTRAINTS: No specific subdivision con-  
straints.

SHPO SIGNATURE: Charles E. Holmer DATE: April 9, 1990

OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 642m: V.Light 789m: No Oil 901m  
Subsurface Oil Observed: Yes X No      Maximum Depth 8 cm

RECOMMENDATIONS:

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

COMMENTS: No treatment recommended on this subdivision due to oil  
being discontinuous and located in a salt marsh. Please review  
Field Shoreline Comment Sheet.

TAG COMMENTS:     

TAG APPROVAL DATE: 4/9/90  
ADEC JOHN BAUER  
EXXON ANDY TATE  
NOAA Burt Wescott  
USCG G.A. REITER

FOSC:     

DATE: 4-19-90

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST / DA-2 SUBDIVISION: \_\_\_\_\_ DATE 01 APRIL 90

**USCG**

NAME LARRY FLETCHER SIGNATURE [Signature]

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

**ADEC**

NAME DAVID SALE SIGNATURE [Signature]

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Though I recommend no treatment on this segment, the oil imbedded in the sediments of the salt marsh on the Sore side of the island cause me some concern. They are anaerobic and are causing sheen in the surface water. There may be no reasonable way to clean this, but it should not be ignored either. A commitment to monitoring productivity + impact may be necessary. The oil on the rest of the segment seems to be non-mobile and in a high energy environment.

**LAND MANAGER**

NAME Leigh Carlson SIGNATURE Leigh Carlson ADNR

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

(20)

## SHORELINE OILING SUMMARY

REVISION NO. 002000

OG R. Marty USCG Larry "Eli" Fisher SEGMENT ST/ DA - 2  
 BIO B. Limb LAND REP Leigh Carlson SUBDIVISION A (10E1)  
 EXXON J. Garmehi ADEC Dave Sals TIME 09:00 to 13:00  
 TEAM NO.: 10 TIDE LEVEL: +2.2m (+7') to +0m (+0') DATE 04/01/90  
 EST. SUBDIVISION LENGTH: 4324 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: counter-clockwise from one end  
 SURFACE SEDIMENTS: R 80 % B 10 % C 10 % P 0 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Lang 15 % Hang 70 % Vert 25 % WAVE EXPOSURE: ☐ Low ☐ Med ☒ High  
 OIL CATEGORY LENGTH: W 0 m M 0 m N 1317 m VL 1730 m NO 1277 m

## SURFACE OIL

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

PAVEMENT: H F S 0 sq. m by 0 cmPATTIES/TARBALLS 5 BAGSNEAR SHORE SHEEN? ☒ NO BR RW SL TL

| OILED DEBRIS | AMOUNT |    |    |
|--------------|--------|----|----|
|              | SM     | MD | LG |
| Logs         |        |    |    |
| Vegetation   |        |    |    |
| Trash        |        |    |    |
| Debris       |        |    |    |

DEBRIS COLLECTED  
☐ YES ☒ NOTYPE 0#BAGS 0

Photographs:

Roll No. ST/10/4Frames 1-7

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |   |   | A<br>N<br>A | SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|---|---|---|----------|---|---|---|-------------|----------------------|
|         |                | OP                       | OR | OL | OF | NO |                     | VO    | VO | 1                | 2 | 3 | 4 | 5 | SU       | U | M | U |             |                      |
| 1       | 8              | X                        |    |    |    |    | 0-8                 |       | X  | X                |   |   |   |   |          | X |   |   | N           | bottoms against br   |
| 2       | 15             |                          |    |    |    | X  | None                |       |    |                  |   |   |   |   |          | X |   |   | ↓           | P,G                  |
| 3       | 15             |                          |    |    |    | X  | None                |       |    |                  |   |   |   |   |          | X |   |   | ↓           | P,G                  |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |          |   |   |   |             |                      |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |          |   |   |   |             |                      |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |          |   |   |   |             |                      |

COMMENTS Pits 2 and 3 are in a pocket of well sorted P, G with & algae. No oil visible but did look newish to 5m depth

(17)

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 08/29/90

Segment ST/10/DA 2 Subdivision none Date (mo / day / yr) 4 / 1 / 90

Time (24 hr) 0830 - 1100 Biologist Lemon Clear, 7mph. N. wind

- (A) Substrate type and % of segments:  
 (1) Bedrock 80 (2) Boulder 20 (3) Cobble 0 (4) Pebble 0 (5) Sand 0 (6) Silt 0
- (B) Overall % cover of biota (% of segment): Dense 90% Moderate 0 Low 0
- (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/10/4

Frames 1-7

## BARNACLES

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    |             |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  | NOT PRESENT |

## MYTILUS

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    |             |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  | NOT PRESENT |

## GASTROPODS

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    |             |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  | NOT PRESENT |

## FUCUS

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    |             |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  | NOT PRESENT |

Wildlife Observations/ General Comments: some fucus w/ swollen conceptacles; Fucus shares much of the plant coverage w/ Rhodospira lanix (RHODOSPORA) G make 90% coverage in the mid zone. Few mussels on the N. shore. Littorines were doing well. Articulated and encrusting coralline algae present in tidepools, Prasidoc (Chlorophyta) Talia (ARTHOZOA) present. 16 waterfowl, 22 cormorants, 2 geese, 10 gull sightings.

Ecological Considerations: North Shore has a drift line 10 meters wide and 1/3 meter deep. Orange egg masses, some nudibranch

Invertebrate harvest, Shorebird and waterfowl area

(21)

OG R. Marly

SEGMENT ST A-2

SUBDIVISION A

DATE 01 / 04 / 90

# CHECKLIST

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Bndry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWR/LWR
- ☐ SSI
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ PR Location(s)
- ☐ Photo Location(s)

## LEGEND

1  $\Delta$   
PR - No Subsurface Oil

2  $\Delta$   
PR - Subsurface Oil

CT/C  
Continuous Distribution

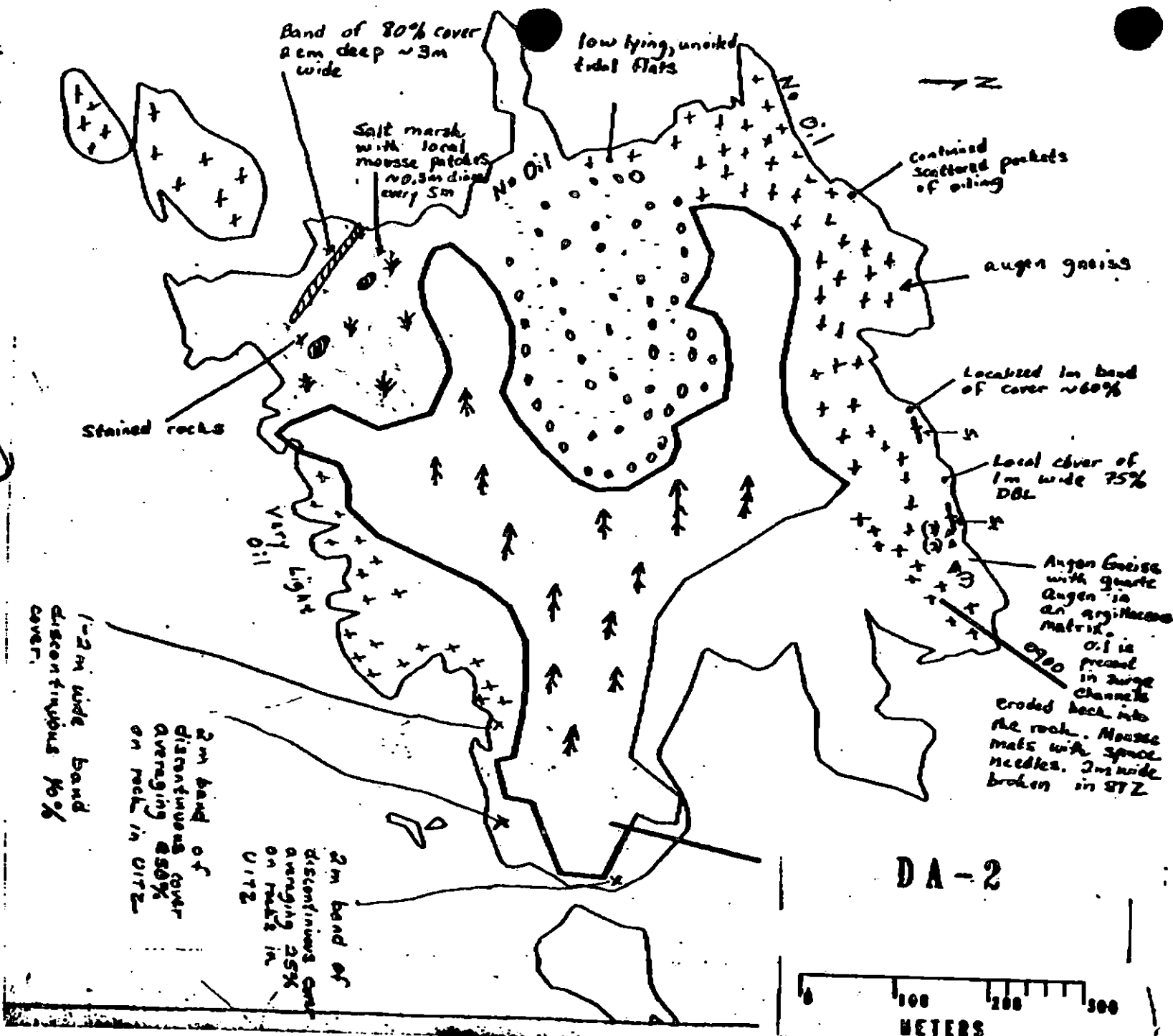
CT/B  
Broken Distribution

CT/P  
Pecdy Distribution

CT/S  
Splashed Distribution

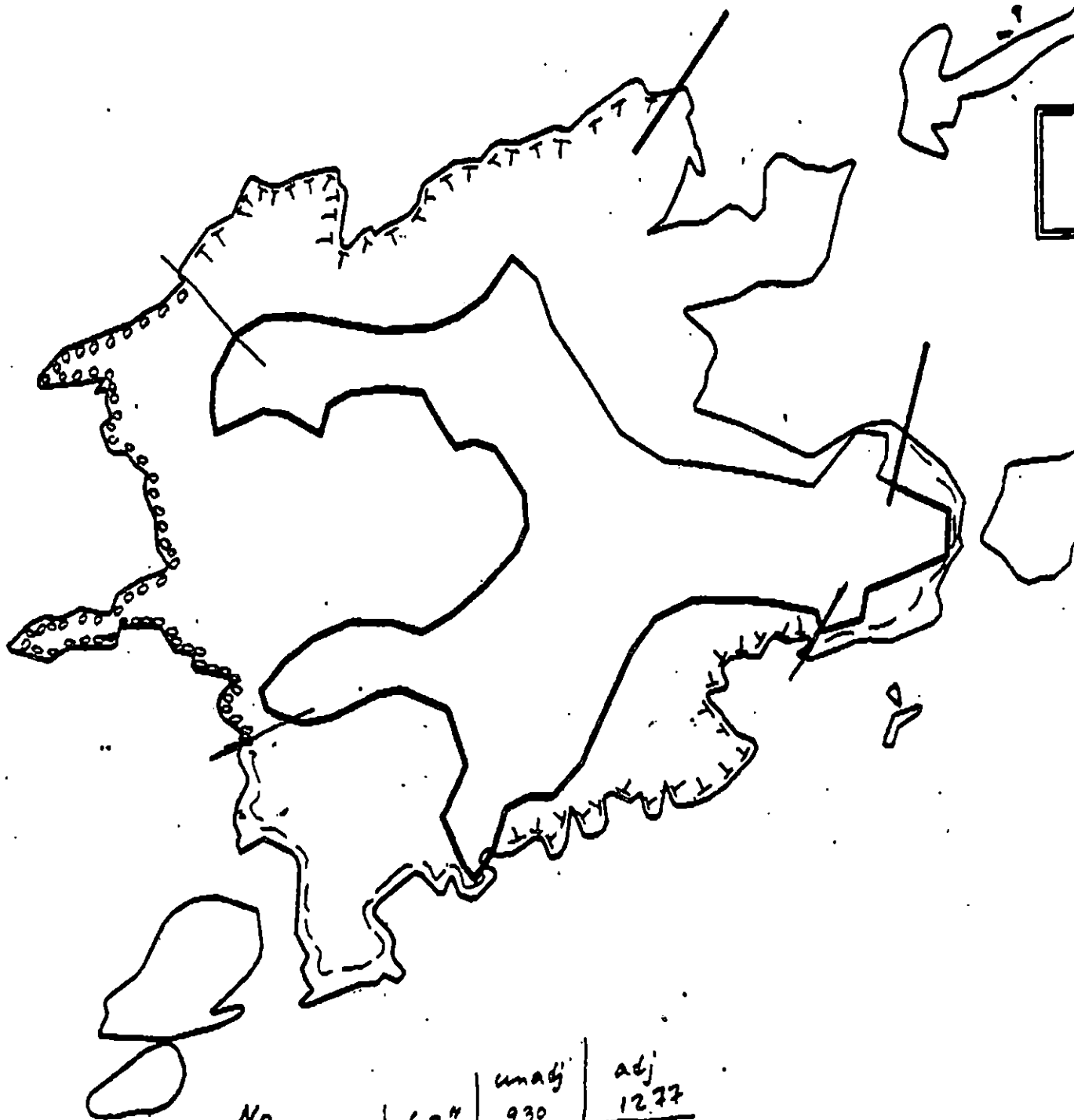
Oil Vegetation

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



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

REVISIONS



| No         | 6.2" | unadj | adj  |
|------------|------|-------|------|
| Very Light | 8.4" | 930   | 1277 |
| Light      | 6.4" | 1260  | 1730 |
|            |      | 460   | 1317 |
|            |      | 3150  | 4324 |

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

(18)

DA-2

ADEC Segment Length: 2532m



Map Key: PWS-89

Name: MARTY

Date: 4-1-90

Date Entered:

SHORELINE EVALUATION

SEGMENT ST/ DI-59 SUBDIVISION A (1 OF 1) DATE 4/20/90

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

**SUBDIVISION ECOLOGICAL CONSTRAINTS:**

Avoid any unnecessary disturbance or damage to uncoiled biota and substrate. Significant invertebrate (bivalve) colonies should be avoided during cleanup (ie: mussel and clam beds)

SHPO SIGNATURE: [Signature] DATE: 5/3/90

**OILING CATEGORIZATION:**

Wide 0 m: Medium 0 m: Narrow 92 m: V.Light 545 m: No Oil 414 m  
Subsurface Oil Observed: Yes X No      Maximum Depth 15+ cm

**RECOMMENDATIONS:**

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

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TAG COMMENTS: BIOREMEDIATION IN AREAS INDICATED ON SKETCH. RAKE +  
USE OF OIL SNARE IN AREA OF TP9 PRIOR TO B20.  
\_\_\_\_\_  
\_\_\_\_\_

TAG APPROVAL DATE: 4/30/90.  
ADEC ART WEINER [Signature]  
EXXON ANDY GOR [Signature] FOSC: [Signature] DATE: 5-8-90  
NOAA Gary Petroe [Signature]  
USCG Kenneth Korne [Signature]

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST / DI-59 SUBDIVISION: A DATE 4/20/90

**USCG**

NAME William E. White SIGNATURE William E. White

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

*CONTINUOUS WAVE EXPOSURE CLEANING.*

**ADEC**

NAME Peter Montesano SIGNATURE Peter Montesano

☐ NO TREATMENT RECOMMENDED  
COMMENTS

☒ TREATMENT SUGGESTED

- Heavy interstitial sheen at pit 2, appropriate for localized bioremediation
- Pit 9, Too thick OP for bioremediation. Area heavily oiled is small and bag removal should be considered. It does not appear that this oiling will soon break up since it is now an almost impenetrable layer.

**LAND MANAGER** USDA Forest Service

NAME Don J. Breitinger SIGNATURE Don J. Breitinger

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

*Natural wave action cleaning appears to be the best cleaning method.*

SHORELINE OILING SUMMARY

REVISION NO. 02/13/90

OG C. DILLON USCG PS1 E. WHITE SEGMENT ST/ DI-59  
BIO J. BARRY LAND REP D. BRIGHTENGER (NFS) SUBDIVISION A (1 OF 1)  
EXON G. STILES ADEC P. MONTESANO TIME 15:15 to 18:00  
AM NO. 6 TIDE LEVEL +2.25 to +2.5 DATE 04/20/90  
EST. SUBDIVISION LENGTH: 1363 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow  
UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☒ Rock  
SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: NW to SE  
SURFACE SEDIMENTS: R 40 % B 20 % C 30 % P 8 % G 1 % S 1 % M 0 % V 0 %  
SLOPE: Lang 55 % Hang 30 % Vert 15 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
OIL CATEGORY LENGTH: W 0 m M 0 m N 130 m VL 448 m NO 585 m

SURFACE OIL

| CHARACTER            | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   | IMPACTED ZONES |   |   |   |
|----------------------|--------------|---|---|---|------------------|---|---|---|----------------|---|---|---|
|                      | C            | N | P | S | 1                | 2 | 3 | 4 | BU             | U | M | U |
| ASPHALT PAVEMENT     |              |   |   |   |                  |   |   |   |                |   |   |   |
| POOLED               |              |   |   |   |                  |   |   |   |                |   |   |   |
| COVER                |              |   |   |   |                  |   |   |   |                |   |   |   |
| COAT                 |              | X | X | X | X                |   |   |   | X              |   |   | ✓ |
| STAIN                |              |   | X | X |                  |   |   | X | X              |   |   |   |
| MOUSSE               |              |   |   |   |                  |   |   |   |                |   |   |   |
| PATTIES              |              |   |   |   |                  |   |   |   |                |   |   |   |
| TARBALLS             |              |   |   | X | X                |   |   |   | X              |   |   |   |
| NO OIL               |              |   |   |   |                  |   |   |   |                |   |   |   |
| Snow on beach SITZ S |              |   |   |   |                  |   |   |   |                |   |   |   |

PAVEMENT H F S 0 sq. m by 0 cm

PATTIES / TARBALLS 0 BAGS

NEAR SHORE SHEEN? NO BR RW SL TL

| OILED DEBRIS | AMOUNT |    |    |
|--------------|--------|----|----|
|              | SM     | MD | LG |
| Logs         |        |    |    |
| Vegetation   |        |    |    |
| Trash        |        |    |    |
| Debris       |        |    |    |

DID YOU COLLECT DEBRIS?

YES ☒ NO ☐

Un-oiled trash  
TYPE 1 oiled per person

#BAGS 1

Photographs:

Roll No. NONE

Frames -

SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |   |   |   | PIT ZONE |   |   |   | A N A | SHEER (Y/N) | Y | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|---|---|----------|---|---|---|-------|-------------|---|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                     | UO    | UC | 1                | 2 | 3 | 4 | BU       | U | M | U |       |             |   |                                |
| 1       | 35             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |          |   | X |   | N     | 30          |   | P/C - P                        |
| 2       | 25             |                          | X  |    |    |    | 5-15                |       | X  |                  |   | X |   |          |   | X |   | Y     | 15          |   | B/C/P - C/P                    |
| 3       | 30             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |          | X |   |   | N     | 25          |   | C/P - C/P/G                    |
| 4       | 30             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   | X        |   |   |   | N     | -           |   | C/P - C/P/G                    |
| 5       | 25             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |          |   | X |   | N     | -           |   | P - C/P/G                      |
| 6       | 45             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |          | X |   |   | N     | -           |   | P - P/G                        |

COMMENTS

REVIEWED YW DATE 4/23/90

## SHORELINE OILING SUMMARY (PAGE 2)

REVISION 06/13/88

SEGMENT ST/ DI-59 SUBDIVISION A (2 OF 2)OG C. DILLON  
TEAM 6

## SUBSURFACE OIL (CONTINUED)

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |         |         |          |          |          | PIT ZONE |   |   |   | A<br>N<br>A | SHEEN (Y/N) | ↓  | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---------|---------|----------|----------|----------|----------|---|---|---|-------------|-------------|----|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                     | UC    | UC | 1/2" IN          | 1/4" IN | 1/8" IN | 1/16" IN | 1/32" IN | 1/64" IN | BU       | U | M | U |             |             |    |                                |
| 7       | 25             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          |   | X |   |             | N           | —  | P - P/G                        |
| 8       | 40             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          | X |   |   |             | N           | —  | P - P/G                        |
| 9       | 15             | X                        |    |    |    |    | 0-15                | X     |    |                  |         |         | X        |          |          |          |   | X |   |             | N           | —  | B/C - C/P/G/N                  |
| 10      | 30             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          | X |   |   |             | N           | —  | P - P/G                        |
| 11      | 45             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          |   | X |   |             | N           | —  | P - P/G/Pat                    |
| 12      | 30             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          |   | X |   |             | N           | 25 | P/G - G/M                      |
| 13      | 40             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          | X |   |   |             | N           | 40 | P/G - G/M                      |
| 14      | 35             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          | X |   |   |             | N           | 30 | P. - P/G                       |
| 15      | 30             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          | X |   |   |             | N           | 20 | C/P. - P/G                     |
| 16      | 30             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          | X |   |   |             | N           | 25 | C/S - C/S/M                    |
| 17      | 25             |                          |    |    |    | X  | .                   |       | X  |                  |         |         |          |          |          |          |   | X |   |             | N           | —  | C/G - G/S                      |
|         |                |                          |    |    |    |    | .                   |       |    |                  |         |         |          |          |          |          |   |   |   |             |             |    |                                |
|         |                |                          |    |    |    |    | .                   |       |    |                  |         |         |          |          |          |          |   |   |   |             |             |    |                                |
|         |                |                          |    |    |    |    | .                   |       |    |                  |         |         |          |          |          |          |   |   |   |             |             |    |                                |

COMMENTS

REVIEWED 700 DATE 4/23/90

00 C. DILL TEAM 6

SEGMENT ST/ DI-59

SUBDIVISION A

DATE 4/1/20 80

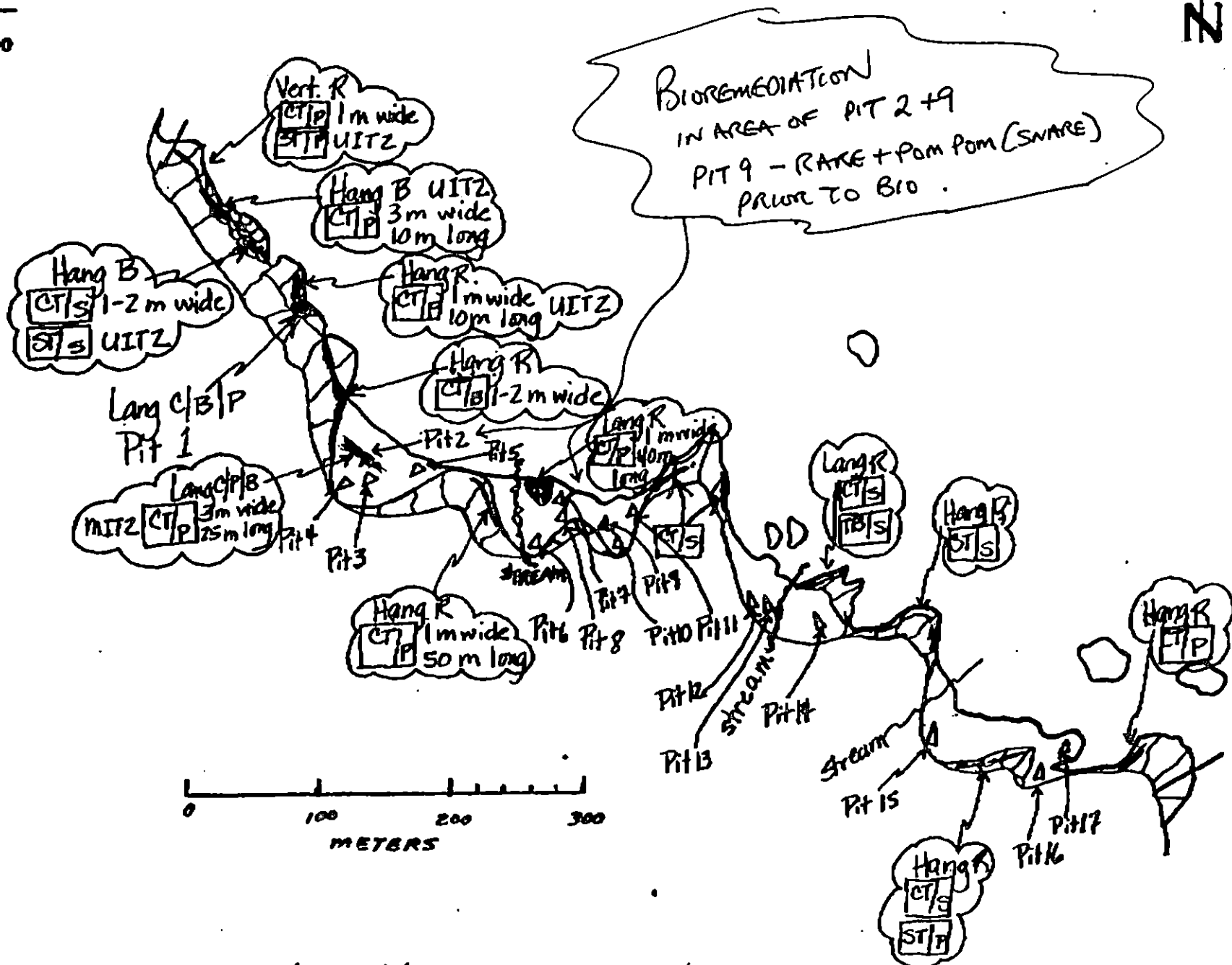
# CHECKLIST

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

## LEGEND

- 1 Δ
- PH - No Subsurface Oil
- 2 Δ
- PH - Subsurface Oil
- CT/C
- Continuous Distribution
- CT/D
- Broken Distribution
- CT/P
- Patchy Distribution
- CT/S
- Splashed Distribution
- eee
- Old Vegetation
- 1 00
- Photo location, direction, and number

## SKETCH MAP



Oil Character Length (m): AP 0 PO 0 CV 0 CT 600 ST 175 MS 0 PT 0 TB 3 FL 0 NO 585

REVISIONS

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 06/22/90

Segment ST / DI59 Subdivision A Date (mo / day / yr) 4/20/90  
 Time (24 hr) 1515-1800 Biologist J/m BARNY Length = 1363 1/7

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

(B) Overall % cover of biota (% of segment): Dense \_\_\_\_\_ 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-6-6  
 Frames 5

## BARNACLES

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |             |

## MYTILUS

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |             |

## GASTROPODS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |             |

## FUCUS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |             |

## Wildlife Observations/ General Comments:

SEA OTTER - 1 PIGEON GUANO - 2 GLAUCOUS WINGED GULLS - 3  
 BIRD EAGLE - 2 RIVER OTTER SKELTON - 1

## Ecological Considerations:

NONE LISTED, HOWEVER, SIGNIFICANT MUSSEL/CLAM BED AREAS EXIST ON THIS SEGMENT (SEE MAP) AND SHOULD NOT BE DESTROYED BY TRAMPLING DURING CLEAN UP OPERATIONS.

## GENERAL COMMENTS

- A. HABITAT TYPES
- 1) Vertical Bedrock
  - 2) High angle Boulder/Bedrock to medium angle Cobble beaches
  - 3) Cobble/Pebble beaches / intertidal flat w/ clam/mussel bed.  
+ eel grass

1) Vertical Bedrock - This habitat generally has a sparse cover, if any, of *Mytilus* adults, with moderate densities of spat in crevices. Some headlands in the southern end of DI 59A have dense or moderate patches of *Mytilus* adults. Differences in the density of mussels along the segment are likely not a consequence of oil-related activities, but these activities may have contributed to this pattern. In addition to *Mytilus*, barnacles are generally moderate. In the lower zones, several species of green, red, and brown algae cover the substratum.

### 2) Boulder/Cobble beaches.

Larger boulders and cobble have distributions of biota similar to vertical bedrock, but with slightly lower densities of many species.

Smaller cobble ~~are~~ have more open space, lower barnacle cover, mussel cover, and algal cover. Gastropods, however are frequently dense in these locations.

3) Low angle beaches - Several beaches exist along this segment. Those towards the northern end are often lacking biota, except for gastropods (Littorines) in the middle to upper zones and thick filamentous algae in lower zones.

In the remainder of the segment, there are a few beaches w/ a high density of mussels, clams, eel grass, and organic material.

These clam/mussel beds are utilized by Otters (river and sea) and probably by deer and bear. The mussel beds are broken on pebble beaches. Their condition prior to oiling & clean up operations is unknown. Spat and small juveniles are abundant in these beds, and without further disturbance by humans, should coalesce into continuous beds. Otter foraging alone may produce the broken appearance of these beds.

## II Oil-related Comments

- 1) Oiling is largely restricted to upper zones along the segment. Natural weathering should be adequate to mitigate its effects on the biota.

Access to mussel beds on beaches (pebble/cobble) should be highly restricted. Eel grass beds and nearby clam beds also should not be trampled.

## III Major Species

- A) ~~BARNACLES~~ - Semibalanus cariosus is the most abundant species in the ~~the~~ middle zone. Balanus glandula and Cithmanalus dalli dominate the barnacle populations in the upper zone.
- B) Mytilus - no further comment
- C) Gastropods - Littorines, whelks, and limpets are usually abundant throughout the segment, but generally moderate. All species show recruitment.
- D) Pucers. Mostly moderate density of juveniles & adults.
- E) Other species - Juvenile clams (Prototheca staminea, Hiatella spp, and Macoma spp) are present in the clam beds.

APR 20 1990

DISS A

5/2

IV Species List

## A. MARINE PLANTS

1) DIATOMS / BLUE GREEN ALGAE M-D 123

2) GREEN ALGAE - CHLOROPHYTA

ACROSIPHONIA SM 12

CLADOPHORA SM 23

ENTEROMORPHA 123

GREEN CRUST. S1

ULVA SM 123

ULROSPORA MD 23

3) RED ALGAE - RHODOPHYTA

BOSSIOLA R1

CALLIARTHRON R1

CORALLINA R1

CRYPTOSIPHONIA M 123

ENDOCLADIA MURICATA S1

HALOSACCION GLANDIFORME SM 123

IRIDAEATIS 12

MASTOCARPUS ?

MEMBRANOPTERA SM 123

MICROCLADIA ? SM 123

LITHOTHAMNION PALIPILUM

PETROCELIS MIDENDORFFII

PORPHYRA spp.

RHODOMELA LAMIN

PALMARIA PALMARIA

Petrocelis M12

4) BROWN ALGAE - PHAEOPHYTA

ALARIA MARGINATA U

AGARUM spp. U

COSTARIA U

FUCUS DISTICHUS M 123

HEDOPHYLLUM SESSILE U

HILDEBRANDIA SM 1

LAMINARIA U

NEREOCYSTIS R1 U

RALPSIA M1

SCYTOSIPHONIA COMENTARIA S12

★ SPAT OR JUVENILES  
PRESENT

D DENSE

M MODERATE

S SPARSE

R RARE

1 BEDROCK

2 BOULDER

3 COBBLE

4 PEBBLE

U. SUBTIDAL

★ PROBABLY PRESENT

## B MARINE INVERTEBRATES

## 1) ANEMONES

EPIACTIS RITTERI ? S12\*  
 URTICINA CRASSICORNIS R12\*  
 Anthopleura elegantissima R1\*  
 A. artemesia S12  
~~A. xanthogramma~~

## 2) Annelid Worms

Polychaetes  
 Nereidae X  
 Nereididae X 34  
 Serpulidae  
 Serpula S12\*  
 Crassigera S12\*  
 Spirobranchidae  
 Spirobranchia M 3\*

## 3) Peanut Worms - Sipunculid

Phascolosoma thersites X 34

## MOLLUSCS

## a) CHITONS

CATHARINA PUNCTATA S1\*  
 TONICELLA LINEATA R12\*  
 MOPALIA spp. X

## b) Snails - Gastropods

Littorina scutulata MD 123\*  
 L. sitkana MD 123\*  
 Nucella lamellosa MD 23\*  
 N. emarginata MD 23\*  
 Scarlisia dora S123\*  
 Amphissa columbiana R23  
 Tachyrhynchus spp. R23

## c) Nudibranchs

Lamellidorsis fusca R12\*

## d) Limpets

Lottia digitalis S1\*  
 Aemaea mitra R1/  
 Lottia persana RS 12\*

## d) Limpets (cont)

Tectura scutum S23\*  
 T. persana ?  
 Siphonaria thersites R12\*  
 Diadora aspera X

## e) Mussels -

Mytilus edulis R-D 123\*

## f) Clams

Single - Pseudosquilla Sepio R1  
 Hiatella spp. S234\*  
 Prototheca staminea S234\*  
 Macoma spp. S34\*

## g) Crustaceans

## 1) Bivalves

Semibalanus carioctus MD 12\*  
 Balanus glandula SM 123\*  
 Chthamalus dalli M 123\*

## 2) Crabs

Haplogaster spp X  
 Hemigrapsus oregonensis R2:  
 Pugetia spp. X  
 Hermit Crabs - Paguridae MD 2

## 3) Beach Hopper

ISOPODA S23\*  
 AMPHIPODA  
 Orchestra? M 23\*

## h) Bryozoans

Schizoporella spp? M 23\*

## i. Echinoderms

1) Sea Stars  
 A M23 Pycnopoda helianthoides  
 A MD Dermasterias imbricata  
 S23 Leptasterias hexactis  
 A R23 EASTERIAS trischelii  
~~Orthasterias koehleri~~  
 RS12: Pisaster ochraceus.

6/7

## SPECIES LIST (cont)

2/7

## 2 Echinoderms (cont)

2) Brittle Star

*Aphroditis* sp.?

3) Sea Cucumbers

*Cucumora miniata* X

3) Sea urchin

~~*Strongylocentrotus droebachiensis*~~

## C. Marine Vertebrates

1) Fish: Stichaeidae 11; Xiphister spp. M 23\*

LOTTIDAE 512\*

OG C. DILLI TEAM 6

SEGMENT ST/ DI-59

SUBDIVISION A

DATE 4/20/80

### CHECKLIST

- ☐ H Area
- ☐ Approx. Scale
- ☐ Segments Entry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. H/W/L/W/L
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ PI Location(s)
- ☐ Photo Location(s)

### LEGEND

1 Δ

PI - No Subsurface Oil

2 Δ

PI - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

Splashed Distribution

lll

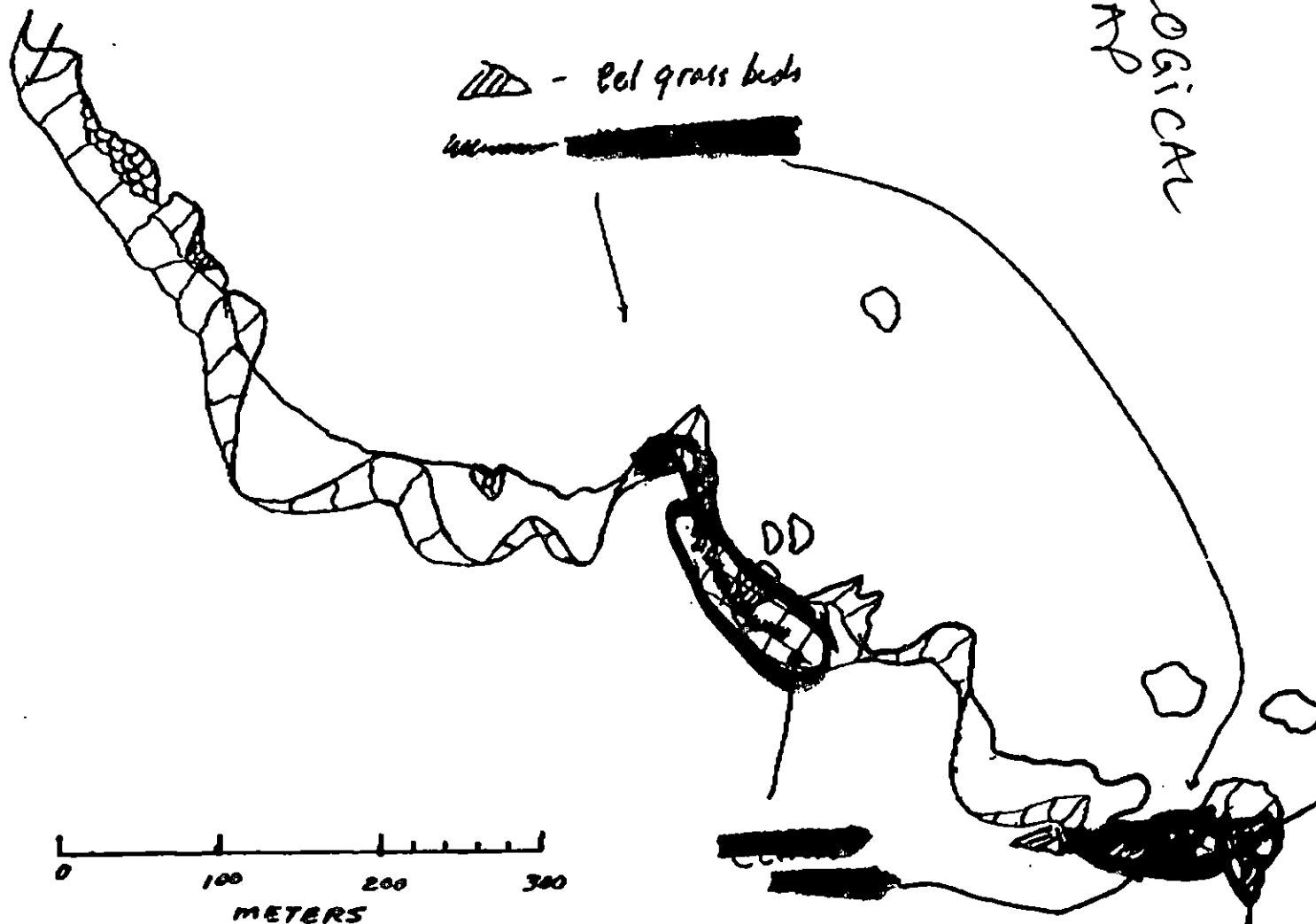
Old Vegetation

1 @

Photo location, direction,  
and number

SWITCH MAP

ECOLOGICAL  
MAP



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

DI-59

DI-60

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

DI-59

EXXON SEGMENT LENGTH: 1363m  
ADEC Segment Length: 1048m



Map Key: PWS-91

Name: C. DILLON

Date: 4/20/90

Date Entered:

## ADDENDUM: SUBDIVISION CONSTRAINTS

### SEGMENT DI-59 SUBDIVISION A (1 of 1)

| WORK WINDOW                                                                                |        |
|--------------------------------------------------------------------------------------------|--------|
| Bioremediation, Manual Raking, and<br>Other Approved Treatment<br>More Than 400m From Nest | OPEN   |
| Bioremediation, Manual Raking and<br>Other Approved Treatment<br>Less Than 400m From Nest  | CLOSED |

#### ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

#### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

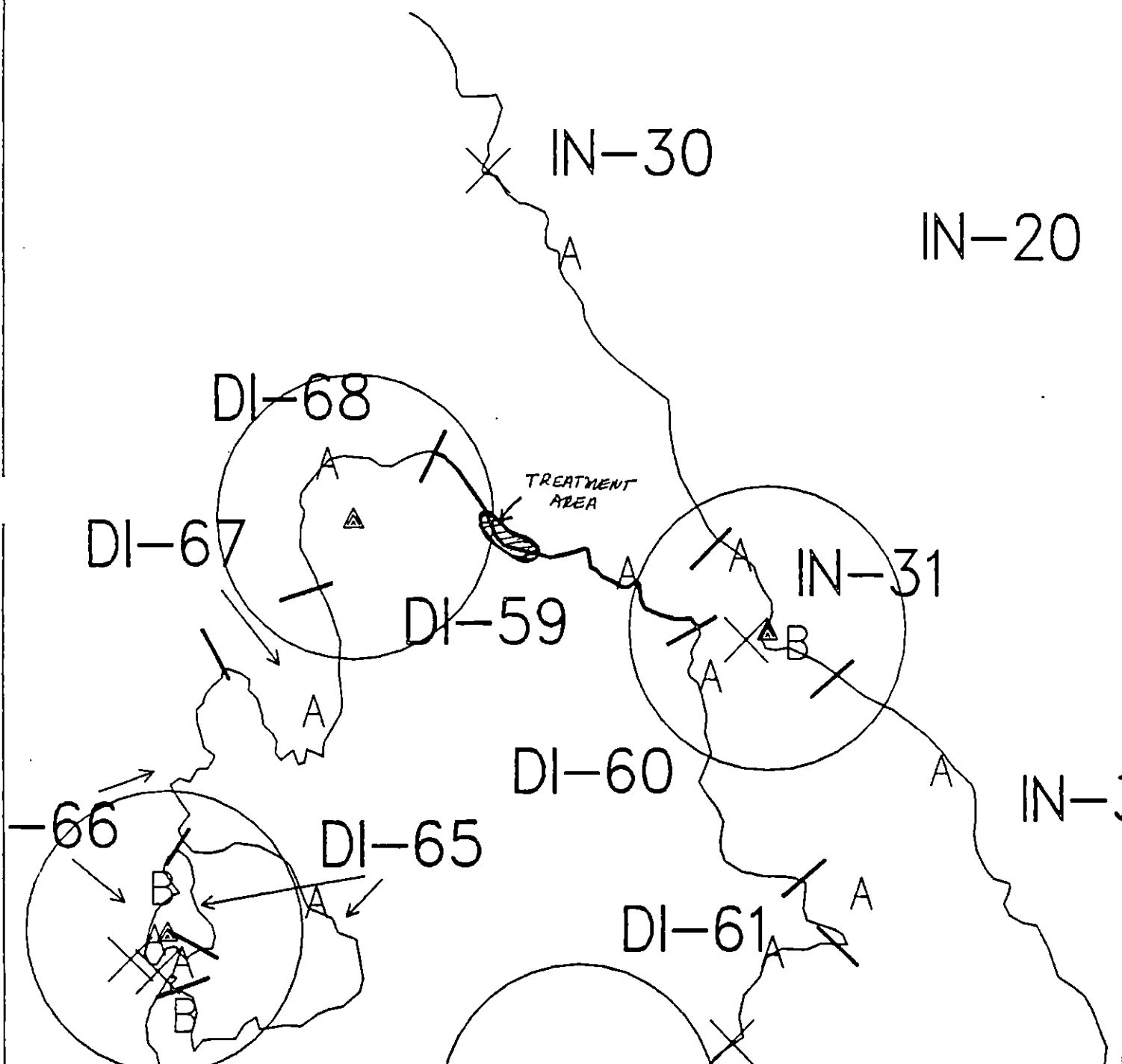
5T      Bald Eagle Nest      USFWS 6/1/90 map indicates an active nest in Subdivision A. Closed to bioremediation, manual raking and other approved treatment within 400m of active nest. No constraint to bioremediation manual raking and other approved treatment more than 400m from active nest.

#### OTHER ECOLOGICAL CONSIDERATIONS

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 disturbance/damage to uncolled biota and substrate. Significant invertebrate (bivalve) colonies should be avoided during treatment (ie: mussel and clam beds).

FOSC [Signature] Date 6-10-90

Prepared by J.P. Phillips <sup>6-10-90</sup> amm Date 6/10/90



Exxon Company, USA  
 Map Key: PWS-DI-59  
 June 04, 1990



**ECOLOGY MAP**  
 SEGMENT DI-59  
 SUBDIVISION A ( 1 of 1 )  
 METERS



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

~~XXXXX~~ = ~~XXXXX~~

SEGMENT ST/ DI-60 SUBDIVISION A (1 OF 1) DATE 4/20/90

**SUBDIVISION ECOLOGICAL CONSTRAINTS:**

SHPO SIGNATURE: Charles E Holmes DATE: 5/5/90

Wide 0 m: Medium 0 m: Narrow 30 m: V.Light 687 m: No Oil 247 m  
Subsurface Oil Observed: Yes \_\_\_\_\_ No X Maximum Depth \_\_\_\_\_

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

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**TAG COMMENTS:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**TAG APPROVAL DATE:** 5/4/90

ADEC ART WENGER Det Wines

EXXON ANY TAIL tail

NOAA Gary Petros Gary Petros

USCG G. A. REITER G.A. Reiter

FOSC:                      DATE: 5-9-90

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ DI-60 SUBDIVISION: A DATE 4/20/90

**USCG**

NAME William E. White SIGNATURE William E. White

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

*Chewing by  
CONTINUOUS wave's action*

**ADEC**

NAME Peter Montesano SIGNATURE Peter Montesano

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

*oiling characterized best as light Boulder shadow oiling  
and intermittent status/conts.*

**LAND MANAGER** ASDA Forest Service

NAME Don J. Bunting SIGNATURE Don J. Bunting

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

*Natural cleaning will probably have the least  
impact and will be most beneficial to the area.*

## SHORELINE OILING SUMMARY

REVISION NO. 04-13-90

OG C. DILLON USCG PS1 E. WHITE SEGMENT ST/ DI-60  
 BIO J. BARRY LAND REP D. BRIGHTENGER (NFS) SUBDIVISION A (1 OF 1)  
 EXXON G. STILES ADEC P. MONTESANO TIME 18:00 to 19:00  
 TEAM NO. 6 TIDE LEVEL +2.5 to +4 DATE 04/20/90  
 EST. SUBDIVISION LENGTH: 1011 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: S to N  
 SURFACE SEDIMENTS: R 65 % B 30 % C 4 % P 1 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Lang 5 % Hang 40 % Vert 55 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 0 m N 50 m VL 661 m NO 300 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   |   | IMPACTED ZONES |   |   |   |
|------------------|--------------|---|---|---|------------------|---|---|---|---|----------------|---|---|---|
|                  | N            | E | S | W | 1                | 2 | 3 | 4 | 5 | SU             | U | M | U |
| ASPHALT PAVEMENT |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| POOLED           |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| COVER            |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| COAT             |              | X | X | X |                  | X |   |   |   |                | X |   |   |
| STAIN            |              | X | X | X |                  |   | X |   |   |                | X |   |   |
| MOUSSE           |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| PATTIES          |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| TARBALLS         |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| FILM             |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| NO OIL           |              |   |   |   |                  |   |   |   |   | X              |   | X | X |

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

| OILED DEBRIS | AMOUNT |    |    |
|--------------|--------|----|----|
|              | SM     | MD | LG |
| Logs         |        |    |    |
| Vegetation   |        |    |    |
| Trash        |        |    |    |
| Debris       |        |    |    |

DID YOU COLLECT DEBRIS?

YES ☒ NO ☐TYPE un-oiled trash#BAGS 1

Photographs:

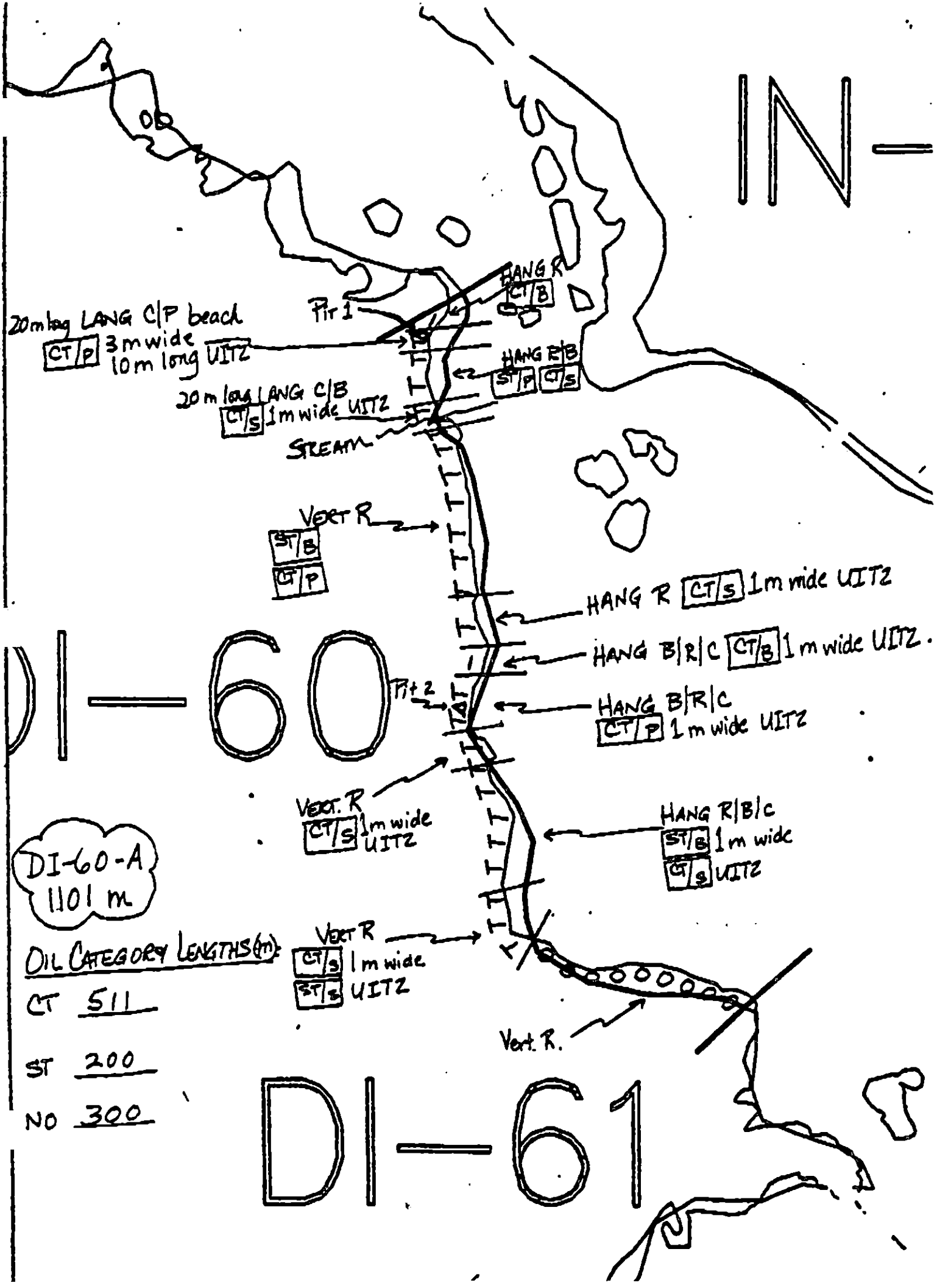
Roll No. NONEFrames —

## SUBSURFACE OIL \* Does not constitute subsurface oil

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |   |   | A N A | GREEN SHEEN (Y/N) | V  | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|---|---|---|---|----------|---|---|---|-------|-------------------|----|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                | UO    | UC | 1                | 2 | 3 | 4 | 5 | SU       | U | M | U |       |                   |    |                                |
| 1       | 7              |                          | X  |    |    |    | 0-2'           | X     |    |                  |   |   | X |   | X        |   |   |   |       | N                 | 2  | C/P - P/G                      |
| 2       | 20             |                          |    |    |    | X  | .              | X     |    |                  |   |   |   |   | X        |   |   |   |       | N                 | 10 | B/C/P - P/G/H                  |
|         |                |                          |    |    |    |    | .              |       |    |                  |   |   |   |   |          |   |   |   |       |                   |    |                                |
|         |                |                          |    |    |    |    | .              |       |    |                  |   |   |   |   |          |   |   |   |       |                   |    |                                |
|         |                |                          |    |    |    |    | .              |       |    |                  |   |   |   |   |          |   |   |   |       |                   |    |                                |
|         |                |                          |    |    |    |    | .              |       |    |                  |   |   |   |   |          |   |   |   |       |                   |    |                                |

COMMENTS SUBDIVISION WAS ALMOST ENTIRELY VERTICAL ROCK AND HANG  
 ROCK / BOULDER WITH VERY LIGHT STAIN AND COAT ALONG THE  
 HIGH TIDE LINE, UP TO 1m WIDE. NO SKETCH MAP INCLUDED.  
 THERE ARE 2 30 m LONG LANG C/B AND C/P BEACHES AT  
 THE NORTH END. THE SURFACE OILING IS A PATCHY COAT THAT  
 WIDENS UP TO 3m ON THE LAST BEACH. THE P/G UNDERLYING  
 SURFACE C/P ARE OILED TO 2 cm (Pit 1) REVIEWED 7W DATE 4/23/90

IN-



DI-60-A  
1101 m

OIL CATEGORY LENGTHS (m)

CT 511

ST 200

NO 300

DI-61

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 02/20/90

Segment ST/ DI 60 Subdivision A Date (mo/day/yr) 4/20/90

Time (24 hr) 1730-1800 Biologist Jim Barry Length 1011 m 1/7

(A) Substrate type and % of segments:  
(1) Bedrock 65 (2) Boulder 30 (3) Cobble Y (4) Pebble 1 (5) Sand 0 (6) Silt

(B) Overall % cover of biota (% of segment): Dense 50 Moderate 30 Low 20

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

Photographs:  
Roll No. ST-6-6

Frames NONE

## BARNACLES

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    | NOT PRESENT |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  |             |

## MYTILUS

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    | NOT PRESENT |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  |             |

## GASTROPODS

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    | NOT PRESENT |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  |             |

## FUCUS

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    | NOT PRESENT |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  |             |

## Wildlife Observations/ General Comments:

BIRD EAGLE - Y  
 GLAUCOUS-WINGED GULL  
 BARNOW'S GOLDEN EYE  
 COMMON LOON  
 SEA-OTTER - 2  
 DEER TRACK ON BEACH

## Ecological Considerations:

NONE

TIDAL WINDOW +2 → +5

## I General Comments.

### A. HABITAT TYPES.

- 1) Vertical Bedrock Cliffs. This habitat is similar to others in the vicinity with a low exposure. The upper zones have moderate barnacle cover, sparse mussel cover (adults), moderate to dense Fucus, and thick cover of thin bladelike red and filamentous green, and red and brown algae. Gastropods, mainly Littorina and limpets in the upper zone and including Whelks in the middle and lower zones, are generally moderate in abundance.

Sea stars are moderately dense in low zones.

- 2) Boulder & large cobble high angle beaches are very similar.
- 3) Cobble/pebble beaches have lower biotic densities overall, but often have denser cover of Mytilus on adjacent headlands. Cobble commonly have moderate to dense Littorina & populations amongst them.

★ → Algae cover is similar to vertical walls.  
 → end of page

- B. Oil-related comments. This section has little oiling. And is restricted to upper zones where its impact is most strongly affects barnacles, but to a minor extent.

⌘  
 No restrictions are recommended for cleanup, if any is performed, except for avoiding visitation on the mussel bed beach area at the end of the segment.

SPECIES LIST (cont)

DI 60 A

APRIL 20 1990

7/7

2 Echinoderms (cont)

2) Brittle Stars

*Ophiurus* spp? X

3) Sea Cucumbers

X *Cucumaria miniata*

3) Sea Urchins

X *Strongylocentrotus droebachiensis*

C. Marine Vertebrates

1) Fish: *Stichaeidae* V; *Xiphiaster* spp. 523 \* C.  
EOTTIDAE

IN-3'

DI-60

DI-61

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

DI-60

EXXON SEGMENT LENGTH: 1011m  
ADEC Segment Length: 964m



Map Key: PWS-92

Name: C. DILLON

Date: 4/20/90

Date Entered:

# SHORELINE EVALUATION

SEGMENT ST/ DI-61 SUBDIVISION A (1 OF 1) DATE 4/22/90

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

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

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

## OILING CATEGORIZATION:

Wide 0 m: Medium 10 m: Narrow 118 m: V. Light 77 m: No Oil 98 m  
Subsurface Oil Observed: Yes        No X Maximum Depth       

## RECOMMENDATIONS:

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

COMMENTS:         
        
        
      

TAG COMMENTS:         
        
        
      

TAG APPROVAL DATE: 5/4/90  
ADEC ART WERNER  
EXXON AMY TAYLOR  
NOAA GARY PETERSON  
USCG G.A. BEITER

FOSC: W L DATE: 5-9-90

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST DI-61-~~2~~ SUBDIVISION: A DATE 4/22/90

**USCG**

NAME William E. White SIGNATURE William E. White

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

NATURAL CLEANING OF BEACHES, ALSO  
WAVE ACTION SEEM TO BE THE BEST METHOD  
OF CLEANING.

**ADEC**

NAME Peter Montesano SIGNATURE Peter Montesano

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Pockets of minimal Penetration are in areas where bioremediation  
is inappropriate with the possible exception of pit 3. Present degree  
of oiling is relatively insignificant and immobile.

**LAND MANAGER** US DA - Forest Service

NAME Don J. Breitinger SIGNATURE Don J. Breitinger

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Natural wave action appears to be best  
method of clearing.

## SHORELINE OILING SUMMARY

REVISION NO. 00-1328

OG C. DILLON USCG PS1 E. WHITE SEGMENT ST/ DE-61  
 BIO J. BARRY LAND REP D. BRIGHTNER (NES) SUBDIVISION A (1 OF 1)  
 EXXON G. STILES ADEC P. MONTESANO TIME 16:00 to 15:50  
 TEAM NO. 6 TIDE LEVEL +4 to +2.5 DATE 04/21/90  
 EST. SUBDIVISION LENGTH: 364 m ☒ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: NW to SE  
 SURFACE SEDIMENTS: R 90 % B 5 % C 4 % P 1 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Lang 5 % Hang 30 % Vert 65 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 5 m N 100 m VL 189 m NO 70 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   |   | IMPACTED ZONES |   |    |   |
|------------------|--------------|---|---|---|------------------|---|---|---|---|----------------|---|----|---|
|                  | C            | B | P | S | 1                | 2 | 3 | 4 | 5 | SW             | U | NE | E |
| ASPHALT PAVEMENT |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| POOLED           |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| COVER            |              |   |   | X |                  |   |   | X |   |                | X |    |   |
| COAT             |              | X | X | X | X                |   |   |   |   |                | X |    |   |
| STAIN            |              |   | X | X |                  |   |   | X |   |                | X |    |   |
| MOUSSE           |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| PATTIES          |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| TARBALLS         |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| FILM             |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| NO OIL           |              |   |   |   |                  |   |   |   |   | X              |   | X  | X |

PAVEMENT H F S — sq. m by — cmPATTIES / TARBALLS — BAGSNEAR SHORE SHEEN? ☒ BR RW SL TL

| OILED DEBRIS | AMOUNT |    |    | DID YOU COLLECT DEBRIS?                                             |
|--------------|--------|----|----|---------------------------------------------------------------------|
|              | SM     | MD | LG |                                                                     |
| Logs         |        |    |    | YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> |
| Vegetation   |        |    |    |                                                                     |
| Trash        |        |    |    | TYPE <u>—</u>                                                       |
| Debris       |        |    |    | #BAGS <u>—</u>                                                      |

Photographs:

Roll No. NONEFrames —

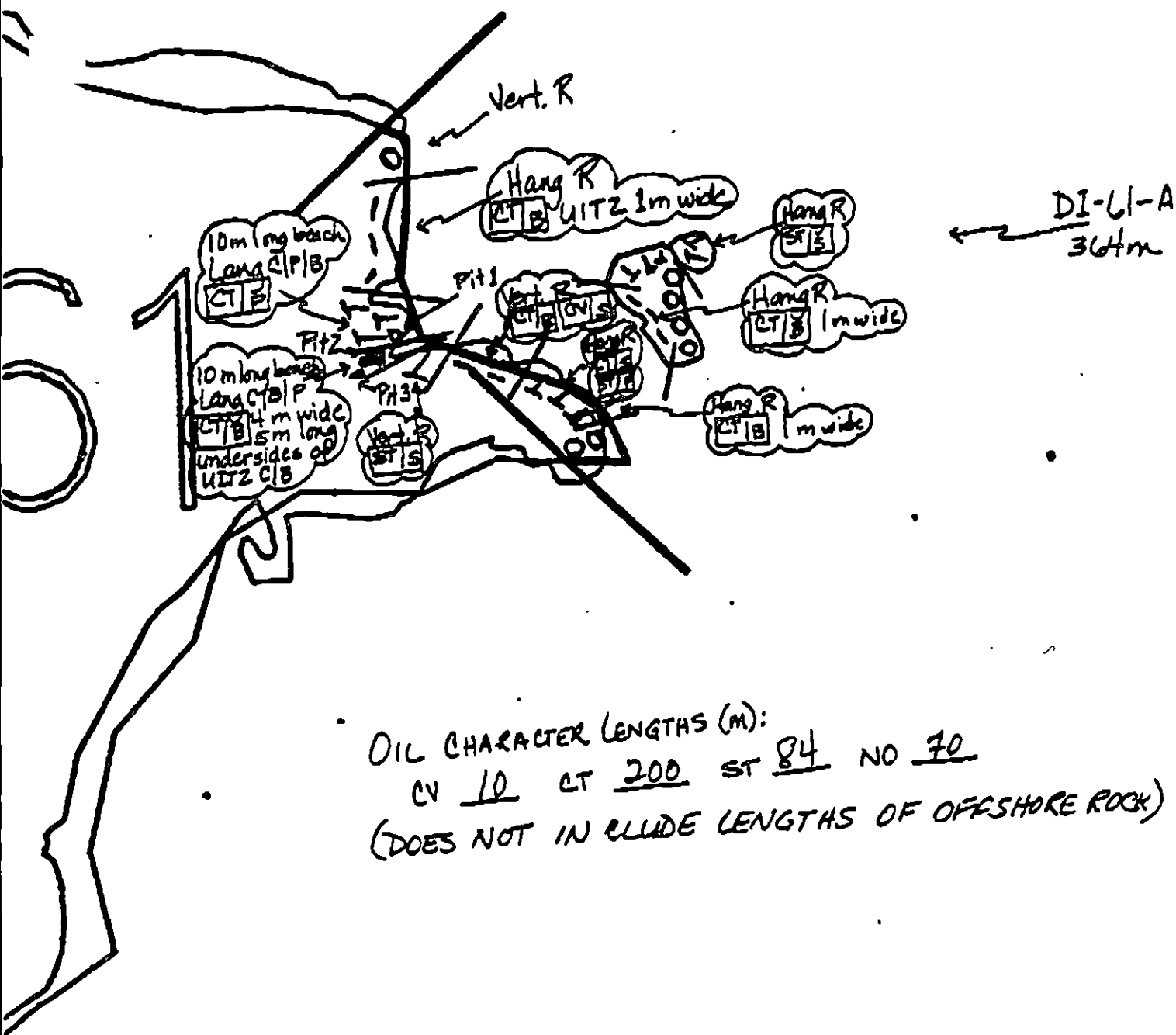
## SUBSURFACE OIL \* Does not constitute subsurface oil

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |    |   | A N A | SHEEN (Y/N) | ↓  | SURFACE-SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|---|---|---|---|----------|---|----|---|-------|-------------|----|------------------------------|
|         |                | OP                       | OR | OL | OP | NO |                | UO    | UC | 1                | 2 | 3 | 4 | 5 | SW       | U | NE | E |       |             |    |                              |
| 1       | 10             |                          | X  |    |    |    | 0-4            |       | X  |                  |   |   | X |   | X        |   |    |   | N     | —           | —  | R/G/M-M/R                    |
| 2       | 25             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |   |          |   | X  |   | N     | —           | —  | C/P/G-G/M                    |
| 3       | 15             |                          | X  |    |    |    | 0-3            |       | X  |                  |   |   | X |   | X        |   |    |   | N     | 10          | 10 | P/P-G/M                      |
|         |                |                          |    |    |    |    | .              |       |    |                  |   |   |   |   |          |   |    |   |       |             |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |   |   |   |   |          |   |    |   |       |             |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |   |   |   |   |          |   |    |   |       |             |    |                              |

COMMENTS SUBDIVISION IS ALL HANG AND VERT ROCK WITH 2 10 m LONG LANG C/B/P POCKET BEACHES. THE SOUTHERNMOST BEACH HAS A B/C/UITZ WITH AN AREA 4m WIDE BY 5m LONG WITH A BROKEN COAT ON THE UNDERSIDES OF THE B/C AND PENETRATION OF THE UNDERLYING P/G OF 3 CM.

PIT 1 WAS DUG THROUGH THE G/M ACCUMULATION IN THE CREVIC OF THE HANG ROCK FACE. THE OFFSHORE ROCK WAS NOT INCLUDED IN THE OIL CATEGORY AND OIL CHARACTER LENGTHS BECAUSE DOING SO WOULD CAUSE INACCURACIES IN THE MAIN SHORE LINE FIGURES. THE ROCK IS APPROX. 250 m LONG

REVIEWED YU DATE 4/23/90



OIL CHARACTER LENGTHS (M):  
 CV 10 CT 200 ST 84 NO 70  
 (DOES NOT INCLUDE LENGTHS OF OFFSHORE ROCK)

DI-69

## SHORELINE ECOLOGICAL SUMMARY

REVISION: 09/28/90

Segment ST / DI 61 Subdivision A Date (mo / day / yr) 4/21/90Time (24 hr) 1506 - 1600 Biologist JIM BARRY Length 3.64 m 1/7(A) Substrate type and % of segments:  
(1) Bedrock 90 (2) Boulder 5 (3) Cobble 4 (4) Pebble 1 (5) Sand     (6) Silt    (B) Overall % cover of biota (% of segment): Dense 60 Moderate 35 Low 5

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

Photographs:  
Roll No. 57-6-6Frames 7

## BARNACLES

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare |    |    |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|------|----|----|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | 3  |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | 4  |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | 5  |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | 6  |

NOT PRESENT

## MYTILUS

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare         |              |              |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|--------------|--------------|--------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |

NOT PRESENT

## GASTROPODS

| Dense |              |              | Moderate     |              |              | Sparse       |              |              | Rare         |              |              |
|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1U    | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |
| 2     | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |
| 3     | 3            | 3            | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |
| 4     | 4            | 4            | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |
| 5     | 5            | 5            | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |
| 6     | 6            | 6            | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |

NOT PRESENT

## FUCUS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare         |              |              |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |

NOT PRESENT

## Wildlife Observations/ General Comments:

BALD EAGLES - 2

DEER SIGN IN UPLAND

SEA OTTER - 2

SEA OTTER HAUL BUT SITE

GLAUCOUS-WINGED GULL - 3

Ecological Considerations: 6U - TENT SITES

One small meadow adjacent to a pocket beach is used as  
 and haul out site for sea otters and should not be disturbed  
 or visited for more than one or 2 days. (See map in OG section)

Time 1500-1600

Tide +4  $\rightarrow$  +2

## I General Comments

This is a short segment similar to DI 60, but with a slightly higher exposure, especially in the adjacent offshore island. Overall, biota are denser, due to the thick cover of filamentous and then blade-like algae, as well as a frequently dense cover of large acorn barnacles in the middle zone.

### A. HABITATS

- 1) Vertical Bedrock cliffs and boulder beaches. High macroalga cover in low zone. Sparse Mytilus overall, but occasional dense patches of adults. Barnacles generally moderate, with dense Semibalanus canopies in the middle zone.
- 2) Cobble/Pebble beaches - low biotic cover, with mussel barnacles on boulders. Adjacent headlands have higher Mytilus densities than remainder of segment. One of these headlands has many scat from sea otters, indicating ~~nearby~~ the site is used as a haul out site.
- 3) Offshore Island - ~100% Bedrock cliffs. This is highly exposed on one end (south), ~~then~~ The entire island has dense Semibalanus on the ~~both~~ steep cliffs along the middle zone. Pisaster, the sea star is abundant in this zone. Balanus and Clithamalus are found in the upper zone. Mytilus is sparse (mainly spat and juveniles) or rare for most of the island. Fucus is sparse to moderate.

## General Comments (cont)

## B. Oil Related Comments.

- 1) Any cleanup operations ~~in~~ <sup>in</sup> the segment should be cautious of disturbing others at the hand out site indicated on the OB map. Visits should be restricted to one or 2 days.

## II Recruitment &amp; Mortality

## 1) Barnacles

Oiled areas - mainly a thin coat in the upper zone  
~ 30% dead (0-95%)  
Un-oiled areas  
~ ~~the same~~ 20% dead (0-80%)

Nucella is moderate to dense in the <sup>low-mid</sup> zone, and these predators appear to severely impact low to mid zone barnacle populations in some areas.

## 2) Mytilus -

Spots & small juveniles (~5mm) are sparse, but ~~are~~ generally much more abundant and widespread than adults.

Mortality is difficult to discern. The few patches of adults have very few dead individuals ~~but may be~~

## 3) Gastropods -

Nucella and Littorina are presently depositing 255 cases in the lower to middle intertidal zones.

- 4) Fucus - Recruitment active throughout the intertidal: Mortality rarely detected.

DI61-A

April 20 1990

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> Recruitment and Mortality, (cont)

5) Other species:

Clusters, hermit crabs, ~~some~~ <sup>many</sup> beetles, ~~and~~ and a few other groups are found as young juveniles in many locations

IV Species List

## A. MARINE PLANTS

1) DIATOMS / BLUE GREEN ALGAE M-D 123

2) GREEN ALGAE - CHLOROPHYTES

ACROSIPHONIA MD 123 C

CLADOPHORA S 12 AB

ENTEROMORPHA M 123 BC

GREEN CRUST. S 12 A

ULVA M 123 BC

UROSPORA MD 123 BC

3) RED ALGAE - RHODOPHYTES

BOSSIELLA R 12 BC

★ SPAT OR JUVENILES  
PRESENT

D DENSE

M MODERATE

S SPARSE

R RARE

1 BEDROCK

2 BOUNDER

3 COBBLE

4 PEBBLE

U. SUBTIAL



## B MARINE INVERTEBRATES

DI 61A

APRIL 21 1990

3/6

## 1) ANEMONES

~~Edwardsia~~?

URTICINA CRASSICORNIS R12 C

Anthopleura elegantissima R12 C\*

A. artemesia S12 C\*

~~A. xanthogrammica~~

## 2) Annelid Worms

Polychaetes

Nereidae X

Nephtyidae X

Serpulidae

Serpula ~~sp.~~ S12 C

Crucifera X

Spirorbidae

Spirorbis M123\* C

## 3) Peanut Worms - Sipunculid

Phascolosoma thersites X

## MOLLUSCS

## a) CHITONS

CATHARINA TUCATA S12 BC

TORRELLA LINATA S12 BC

MORRISIA spp. X

## b) Snails - Gastropods

LITTORINA SCUTULATA M123 ABC\*

L. SITKANA

NUCULLA LAMELLOSA M123 ABC\*

M12 BC

N. EMARGINATA M12 BC

SCARLETTA DINA S23 BC

AMPHISSA COLUMBANA R23 BC

TACHYRHYNCHUS spp. R3 B

## c) Nudibranchs

LAMELLIDORIS FUSCA S1\*

## d) Limpets

LOTTIA DIGITALIS M1 A\*

ACMAEA MITRA R1 C

LOTTIA PUSILLA S12 AB\*

## d) Limpets (cont)

TECTURA SCUTUM S23 BC

T. PUSILLA S123 OSC

BIPHONARCA THERIDES S12 AB\*

DIADORA ASPERA X

## e) Mussels -

MYTILUS EDULIS SM123AB\*

## f) Clams

Single - PISOSTOMUS SEPPIO S12 C

HIALELLA spp. R23\* BC

PROTHESIA STAMINEA ? X

~~MACOMA~~ spp. ?

## g) Crustaceans

## 1) BARNACLES

SEMIBALANUS CARIOSUS M12\* B

BALANUS GLANDULA M12 AB\*

CITHAMALUS DALLI M12 AB\*

## 2) Crabs

HAPLOGASTER spp. X

HEMIGRAPSUS OREGONENSIS S23\*

PUGETTIA spp. X

HERMIT CRABS - PAGURIDAE M123\* BC

## 3) Beach Hopper

ISOPODA X

AMPHIPODA M123\* BC

ORCHESTRA?

## h) Bryozoans

SCHIZOPORELLA spp. S123\* B

## i. Echinoderms

1) Sea Stars

S23\* CUPPENOPODA HELICANTHOIDES

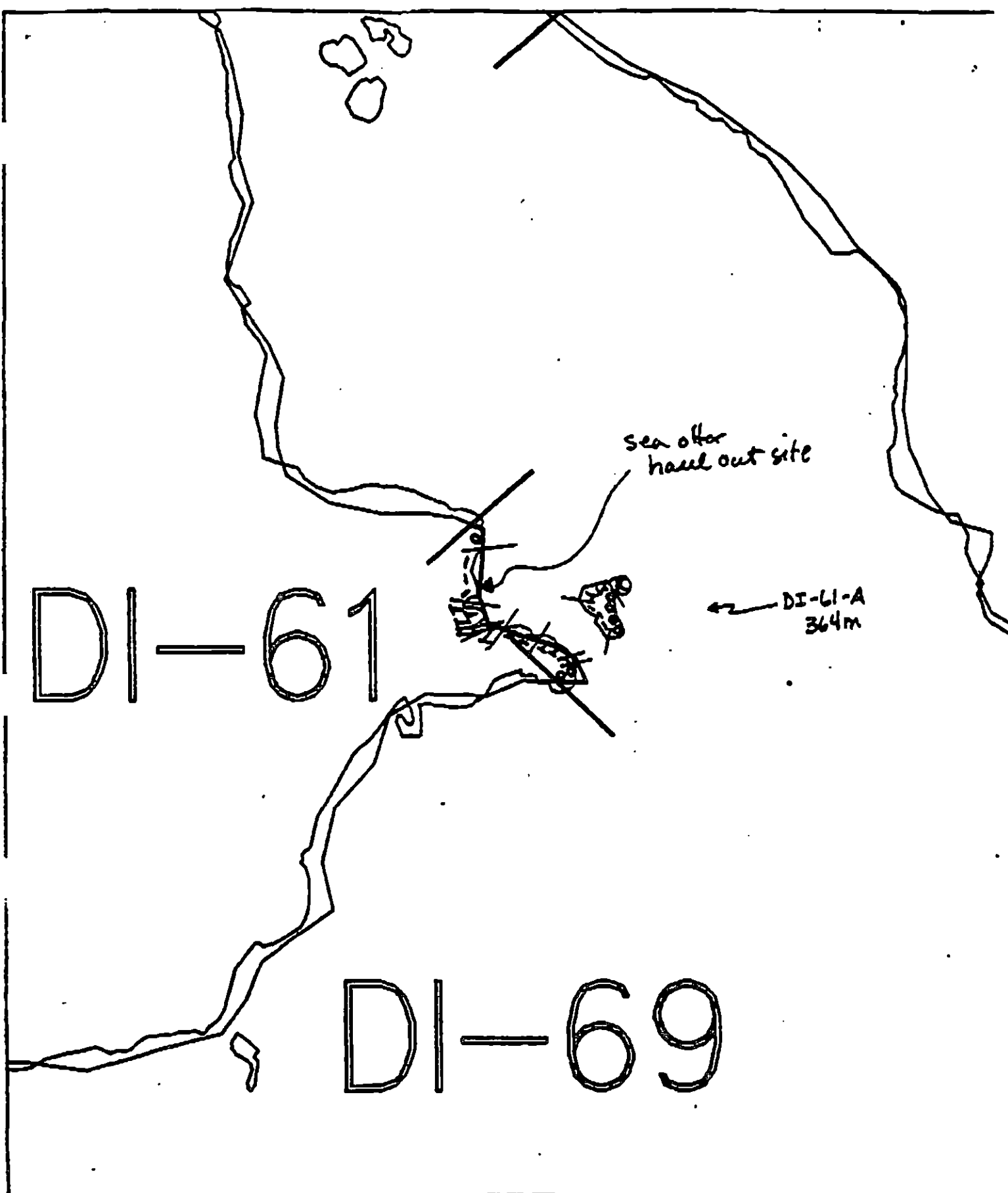
S23\* CUDERMATARIAS IMBRIATA

S23\* C LEPIDASTEREAS LEWISII

S12 C EVERTERAS TRUSCHELI

ORTHOPTERUS LOTTURUS

S12 C PISOSTERUS OCHRAEUS.



XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

OOOO No Oil

DI-61-A

EXXON SEGMENT LENGTH: 364m  
ADEG Segment Length: 302m

0 100 200 300  
METERS



Map Key: PWS-93

Name: C. DILLON

Date: 4/21/90

Date Entered:

# SHORELINE EVALUATION

SEGMENT ST/ DI-62 SUBDIVISION A (1 OF 2) DATE 4/19/90

## SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

6V Recreation: Anchorages (6/1 to 9/15)

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.

SHPO SIGNATURE: J. Daniel McMahon

DATE: 5/1/90

## OILING CATEGORIZATION:

Wide 21 m: Medium 0 m: Narrow 218 m: V.Light 0 m: No Oil 224 m  
Subsurface Oil Observed: Yes X No      Maximum Depth 28 cm

## RECOMMENDATIONS:

     No Treatment Recommended

X Treatment Recommended

X Manual Pickup

X Bioremediation

     Tarmat Removal

     Snare/Absorbent Booms

     Oil Snares (pom poms)

     Absorbents (pads, rolls, etc)

     Spot Washing:      Wands

     Beach Cleaner

     Other (see comments)

COMMENTS: ~~Recommended treatment includes manual removal of pebbles and cobble with oiled cover and mousse in area indicated on attached sketch map. Work should be conducted after 5/1.~~

TAG COMMENTS: MANUAL PICK UP OF MOUSSE / AVAILABLE OIL FOLLOWED BY BIOREMEDIATION

TAG APPROVAL DATE: 4/28/90

ADEC ART WENNA

EXXON ANDY TAYLOR

NOAA GARY PETRO

USCG KENNETH KEANE

FOSC: W L

DATE: 5-9-90

## FIELD SHORELINE COMMENT SHEET

SEGMENT ST DI-62 SUBDIVISION: A DATE 19 April 90

USCG

NAME AEC Vandepels SIGNATURE AEC Vandepels☐ NO TREATMENT RECOMMENDED  
COMMENTS☒ TREATMENT SUGGESTED

I suggest manual treatment for 5x15m band of pool/asphalt in center of sub. A.

ADEC

NAME Michelle Baer SIGNATURE M Baer☐ NO TREATMENT RECOMMENDED  
COMMENTS☒ TREATMENT SUGGESTED

- 1) On 1st NE B beach, remove area underneath B's down to clean substrate, replace w/ lg. B's.
- 2) On Northern most B, C, P beach (Pit #1), manually till & bio. approximately 3 M x 3M area containing OR to -15 cm.
- 3) On NW beach (pit #6), rake and bio. 40 M long band of buried OR. Appears a layer exists at 25-28 cm and dissipates at the sides of the beach. The buried area is approximately 1 M wide.

LAND MANAGER

NAME Carol S Huber SIGNATURE Carol S Huber☐ NO TREATMENT RECOMMENDED  
COMMENTS☒ TREATMENT SUGGESTED

Resource sensitivities include anchorages and special use designation. Note - one small beach about 200 m<sup>W</sup> from E. boundary is an active avalanche shoot - Not an anchorage. Oil (Rainier) leaching into LITZ? Eagles sighted. Distinct oil band (5x) on vertical headlands. Right of I observed on rocky headland and beach. Beaches mostly 15 ft wide.

## SHORELINE OILING SUMMARY

08-03-0000 NO. 01

OG J. Springer USCG R. Vandepels SEGMENT ST/ DI-62  
 BIO P. Crank LAND REP C. Huber SUBDIVISION A (1 OF 2)  
 EXXON T. Temblin ADEC M. Baer TIME 16:10:18:10  
 TEAM NO. 5 TIDE LEVEL +2 to +4 DATE 04/19/90  
 EST. SUBDIVISION LENGTH: 546 m ☐ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: \_\_\_\_\_ to \_\_\_\_\_  
 SURFACE SEDIMENTS: R 40 % B 30 % C 20 % P 10 % G 0 % S 0 % M 0 % V 0  
 SLOPE: Long 25 % Hang 35 % Vert 40 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 18 m M 0 m N 180 m VL 0 m NO 398 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   | IMPACTED ZONES |   |   |   |
|------------------|--------------|---|---|---|------------------|---|---|---|----------------|---|---|---|
|                  | C            | S | P | N | 1                | 2 | 3 | 4 | SU             | M | N | U |
| ASPHALT PAVEMENT |              |   |   |   |                  |   |   |   |                |   |   |   |
| POOLED           |              |   |   |   |                  |   |   |   |                |   |   |   |
| COVER            |              | X |   |   |                  |   |   | X |                |   | X |   |
| COAT             |              | X |   |   |                  | X |   |   |                |   | X |   |
| STAIN            |              |   |   |   |                  |   |   |   |                |   |   |   |
| MOUSSE           |              | X |   |   |                  |   |   | X |                |   | X |   |
| PATTIES          |              |   |   |   |                  |   |   |   |                |   |   |   |
| TARBALLS         |              |   |   |   |                  |   |   |   |                |   |   |   |
| FILM             |              |   |   |   |                  |   |   |   |                |   |   |   |
| NO OIL           |              |   |   |   |                  |   |   |   | X              | X | X |   |

PAVEMENT H F S 0 sq. m by 0PATTIES / TARBALLS 0 BAGNEAR SHORE SHEEN? (NO) BR RW SL TL

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

DID YOU COLLECT DEBRIS?

YES ☒ NO ☐TYPE floats, f#BAGS 1

Photographs:

Roll No. ST-5-6Frames 8-14

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |   |   |   | PIT ZONE |   |   |   | A N A | SHEEN (N/A) | V  | SURFACE SUBSURFACE SEDIMENT |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|---|---|---|----------|---|---|---|-------|-------------|----|-----------------------------|
|         |                | OP                       | OR | OL | OF | NO |                | SO    | SC | 1                | 2 | 3 | 4 | SU       | M | N | U |       |             |    |                             |
| 1       | 30             |                          | X  |    |    |    | 10-15          |       | X  |                  |   |   | X |          | X |   |   |       | BR          | 20 | P/PG                        |
| 2       | 30             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |          | X |   |   |       | N           | 10 | P/P                         |
| 3       | 30             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |          | X |   |   |       | N           | 10 | P/PG                        |
| 4       | 30             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |          | X |   |   |       | N           | 10 | C/PG                        |
| 5       | 20             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |          | X |   |   |       | N           | 10 | C/CPG                       |
| 6       | 40             |                          | X  |    |    |    | 25-28          |       | X  |                  |   |   | X |          | X |   |   |       |             |    | CP/CPG                      |

COMMENTS Very serious oil on boulder beach at base of old avalanche shoot (see map). If boulders are moved during remediation, care must be taken to avoid re-activating the landslide. Boulders must not be permanently removed.

REVIEWED 70 DATE 4/21/90

SUBSURFACE OIL (CONTINUED)

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |              |              |              |               |               | PIT ZONE |   |    |   | A<br>N<br>A | SCREEN (Y/N) | ↓  | SURFACE SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|--------------|--------------|--------------|---------------|---------------|----------|---|----|---|-------------|--------------|----|------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                | NO    | UC | <del>W</del>     | <del>B</del> | <del>S</del> | <del>Y</del> | <del>GR</del> | <del>BL</del> | SU       | U | BU | U |             |              |    |                              |
| 7       | 30             |                          |    |    |    | X  | .              |       | X  |                  |              |              |              |               |               |          |   | X  |   |             | N            | 10 | BP/PGM                       |
| 8       | 30             |                          |    |    |    | X  | .              |       | X  |                  |              |              |              |               |               |          | X |    |   |             | N            | 20 | CP/CPG                       |
| 9       | 40             |                          |    |    |    | X  | .              |       | X  |                  |              |              |              |               |               | X        |   |    |   |             |              |    | BC/CPGS                      |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |               |               |          |   |    |   |             |              |    |                              |

COMMENTS

Aerial extent of subsurface oil around pit no. 1 is probably not more than 3m X 3m. Ditto for pit no. 6.

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REVIEWED 7W DATE 4/24/90

00 J. Springer

SEGMENT DI-62SUBDIVISION ADATE 04/19/90

## SKETCH MAP

## CHECKLIST

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

## LEGEND

▲  
PH - No Subsurface Oil

▲  
PH - Subsurface Oil

CT/C  
Continuous Distribution

CT/B  
Belted Distribution

CT/P  
Patched Distribution

CT/S  
Splotched Distribution

lll  
Oil Vegetation

▲  
Photo location, direction,  
and number

~~MANUALLY REMOVE PEBBLE &  
COBBLE WITH OILED COVER &  
MOUSSE~~

MANUAL PICKUP  
OF MOUSSE/AVAILABLE ON  
FOLLOWED BY BRO.

Beach

Surface runoff goes  
under beach deposits

10m X 1m  
CT/B/DBL

0 100m  
Approx.

old Ave beach  
← shoot

Stran  
Runoff

7m X 18m  
CV/B/DBR  
with MS to  
5cm thick under  
boulders

2m X 80m  
CT/B/DBL

Boulder,  
cobble,  
pebble  
bench

Boulder  
bench

Rock  
face

Rock  
face

1 1/2 m X 80m  
CT/B/DBL

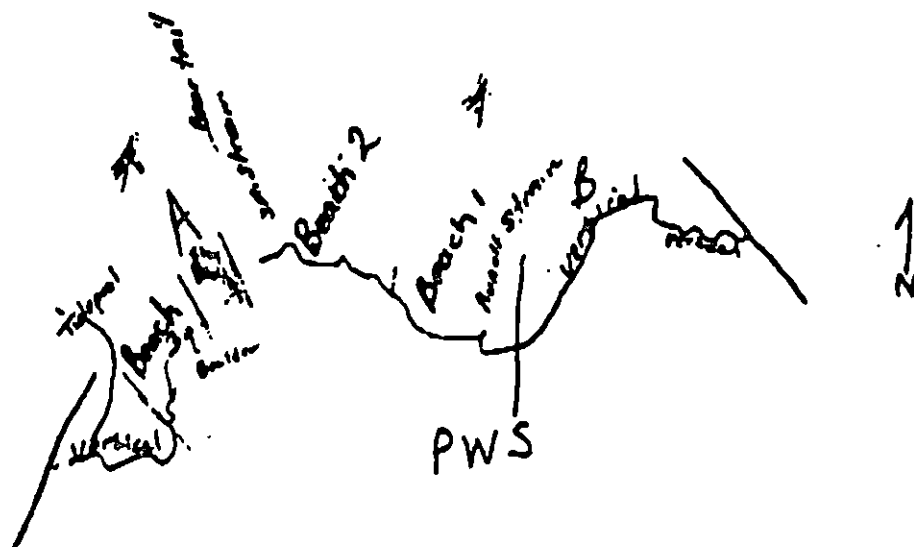
Oil Character Length (m): AP \_\_\_\_\_ PO \_\_\_\_\_ CV 18 CT 190 ST \_\_\_\_\_ MS \_\_\_\_\_ FT \_\_\_\_\_ TB \_\_\_\_\_ FL \_\_\_\_\_ NO 348

Segment: ST/D162 A Length: 546m Biologist: Crank Pg. 2 of 2

Time: 1610-1805

Tide Height: +2 → +4 ft

Date: 4/19/90



### Comments

- Most of LITZ unexposed throughout survey.
- Dense and continuous barnacle recruitment on beach 2.

### Beach 1:

- Dense patches of Dermasterias imbricata obs under H<sub>2</sub>O line on vert. faces.
- Cobble/Boulder pocket beach-Angular
- In MITZ the surface of the stones were covered with filamentous green algae and a rare distribution of barnacles and 90% mortality. The undersides, however, have a moderate concentration of adult, new growth and barnacle spat - 20% mortality.
- There is a small stream (probably runoff-related).

### Beach 3:

- Boulder/Cobble in LITZ to mid-MITZ; upper MITZ and UITZ were <sup>rounded</sup> Pebble/Cobble
- Drift beach - tremendous amount of logs in SUPRA and drift Fucus at H<sub>2</sub>O edge.
- There was a continuous mod → dense filamentous green algae cover on the boulder/cobble patchy and sparse on the pebble/cobble
- Small upland stream that ran under intertidal stones, Bear trail paralleling Stream and several deer trails. Skunk cabbage had been eaten to the roots.
- 80% Barnacle mortality on substrate covered w/ fil greens.
- Boulder located at +2 ft has a rare concentration of mussels. They are covered with filamentous green algae with less than 5% mortality.

# SHORELINE ECOLOGICAL SUMMARY

pg 1 of 3

REVISION: 12/22/90

Segment ST D 62 Subdivision A Date (mo / day / yr) 4 / 19 / 90  
 Time (24 hr) 1610 - 1805 Biologist Crank Length 546 m  
 Tide Height +2 → +4 ft

- (A) Substrate type and % of segments:  
 (1) Bedrock 40 (2) Boulder 30 (3) Cobble 20 (4) Pebble 10 (5) Sand      (6) Silt
- (B) Overall % cover of biota (% of segment): Dense 5 Moderate 20 Low 75
- (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-5-6  
 Frames 8, 14

## BARNACLES

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

NOT PRESENT

## MYTILUS

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

NOT PRESENT

## GASTROPODS

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

NOT PRESENT

## FUCUS

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

NOT PRESENT

## Wildlife Observations/ General Comments:

- 1- Stellar Jay  
 3 Others  
 1- Raven  
 4- Eagles - Adults, one was missing 50 (or 60) primary  
 1- Gull  
 Note: Obs. include skiff time back to Lewis Bay.  
 - Deer scat - One bear trail, several deer trails

## Ecological Considerations:

- 6Y - Anchorage  
 6Y - Special Use Destination

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DATE 4/19/90 TIME 1610-1805 TIDE HEIGHT +2 → +4 ft.

1-BEDROCK

2-BOULDER

3-COBBLE

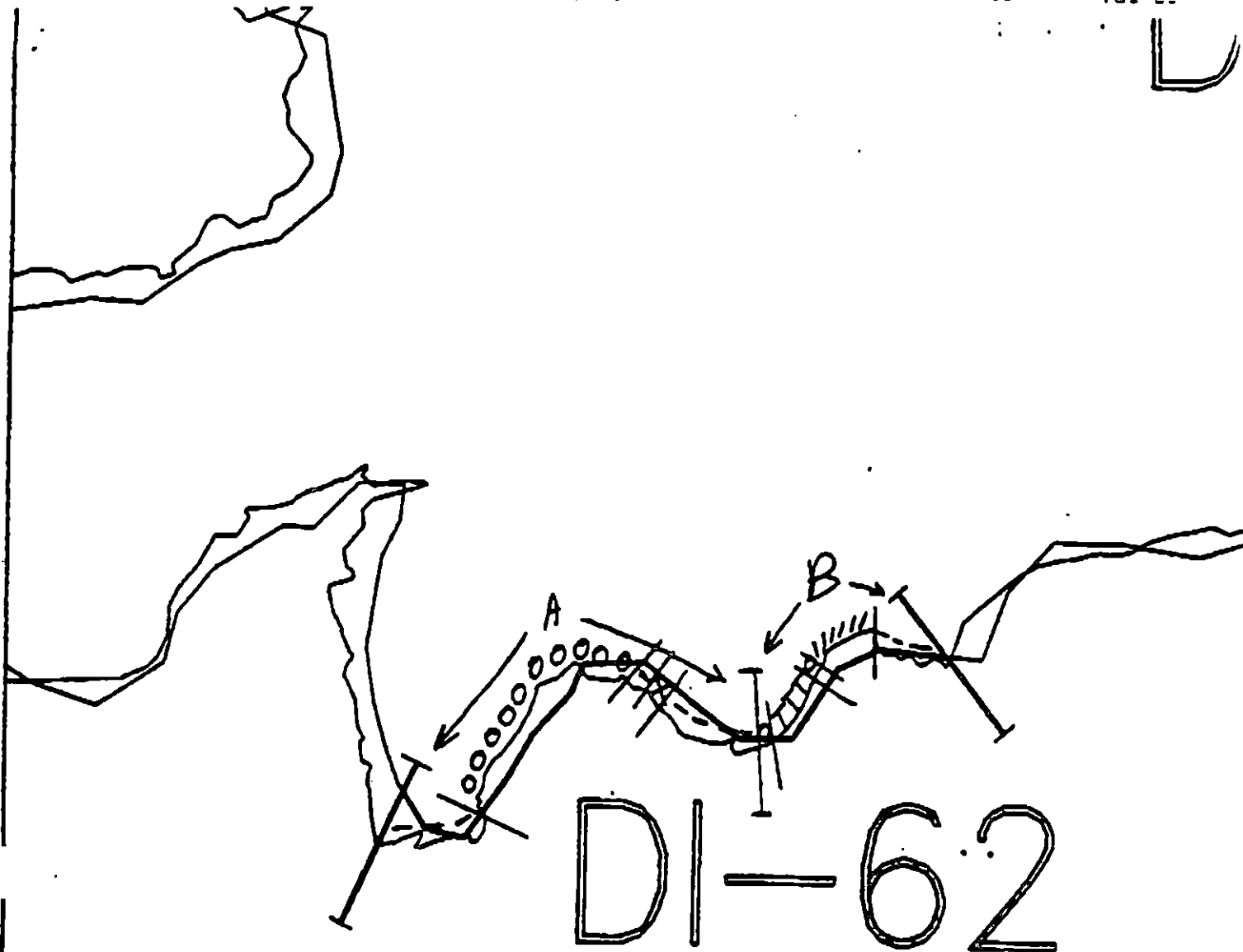
5-SAND

6-SILT

Pg 2 of 3

| SPECIES                          | UTZ | MITZ | LITZ | COMMENTS      |
|----------------------------------|-----|------|------|---------------|
| BOSSIELLA/CORALLINA              |     |      | 1    | Tide pool     |
| CALLIARTHRON/CORALLINA           |     |      | 1    | Tide pool     |
| CLADOPHORA SPP                   |     |      |      |               |
| COSTARIA SPP                     |     |      |      |               |
| ENDOCLADIA MURICATA              |     |      |      |               |
| FILAMENTOUS GREENS               |     |      |      |               |
| FILAMENTOUS REDS                 |     |      |      |               |
| GLOIOPELTIS PURGATA              |     |      |      |               |
| HALOSACCION GLANDIFORME          |     | 12   |      |               |
| LAMINARIA SPP                    |     |      |      |               |
| LITHOTHAMNION                    |     |      |      |               |
| NEREOCYSTIS SPP                  |     |      |      |               |
| PORPHYRA SPP                     |     | 12   |      |               |
| RALPHSIA/HILDENBRANDIA           |     |      |      |               |
| PHODOMELA LARIX                  |     |      |      |               |
| RHOZOMENIA PALMATA               |     |      |      |               |
| SCYTOSIPHON SPP                  |     | 12   |      |               |
| ULVA SPP                         |     |      | 23   |               |
| ZOSTERA MARINA                   |     |      |      |               |
| ENTEROMORPHA                     |     |      | 23   | Dense patch   |
| <i>Odenthalia</i> sp             |     | 1    |      |               |
|                                  |     |      |      |               |
|                                  |     |      |      |               |
|                                  |     |      |      |               |
| FAUNA: ANTHOPLEURA SPP           |     |      |      |               |
| (SEMI) BALANUS CARIOSUS          |     | 12   | 12   |               |
| B. GLANDULA                      | 123 | 123  | 123  |               |
| BRYOZOANS                        |     |      |      |               |
| CHITONS (other than K. TUNICATA) |     |      |      |               |
| CLAMS                            |     |      |      |               |
| CRABS                            |     |      |      |               |
| DERMASTERIAS IMBRICATA           |     |      | 1    | Dense patches |
| KATHARINA TUNICATA               |     |      |      |               |
| LEPTASTERIAS HEXACTIS            |     |      |      |               |
| LIMPETS                          | 123 |      |      |               |
| LITTORINA SPP                    | 123 |      |      |               |
| NUCELLA SPP                      |     | 1    |      |               |
| PAGURUS SPP                      |     | 34   | 34   |               |
| PISASTER OCHRACEUS               |     |      |      |               |
| POLYCHASTES                      |     |      |      |               |
| PYCNOPODIA HELIANTHOIDES         |     |      |      |               |
| SEARLESIA DIRA                   |     |      |      |               |
| SERPULIDS                        |     |      |      |               |
| SIPHONARIA THERSITES             | 1   |      |      |               |
| TRALIA                           |     |      |      |               |
|                                  |     |      |      |               |
|                                  |     |      |      |               |

13



KN-107

XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

DI-62

826

ADEC Segment Length: ~~670m~~



Map Key: PWS-94

Name: James Springs

Date: 4/19/90

Date Entered:

## ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT DI-62 SUBDIVISION A ( 1 of 2 )

| WORK WINDOW    |        |
|----------------|--------|
| Manual Pickup  | CLOSED |
| Bioremediation | CLOSED |

### ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

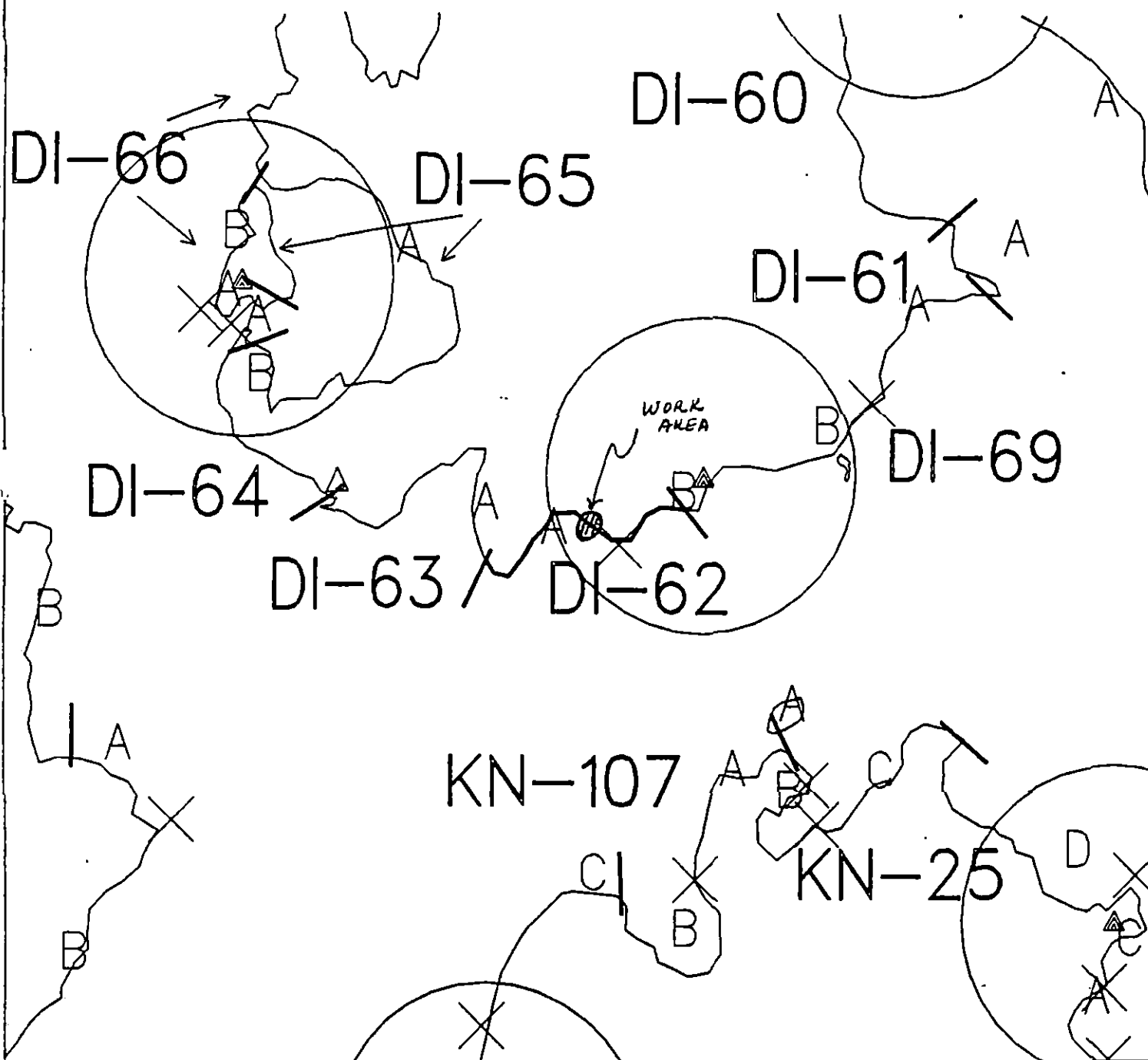
5T Bald Eagle Nest

USFWS 6/1/90 map indicates an active nest in Subdivision A. Closed to manual pickup and bioremediation within 400m of active nest.

### OTHER ECOLOGICAL CONSIDERATIONS

If eagle nest constraint is removed, other ecological considerations will apply.

FOSC W L Date 6-10-90  
Prepared by P Phillips <sup>6-10-90</sup> AKM Date 6/10/90



Exxon Company, USA

Map Key: PWS-DI-62

June 04, 1990



ECOLOGY MAP  
SEGMENT DI-62  
SUBDIVISION A (L of 2)  
METERS



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

~~1 inch = 1000 feet~~

## SHORELINE EVALUATION

SEGMENT ST/ DI-62 SUBDIVISION B (2 OF 2) DATE 4/19/90

**SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:**

## 6V Recreation: Anchorages (6/1 to 9/15)

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.**

SHPO SIGNATURE: A. David M. Makin DATE: 5/1/90

**OILING CATEGORIZATION:**

Wide 0 m: Medium 43 m: Narrow 65 m: V.Light 76 m: No Oil 27 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: 4/28/00.  
ADEC Art Weaner Art Weaner  
EXXON Andy Tom Andy Tom  
NOAA Gary Petrac Gary Petrac  
USCG Kenneth Keane Kenneth Keane

FOSC: WGL DATE: 5-8-80

# 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)<br>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)<br>For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.                                                                                                                                                                                                                     |
| 2M               | Herring spawning (4/1 to 6/15)<br>Restrict boat traffic to essential minimum. Avoid damage to uncoiled intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.                                                                                                                                       |
| 3N, 3P<br>3O, 3Q | Harbor seal and sea lion pupping (5/15 to 7/1)<br>Harbor seal and sea lion molting (8/15 to 9/15)<br>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)<br>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)<br>Restrict all activity to essential minimum, especially air traffic.                                                                                                                                                                                                                   |
| 5T               | All Bald Eagle nests (3/1 to 6/1)<br>Active Bald Eagle nests (3/1 to 9/1)<br>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 (8/1 to 9/15)                                                                                                                                                                                                                                                                                                     |
| 6V               | Anchorage (8/1 to 9/15)                                                                                                                                                                                                                                                                                                                  |
| 6W               | Forest Service cabins (8/1 to 9/15)                                                                                                                                                                                                                                                                                                      |
| 6X               | Lodge (8/1 to 9/15)                                                                                                                                                                                                                                                                                                                      |
| 6Y               | Special use destination                                                                                                                                                                                                                                                                                                                  |
| 7Z               | Subsistence area: Salmon harvesting (5/1 to 9/30)                                                                                                                                                                                                                                                                                        |
| 7HH              | Finfish harvesting                                                                                                                                                                                                                                                                                                                       |
| 7I               | Deer harvesting (8/15 to 2/28)                                                                                                                                                                                                                                                                                                           |
| 7JJ              | Invertebrate harvesting<br>For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.                                                                                                                                                                                                |

## FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ DI-62 SUBDIVISION: B DATE 19 April 196

SCG

NAME

AEC Vandepels SIGNATURE AEC Vandepels☒ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

*I recommend no treatment for DI-62 Sub B.*

ADEC

NAME

Michelle Baer SIGNATURE M Baer☒ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

*CT is patchy on tops of B's and does not penetrate the surface layer. Also, this appears to be a high-use area for otters, due to the large amount of otter scat found.*

LAND MANAGER

NAME

Carol S Huber SIGNATURE Carol S Huber☐ NO TREATMENT RECOMMENDED☐ TREATMENT SUGGESTED

COMMENTS

*Recommend continued natural cleansing. Resource sensitivities include anchorage and special use destination. Observed otter scat. Small scenic waterfall. Well defined or band (DBK) visible on vertical headlands.*

21

REVISION NO. 03/2/88

# SHORELINE OILING SUMMARY

OG J. Springer USCG R. Vandepels SEGMENT ST/ DI-62  
 BIO P. Crank LAND REP C. Huber SUBDIVISION B (2 OF 2)  
 AXON T. Tamplin ADEC M. Boer TIME 15:30 to 16:10  
 TEAM NO. 5 TIDE LEVEL +2 to +2 DATE 04/19/90  
 EST. SUBDIVISION LENGTH: 280 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: E to W  
 SURFACE SEDIMENTS: R 25 % B 55 % C 15 % P 5 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Long 30 % Hang 40 % Ven 30 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 40 m N 100 m VL 80 m NO 160 m

## SURFACE OIL

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

PAVEMENT H F S 0 sq. m by 0 cm

PATTIES / TARBALLS 0 BAGS

NEAR SHORE SHEEN? (NO) BR RW SL TL

| OILED DEBRIS | AMOUNT |    |    | DID YOU COLLECT DEBRIS?                                             |
|--------------|--------|----|----|---------------------------------------------------------------------|
|              | SM     | MD | LG |                                                                     |
| Logs         |        |    |    | YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> |
| Vegetation   |        |    |    |                                                                     |
| Trash        |        |    |    | TYPE <u>0</u>                                                       |
| Debris       |        |    |    | #BAGS <u>0</u>                                                      |

Photographs:

Roll No. 57-5-6

Frames 6, 7

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |   |   | A N A | SHEEN (Y/N) | ↓ | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|---|---|---|---|----------|---|---|---|-------|-------------|---|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                | VO    | VC | 1                | 2 | 3 | 4 | 5 | SU       | U | M | U |       |             |   |                                |
|         |                |                          |    |    |    |    |                |       |    |                  |   |   |   |   |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    |                |       |    |                  |   |   |   |   |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    |                |       |    |                  |   |   |   |   |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    |                |       |    |                  |   |   |   |   |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    |                |       |    |                  |   |   |   |   |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    |                |       |    |                  |   |   |   |   |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    |                |       |    |                  |   |   |   |   |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    |                |       |    |                  |   |   |   |   |          |   |   |   |       |             |   |                                |

COMMENTS No pits - Boulders too big.

1b

REVIEWED 7W DATE 4/21/90

Dr. J. Springer  
 SEGMENT ST/ DL-62  
 SUBDIVISION B  
 DATE 04/19/90

**CHECKLIST**  
☒ Area  
☒ Approx. Scale  
☒ Map/Plot Grid  
☒ Oil Out  
☒ Width  
☒ Length  
☒ Cover  
☒ Substrate Character  
☒ VEG. H/L/W/L  
☒ SSI  
☐ Profile Location(s)  
☐ Profile(s)  
☐ P/L Location(s)  
☐ Photo Location(s)

**LEGEND**  
 1 Δ  
 P/L - No Substrate Oil

2 Δ  
 P/L - Substrate Oil

CT/C  
 Continuous Distribution

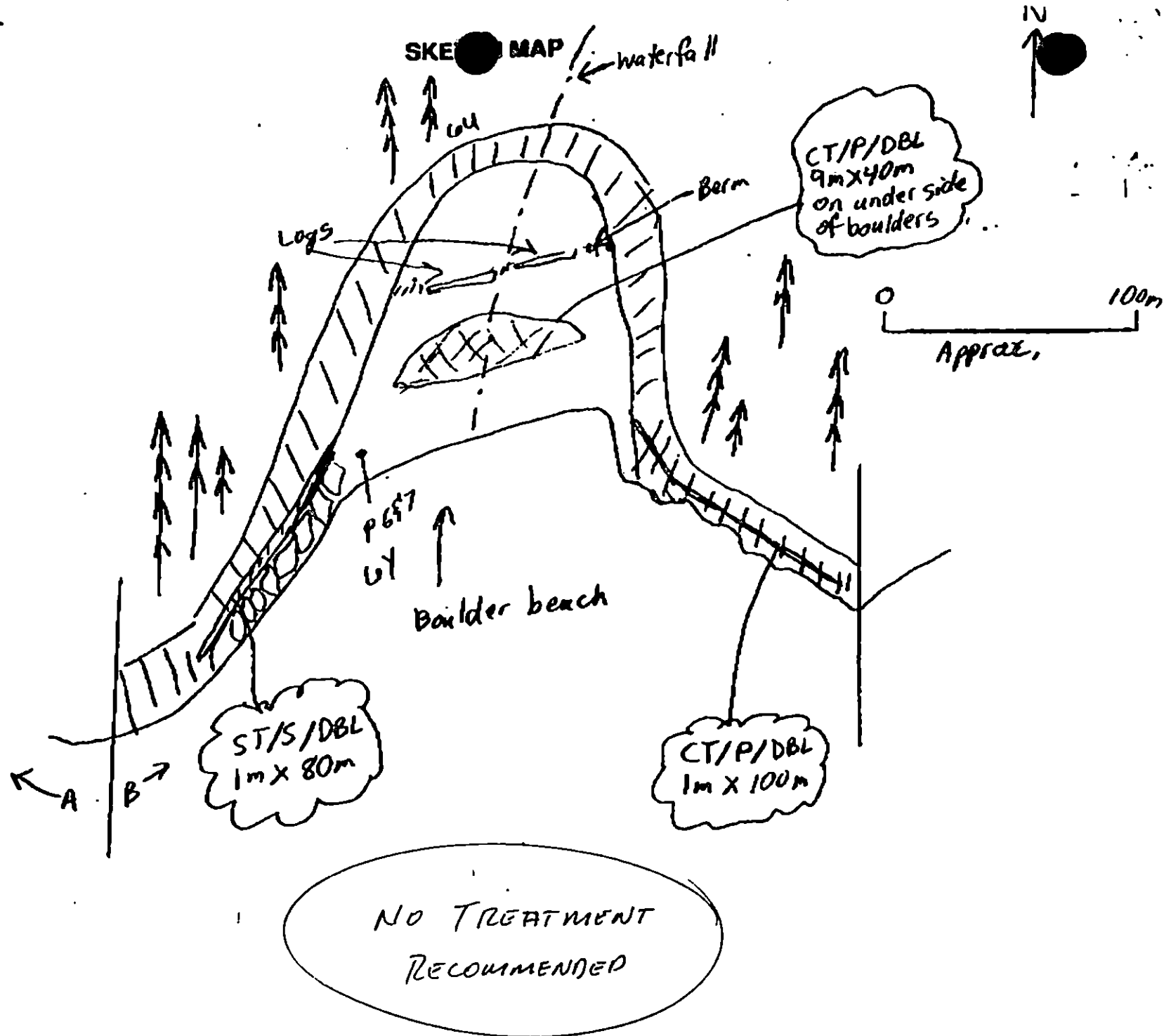
CT/B  
 Broken Distribution

CT/P  
 Patchy Distribution

CT/S  
 Streaked Distribution

eee  
 Oil Vegetation

1 ●→  
 Photo location, direction,  
 and number



Character Length (m): AP \_\_\_\_\_ PO \_\_\_\_\_ CV \_\_\_\_\_ CT 140 ST 80 MS \_\_\_\_\_ PT \_\_\_\_\_ TB \_\_\_\_\_ FL \_\_\_\_\_ NO 160

REVISIONS

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 02/12/10

Segment ST / D1 62 Subdivision B Date (mo / day / yr) 4/17/10  
 Time (24 hr) 1535-1610 Biologist Crant Length 280m pg 1 of 3

- (A) Substrate type and % of segments:  
 (1) Bedrock 25 (2) Boulder 55 (3) Cobble 15 (4) Pebble 5 (5) Sand          (6) Silt
- (B) Overall % cover of biota (% of segment): Dense 30 Moderate 50 Low 20
- (C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (3)
- Photographs: Roll No. ST-5-6  
 Frames 6, 7

## BARNACLES

| Dense |    |    | Moderate |    |    | Sparse |    |    | Rare |    |    | NOT PRESENT |
|-------|----|----|----------|----|----|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | 2        | 2  | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | 3        | 3  | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6      | 6  | 6  | 6    | 6  | 6  |             |

## MYTILUS

| Dense        |              |              | Moderate     |              |              | Sparse       |              |              | Rare |    |    | NOT PRESENT |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------|----|----|-------------|
| 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U   | 1M | 1L |             |
| <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |             |
| 3            | 3            | 3            | 3            | 3            | 3            | 3            | 3            | 3            | 3    | 3  | 3  |             |
| 4            | 4            | 4            | 4            | 4            | 4            | 4            | 4            | 4            | 4    | 4  | 4  |             |
| 5            | 5            | 5            | 5            | 5            | 5            | 5            | 5            | 5            | 5    | 5  | 5  |             |
| 6            | 6            | 6            | 6            | 6            | 6            | 6            | 6            | 6            | 6    | 6  | 6  |             |

## GASTROPODS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare |    |    | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|------|----|----|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3            | 3            | 3            | 3    | 3  | 3  |             |
| 4     | 4  | 4  | 4            | 4            | 4            | 4            | 4            | 4            | 4    | 4  | 4  |             |
| 5     | 5  | 5  | 5            | 5            | 5            | 5            | 5            | 5            | 5    | 5  | 5  |             |
| 6     | 6  | 6  | 6            | 6            | 6            | 6            | 6            | 6            | 6    | 6  | 6  |             |

## FUCUS

| Dense        |              |    | Moderate     |              |    | Sparse |    |    | Rare |    |    | NOT PRESENT |
|--------------|--------------|----|--------------|--------------|----|--------|----|----|------|----|----|-------------|
| 1U           | 1M           | 1L | 1U           | 1M           | 1L | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | 2  | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3            | 3            | 3  | 3            | 3            | 3  | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4            | 4            | 4  | 4            | 4            | 4  | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5            | 5            | 5  | 5            | 5            | 5  | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6            | 6            | 6  | 6            | 6            | 6  | 6      | 6  | 6  | 6    | 6  | 6  |             |

## Wildlife Observations/ General Comments:

Other scat in SUPRA - mostly Scallop Shells (scallop shells not observed on rest of subdivision, Possible den habitat in uplands)

## Ecological Considerations:

- 6U - Tenting Sites
- 6Y - Special Use Destination

DATE 4/19/90 TIME 1535-1610

TIDE HEIGHT +2 ft

1-BEDROCK

2-BOULDER

3-COBBLE

5-SAND

6-SILT

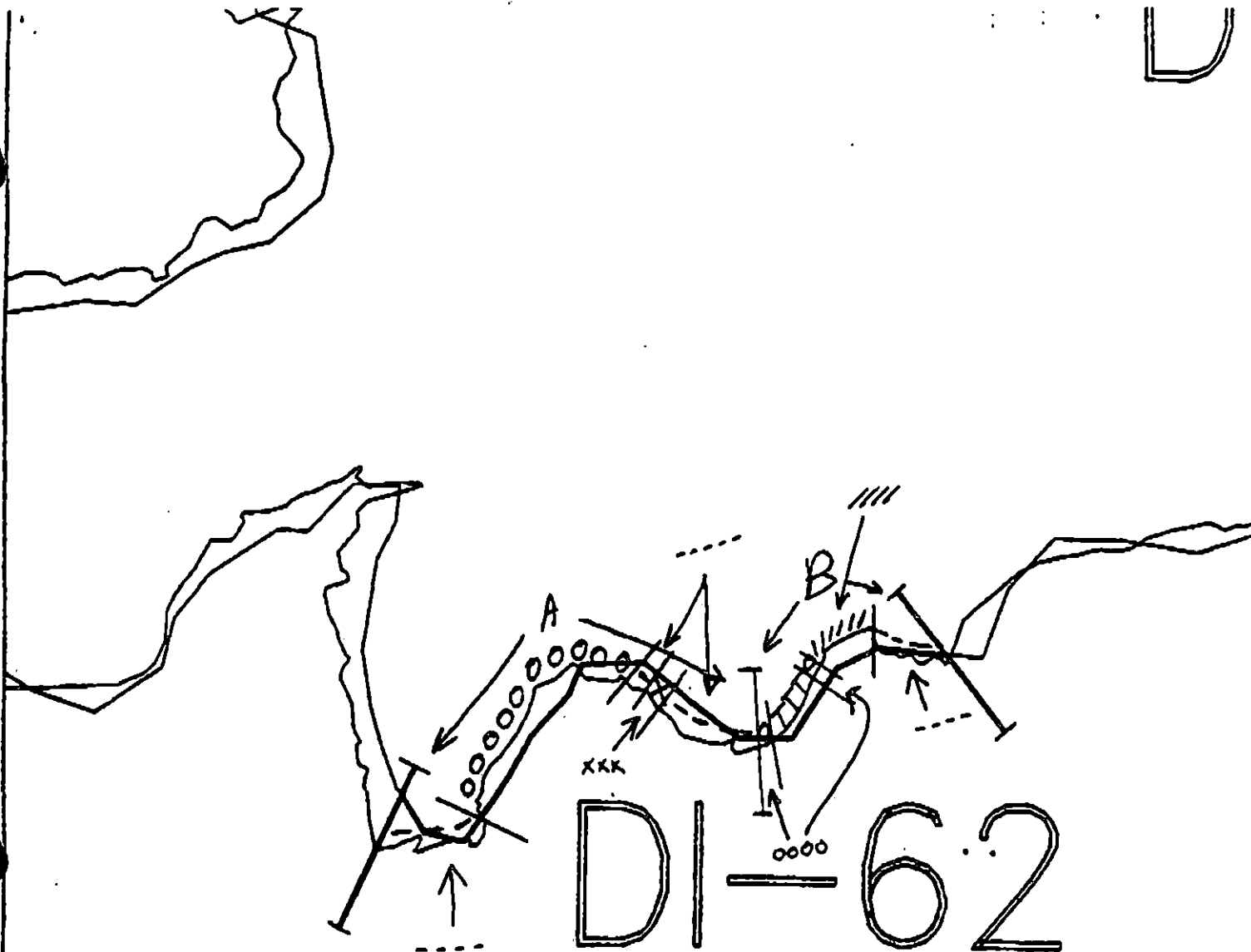
Pg 2 of 3

FLORA:

| SPECIES                 | UTZ | MITZ | LITZ | COMMENTS |
|-------------------------|-----|------|------|----------|
| BOSSIELLA/CORALLINA     |     |      |      |          |
| CALLIARTHRON/CORALLINA  |     |      |      |          |
| GLADOPHORA SPP          |     |      |      |          |
| COSTARIA SPP            |     |      |      |          |
| ENDOCLADIA MURICATA     |     |      |      |          |
| FILAMENTOUS GREENS      |     | 123  | 2    |          |
| FILAMENTOUS REDS        |     |      |      |          |
| GLOIOPELTIS FURCATA     |     | 23   | 23   |          |
| HALOSACCION GLANDIFORME |     | 2    |      |          |
| LAMINARIA SPP           |     |      |      |          |
| LITHOTHAMNION           |     |      |      |          |
| NEREOCYSTIS SPP         |     |      |      |          |
| PORPHYRA SPP            |     |      |      |          |
| RALPHSIA/HILDENBRANDIA  |     |      |      |          |
| PHODOMELA LARIX         |     |      |      |          |
| RHOHOMENIA PALMATA      |     |      |      |          |
| SCYTOSIPHON SPP         |     |      |      |          |
| ULVA SPP                |     | 2    | 2    |          |
| ZOSTERA MARINA          |     |      |      |          |
| ENTOROMORPHA            |     |      |      |          |
| Mastocarpus             |     |      | 2    |          |

FAUNA:

|                                  |      |      |     |                        |
|----------------------------------|------|------|-----|------------------------|
| ANTHOPLEURA SPP                  |      |      |     |                        |
| (SEMI) BALUNUS CARIOSUS          |      | 1    |     |                        |
| B. GLANDULA                      | 1234 | 1234 |     |                        |
| BRYOZOANS                        |      |      | 2   |                        |
| CHITONS (other than K. TUNICATA) |      |      |     |                        |
| CLAMS                            |      |      |     |                        |
| CRABS                            |      |      |     |                        |
| DERMASTERIAS IMBRICATA           |      |      | 1   |                        |
| KATHARINA TUNICATA               |      |      |     |                        |
| LEPTASTERIAS HEXACTIS            |      |      |     |                        |
| LIMPETS                          | 127  | 127  | 123 |                        |
| LITTORINA SPP                    |      |      |     |                        |
| NUCELLA SPP                      |      | 23   | 2   |                        |
| PAGURUS SPP                      |      | 3    |     | 19                     |
| PISASTER OCHRACEUS               |      |      |     |                        |
| POLYCHASTES                      |      |      |     |                        |
| PYCNOPODIA HELIANTHOIDES         |      |      |     |                        |
| SEARLESIA DIRA                   |      |      |     |                        |
| SERPULIDS                        |      |      |     |                        |
| SIPHONARIA THERSITES             |      |      |     |                        |
| TEALIA                           |      |      |     |                        |
| Orthasterias                     |      |      | 1   | under H <sub>2</sub> O |



KN-107

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

DI-62

ADEC Segment Length: 826  
~~470m~~



Map Key: PWS-94  
 Name: James Springs  
 Date: 4/19/90  
 Data Entered:

# SHORELINE EVALUATION

SEGMENT ST/ DI-63 SUBDIVISION A (1 OF 1) DATE 4/19/90

## SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

6V Recreation: Anchorages (6/1 to 9/15)

Possible (5T) All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1).

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

Possible (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 unopened biota and substrate.

22101.

SHPO SIGNATURE: J. David McMillan DATE: 5/1/90

## OILING CATEGORIZATION:

Wide 55 m: Medium 129 m: Narrow 395 m: V.Light 88 m: No Oil 241 m  
Subsurface Oil Observed: Yes X No      Maximum Depth 30 cm

## RECOMMENDATIONS:

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

COMMENTS: Recommended treatment includes bioremediation of two areas indicated on sketch map. Work should be conducted after 6/1 with approval of USFWS due to eagle nest constraint and with approval of ADF&G regarding use of Inipol. MANUAL PICKUP OF MOUSSE PATTIES PRIOR TO BU

TAG COMMENTS:     

TAG APPROVAL DATE: 4/30/90

ADEC ART WEINER Art Weiner

EXXON ANDY ZEH Andy Zeh

NOAA GARY PETERSON Gary Peterson

USCG KENNETH KERR Kenneth Kerr

FOSC:      DATE: 5-9-90

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

SEGMENT ST / DI-63 SUBDIVISION: A DATE 19 April 90

CG  
NAME AEC Vandepels SIGNATURE AEC Vandepels

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

I suggest treatment for the 20x20 M band east of stream, bio. 20x40 M band 100 M west of stream west portion of cobble beach also bio.

ADEC  
NAME Michele Baer SIGNATURE M Baer

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

- 1) pit #8, till and bio remediate surface layer. Stream nearby is not designated as a spawning area. In addition, bio remediate NW side of stream.
- 2) In the area of pit #11, till and bio from MITZ to LITZ, to the Lg. B/R Hdd mid beach. After the Lg. B/R hdd, <sup>remove</sup> pickup m/s/s with shovel.
- 3) In the area of pit #13, bio remediate and till to bring up OR substrate (15 cm deep).

LAND MANAGER  
NAME Carol S Huber SIGNATURE Carol S Huber 30

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

Resonance sensitivity: anchorages. Otter scatt - otter use area. Disturb oil band (2.1-2m) on rocky vertical headlands. Double / triple oiling noted (by headland band). Relatively low energy beaches (angular rocks range from boulders to gravels (and sand)). (Unsorted) Possible bio remediate for surface oil on beaches. Some mobility of oil noted by <sup>streaming</sup> evidence.

OG J. Springer USCG R. Vandepels SEGMENT ST/ DI-63  
 BIO P. Chan R LAND REP C. Huber SUBDIVISION A (1 OF 1)  
 EXXON T. Tomblin ADEC M. Baer TIME 11:30 15:30  
 TEAM NO. 5 TIDE LEVEL +6 to +2 DATE 04/19/90  
 EST. SUBDIVISION LENGTH: 1057 m ☐ Sun ☒ Clouds ☐ Fog ☒ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock Pillow Basalt  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: E to W  
 SURFACE SEDIMENTS: R 40 % B 30 % C 15 % P 10 % G 5 % S 0 % M 0 % V 0 %  
 SLOPE: Long 20 % Hang 50 % Vert 30 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
 OIL CATEGORY LENGTH: W 60 m M 120 m N 495 m VL 20 m NO 362 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   | IMPACTED ZONES |   |   |   |
|------------------|--------------|---|---|---|------------------|---|---|---|----------------|---|---|---|
|                  | C            | S | A | B | 1                | 2 | 3 | 4 | SU             | U | M | L |
| ASPHALT PAVEMENT |              |   |   |   |                  |   |   |   |                |   |   |   |
| POOLED           |              |   |   |   |                  |   |   |   |                |   |   |   |
| COVER            |              |   |   |   |                  |   |   |   |                |   |   |   |
| COAT             |              |   | X | V |                  |   |   |   |                |   |   |   |
| STAIN            |              |   |   |   |                  |   |   |   |                |   |   |   |
| MOUSSE           |              |   |   | X |                  |   |   | X |                |   | X | X |
| PATTIES          |              |   |   |   |                  |   |   |   |                |   |   |   |
| TARBALLS         |              |   |   |   |                  |   |   |   |                |   |   |   |
| FILM             |              |   |   |   |                  |   |   |   |                |   |   |   |
| NO OIL           |              |   |   |   |                  |   |   |   | X              |   |   | X |

PAVEMENT H F S 0 sq. m by 0 crPATTIES / TARBALLS 10 BAGSNEAR SHORE SHEEN? (NO) BR RW SL TL

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

DID YOU COLLECT DEBRIS?

YES ☒ NO ☐TYPE Beer Cans, etc#BAGS 1

Photographs:

Roll No. \_\_\_\_\_

Frames \_\_\_\_\_

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |   |   |   | PIT ZONE |   |   |   | A N A | SHEEN (V/N) | !  | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|---|---|---|----------|---|---|---|-------|-------------|----|--------------------------------|
|         |                | CP                       | CR | CL | CP | NO |                | SO    | UC | 1                | 2 | 3 | 4 | SU       | U | M | L |       |             |    |                                |
| 1       | 30             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |          | X |   |   |       | N           | 20 | BC/PGS                         |
| 2       | 15             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   | X        |   |   |   |       | N           | 20 | B/PGS                          |
| 3       | 30             |                          |    |    | X  |    | 10-30          | X     |    |                  |   | X |   | X        |   |   |   |       | TL          | 20 | B/CPGV                         |
| 4       | 30             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   | X        |   |   |   |       | N           | 20 | B/PGV                          |
| 5       | 25             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |          | X |   | X |       | N           | 20 | C/PGSM                         |
| 6       | 45             |                          |    |    | X  |    | 0-10           | X     | X  |                  |   |   |   | X        |   |   |   |       |             | 15 | C/PGSM                         |

COMMENTS In 1st pocket beach (from west), light brown coat on few boulders may be some type of immulsion (?). Double band of coat/stain on rocks indicates two or more episodes of oiling.

REVIEWED 7WDATE 4/21/90

## REVISION 041388

DATE: 12-27-2013

00 J. Springer

SEGMENT S IE63

SUBDIVISION A

DATE 04 / 19 90

## CHECKLIST

- ☒ Area
- ☒ Approx. Scale
- ☒ Degraded Body
- ☒ On Dist.
- ☒ Width
- ☒ Length
- ☒ Cover
- ☒ Substrate Character
- ☒ Epi. HWA/LVA
- ☒ P1
- ☒ Profile Location(s)
- ☒ Profile(s)
- ☒ P1 Location(s)
- ☒ Photo Location(s)

## LEGEND

1 Δ  
P1 - No Subsurface Oil

2 Δ  
P1 - Subsurface Oil

CT/C  
Concentric Distribution

CT/B  
Broken Distribution

CT/P  
Paddy Distribution

CT/S  
Splashed Distribution

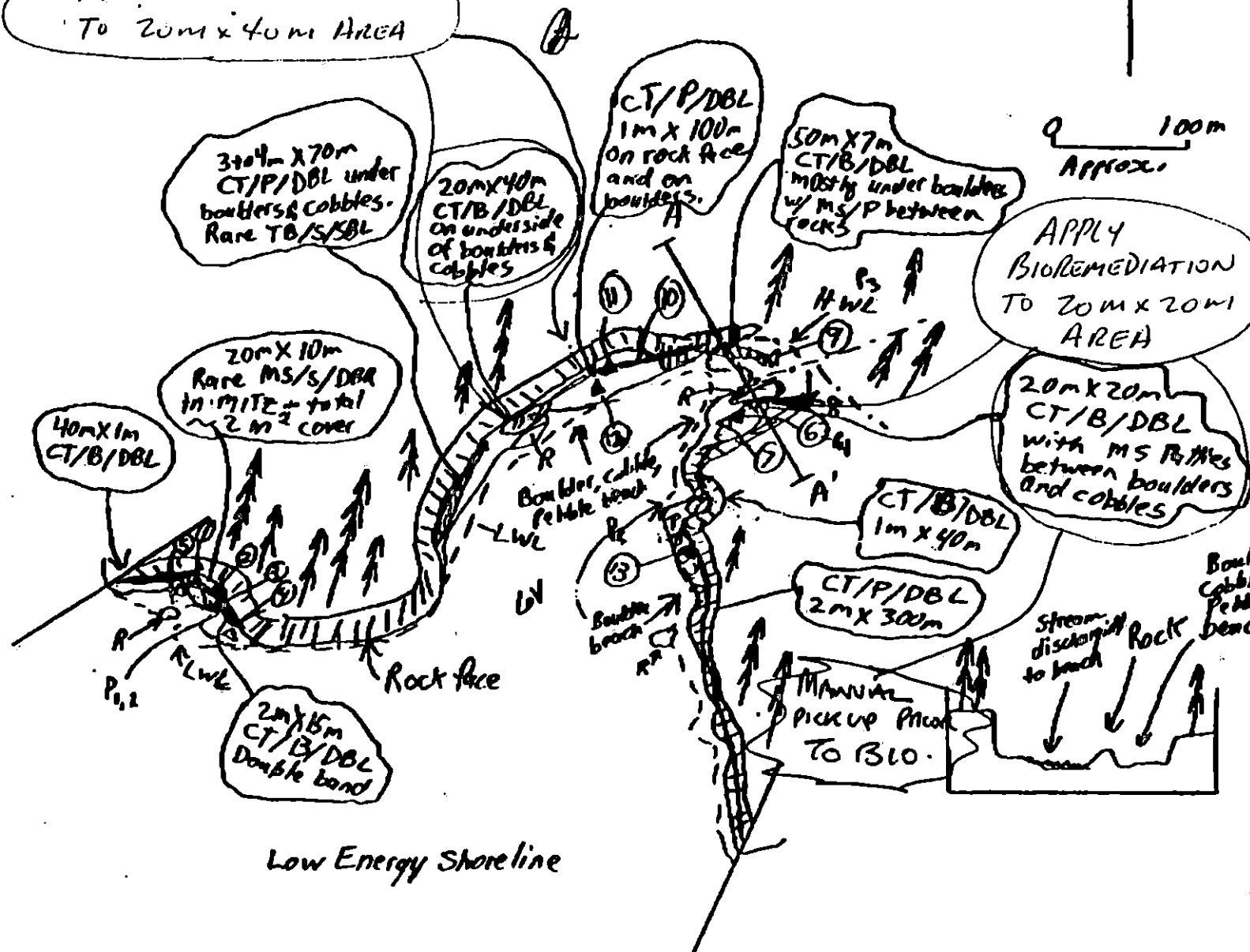
eee  
Oiled Vegetation

1 00  
Photo location, direction,  
and number

1 00  
Photo location, direction,  
and number

## SKETCH MAP

APPLY BIOREMEDIATION  
TO 20m x 40m AREA



1 Character Length (m): AP \_\_\_\_\_ PO \_\_\_\_\_ CV \_\_\_\_\_ CT 675 ST \_\_\_\_\_ MS 20 PT \_\_\_\_\_ TB \_\_\_\_\_ FL \_\_\_\_\_ NO 362

REVISED 08/09/90

# SHORELINE ECOLOGICAL SUMMARY

RELATION: 03/23/90

Segment ST/ D163 Subdivision A Length 1057m Date (mo/day/yr) 7/19/90  
 Time (24 hr) 1145-1525 Biologist Cravik pg 1 of 4

- (A) Substrate type and % of segments:  
 (1) Bedrock 40 (2) Boulder 30 (3) Cobble 15 (4) Pebble 10 (5) Sand 5 (6) Silt \_\_\_\_\_
- (B) Overall % cover of biota (% of segment): Dense 0 Moderate 20 Low 80
- (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-5-40  
 Frames 3

## BARNACLES

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

NOT PRESENT

## MYTILUS

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

NOT PRESENT

## GASTROPODS

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

NOT PRESENT

## FUCUS

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

NOT PRESENT

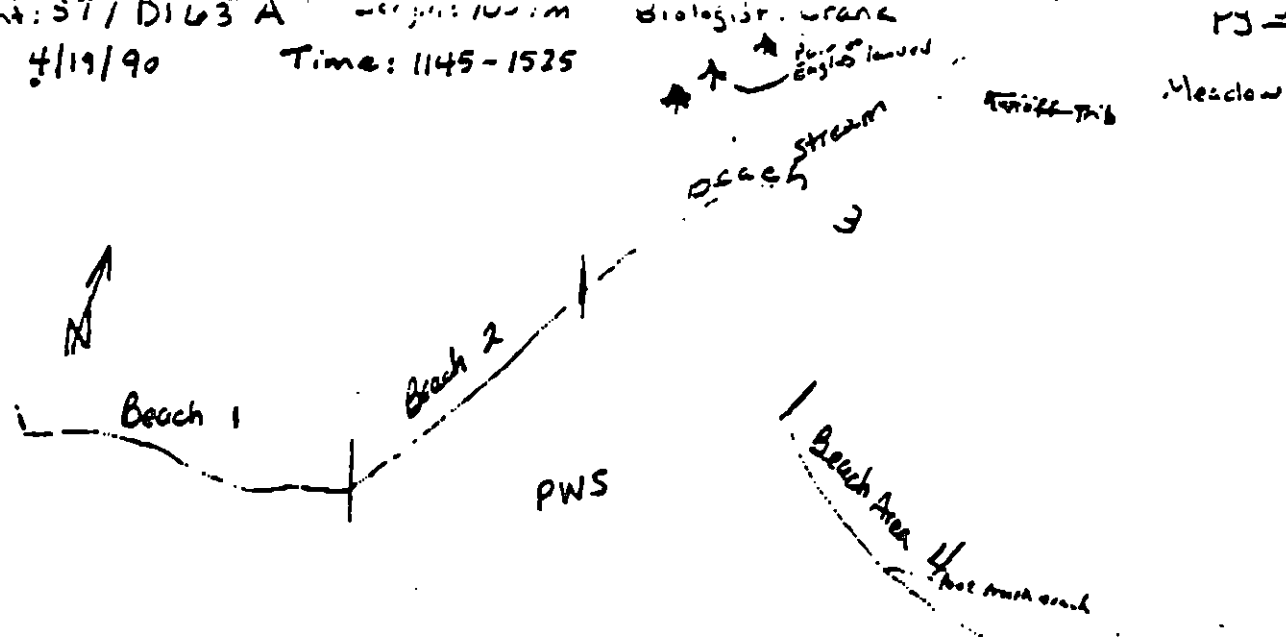
## Wildlife Observations/ General Comments:

- 5-Bald Eagles - Adult  
 3-Bald Eagles - Immature  
 5-Cormorants  
 3-Ravens - one heard only  
 Ecological Considerations:  
 - 6V - Anchorages  
 - Stream - not listed as a Salmon Stream - Possible, low potential spawning areas in intertidal  
 - 75% of Segment has a continuous Moderate intercobble/gravel Mussel bed in MITZ.  
 - Possible Eagle Nest west of Stream
- 2-Akies - unidentified (Hires?)  
 30-Geese - appear flying in V formation  
 9-Glaucous-winged Gulls  
 1-Hawk - unidentified  
 1-terrestrial bird singing - unidentified (only heard, not seen)
- P-Pigeon Gull - Breeding Plumage  
 5-Others - includes one pup  
 Note: One include skiff ride from Lewis Bay to D

1 = BEDROCK 2 = BOULDER 3 = COBBLE 5 = SAND 6 = SILT

| SPECIES                          | —UITZ | MITZ | LITZ | COMMENTS                           |
|----------------------------------|-------|------|------|------------------------------------|
| FLORA: BOSSIELLA/CORALLINA       |       |      |      |                                    |
| CALLIARTHRON/CORALLINA           |       |      |      |                                    |
| CLADOPHORA SPP                   |       |      |      |                                    |
| COSTARIA SPP                     |       |      |      |                                    |
| ENDOCLADIA MURICATA              |       |      |      |                                    |
| FILMAENTOUS GREENS               |       | 1234 |      |                                    |
| FILAMENTOUS REDS                 |       |      |      |                                    |
| GLOIOPELTIS FURCATA              |       | 23   |      |                                    |
| HALOSACCION GLANDIFORME          |       |      |      | Drift                              |
| LAMINARIA SPP                    |       |      |      |                                    |
| LITHOTHAMNION                    |       | 1    |      | By Rock entering in bank in cracks |
| NEREOCYSTIS SPP                  |       |      |      |                                    |
| PORPHYRA SPP                     |       |      |      |                                    |
| RALPHSIA/HILDENBRANDIA           |       |      |      |                                    |
| RHODOMELA LARIX                  |       | 1    |      |                                    |
| RHODOMENTA PALMATA               |       |      |      |                                    |
| SCYTOSIPHON SPP                  |       | 2    |      | Near Siphon mouth                  |
| ULVA SPP                         |       |      |      |                                    |
| ZOSTERA MARINA                   |       |      |      |                                    |
| ENTOROMORPHA                     |       |      |      |                                    |
| Cyrtosiphonia                    | 1     |      |      |                                    |
| FAUNA: ANTHOPLEURA SPP           |       |      |      |                                    |
| (SEMI) BALANUS CARIOSUS          |       |      |      |                                    |
| B. GLANDULA                      | 1234  | 1234 |      |                                    |
| BRYOZOANS                        |       |      |      |                                    |
| CHITONS (other than K. TUNICATA) |       |      |      |                                    |
| CLAMS                            |       | 3    |      | Scallop shells found on beach      |
| CRABS                            |       | 45   |      | Hemigrapsus under boulder          |
| DERMASTERIAS IMBRICATA           |       |      |      |                                    |
| KATHARINA TUNICATA               |       |      |      |                                    |
| LEPTASTERIAS HEXACTIS            |       |      |      |                                    |
| LIMPETS                          | 123   | 123  |      | Spiders                            |
| LITTORINA SPP                    | 123   | 231  |      | Amph                               |
| NUCELLA SPP                      |       |      |      |                                    |
| PAGURUS SPP                      |       | 45   |      | Under boulder                      |
| PISASTER OCHRACEUS               |       |      |      |                                    |
| POLYCHAETES                      |       |      |      |                                    |
| PYCNOPODIA HELIANTHOIDES         |       |      |      |                                    |
| SEARLESIA DIRA                   |       |      |      |                                    |
| SERPULIDS                        |       |      |      | 27                                 |
| SIPHONARIA THERSITES             |       |      | 1    | Co. Pol. b                         |
| TEALIA                           |       |      |      |                                    |
| Segmented Worms                  |       | 5/6  |      |                                    |
| Beach Hoppers                    |       | 5    |      | in soil                            |

Segment: 51 / D163 A  
 Date: 4/19/90 Time: 1145-1525



## Comments

- LITZ unexposed for most of survey; majority of LITZ unexposed for all of survey.

### Beach 1 :

- Beach 1 is a pocket Boulder/Cobble beach with underlying pebble.
- Throughout MITZ there is an interpebble/cobble Mytilus bed with 30% mortality.
- Otter-use Area (pockets on beach and obs. one otter feeding 3m from shore).
- Otter scat in SUPRA, mostly crab shell - crabs not observed in this survey.
- On the NW headland rock, the LITZ had an oil coat band. Within this band there was a sparse concentration of Gastropod shells. Although mortalities the shells remained adhered to the substrate. The Limpet shells appears to be clamped down but were easily manually removed. The Littorina shells retained their operculums.
- Throughout MITZ there was a brown coat on the substrate that had a similar appearance to Mousse oil but it smelled and tasted organic and would wash off with water and minimal scrubbing. Collected coated cobble.

### Beach 2 :

- Cobble/Boulder beach similar to beach 1
- Filamentous green algae cover continuous and dense on Boulders; Cobble surface. The undersides has rare fil. greens and a moderate Adult, Juvenile and Spat concentration of Barnacles.
- Littorina egg masses under cobble
- Juvenile self present under cobble in sparse concentrations.
- Mussels in sparse concentrations on boulders and bedrock, found mainly in cracks (Adults, juveniles and spat observed). The western end of the beach had a <sup>continuous</sup> moderate intergravel bed that diminished to sparse and patchy.
- Reproductive Odonthalia fleecosa in sparse concentrations on MITZ boulders
- Fucus/Matrus and Sarcinella present and moderate on boulders

28

## Comments (cont.)

### Beach 3

- Cobble/boulder cove with substantial stream, not listed as a Salmon Stream
- Pair of Bald Eagles in courtship flight, landed in trees West of Stream and began vocalizations. Five minutes earlier an immature eagle also landed in same vicinity - Possible Nest?
- Living beach hoppers in oiled sand under cobble.
- Within and stream and 5m either side Barnacles are dense and continuous on bedrock and boulders, moderate on cobble.
- There is a continuous, moderate intergravel/cobble mussel bed throughout MITZ; growth and recruitment are sparse.
- Littorina <sup>Adults</sup> are mod  $\rightarrow$  dense in UITZ and dense in MITZ; Limpet adults are mod  $\rightarrow$  sparse; Nucella adults are sparse on boulders, not found on other subs
- Gastropod new growth is mod  $\rightarrow$  sparse; Eggs; new settlement is rare.
- Fucus near stream in a 5m x 10m dense patch
- Moderate amount of segmented worms in pebble & sand in all zones.
- Mytilus mortality 30% in both oiled and unoiled surfaces.

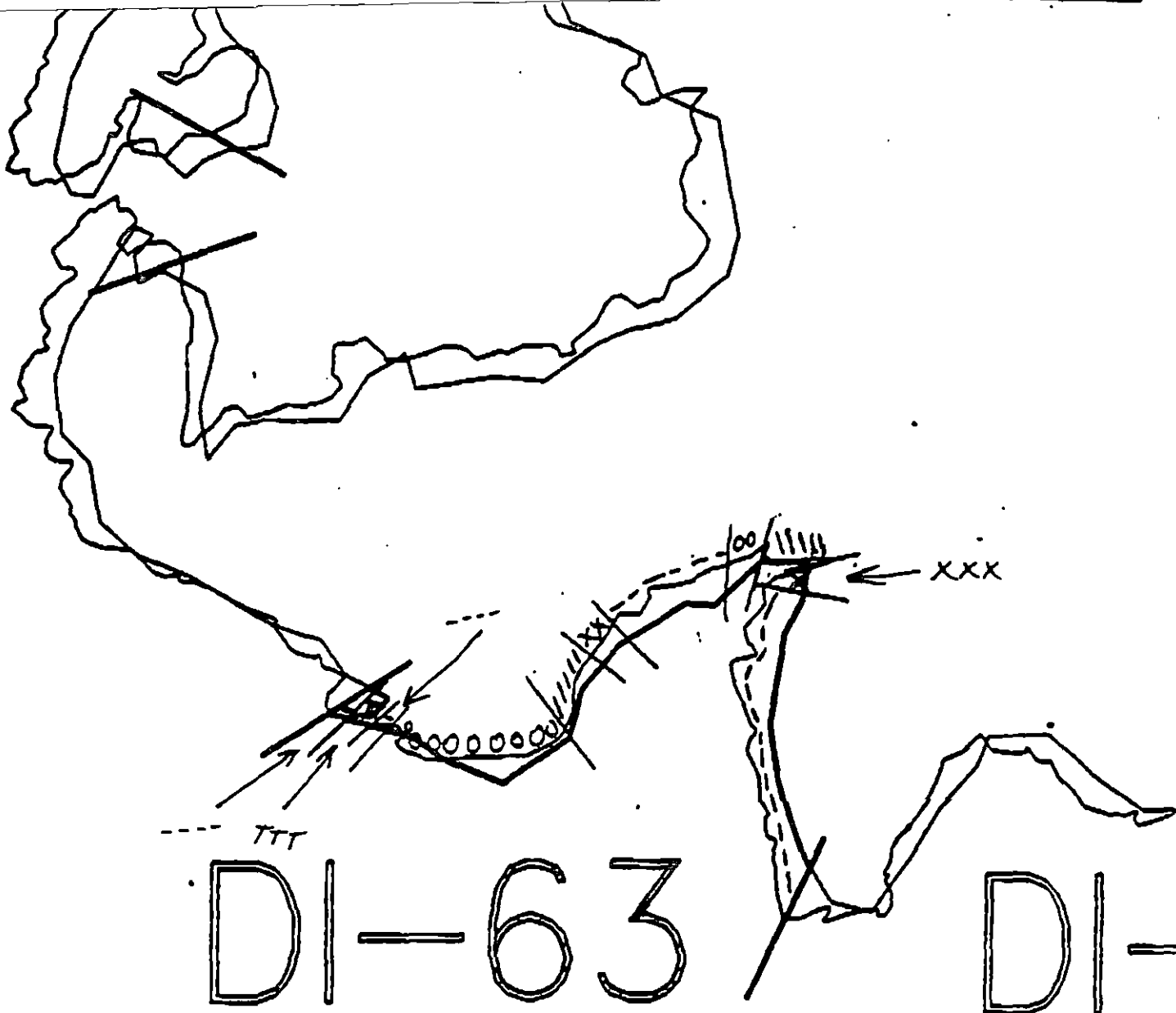
29

### Beach Area 4

- Headlands with small areas of boulder/cobble, skiff storage and foot-travel on beach
- Green filamentous algae cover on cobble/boulders throughout MITZ (upper LI)
- 80% mussel mortality under stones, unattached.
- Littorina, Limpets, Littorina egg mass and Fucus present in sparse concentrations
- On point b/n DI 63A & 62K barnacle scarcity present, approx 5%.

### Mortality / Recruitment / Growth

- Mussels in intercobble/puddle bed had approx. 30% mortality - other use area. Recruitment and growth was continuous in sparse concentrations.
- On cili substrate barnacle mortality in MITZ was 20-30%; in low-mid UITZ 30-40%; upper UITZ 50-70%. Recruitment along vertical rock faces was continuous & dense; moderate in boulder/cobble areas.
- Fucus growth was in MITZ, patchy and sparse except for dense patch by stream.



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

DI-63

ADEC Segment Length: <sup>1057</sup>~~907~~m



## ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT DI-63 SUBDIVISION A (1 of 1)

| WORK WINDOW    |      |
|----------------|------|
| Manual Pickup  | OPEN |
| Bioremediation | OPEN |

### ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

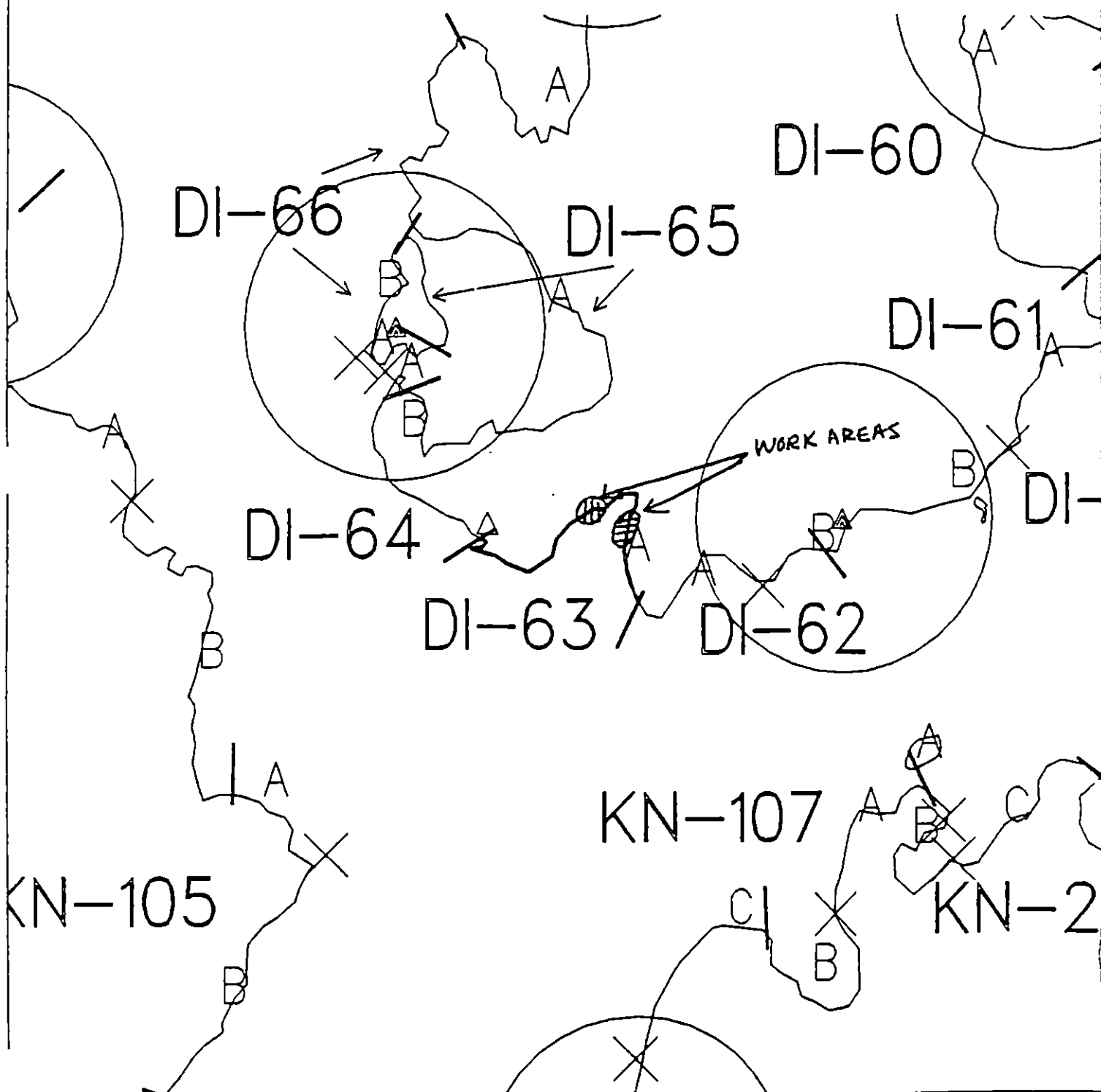
### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

|       |                 |                                                                                                  |
|-------|-----------------|--------------------------------------------------------------------------------------------------|
| 1A,1B | Salmon Stream   | NO CONSTRAINT. No ADF&G cataloged anadromous stream in this subdivision.                         |
| 5T    | Bald Eagle Nest | NO CONSTRAINT. USFWS 6/1/90 map indicates no active nest within 400m of Subdivision A work site. |

### OTHER ECOLOGICAL CONSIDERATIONS

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

for FOSC G.A. Reiter DATE 6/10/90



Exxon Company, USA  
Map Key: PWS-DI-63

# ECOLOGY MAP SEGMENT DI-63 SUBDIVISION A (1 of 1) METERS

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

## SHORELINE EVALUATION

SEGMENT ST/ DI-64 SUBDIVISION A (1 OF 2) DATE 4/7/90

### SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)  
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 uncoiled biota and substrate. Do not trample or otherwise damage mussel and clam beds.

SHPO SIGNATURE: Charles E. Himes DATE: 4/25/90

**OILING CATEGORIZATION:**

Wide\_0 m: Medium\_0 m: Narrow\_0 m: V.Light\_115 m: No Oil\_0 m  
Subsurface Oil Observed: Yes\_\_\_\_\_ No X\_\_\_\_\_ Maximum Depth\_\_\_\_\_

**RECOMMENDATIONS:**

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

COMMENTS: Manual pick up of tar balls followed by bioremediation of coat area as indicated on attached sketch map. Work should be conducted after 6/1 with approval of USFWS regarding eagle nest.

**TAG COMMENTS:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**TAG APPROVAL DATE:** 7/24/90

ADEC Art Weiden Det Weiden

EXXON Amo T64 Bail

NOAA Joseph Talbot, Clerk

FOSC: W L DATE: 5-3-90

# 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 (8/7 to 8/31)
- 1J Purse seine area (7/20 to 9/30)
- 1K Purse seine hook-off (7/20 to 9/30)
- 1L Set net sites (6/11 to 7/25)  
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 unopened intertidal and subtidal algae and seagrass. 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.
- 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.
- 6J Recreation: Tent sites (6/1 to 9/15)
- 6V Anchorages (6/1 to 9/15)
- 6W Forest Service cabins (6/1 to 9/15)
- 6X Lodge (6/1 to 9/15)
- 6Y Special use destination
- 7Z Subsistence area: Salmon harvesting (5/1 to 9/30)
- 7HH Finfish harvesting
- 7I Deer harvesting (8/15 to 2/28)
- 7JJ Invertebrate harvesting  
For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.

## SHORELINE ECOLOGICAL SUMMARY

REVISION: 0

Segment ST D164 Subdivision A Date (mo/day/yr) 4/2/90Time (24 hr) 1700-1715 Biologist Crankpg 1 of 2

- (A) Substrate type and % of segments:  
 (1) Bedrock 50 (2) Boulder 5 (3) Cobble 15 (4) Pebble 25 (5) Sand 5 (6) Silt
- (B) Overall % cover of biota (% of segment): Dense 50 Moderate 20 Low 20
- (C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles/adults (X), new settlement (O)

Photographs:

Roll No. ST-5-4Frames 24

## BARNACLES

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

NOT PRESE.

## MYTILUS

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

NOT PRESE!

## GASTROPODS

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

NOT PRESEN

## FUCUS

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

NOT PRESEN

## Wildlife Observations/ General Comments:

- 1 Cormorant Deer mandible in SUPRAH
- 3 Sea Otter
- 1 Raven
- 1 Marbled Murrelet

## Ecological Considerations:

- 6V - Anchorages
- 5T - Active Eagle Nest (Did not locate)

- Subdivision is a dense clam bed, utilized by otters.
- There is a 10m x 30m intercobble/gravel moderate concentrated mussel bed. It has been heavily preyed upon by gastropods.
- Fucus bed is healthy.
- Recruitment for this subdivision is low for barnacles, mussels and Fucus, but is high for *Heterostichus* and *Nucella*.
- Due to the mussel bed and healthy Fucus bed, work crews should be small and machinery restricted from beach below +U ft tide level.

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST / 01-64 SUBDIVISION: A DATE 04/07/90

**USCG**

NAME AEC Vandepelt SIGNATURE AEC Vandepelt

☒ NO TREATMENT RECOMMENDED

☐ TREATMENT SUGGESTED

COMMENTS

*I recommend no treatment. Maybe bio. the  
1 x 100 M band.*

**ADEC**

NAME Michele Barr SIGNATURE Michele Barr

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

*Manual scrubbing and removal of TB's in band,  
NO subsurface oil found, only occasional CT on  
underside of B's found.*

**LAND MANAGER**

NAME DAN LOGAN SIGNATURE Dan Logan

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

*THIS AREA IS AN EXCELLENT ANCHORAGE AND RECEIVES MUCH  
RECREATION USE. ON THE 1M X 100M TB/S/DAY BAND THE ROCKS  
SHOULD BE MANUALLY SCRUBBED AND THE MOUNDER/COBBLE PORTIONS  
HAND <sup>WIPED</sup> ~~DOWN~~ AND FERTILIZER APPLIED, THIS AREA SHOULD BE CLEARED  
BY AN ARCHAEOLOGIST PRIOR TO WORK.*

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## SHORELINE OILING SUMMARY

REVISED NO. 08-20

OG J. Springer USCG R. Vandepels SEGMENT ST/ DI-64  
 BIO P. Crank LAND REP D. Logan SUBDIVISION A (1 of 2)  
 EXXON T. Temblin ADEC M. Baer TIME 17:00 to 17:25  
 TEAM NO.: 5 TIDE LEVEL: +3 to +2 DATE 04/07/90  
 EST. SUBDIVISION LENGTH: 100m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock Pillow lava  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: to  
 SURFACE SEDIMENTS: R 50 % B 5 % C 15 % P 25 % G 5 % S — % M — % V —  
 SLOPE: Long 80 % Hang 20 % Vert — % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 0 m N 0 m VL 100 m NO 0 m

## SURFACE OIL

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

PAVEMENT: H F S — sq. m by —PATTIES / TARBALLS 10 BAGSNEAR SHORE SHEEN? ☒ NO BR RW SL TL

| OILED DEBRIS | AMOUNT |    |    |
|--------------|--------|----|----|
|              | SM     | MD | LG |
| Logs         |        |    |    |
| Vegetation   |        |    |    |
| Trash        |        |    |    |
| Debris       |        |    |    |

DEBRIS COLLECTED  
☐ YES ☒ NOTYPE —#BAGS —

Photographs:

Roll No. ST-5-4Frames 26

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (COLOR) | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |   |   | A<br>N<br>A | SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|------------------------|-------|----|------------------|---|---|---|---|----------|---|---|---|-------------|----------------------|
|         |                | OP                       | OR | OL | OF | NO |                        | UD    | UC | 1                | 2 | 3 | 4 | 5 | SU       | U | M | V |             |                      |
| 1       | 20             |                          |    |    |    | X  | .                      |       | X  |                  |   |   |   |   |          |   | X |   |             | PGSM                 |
| 2       | 30             |                          |    |    |    | X  | .                      |       | X  |                  |   |   |   |   |          |   | X |   |             | PGSM                 |
| 3       | 15             |                          |    |    |    | X  | .                      |       | X  |                  |   |   |   |   |          |   | X |   |             | PGS                  |
| 4       | 10             |                          |    |    |    | X  | .                      |       | X  |                  |   |   |   |   |          |   | X |   | X           | PGM                  |
|         |                |                          |    |    |    |    | .                      |       |    |                  |   |   |   |   |          |   |   |   |             |                      |
|         |                |                          |    |    |    |    | .                      |       |    |                  |   |   |   |   |          |   |   |   |             |                      |

COMMENTS

32

OG J. S. Singer  
 SEGMENT ST/ DI-64  
 SUBDIVISION A  
 DATE 04/07/90

# CHECKLIST

- ☒ N Area
- ☒ Approx. Scale
- ☒ Top/Sub Entry
- ☒ On Data
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☒ Est. HML/LWL
- ☐ SBL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ Pn Location(s)
- ☒ Photo Location(s)

## LEGEND

1  $\Delta$   
 PH - No Subsurface Oil

2  $\Delta$   
 PH - Subsurface Oil

CT/C  
 Continuous Distribution

CT/B  
 Broken Distribution

CT/P  
 Patchy Distribution

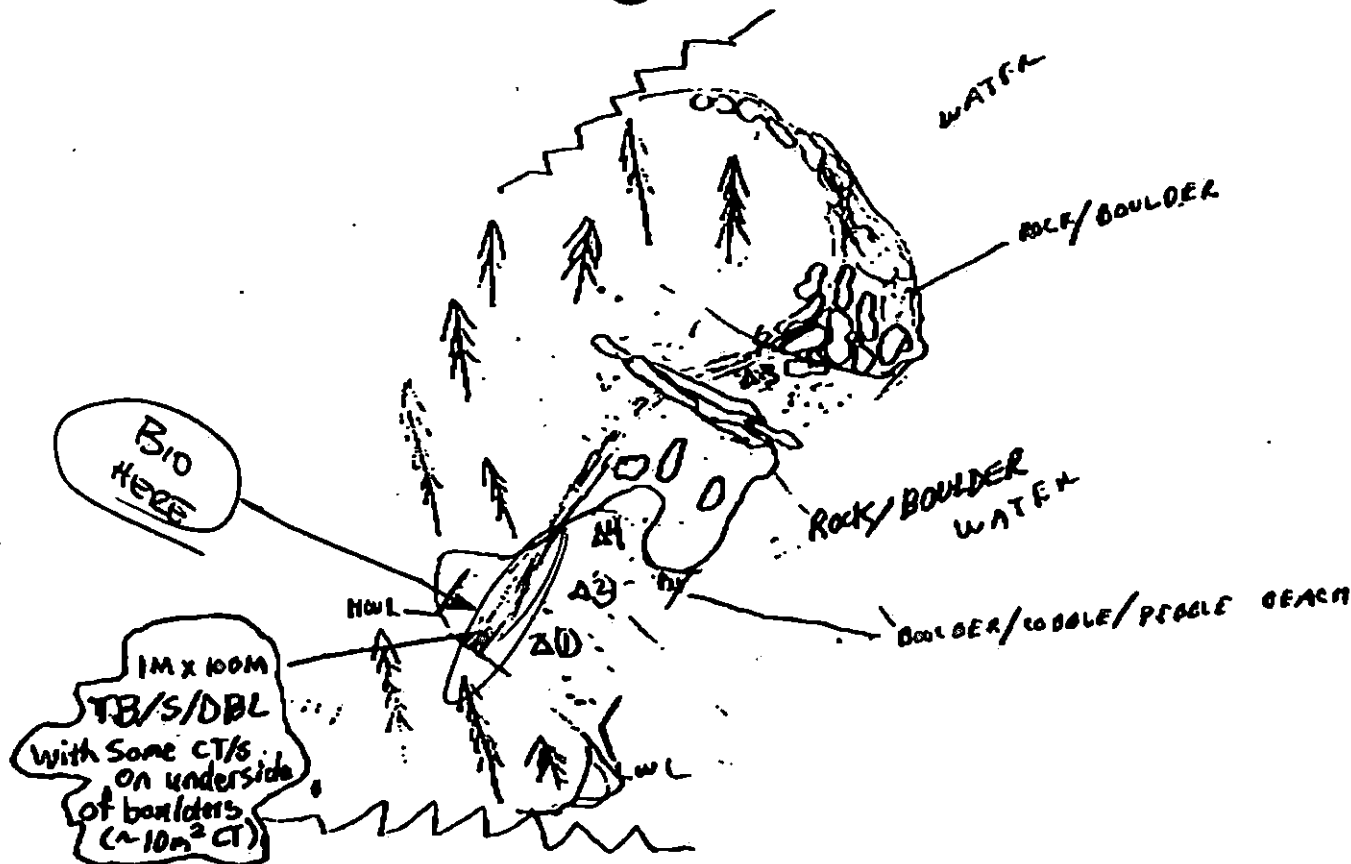
CT/S  
 Splashed Distribution

Other Vegetation

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

34

## SWITCH MAP



Oil Character Length (m): AP \_\_\_\_\_ PO \_\_\_\_\_ CV \_\_\_\_\_ CT \_\_\_\_\_ ST \_\_\_\_\_ MS \_\_\_\_\_ PT \_\_\_\_\_ TB 100 FL \_\_\_\_\_ NO \_\_\_\_\_

REVISIONS

SEGMENT: ST/ D1 64 SUBDIVISION A LENGTH 100m BIOLOGIST Crank

DATE 4/7/90 TIME 1700-1725 TIDE HEIGHT +3 → 7.5 ft

pg 2 of 2

1 = BEDROCK 2 = BOULDER 3 = COBBLE 4 = PEBBLE 5 = SAND 6 = SILT

FLORA:

| SPECIES                 | UTZ | MITZ | LITZ | COMMENTS                   |
|-------------------------|-----|------|------|----------------------------|
| BOSSIELLA/CORALLINA     |     |      |      |                            |
| CALLIARTHRON/CORALLINA  |     |      |      |                            |
| GLADOPHORA SPP          |     |      |      |                            |
| COSTARIA SPP            |     |      |      |                            |
| ENDOCLADIA MURICATA     |     |      |      |                            |
| FILAMENTOUS GREENS      | 123 | 123  |      |                            |
| FILAMENTOUS REDS        |     |      |      |                            |
| GLOIOPELTIS FURCATA     |     |      |      |                            |
| HALOSACCION GLANDIFORME |     |      |      |                            |
| LAMINARIA SPP           |     |      |      |                            |
| LITHOTHAMNION           |     |      |      |                            |
| NEREOCYSTIS SPP         |     |      |      |                            |
| PORPHYRA SPP            |     |      |      |                            |
| RALPHSIA/MILDBRANDIA    | 12  | 2    |      |                            |
| RHODOMELA LARIX         |     | 34   | 34   |                            |
| RHODOMENIA PALMATA      |     |      |      |                            |
| SCYTOSIPHON SPP         |     |      |      |                            |
| ULVA SPP                |     |      |      |                            |
| ZOSTERA MARINA          |     |      |      | Small leaf 5m <sup>2</sup> |
| <i>Cryptosiphonia</i>   |     | 234  | 243  |                            |

FAUNA:

|                                  |       |       |       |                              |
|----------------------------------|-------|-------|-------|------------------------------|
| ANTHOPELURA SPP                  |       |       |       |                              |
| (SEM) BALUNUS CARIOSUS           |       |       |       |                              |
| B. GLANDULA                      | 1234  | 1234  | 1234  |                              |
| BRYOZOANS                        |       |       |       |                              |
| CHITONS (OTHER THAN K. TUNICATU) |       |       |       |                              |
| CLAMS                            |       | 453   | 345   | Saxidomus, Pectotheca, Demea |
| CRABS                            |       |       |       |                              |
| DERMASTERIAS IMBRICATA           |       |       | 23    |                              |
| KATHARINA TUNICATA               |       |       |       |                              |
| LEPTASTERIAS HEXACTIS            |       |       |       |                              |
| LIMPETS                          | 12345 | 12345 | 12345 |                              |
| LITTORINA SPP                    | 1234  | 1234  | 1234  |                              |
| NUCELLA SPP                      |       | 245   | 345   |                              |
| PAGURUS SPP                      |       | 345   | 345   |                              |
| PISASTER OCHRACEUS               |       |       |       |                              |
| POLYCHAETES                      |       |       |       |                              |
| PYRNOPODIA HELIANTHOIDES         |       |       |       |                              |
| SEARLESIA DIRA                   |       | 12    | 12    |                              |
| SERPULIDS                        |       |       |       |                              |
| SIPHONARIA THERSITES             |       |       |       |                              |
| TEALIA                           |       |       |       |                              |

DI-66

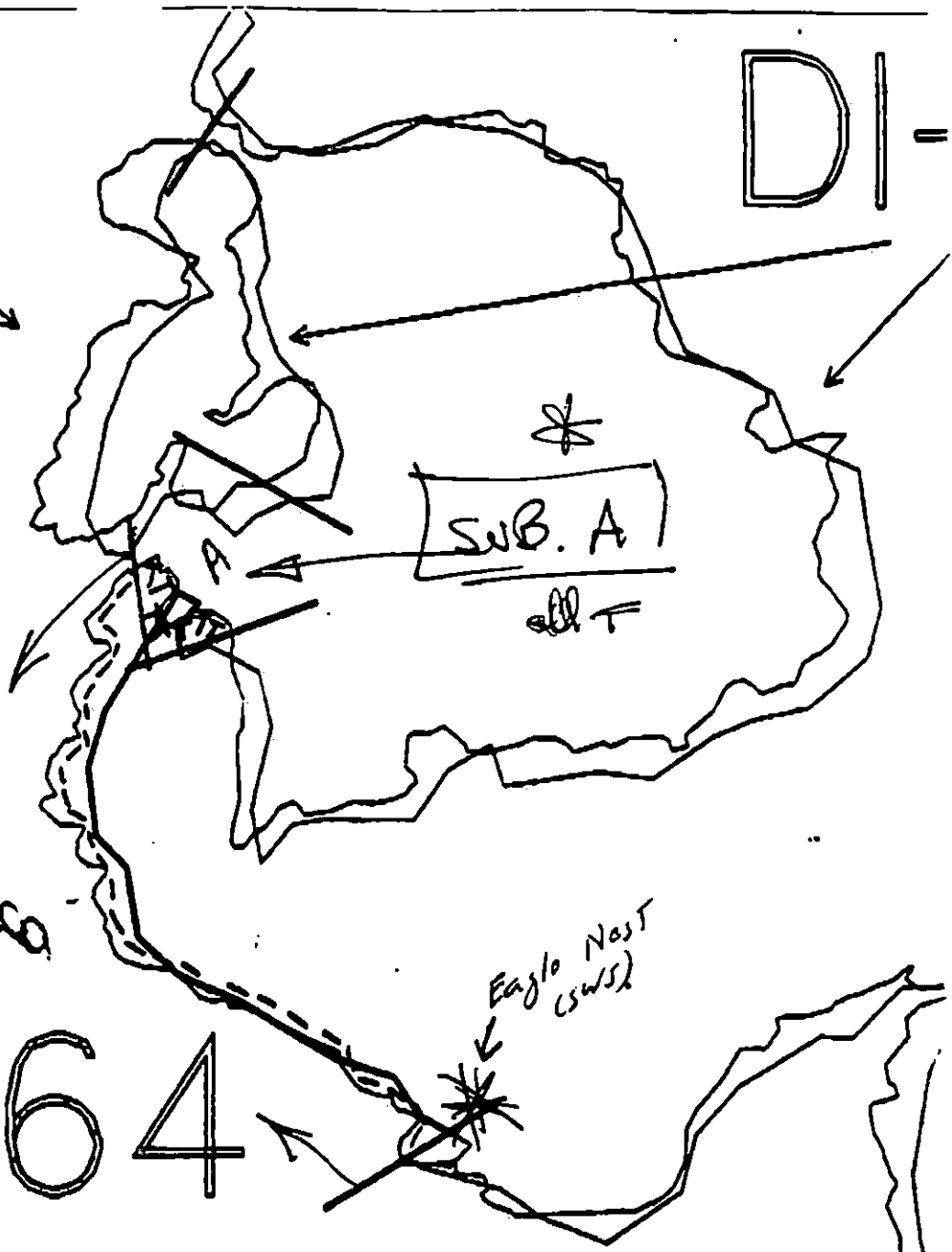
DI-

ECOLOGY  
MAP

SUBDIV.  
B

DI-64

DI-63



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

DI-64A-100  
ADEC Segment Length: <sup>935</sup>~~1000~~  
0 100 200 300  
METERS



Map Key: PWS-96  
Name: James Spring  
Date: 4/7/90  
Data Entered:

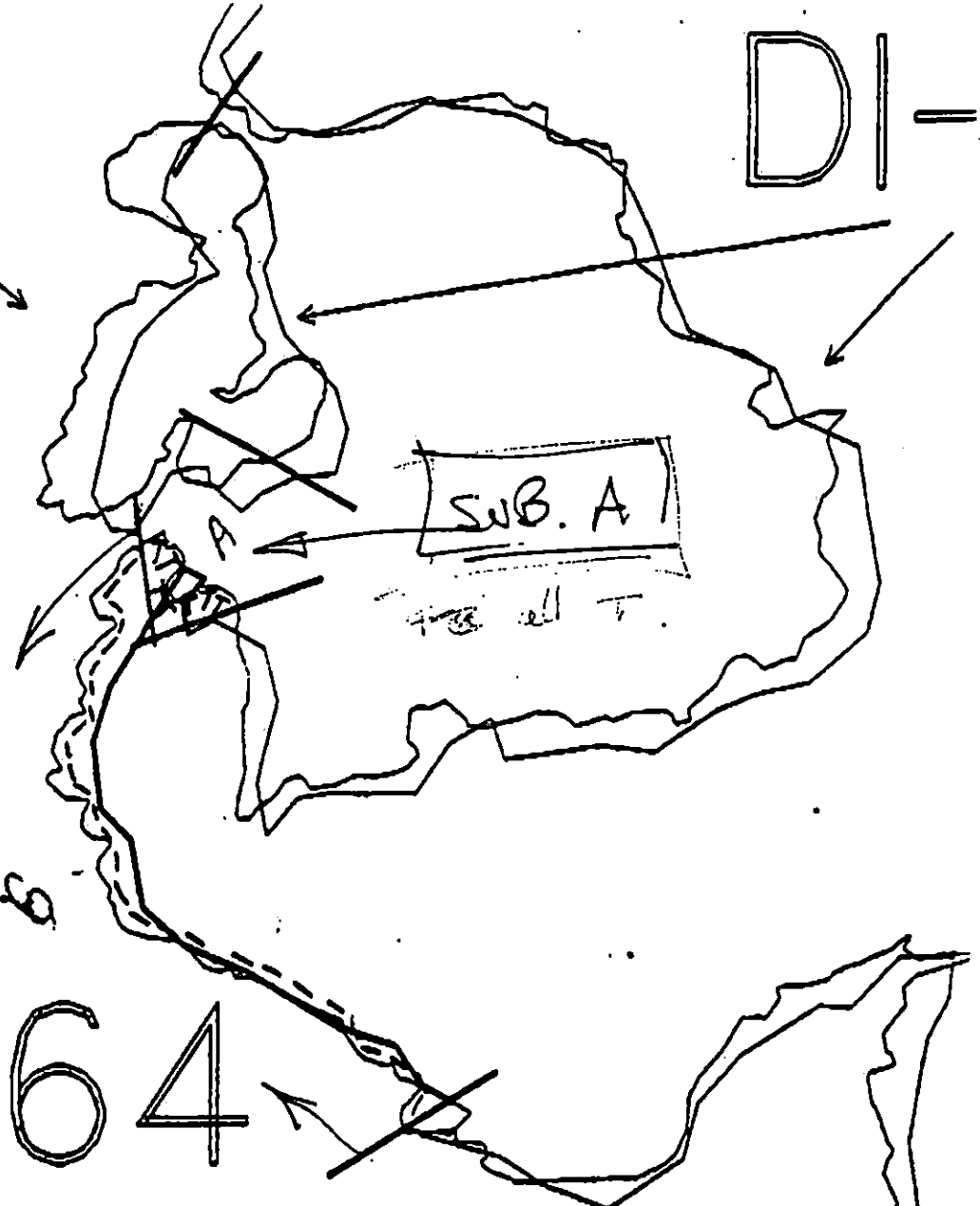
DI-66

DI-

SUBDIV.  
B

DI-64

DI-63



XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

0000 No Oil

DI-64

ADEC Segment Length: <sup>935</sup>~~200~~m



Map Key: PWS-96

Name: James Springer

Date: 4/7/90

Date Entered:

## SHORELINE EVALUATION

SEGMENT ST/ DI-64 SUBDIVISION B (2 OF 2) DATE 4/7/90

**SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:**

5T-1 All bald eagle nests (3/1 to 6/1)-Active eagle nests (3/1 to 9/1)  
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 uncoiled biota and substrate. Eagle nest in Subdivision B on or near border with DI-63.**

SHPO SIGNATURE: Charles E. Jones DATE: 4/25/90

**OILING CATEGORIZATION:**

Wide 0 m: Medium 185 m: Narrow 365 m: V.Light 0 m: No Oil 0 m  
Subsurface Oil Observed: Yes X No        Maximum Depth 30+ cm

**RECOMMENDATIONS:**

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

COMMENTS: Recommended treatment includes 1) manual pick up of mousse patties, 2) bioremediation of areas shown on attached sketch map. Work should be conducted after 6/1 and after approval of USFWS regarding eagle nest.

**TAG COMMENTS:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TAG APPROVAL DATE: 4/24/90.

ADEC ART WEINER Art Weiner

EXXON *Amoy 162*

NOAA Joseph Tallant

USCG Mr. J. Hall ~~Mr. X~~

FOSC: W/L DATE: 5-3-90

# 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 uncoiled intertidal and subtidal algae and seagrass.  
 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.
- 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)
- 7HH Finfish harvesting
- 7H Deer harvesting (8/15 to 2/28)
- 7JJ Invertebrate harvesting  
 For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.

# FIELD SHORELINE COMMENT SHEET **DRAFT**

SEGMENT ST / DI-64 SUBDIVISION: B DATE 04/07/90

**USCG**

NAME AEC Vandepels SIGNATURE AEC Vandepels

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

*I suggest hot water wash, pick up mousse patties manually in areas indicated on the map.*

**ADEC**  
NAME

Michele Baers SIGNATURE M Baers

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

*Remove mousse patties manually. On the R & B beach. ~~use~~ use hot water wash to remove the CT's <sup>in</sup> the indicated areas. There are mussel & fucus beds throughout the area.*

**LAND MANAGER**

NAME DAN LOGAN SIGNATURE Dan Logan

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

*THIS IS A HIGH RECREATION USE AREA AS THE PROTECTED COVE ON DISK ISLAND IS EXCELLENT ANCHORAGE. I RECOMMEND MANUALLY REMOVING THE MOUSSE PATTIES AND A HOT WATER-HIGH PRESSURE WASH ON THE COATED AREAS INDICATED ON THE MAP.*

## SHORELINE OILING SUMMARY

REVISION NO. 03/22/

OG J. Springer USCG R. Vandepels SEGMENT ST/ DI-64  
 BIO P. Conk LAND REP D. Logan SUBDIVISION B (2 of 2)  
 EXXON T. Tamplin ADEC M. Bager TIME 17:25 to 18:30  
 TEAM NO.: 5 TIDE LEVEL: +2 to +1 DATE 04/07/80  
 EST. SUBDIVISION LENGTH: 835 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock Pillow lava  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: to  
 SURFACE SEDIMENTS: R 30 % B 40 % C 20 % P 10 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Long 20 % Hang 70 % Vert 10 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 160 m N 675 m VL 0 m NO 0 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   |   |   |   |   | IMPACTED ZONES |   |   |   |
|------------------|--------------|---|---|---|------------------|---|---|---|---|---|---|---|----------------|---|---|---|
|                  | C            | N | E | S | 1                | 2 | 3 | 4 | 5 | 6 | 7 | 8 | SU             | U | M | L |
| ASPHALT PAVEMENT |              |   |   |   |                  |   |   |   |   |   |   |   |                |   |   |   |
| POOLED           |              |   |   |   |                  |   |   |   |   |   |   |   |                |   |   |   |
| COVER            |              |   |   |   |                  |   |   |   |   |   |   |   |                |   |   |   |
| COAT             |              | ✓ | X |   |                  |   |   | X |   |   |   |   | X              |   |   |   |
| STAIN            |              |   |   |   |                  |   |   |   |   |   |   |   |                |   |   |   |
| MOUSSE           |              |   |   |   |                  |   |   |   |   |   |   |   |                |   |   |   |
| PATTIES          |              | X |   |   |                  |   |   | X |   |   |   |   | X              |   |   |   |
| TARBALLS         |              |   |   |   |                  |   |   |   |   |   |   |   |                |   |   |   |
| FILM             |              |   |   |   |                  |   |   |   |   |   |   |   |                |   |   |   |
| NO OIL           |              |   |   |   |                  |   |   |   |   |   |   |   | X              |   | X | X |

PAVEMENT: H F S 0 sq. m by 0 cPATTIES / TARBALLS 30 BAGSNEAR SHORE SHEEN? ☒ NO BR RW SL TL

| OILED DEBRIS | AMOUNT |    |    |
|--------------|--------|----|----|
|              | SM     | MD | LG |
| Logs         |        |    |    |
| Vegetation   |        |    |    |
| Trash        |        |    |    |
| Debris       |        |    |    |

DEBRIS COLLECTED  
☐ YES ☒ NOTYPE 0#BAGS 0

Photographs:

Roll No. 57-5-4Frames 27-32

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (CM) | BELOW |    | OIL / FILM COLOR |   |   |   |   |   |   |   | PIT ZONE |   |   |   | A N A | SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|---|---|---|---|---|---|----------|---|---|---|-------|----------------------|
|         |                | OP                       | OR | OL | OF | NO |                     | DO    | UC | 1                | 2 | 3 | 4 | 5 | 6 | 7 | 8 | SU       | U | M | L |       |                      |
| 1       | 30             |                          |    |    | X  |    | 0-30                | X     |    |                  |   |   |   |   | X |   |   | X        |   |   |   |       | BCPGM                |
| 2*      | 10             |                          |    |    |    | X  | .                   |       |    |                  |   |   |   |   |   |   |   | X        |   |   |   |       | CPSM                 |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |   |   |   |          |   |   |   |       |                      |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |   |   |   |          |   |   |   |       |                      |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |   |   |   |          |   |   |   |       |                      |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |   |   |   |          |   |   |   |       |                      |

COMMENTS \* 3-5cm surface oil at pit 2, ✓

OG 3. SP 1068

SEGMENT ST/01-64

SUBDIVISION B

DATE 04 107/90

# CHECKLIST

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

## LEGEND

1 Δ

Pn - No Subsurface Oil

2 Δ

Pn - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/S

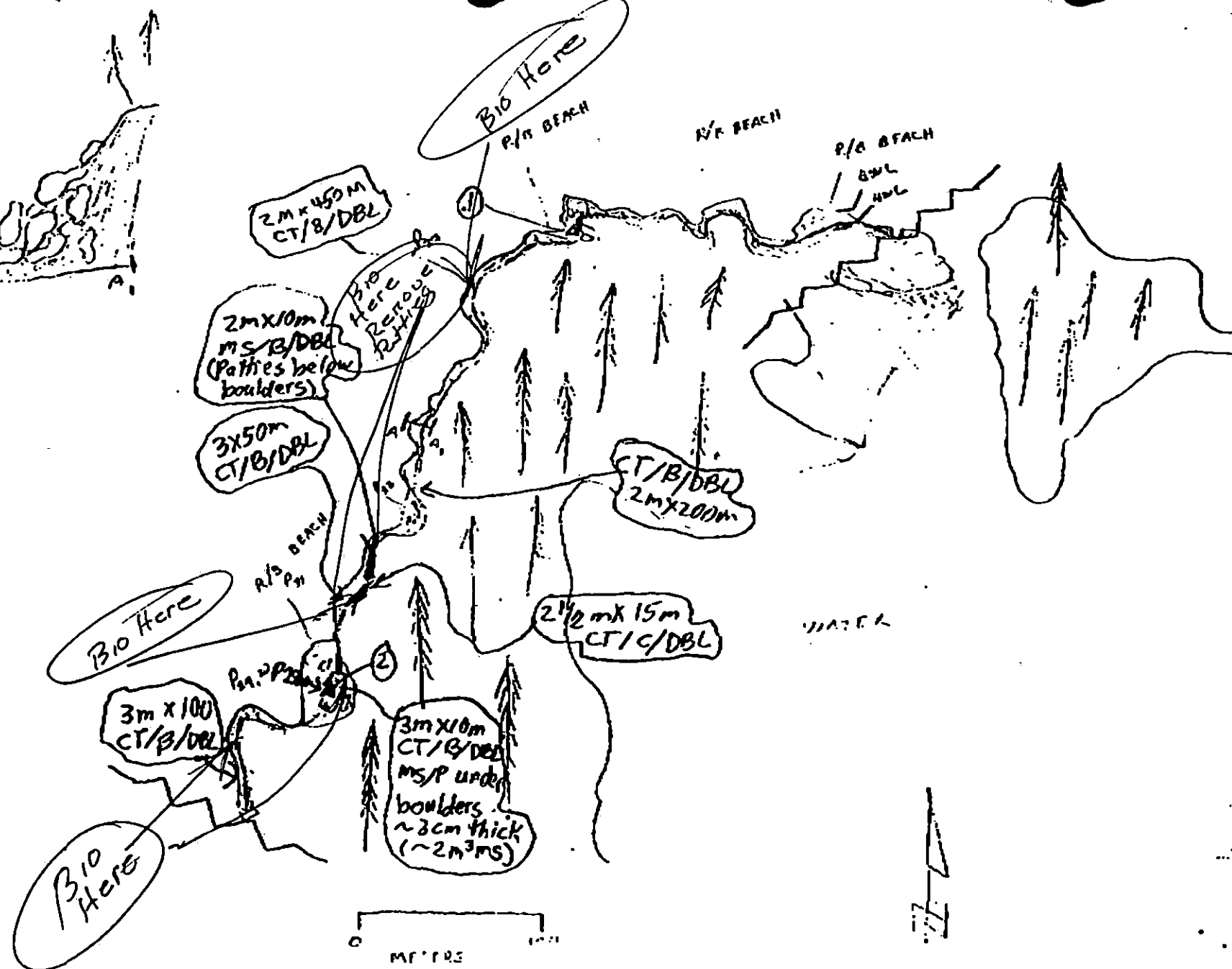
Splashed Distribution

Oil Vegetation

1 ●

Photo location, direction, and number

## ATCH MAP



Oil Character Length (m): AP \_\_\_\_\_ PO \_\_\_\_\_ CV \_\_\_\_\_ CT 825 ST \_\_\_\_\_ MS 10 PT \_\_\_\_\_ TB \_\_\_\_\_ FL \_\_\_\_\_ NO \_\_\_\_\_

REVISION: 000000

## SHORELINE ECOLOGICAL SUMMARY

Pg 10 + 5

REVISION: 03/22/90

Segment ST-1 D114 Subdivision B Date (mo/day/yr) 4/7/90  
 Time (24 hr) 1725-1850 Biologist Crank Length 235m  
 Tide Height +1.5 to +0.5

- (A) Substrate type and % of segments:  
 (1) Bedrock 30 (2) Boulder 40 (3) Cobble 20 (4) Pebble 10 (5) Sand      (6) Silt
- (B) Overall % cover of biota (% of segment): Dense 30 Moderate 25 Low 45
- (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-5-4Frames 27

## BARNACLES

| Dense        |              |    | Moderate     |              |              | Sparse       |              |              | Rare |    |    |
|--------------|--------------|----|--------------|--------------|--------------|--------------|--------------|--------------|------|----|----|
| 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U   | 1M | 1L |
| <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |
| <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | 3  |
| <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | 4  |
| <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | 5  |
| <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | 6  |

NOT PRESENT

## MYTILUS

| Dense |    |    | Moderate |              |    | Sparse       |              |    | Rare |    |    |
|-------|----|----|----------|--------------|----|--------------|--------------|----|------|----|----|
| 1U    | 1M | 1L | 1U       | 1M           | 1L | 1U           | 1M           | 1L | 1U   | 1M | 1L |
| 2     | 2  | 2  | 2        | <del>2</del> | 2  | <del>2</del> | <del>2</del> | 2  | 2    | 2  | 2  |
| 3     | 3  | 3  | 3        | <del>3</del> | 3  | <del>3</del> | <del>3</del> | 3  | 3    | 3  | 3  |
| 4     | 4  | 4  | 4        | <del>4</del> | 4  | <del>4</del> | <del>4</del> | 4  | 4    | 4  | 4  |
| 5     | 5  | 5  | 5        | <del>5</del> | 5  | <del>5</del> | <del>5</del> | 5  | 5    | 5  | 5  |
| 6     | 6  | 6  | 6        | <del>6</del> | 6  | <del>6</del> | <del>6</del> | 6  | 6    | 6  | 6  |

NOT PRESENT

## GASTROPODS

| Dense |    |              | Moderate |              |              | Sparse       |              |    | Rare |    |    |
|-------|----|--------------|----------|--------------|--------------|--------------|--------------|----|------|----|----|
| 1U    | 1M | 1L           | 1U       | 1M           | 1L           | 1U           | 1M           | 1L | 1U   | 1M | 1L |
| 2     | 2  | 2            | 2        | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | 2  | 2    | 2  | 2  |
| 3     | 3  | <del>3</del> | 3        | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | 3  | 3    | 3  | 3  |
| 4     | 4  | <del>4</del> | 4        | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | 4  | 4    | 4  | 4  |
| 5     | 5  | 5            | 5        | 5            | 5            | 5            | 5            | 5  | 5    | 5  | 5  |
| 6     | 6  | 6            | 6        | 6            | 6            | 6            | 6            | 6  | 6    | 6  | 6  |

NOT PRESENT

## FUCUS

| Dense |              |    | Moderate |              |    | Sparse       |              |              | Rare |    |    |
|-------|--------------|----|----------|--------------|----|--------------|--------------|--------------|------|----|----|
| 1U    | 1M           | 1L | 1U       | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L |
| 2     | <del>2</del> | 2  | 2        | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |
| 3     | <del>3</del> | 3  | 3        | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | 3  |
| 4     | 4            | 4  | 4        | 4            | 4  | 4            | 4            | 4            | 4    | 4  | 4  |
| 5     | 5            | 5  | 5        | 5            | 5  | 5            | 5            | 5            | 5    | 5  | 5  |
| 6     | 6            | 6  | 6        | 6            | 6  | 6            | 6            | 6            | 6    | 6  | 6  |

NOT PRESENT

Wildlife Observations/ General Comments: This segment was partially surveyed by shifts.  
 1 Raven  
 1 Bald Eagle - Adult

## Ecological Considerations:

60V - Anchorages

5T - Active Bald Eagle Nest  
 (Did not locate.)

- gastropod densities are inferred throughout segment area that were fast surveyed.
- Barnacle scarring present, most prevalent in LITZ 50-80% Barnacle mortality in LITZ along oil band.
- There are a few small (less than 2 m<sup>2</sup>) intertidal mussel beds with sparse to moderate concentration with many mounds drilled by predatory snails.
- There is a rich flow covering in LITZ, suggest if treated work be done at a +4 ft or higher tide to protect this zone.

SEGMENT: ST/ D1124 SUBDIVISION 5 LENGTH 835m BIOLOGIST Crank

DATE 4/1/90 TIME 1725-1850 TIDE HEIGHT 1.5 → +0.5

1 - BEDROCK 2 - BOULDER 3 - COBBLE 4 - PEBBLE 5 - SAND 6 - SILT

11 pg 3 of 2

FLORA:

| SPECIES                          | UTZ  | MTZ  | LITZ | COMMENTS                          |
|----------------------------------|------|------|------|-----------------------------------|
| BOSSIELLA/CORALLINA              |      |      |      |                                   |
| CALLIARTHRON/CORALLINA           |      |      |      |                                   |
| CLADOPHORA SPP                   | 1    |      |      |                                   |
| COSTARIA SPP                     |      |      |      |                                   |
| ENDOCLADIA MURICATA              |      |      |      |                                   |
| FILAMENTOUS GREENS               |      | 1234 | 1234 | blanks on Cobble                  |
| FILAMENTOUS REDS                 |      | 345  | 345  |                                   |
| GLOIOPELTIS FURCATA              |      |      |      |                                   |
| HALOSACCION GLANDIFORME          |      | 123  | 12   |                                   |
| LAMINARIA SPP                    |      |      |      |                                   |
| LITHOTHAMNION                    |      |      | 1    |                                   |
| NEAEOCYSTIS SPP                  |      |      |      |                                   |
| PORPHYRA SPP                     |      |      |      |                                   |
| RALPHSIA/HILDENBRANDIA           |      |      |      |                                   |
| RHODOMELA LARIX                  |      | 234  | 1234 |                                   |
| RHODOMENIA PALMATA               |      | 234  | 1234 |                                   |
| SCYTOSIPHON SPP                  |      | 123  | 123  |                                   |
| ULVA SPP                         |      | 213  | 132  |                                   |
| ZOSTERA MARINA                   |      |      |      |                                   |
| Cyathophora                      |      | 12   | 123  |                                   |
| Enteromorpha                     |      |      | 1    |                                   |
| Mastocarpus                      |      |      | 2    |                                   |
| Petrelia                         | 3    |      |      |                                   |
| ANTHOPLEURA SPP                  |      |      |      |                                   |
| (SEMI) BALANUS CARIOSUS          |      |      |      |                                   |
| B. GLANDULA                      |      | 1234 | 1234 |                                   |
| BRYOZOANS                        |      |      |      |                                   |
| CHITONS (OTHER THAN K. TUNICATU) |      |      |      |                                   |
| CLAMS                            |      |      |      | Shells only in LITZ Priotheca     |
| CRABS                            |      |      |      |                                   |
| DERMASTERIAS IMBRICATA           |      |      | 213  | Dense concentrations              |
| KATHARINA TUNICATA               |      |      |      |                                   |
| LEPTASTERIAS HEXACTIS            |      |      |      |                                   |
| LIMPETS                          | 1234 | 1234 | 1234 |                                   |
| LITTORINA SPP                    | 1234 | 1234 | 1234 |                                   |
| NUCELLA SPP                      |      | 1234 | 1234 |                                   |
| PAGURUS SPP                      |      | 34   | 34   |                                   |
| PISASTER OCHRACEUS               |      |      |      |                                   |
| POLYCHAETES                      |      |      |      |                                   |
| PYCNOPODIA HELIANTHOIDES         |      |      |      |                                   |
| SEARLESIA DIRA                   |      | 234  | 234  |                                   |
| SERPULIDS                        |      |      |      |                                   |
| SIPHONARIA THERSITES             |      |      |      |                                   |
| TEALIA                           |      |      |      |                                   |
| Ctenophore                       |      |      | 1    | one specimen in H <sub>2</sub> O. |
|                                  |      |      |      |                                   |
|                                  |      |      |      |                                   |
|                                  |      |      |      |                                   |
|                                  |      |      |      |                                   |

FAUNA:

ECOLOGY  
MAP

SUBDIV.  
B

SUB. A  
all T

Eagle Nest  
(SWS)

DI-64

DI-63

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

DI-64A-100

ADEC Segment Length: ~~935~~ 935m

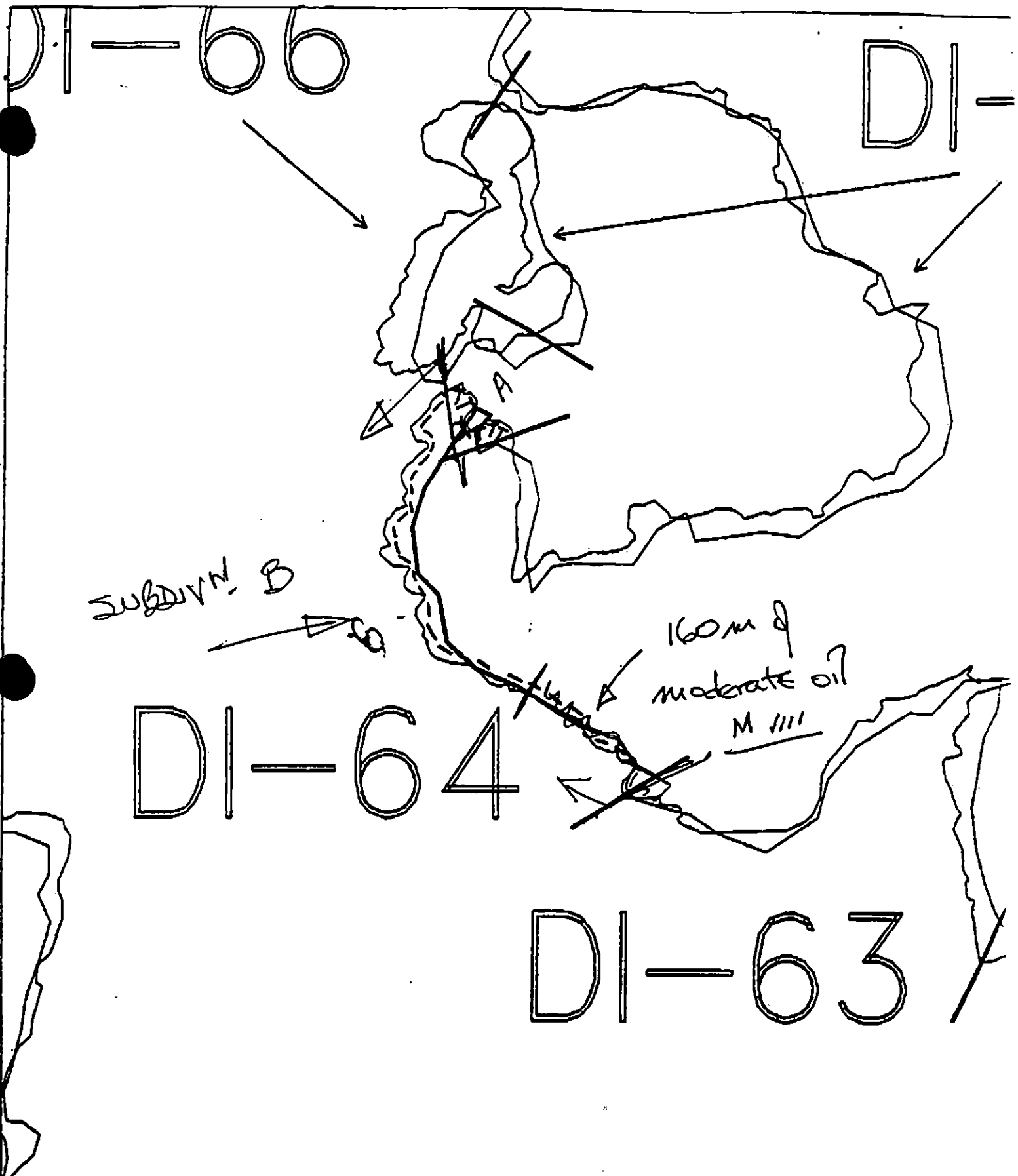


Map Key: PWS-96

Name: James Springer

Date: 4/7/90

Data Entered:



XXXX Wide

/// Medium

--- Narrow

TTTT Very Light

OOOO No Oil

DI-64

ADEC Segment Length: 935



Map Key: PWS-96

Name: James Springer

Date: 4/7/90

Data Entered:

## ADDENDUM: SUBDIVISION CONSTRAINTS

-SEGMENT DI-64 SUBDIVISION B (2 of 2)

| WORK WINDOW    |      |
|----------------|------|
| Manual Pickup  | OPEN |
| Bioremediation | OPEN |

### ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

**5T Bald Eagle Nest**

USFWS 6/1/90 map indicates an active nest within 400m of Subdivision B work site, however, USFWS has granted access to work site per 5/10/90 survey conducted by Mike Lockhart (see map). No constraint to manual pickup and bioremediation.

### OTHER ECOLOGICAL CONSIDERATIONS

Restrict air traffic and all disturbance to essential minimum. Air approach and takeoff from and to seaward only; maintain 400m horizontal, 300m vertical distance from nests. Avoid any unnecessary disturbance or damage to unopened blots and substrate. Stay out of USFWS established eagle nest buffer zone. No personnel or boat traffic within USFWS designated buffer zone.

FOSC

*G.A. Reiter*  
for FOSC

DATE

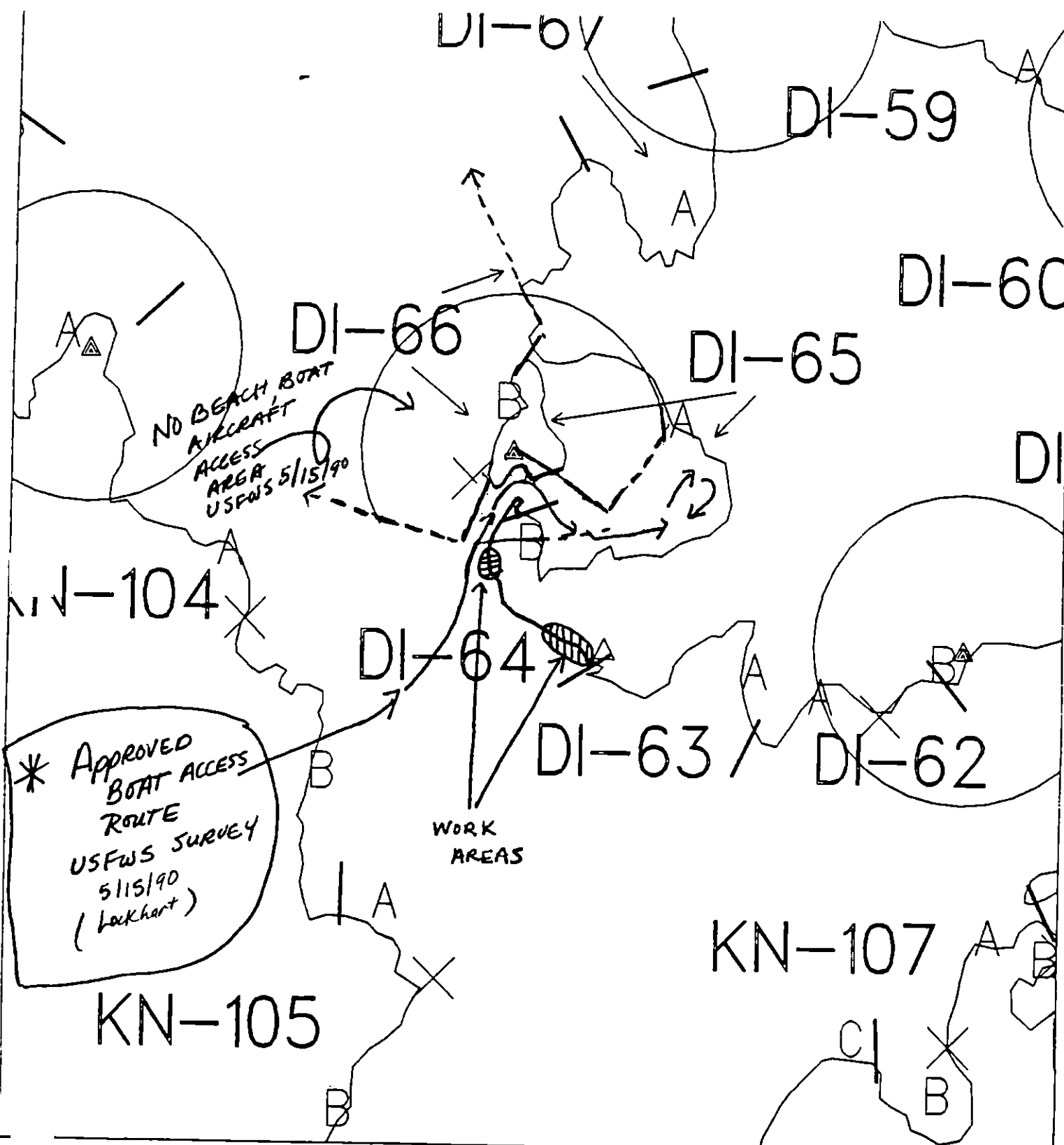
*6/10/90*

Prepared By:

*W. Kelley*

Date

*6/9/90*



Exxon Company, USA  
 Map Key: PWS-DI-64  
 June 04, 1990

**ECOLOGY MAP**  
 SEGMENT DI-64  
 SUBDIVISION B (2 of 2)  
 METERS  
 0 360 720

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

1 inch = 1181 feet

SHORELINE EVALUATION

SEGMENT ST/ DI-65 SUBDIVISION A (1 OF 1) DATE 4/19/90

**SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:**

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.

SHPO SIGNATURE: Rachel Jean Dore DATE: 6/20/90

**OILING CATEGORIZATION:**

Wide 0 m: Medium 25 m: Narrow 186 m: V.Light 1749 m: No Oil 53 m  
Subsurface Oil Observed: Yes        No X Maximum Depth       

**RECOMMENDATIONS:**

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

COMMENTS: Recommended treatment includes manual removal of tarballs and tar patties and removal of rope in areas indicated on attached sketch map. Work should be conducted after 5/1.

BIOREMEDIATION TO FOLLOW MANUAL PICKUP AS INDICATED ON SKETCH

TAG COMMENTS:         
        
        
      

TAG APPROVAL DATE: 4/28/90  
ADEC ART WEAVER  
EXXON ANDY TATE  
NOAA GARY PETRO  
USCG KENNETH KEANE

FOSC: [Signature] DATE: 7/3/90

# 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 (8/7 to 8/31)  
1J Purse seine area (7/20 to 9/30)  
1K Purse seine hook-off (7/20 to 9/30)  
1L Set net sites (8/11 to 7/25)  
For Codes 1C through 1L contact ADF&G for specific dates, locations and constraints.
- 2M Herring spawning (4/1 to 6/15)  
Restrict boat traffic to essential minimum. Avoid damage to uncoiled intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.
- 3N, 3P 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.
- 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 (8/1 to 9/15)  
6V Anchorages (8/1 to 9/15)  
6W Forest Service cabins (8/1 to 9/15)  
6X Lodge (8/1 to 9/15)  
6Y Special use destination
- 7Z Subsistence area: Salmon harvesting (5/1 to 9/30)  
7HH Finfish harvesting  
7I Deer harvesting (8/15 to 2/28)  
7JJ Invertebrate harvesting  
For Codes 7Z through 7JJ contact ADF&G and Chenega Corporation for specific dates, locations, and constraints.

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ DI-65 SUBDIVISION: A DATE 4/19/90

USCG

NAME William E. White SIGNATURE William E. White

☐ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Manual pickup of tarballs and patties -  
area of concentration.

This area serves as a boat anchorage  
between the period June 1<sup>st</sup> - Sep 15<sup>th</sup> - has a high  
recreation boat usage - floats and line tied to up  
lands in the south west section of DI-65 - should be  
removed - if it was part of the cleanup operation.

ADEC

NAME Peter Montesano SIGNATURE Peter Montesano

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS Segment of utmost Recreational Value - only flushed by tidal action,  
Nowave exposure. Silver/gray silt/sand sporadic from shore between lagoon entrances.

- Manually remove tarballs and patties all along lagoon. They are easily retrieved and are most common between the two entrances to lagoon.
- The penetration pits revealed oil under clean surface sediments and often under the active green zone. Bio is Not recommended since it would have to be applied on live intertidal vegetation.

LAND MANAGER USOA - Forest Service

NAME Don J. Breitner SIGNATURE Don J. Breitner

☐ NO TREATMENT RECOMMENDED  
COMMENTS

☒ TREATMENT SUGGESTED

Manual pickup of tar balls and patties  
in areas of concentration.

This area serves as a : boat anchorage  
between the period of June 1 - Sep. 15 and has a  
high recreation boat usage. Line and floats tied to  
up lands in the south west, section of DI-65.

## SHORELINE OILING SUMMARY

REVISION NO. 04/12/90

OG C. DILLON USCG PS1 E. WHITE SEGMENT STI DI-65  
 BIO J. BARRY LAND REP D. BRIGHTENGER (NCS) SUBDIVISION A (1 OF 1)  
 XON G. STILES ADEC P. MONTESANO TIME 11:35 10/14/90  
 AM NO. 6 TIDE LEVEL +6.5 to +2 DATE 04/19/90  
 ST. SUBDIVISION LENGTH: 2273 m ☐ Sun ☒ Clouds ☒ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock SUBDIVISION IS CIRCULAR  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: W to N to E to S (circle)  
 SURFACE SEDIMENTS: R 30 % B 20 % C 40 % P 5 % G 0 % S 0 % M 0 % V 5 %  
 SLOPE: Lang 15 % Hang 75 % Vert 10 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 18 m N 205 m VL 2000 m NO 50 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |    |    |    | OIL / FILM COLOR |    |    |    |    | IMPACTED ZONES |   |    |   |
|------------------|--------------|----|----|----|------------------|----|----|----|----|----------------|---|----|---|
|                  | 10           | 15 | 20 | 25 | 30               | 35 | 40 | 45 | 50 | SW             | U | SE | U |
| ASPHALT PAVEMENT |              |    |    |    |                  |    |    |    |    |                |   |    |   |
| POOLED           |              |    |    |    |                  |    |    |    |    |                |   |    |   |
| COVER            |              |    |    |    |                  |    |    |    |    |                |   |    |   |
| COAT             |              | X  | X  | X  | X                |    |    |    | X  | X              | ✓ |    |   |
| STAIN            |              |    | X  | X  |                  |    |    |    | X  | X              | X |    |   |
| MOUSSE           |              |    |    |    |                  |    |    |    |    |                |   |    |   |
| PATTIES          |              |    |    | X  |                  |    |    |    | X  | X              |   |    |   |
| TARBALLS         |              |    |    | X  | X                |    |    |    |    | X              |   |    |   |
| FILM             |              |    |    |    |                  |    |    |    |    |                |   |    |   |
| NO OIL           |              |    |    |    |                  |    |    |    |    | X              |   |    | X |

PAVEMENT H F S 0 sq. m by 0 cmPATTIES / TARBALLS 10 BAGSNEAR SHORE SHEEN? NO BR (RW) (SL) TL

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

DID YOU COLLECT DEBRIS?

YES ☒ NO ☐uniled trash  
TYPE melted plastic#BAGS 2

Photographs:

Roll No. NONEFrames 0

## SUBSURFACE OIL \* Oiled interval &lt; 5cm in pit #3 does not constitute subsurface oil.

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |    |    |    |    | PIT ZONE |   |    |   | A N A | SHEEN (Y/N) | ! | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|----|----|----|----|----------|---|----|---|-------|-------------|---|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                     | VO    | UC | 30               | 35 | 40 | 45 | 50 | SW       | U | SE | U |       |             |   |                                |
| 1       | 7              |                          | X  |    |    |    | 0-3                 | X     |    |                  |    |    | X  |    | X        |   |    |   | N     | —           |   | C - P/M/R                      |
| 2       | 10             | X                        |    |    |    |    | 0-4                 | X     |    |                  |    |    | X  |    |          | X |    |   | N     | 10          |   | C/P-P/G/Peat                   |
| * 3     | 12             | X                        |    |    |    |    | 0-3                 | X     |    |                  |    |    | X  |    | X        |   |    |   | N     | 12          |   | P-P/Peat                       |
| 4       | 12             | X                        |    |    |    |    | 0-3                 | X     |    |                  |    |    | X  |    | X        |   |    |   | N     | 12          |   | C/P-P/Peat                     |
| 5       | 10             |                          |    |    |    | X  | 0-0                 | X     |    |                  |    |    |    |    | X        |   |    |   | N     | —           |   | P-P/Peat                       |
| 6       | 20             | X                        |    |    |    |    | 0-2                 | X     |    |                  |    | X  |    |    | X        |   |    |   | N     | 8           |   | C-C/P/Peat                     |
| 7       | 25             |                          |    |    |    | X  | 0-0                 | X     |    |                  |    |    |    |    | X        |   |    |   | N     | —           |   | C/P-P/G/M                      |

COMMENTS: ALL PITS INDICATE NO SUBSURFACE OIL. PEAT IS NOT ANAEROBIC.

MAJORITY OF SUBDIVISION IS HANG ROCK AND BOULDER SLOPES WITH A THIN SURFACE LAYER OF COBBLES. THE OIL CATEGORIES ARE FAIRLY HOMOGENEOUS THROUGHOUT AS SPORADIC TO BROKEN COAT WITH SPORADIC TARBALLS ALONG THE WITZ; THEREFORE, NO SKETCH MAP WAS DRAWN.  
 IN A FEW AREAS THE SHORELINE IS LANG COBBLE AND PEBBLE. IN  
 REVIEWED W DATE 4/21/90  
 OR MEDIUM.

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 02/22/90

Segment ST/ DI 65 Subdivision A Date (mo / day / yr) 20 APRIL 1990

Time (24 hr) 1200 - 1440 Biologist JIM BARRY length = 2273m 1/4

- (A) Substrate type and % of segments:  
 (1) Bedrock 30 (2) Boulder 20 (3) Cobble 40 (4) Pebble 10 (5) Sand      (6) Silt
- (B) Overall % cover of biota (% of segment): Dense 50 Moderate 45 Low 5
- (C) Density, substrate preference (by number from A, above), & vertical zonation of major taxa: (upper-U; mid-M; low tidal-L); juveniles / adults (X), new settlement (O)

Photographs:  
 Roll No. NO PHOTOS  
 Frames     

## BARNACLES

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare |    |    | NOT PRESENT |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|------|----|----|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | 3  |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | 4  |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | 5  |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | 6  |             |

## MYTILUS

| Dense |    |    | Moderate |    |    | Sparse       |              |    | Rare |    |              | NOT PRESENT |
|-------|----|----|----------|----|----|--------------|--------------|----|------|----|--------------|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U           | 1M           | 1L | 1U   | 1M | 1L           |             |
| 2     | 2  | 2  | 2        | 2  | 2  | <del>2</del> | <del>2</del> | 2  | 2    | 2  | <del>2</del> |             |
| 3     | 3  | 3  | 3        | 3  | 3  | <del>3</del> | <del>3</del> | 3  | 3    | 3  | <del>3</del> |             |
| 4     | 4  | 4  | 4        | 4  | 4  | <del>4</del> | <del>4</del> | 4  | 4    | 4  | <del>4</del> |             |
| 5     | 5  | 5  | 5        | 5  | 5  | <del>5</del> | <del>5</del> | 5  | 5    | 5  | <del>5</del> |             |
| 6     | 6  | 6  | 6        | 6  | 6  | <del>6</del> | <del>6</del> | 6  | 6    | 6  | <del>6</del> |             |

## GASTROPODS

| Dense |    |    | Moderate     |              |              | Sparse |    |    | Rare |    |    | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------|----|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2      | 2  | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | 6      | 6  | 6  | 6    | 6  | 6  |             |

## FUCUS

| Dense |    |    | Moderate     |              |              | Sparse       |              |    | Rare |    |    | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|----|------|----|----|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L | 1U   | 1M | 1L |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | 2  | 2    | 2  | 2  |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | 3  | 3    | 3  | 3  |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | 4  | 4    | 4  | 4  |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | 5  | 5    | 5  | 5  |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | 6  | 6    | 6  | 6  |             |

## Wildlife Observations/ General Comments:

Pelagic Cormorant - 5      GADWALL? - 2      DEER JAW - 1  
 BALD EAGLE - 4      COMMON GOLDEN EYE - 4      GLAUCOUS-WINGED GULLS - 10  
 PIGEON GULLMOT - 2      OTTER (RIVER OR SEA) SCAT -      RAVENS - 2

## Ecological Considerations:

- 1) BALD EAGLE NEST ADJACENT TO SEGMENT - CLEAN UP OPERATIONS UNLIKELY TO INTERFERE
- 2) Otter foraging and haul out site located within segment (river otter).

APRIL 20 1990

DI 65 A

2/4

START 1200

TIDAL WINDOW - +6 → +2

STOP 1440

## I. General Comments

A. HABITAT TYPES - THE ENTIRE SEGMENT is a protected bay with very low wave energy. Runoff streams and the rise and fall of the tide provide the major flushing action. High angle vertical cliffs, cobble/boulder beaches, and a few cobble/pebble beaches are present.

Because of the extremely low wave energy much of the lower intertidal zones are covered by a matt of filamentous brown and green algae and diatoms. Species diversity is low compared to open water sites.

- 1) High angle bedrock and cobble/boulder beaches have similar biotic communities. *Mytilus* typically is sparse, with moderate densities of barnacles (*Balanus*). adults and sparse spat and juveniles. *Fucus* is sparse to moderate and often is covered by a thick film of filamentous algae. Gastropods, mainly Littorines, are patchy, and occasionally dense.
- 2) Beaches are generally the same, except where runoff is strong enough to remove the thick matts of filamentous algae from the low zones.
- 3) Near the outlet to Outer Disk Island, mussel beds are the dense, especially for the northern outlet.

APRIL 20 1990

DI 65 A

3/4

## B OIL-RELATED COMMENTS

1) Oiling is persistent inside this bay, where the sediments frequently produce a sheen when disturbed. Oil coats on barnacles appear to have killed up to 40-50% of all individuals in small patches, but mortality is generally much less severe (~5-10% dead). Clam shells are present in many areas - oil-related mortality is unknown.

Juveniles & spats for barnacles and Mytilus are sparse, likely due to factors other than oil.

No individuals were observed living on oiled bedrock or boulders, however, biota are present closely adjacent to oil on and under boulders and cobble.

2) Clean up operations should have little negative impact to these communities as long as it is restricted to a few days maximum.

## II Recruitment and Mortality.

Mortality comments - see B above

Recruitment for most species appears lower than in sites outside this bay, due most likely to physical processes unrelated to oil pollution or clean up activities.

Because of the slow flushing rate, and the apparently lower recruitment rates for many biota, recovery from any oil-related mortality may be slower than in other areas. Oil-related mortality does not appear to be extensive, but may have impacted some species (e.g. clams) to an unknown extent.

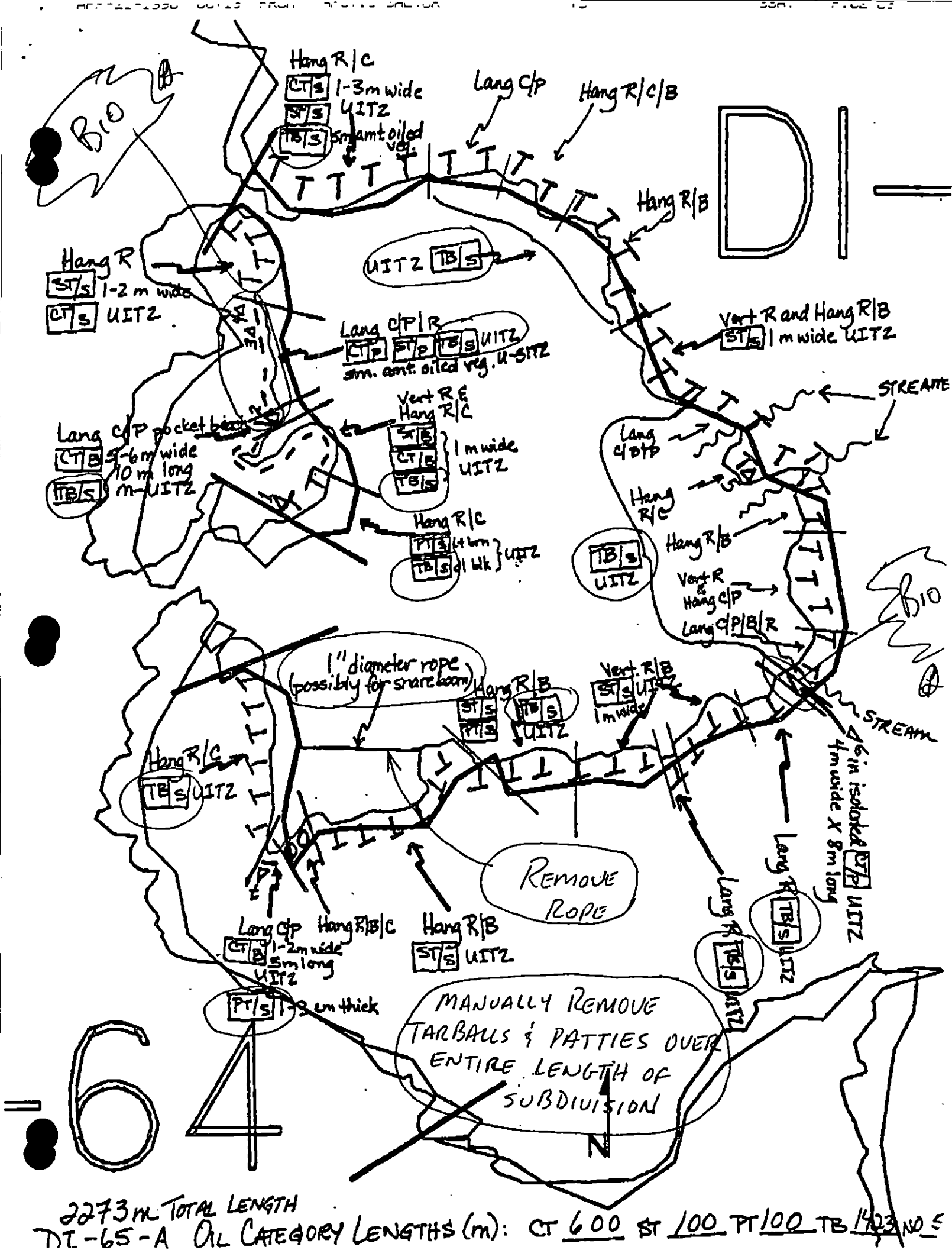
April 20, 1990

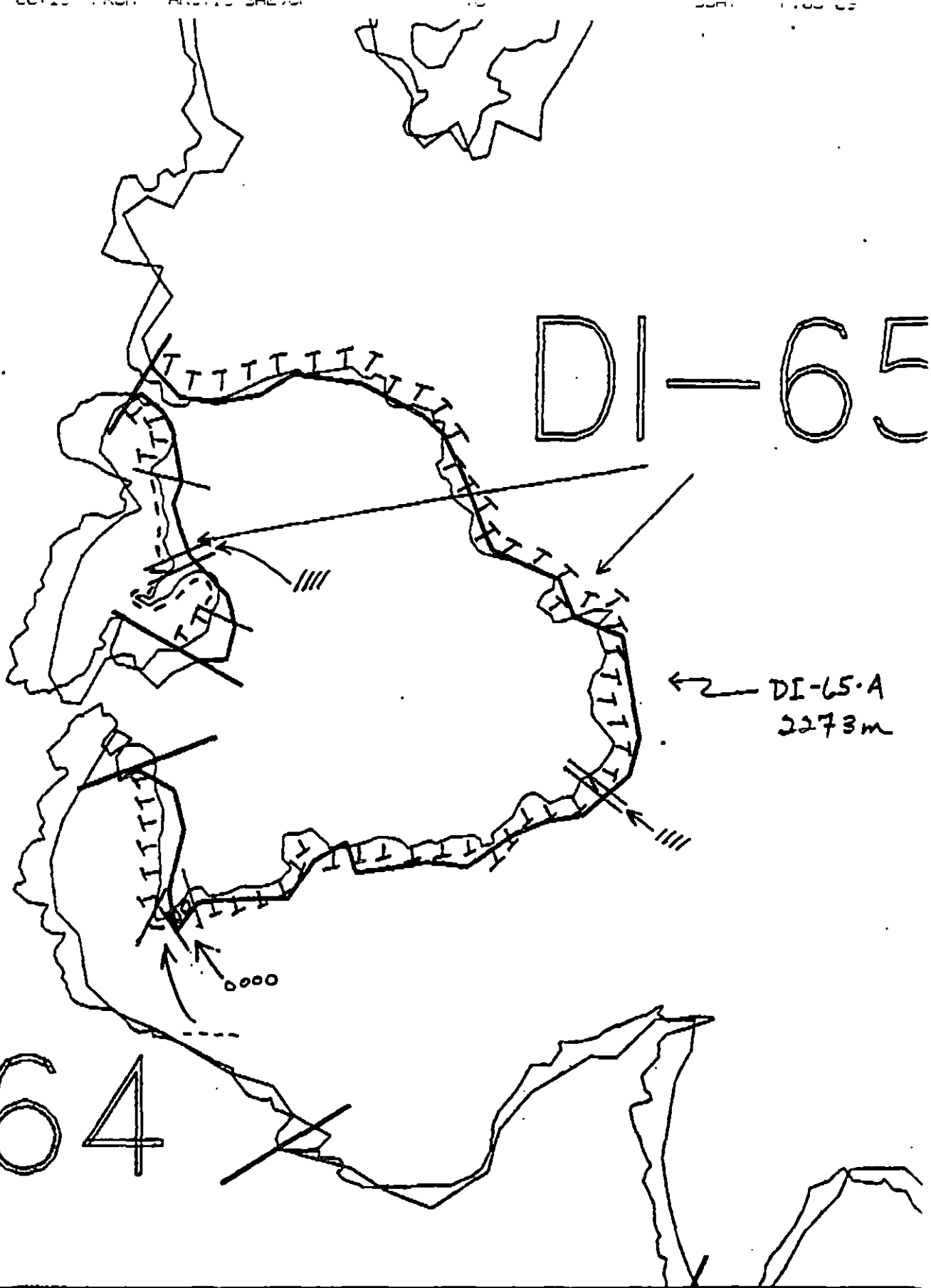
DISS A

4/4

## II Recruitment And Mortality (cont)

- A. *Mytilus* - Juveniles & spats present in low densities  
mortality - Lower zones of *Mytilus* area have  
~ 40% drill holes
- B. *Perna* - Oil cover ~~and~~ kills up to 40-60% in patches.  
Spat of *Balanus* are present but sparse.
- C. *Fucus* - Sporlings moderate & occasionally dense. Occasional  
withered individuals in upper zone - heat treatment kill?
- D. *GASTROPODS*. *Littorina* egg cases are abundant  
whelk - egg cases occasional.  
Mortality unknown.
- E. *Pagurus* - Hermit crabs - abundant in low zone and mid  
zone, usually occupying *Littorina* shells.
- F. *Sea Stars* - Unlike all previously surveyed sites, sea stars  
were rare in this segment. This may or may not be  
related to oil - Few dead individuals, and no  
juveniles, were observed.





XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

DI-65-A

EXXON SEGMENT LENGTH: 2273m  
ADEC Segment Length: 2007m



Map Key: PWS-97

Name: C. DILLON

Date: 4/19/90

Data Entered:

## ADDENDUM: SUBDIVISION CONSTRAINTS

### SEGMENT DI-65 SUBDIVISION A (1 of 1)

#### WORK WINDOW

|                                                |        |
|------------------------------------------------|--------|
| Manual Pickup Less Than 400m From Active Nest  | CLOSED |
| Manual Pickup More Than 400m From Active Nest  | OPEN   |
| Bioremediation Less Than 400m From Active Nest | CLOSED |
| Bioremediation More Than 400m From Active Nest | OPEN   |

#### ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

#### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

5T Bald Eagle Nest

USFWS 6/1/90 map indicates an active nest in Subdivision A. Closed to manual pickup and bioremediation within 400m of active nest. No constraint to manual pickup and bioremediation more than 400m from active nest.

#### OTHER ECOLOGICAL CONSIDERATIONS

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

FOSC

Date

7 July 90

Prepared by

Date

W. Kelley  
7/6/90

KN-107

DI-67

~~DI~~-59

DI-60

~~DI-66~~

DI-65

DI-61<sub>A</sub>

DI-64

DI-63

~~DF-62~~

WORK  
AREAS



Exxon Company, USA  
Map Key: PMS-DI-65  
Line No. 1000

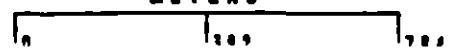


# ECOLOGY MAP

## SEGMENT DI-65

SUBDIVISION A (1 of 2)

## METERS



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

1 inch = 1986 feet

SHORELINE EVALUATION

SEGMENT ST/ DI-66 SUBDIVISION A (1 OF 2) DATE 4/19/90

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

SUBDIVISION ECOLOGICAL CONSTRAINTS:

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

SHPO SIGNATURE: Rebel Don Dan DATE: 6/20/90

OILING CATEGORIZATION:

Wide 0 m: Medium 10 m: Narrow 81 m: V.Light 151 m: No Oil 0 m  
Subsurface Oil Observed: Yes X No      Maximum Depth 5 cm

RECOMMENDATIONS:

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

COMMENTS: MANUAL PICKUP OF TARMATS / TARBALLS AND BIOREMEDIATE  
AREA INDICATED ON SKETCH.

TAG COMMENTS:       
      
      
    

TAG APPROVAL DATE: 5/1/90  
ADEC ART WEINER Art Weiner  
EXXON ANDY TOL Andy Tol  
NOAA GARY PETER Gary Peter  
USCG KENNETH KIDNEY Kenneth Kidney

FOSC: [Signature] DATE: 7/3/90

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST DI-66 SUBDIVISION: A DATE 4/19/90

**USCG**

NAME William F. White SIGNATURE William F. White

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

NATURAL CLEANING OF BEACHES TO CONTINUE

**ADEC**

NAME Peter Montesano SIGNATURE Peter Montesano

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS High recreational value and tent site for logan.

- Remove Tar balls, Mousse patches, + soft Asphalt formation; easily done by hand
- Removal to include the Asphalt in Supratidal grasses - This should be executed by few individuals with extreme care to best preserve the grasses
- The oiling is spot washable, but not easily accessed due to bedrocks at shoreline

**LAND MANAGER U.S.D.A. Forest Service**

NAME Don J. Breitinger SIGNATURE Don J. Breitinger

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Natural cleaning of beaches to continue.

## SHORELINE OILING SUMMARY

REVISION NO. 04-13-88

OG C. DILLON USCG PS1 E. WHITE SEGMENT ST/ DI-66  
 BIO J. BARRY LAND REP D. BRIGHTENGER (NFS) SUBDIVISION A (1 OF 2)  
 BY G. STILES ADEC P. MONTESANO TIME 14:45 to 15:45  
 TEAM NO. 6 TIDE LEVEL +2 to +2 DATE 04/19/90  
 ST. SUBDIVISION LENGTH: 300 m ☒ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☒ Grass ☒ Forest ☒ Rock Grass on beach area only  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: E to W  
 SURFACE SEDIMENTS: R 80 % B 5 % C 10 % P 5 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Long 15 % Hang 5 % Vert 80 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 5 m N 120 m VL 75 m NO 0 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |    |    | IMPACTED ZONES |   |   |   |
|------------------|--------------|---|---|---|------------------|---|---|----|----|----------------|---|---|---|
|                  | R            | B | P | S | W                | M | N | VL | NO | SU             | U | M | U |
| ASPHALT PAVEMENT |              | X |   |   |                  |   |   |    | X  | X              | X |   |   |
| POOLED           |              |   |   |   |                  |   |   |    |    |                |   |   |   |
| COVER            |              |   |   | X |                  |   |   | X  |    |                | X |   |   |
| COAT             |              | X | X | ✓ |                  | ✓ | X |    |    |                | X |   | ✓ |
| STAIN            |              | X |   |   |                  |   |   | X  |    |                | X |   |   |
| MOUSSE           |              |   |   |   |                  |   |   |    |    |                |   |   |   |
| PATTIES          |              |   |   | X |                  |   |   | X  |    |                | X |   |   |
| TARBALLS         |              |   |   | X |                  | X |   |    |    |                | X |   |   |
| FILM             |              |   |   |   |                  |   |   |    |    |                |   |   |   |
| NO OIL           |              |   |   |   |                  |   |   |    |    |                |   |   | ✓ |

PAVEMENT H F (S) 26 sq. m by 3 cmPATTIES / TARBALLS 0 BAGSNEAR SHORE SHEEN? (NO) BR RW SL TL

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

DID YOU COLLECT DEBRIS?

YES ☐ NO ☒TYPE 0#BAGS 0

Photographs:

Roll No. ST-6-6Frames 1, 2

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |   |   |    |    | PIT ZONE |   |   |   | A N A | SHEEN (Y/N) | ▽ | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|---|----|----|----------|---|---|---|-------|-------------|---|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                     | UO    | UC | W                | M | N | VL | NO | SU       | U | M | U |       |             |   |                                |
| 1       | 20             | X                        |    |    |    |    | 0-5                 | X     |    |                  |   |   | X  |    | X        |   |   |   |       | N           | — | CP-P/G/Peat                    |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |    |    |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |    |    |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |    |    |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |    |    |          |   |   |   |       |             |   |                                |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |    |    |          |   |   |   |       |             |   |                                |

COMMENTS MAJORITY OF SUBDIVISION IS VERT. ROCK WITH A 1 m WIDE BAND OF ST/B AND CT/P OR CT/B AT THE HIGH TIDE LINE.

THERE IS A LONG COBBLE / PEBBLE / BOULDER BEACH IN THE CENTER OF THE SUBDIVISION. IT HAS A GRASSY SITZ AND UPLANDS LEADING INTO FOREST. THE WEST HALF OF THE BEACH HAS A 2-3 m WIDE BY 20 m LONG CT/B AND CY/S ACROSS THE UITS. PIT 1 DUG HERE. THE FRACTURED ROCK AT THE W. SHOULDER

REVIEWED 7W DATE 4/21/90

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/22/90

Segment ST/ DI 66 Subdivision A Date (mo/day/yr) 19 APRIL 1990

Time (24 hr) 1500-1530 Biologist JIM BARRY Length = 300m 1/2

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

(B) Overall % cover of biota (% of segment): Dense 10 Moderate 80 Low 10

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

Photographs:  
Roll No.                     

Frames                     

## BARNACLES

| Dense |    |    | Moderate     |              |    | Sparse       |              |    | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|----|--------------|--------------|----|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | 2  | 2            | 2            | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> |             |

## MYTILUS

| Dense |    |    | Moderate     |              |    | Sparse       |              |    | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|----|--------------|--------------|----|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | 2  | 2            | 2            | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> |             |

## GASTROPODS

| Dense |    |    | Moderate     |              |    | Sparse       |              |    | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|----|--------------|--------------|----|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | 2  | 2            | 2            | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> |             |

## FUCUS

| Dense |    |    | Moderate     |              |    | Sparse       |              |    | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|----|--------------|--------------|----|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | 2  | 2            | 2            | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> |             |

Wildlife Observations/ General Comments:

Ecological Considerations:

NONE

## I General Comments.

- A. This site is an outlet channel for the inside lagoon (bay of) Disk Island and is a transition zone from the more diverse fauna and flora - outside the bay is the restricted biota within the bay.

Vertical bedrock and a cobble beach are the only 2 intertidal habitats.

### B. Oil-Related Comments.

- 1) An oil coat is present on the vertical bedrock in the high zone, and has a minor impact on the biota of the segment.

## II Recruitment and Mortality.

This short segment shows no strong evidence of either recruitment or mortality.

OGC DILLON TEAM 6

SEGMENT ST/DI-66

SUBDIVISION A

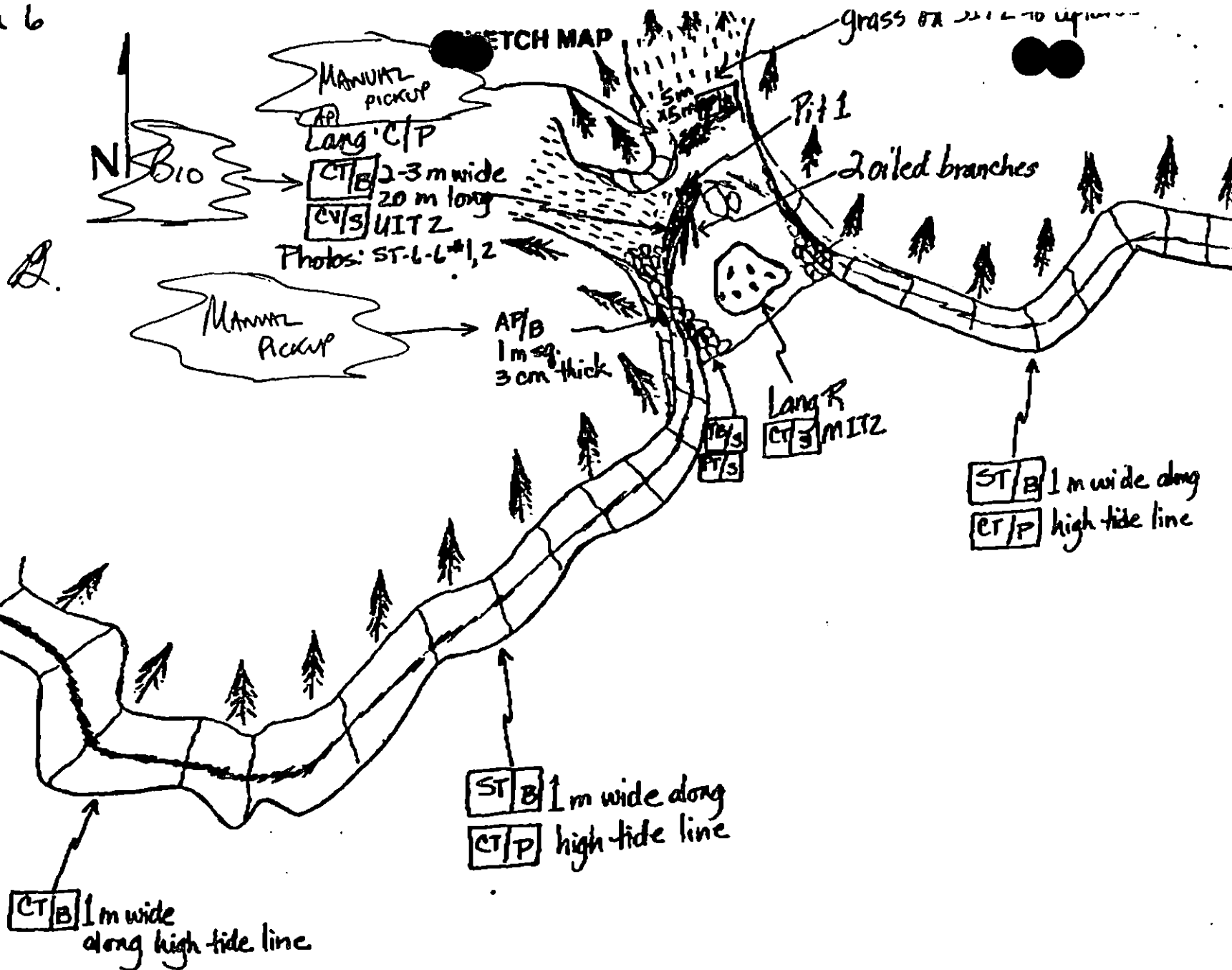
DATE 04/19/90

# CHECKLIST

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

## LEGEND

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



Oil Character Length (m): AP 6 PO 0 CV 2 CT 170 ST 120 MS 0 PT 1 TB 1 FL 0 NO 0

REVISIONS

DI-66

DI-66-B  
1307mDI-66-A  
300m

DI

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

OOOO No Oil

DI-66

EXXON SEGMENT LENGTH: 1607m

ADEC Segment Length: 1261m

0 100 200 300  
meters

Map Key: PWS-98

Name: C. DILLON

Date: 4/19/90

Data Entered:

## ADDENDUM: SUBDIVISION CONSTRAINTS

SEGMENT DI-66 SUBDIVISION A ( 1 of 2 )

| WORK WINDOW                     |        |
|---------------------------------|--------|
| Manual Pickup<br>Tarmat Removal | CLOSED |
| Bioremediation                  | CLOSED |

### ARCHAEOLOGICAL MONITOR REQUIRED ON SITE.

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

#### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

5T Bald Eagle Nest

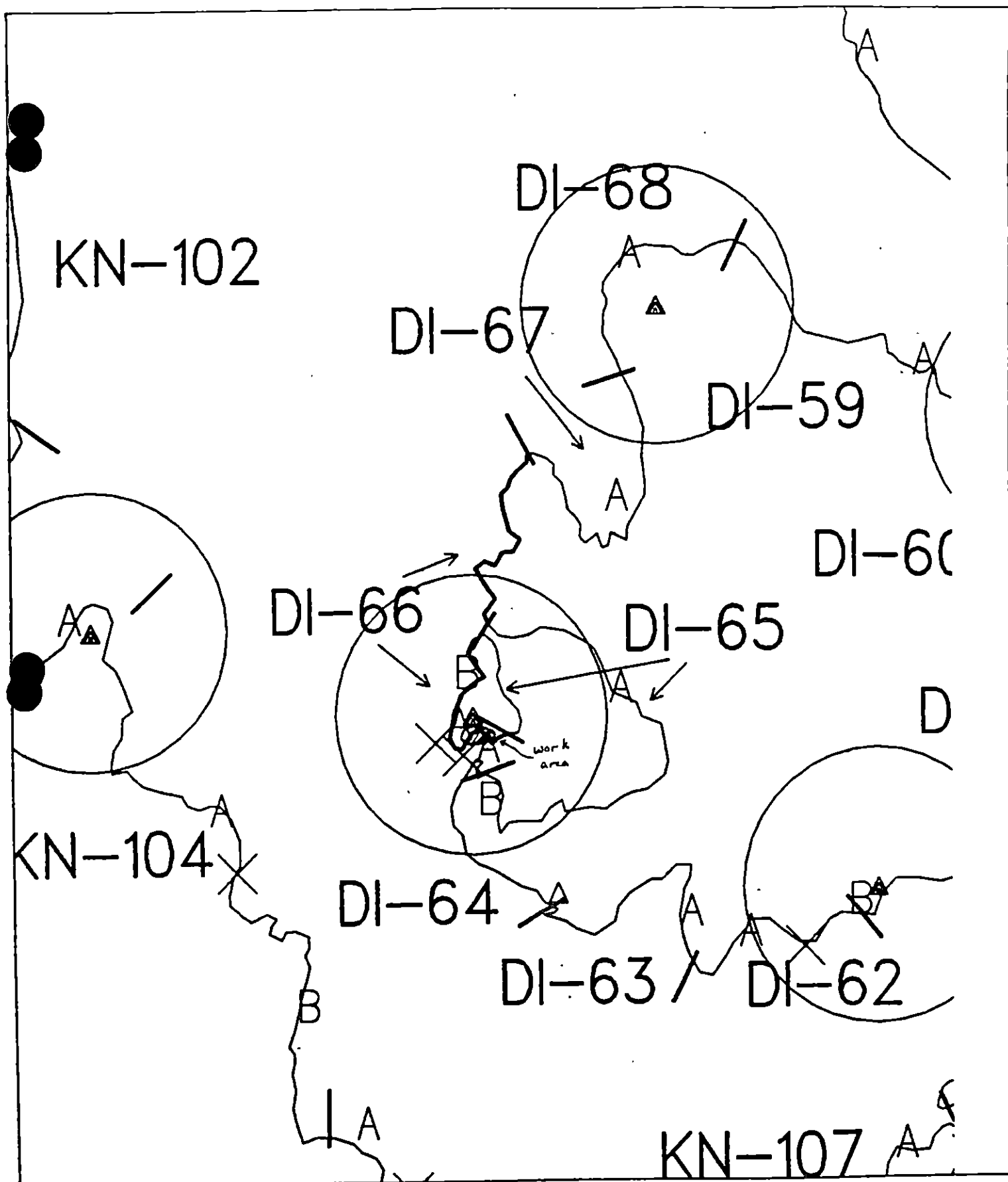
USFWS 6/1/90 map indicates an active nest in Subdivision A. Closed to manual pickup, tarmat removal, and bioremediation within 400m of active nest. No constraint to manual pickup, tarmat removal, and bioremediation more than 400m from active nest.

#### OTHER ECOLOGICAL CONSIDERATIONS

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

FOSC [Signature] Date 7 Jul 90

Prepared by [Signature] Date 7/5/90



Exxon Company, USA

Map Key: PMS-DI-66

June 08, 1990

SEGMENT ST/ DI-66 SUBDIVISION B (2 OF 2) DATE 4/19/90

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

SHPO SIGNATURE: A. David M. McKen DATE: 5/1/90

Wide 0 m: Medium 0 m: Narrow 342 m: V.Light 680 m: No Oil 0 m  
Subsurface Oil Observed: Yes X No        Maximum Depth 50+cm

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

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TAG COMMENTS: MONITORS TO CHECK SUITZ AT POCKET BEACH.  
SNOW COVERED DURING SSAT.

TAG APPROVAL DATE: 5/1/90  
ADEC ACT WENNER Art Wenner  
EXXON ANDY TEAR Andy Tear  
NOAA GARY PETRAS Gary Petras  
USCG KENNETH KEANE Kenneth Keane

FOSC: ML DATE: 5-9-90

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST / DI-66 SUBDIVISION: B DATE 4-19-90

**USCG**

NAME \_\_\_\_\_ SIGNATURE \_\_\_\_\_

☐ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

**ADEC**

NAME Peter Montesano SIGNATURE Peter Montesano

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

NO concentrations of significant oiling found in subdivision. The "CT/B" designations on map ~~indicate~~ represent the presence of boulder shadow oiling, Not heavy and not workable by hand.

**LAND MANAGER** USDA Forest Service

NAME Don J. Bretinger SIGNATURE Don J. Bretinger

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Natural clearing to continue.

OG C. DILLON USCG PS1 E. WHITE SEGMENT ST/ DI-16  
 BIO J. BARRY LAND REP D. BRIGHTNER (NFS) SUBDIVISION B (2 OF 2)  
 EXXON G. STILES ADEC D. MONTESANO TIME 15:45 to 16:45  
 TEAM NO. 6 TIDE LEVEL +2 to +2.5 DATE 04/19/90  
 EST. SUBDIVISION LENGTH: 1307 m ☒ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: S to N  
 SURFACE SEDIMENTS: R 90 % B 5 % C 2 % P 3 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Long 5 % Hang 15 % Vert 80 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 0 m N 350 m VL 957 m NO 0 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION                |   |   |   | OIL / FILM COLOR |   |    |    | IMPACTED ZONES |    |    |    |
|------------------|-----------------------------|---|---|---|------------------|---|----|----|----------------|----|----|----|
|                  | R                           | B | P | S | W                | Y | OR | BL | SW             | SE | NE | NW |
| ASPHALT PAVEMENT |                             |   |   |   |                  |   |    |    |                |    |    |    |
| POOLED           |                             |   |   |   |                  |   |    |    |                |    |    |    |
| COVER            |                             |   |   |   |                  |   |    |    |                |    |    |    |
| COAT             |                             | X | X |   |                  | X |    |    |                | X  |    |    |
| STAIN            |                             | X |   |   |                  |   | X  |    |                | X  |    |    |
| MOUSSE           |                             |   |   |   |                  |   |    |    |                |    |    |    |
| PATTIES          |                             |   |   |   |                  |   |    |    |                |    |    |    |
| TARBALLS         |                             |   |   |   |                  |   |    |    |                |    |    |    |
| FILM             |                             |   |   |   |                  |   |    |    |                |    |    |    |
| NO OIL           | Show on pocket beaches only |   |   |   |                  |   |    |    | S              |    | X  | X  |

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

| OILED DEBRIS | AMOUNT |    |    | DID YOU COLLECT DEBRIS?                                             |
|--------------|--------|----|----|---------------------------------------------------------------------|
|              | SM     | MD | LG |                                                                     |
| Logs         | X      |    |    | YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> |
| Vegetation   | X      |    |    |                                                                     |
| Trash        |        |    |    | TYPE <u>0</u>                                                       |
| Debris       |        |    |    |                                                                     |
|              |        |    |    | #BAGS <u>0</u>                                                      |

Photographs:

Roll No. NONEFrames 0

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |   |    |    | PIT ZONE |    |    |    | ANALYSIS (Y/N) | DEPTH (cm) | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|----|----|----------|----|----|----|----------------|------------|--------------------------------|
|         |                | CP                       | CR | CL | CS | NO |                     | NO    | UC | W                | Y | OR | BL | SW       | SE | NE | NW |                |            |                                |
| 1       | 30             |                          |    |    |    | X  | 0-0                 | X     |    |                  |   |    |    | X        |    |    |    | N              | -          | C-C                            |
| 2       | 15             |                          |    |    |    | X  | 0-0                 | X     |    |                  |   |    |    | X        |    |    |    | Y              | 10         | CP-CP/G                        |
| 3       | 30             |                          | X  |    |    |    | 19-20               | X     |    |                  | X |    |    | X        |    |    |    | Y              | 15         | P-P/G/Ret                      |
| 4       | 15             |                          |    |    |    | X  | 0-0                 | X     |    |                  |   |    |    | X        |    |    |    | Y              | 10         | CP-P                           |
| 5       | 8              |                          |    |    |    | X  | 0-0                 | X     |    |                  |   |    |    | X        |    |    |    | N              | 5          | P-P/G                          |
| 6       | 40             |                          |    |    |    | X  | 0-0                 | X     |    |                  |   |    |    |          | X  |    |    | N              | 40         | P-P                            |

COMMENTS MAJORITY OF SUBDIVISION IS VERT AND HANG ROCK WITH ST/B AND CT/B OR CT/P 1 m WIDE ALONG THE HIGH TIDE LINE. THERE ARE 5 LANG CP POCKET BEACHES (EACH ABOUT 5 m LONG) WHOSE TOP SEDS SHOW TRACES OF VL STAIN ONLY. SEVERAL PITS WERE DUG IN EACH BEACH HOWEVER, ONLY REPRESENTATIVE AND OILED PITS WERE DOCUMENTED.

DUE TO THE LACK OF VARIATION IN OILING AND GEOMORPHOLOGY, NO SKETCH WAS DONE. REVIEWED 7W DATE 4/21/90

SEGMENT ST/ DI-66 SUBDIVISION B (2 OF 2)OG C. DILLON  
TEAM 6

## SUBSURFACE OIL (CONTINUED)

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |              |              |              |              | PIT ZONE |   |    |   | A<br>N<br>A | SHEEN (Y/N) | ↓ | SURFACE SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|--------------|--------------|--------------|--------------|----------|---|----|---|-------------|-------------|---|------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                | DO    | DC | <del>1</del>     | <del>2</del> | <del>3</del> | <del>4</del> | <del>5</del> | BU       | U | BU | U |             |             |   |                              |
| 7       | 40             |                          |    |    |    | X  | 0-0            |       | X  |                  |              |              |              |              | X        |   |    |   |             | N           | - | P-P/G/R                      |
| 8       | 50             |                          |    |    | X  |    | 10-50          | X     |    | X                |              |              |              |              | X        |   |    |   |             | N           | - | P-P/R                        |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |          |   |    |   |             |             |   |                              |

## COMMENTS

PIT 2: SURFACE AND SUBSURFACE SEDS WERE UNOILED. AFTER THE PIT FILLED WITH WATER, SMALL BROWN OIL GLOBULES SLOWLY ACCUMULATED ON THE SURFACE.

PIT 3: SURFACE AND SUBSURFACE SEDS (EXCEPT 19-20 CM INTERVAL) ARE UNOILED. AFTER THE PIT FILLED WITH WATER, A VL SILVER SHEEN SLOWLY FORMED.

PIT 4: SURFACE AND SUBSURFACE SEDS WERE UNOILED. AFTER THE PIT FILLED WITH WATER, A TRANSLUCENT SHEEN SLOWLY FORMED.

 REVIEWED 7W DATE 4/2/90

# OIL CHARACTER LENGTHS (m)

CT 957 ST 650

MONITORS  
TO CHECK  
SUITZ

3 5m long lang C/P  
pocket beaches  
with VL stain on  
some surface sed.

Vert. R  
ST/B 1m wide along  
CT/P high tide line

Hang R/B  
CT/BUITZ

Hang R

ST/B 1m wide  
CT/P UITZ

Pit 6

Pit 8 Sm. amt oiled logs & veg. on SITZ

Pit 7

Pit 5

Vert R with 5m long lang C/P beach  
CT/B 1m wide along high tide line

Pit 4

DI-LL-B  
1307 m

Pit 2

lang C/P beach (5m long)

Vert R  
ST/B 1m wide along  
CT/P high tide line

Pit 3

Pit 1

SKETCH  
AREA

DI-LL-A  
300m

XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

DI-66

EXXON SEGMENT LENGTH: 1607m  
ADEC Segment Length: 1251m



Map Key: PWS-98

Name: C. DILLON

Date: 4/19/90

Date Entered:

## SHORELINE ECOLOGICAL SUMMARY

revision: 0822

Segment ST / DI 66 Subdivision B Date (mo / day / yr) 19 APRIL 1990Time (24 hr) 1530-1650 Biologist JIM BARRYLength 1307 m 1/1(A) Substrate type and % of segments:  
(1) Bedrock 90 (2) Boulder 5 (3) Cobble 5 (4) Pebble     (5) Sand     (6) Silt    (B) Overall % cover of biota (% of segment): Dense 10 Moderate 80 Low 10

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

Photographs: NONE  
Roll No.    Frames    

## BARNACLES

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare |    |              |             |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|------|----|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | <del>2</del> | NOT PRESENT |
| 3     | 3  | 3  | 3            | 3            | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | <del>3</del> |             |
| 4     | 4  | 4  | 4            | 4            | 4  | 4            | 4            | 4            | 4    | 4  | 4            |             |
| 5     | 5  | 5  | 5            | 5            | 5  | 5            | 5            | 5            | 5    | 5  | 5            |             |
| 6     | 6  | 6  | 6            | 6            | 6  | 6            | 6            | 6            | 6    | 6  | 6            |             |
| 6     | 6  | 6  | 6            | 6            | 6  | 6            | 6            | 6            | 6    | 6  | 6            |             |

## MYTILUS

| Dense |    |    | Moderate |    |    | Sparse       |              |    | Rare         |              |              |             |
|-------|----|----|----------|----|----|--------------|--------------|----|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U       | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | 2        | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | NOT PRESENT |
| 3     | 3  | 3  | 3        | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | 4        | 4  | 4  | 4            | 4            | 4  | 4            | 4            | 4            |             |
| 5     | 5  | 5  | 5        | 5  | 5  | 5            | 5            | 5  | 5            | 5            | 5            |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6            | 6            | 6  | 6            | 6            | 6            |             |
| 6     | 6  | 6  | 6        | 6  | 6  | 6            | 6            | 6  | 6            | 6            | 6            |             |

## GASTROPODS

| Dense |              |    | Moderate     |              |              | Sparse |    |    | Rare |    |    |             |
|-------|--------------|----|--------------|--------------|--------------|--------|----|----|------|----|----|-------------|
| 1U    | 1M           | 1L | 1U           | 1M           | 1L           | 1U     | 1M | 1L | 1U   | 1M | 1L |             |
| 2     | 2            | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2      | 2  | 2  | 2    | 2  | 2  | NOT PRESENT |
| 3     | <del>3</del> | 3  | <del>3</del> | 3            | <del>3</del> | 3      | 3  | 3  | 3    | 3  | 3  |             |
| 4     | 4            | 4  | 4            | 4            | 4            | 4      | 4  | 4  | 4    | 4  | 4  |             |
| 5     | 5            | 5  | 5            | 5            | 5            | 5      | 5  | 5  | 5    | 5  | 5  |             |
| 6     | 6            | 6  | 6            | 6            | 6            | 6      | 6  | 6  | 6    | 6  | 6  |             |
| 6     | 6            | 6  | 6            | 6            | 6            | 6      | 6  | 6  | 6    | 6  | 6  |             |

## FUCUS

| Dense |    |    | Moderate |              |              | Sparse |              |              | Rare         |    |    |             |
|-------|----|----|----------|--------------|--------------|--------|--------------|--------------|--------------|----|----|-------------|
| 1U    | 1M | 1L | 1U       | 1M           | 1L           | 1U     | 1M           | 1L           | 1U           | 1M | 1L |             |
| 2     | 2  | 2  | 2        | <del>2</del> | <del>2</del> | 2      | 2            | 2            | <del>2</del> | 2  | 2  | NOT PRESENT |
| 3     | 3  | 3  | 3        | <del>3</del> | <del>3</del> | 3      | <del>3</del> | <del>3</del> | <del>3</del> | 3  | 3  |             |
| 4     | 4  | 4  | 4        | 4            | 4            | 4      | 4            | 4            | 4            | 4  | 4  |             |
| 5     | 5  | 5  | 5        | 5            | 5            | 5      | 5            | 5            | 5            | 5  | 5  |             |
| 6     | 6  | 6  | 6        | 6            | 6            | 6      | 6            | 6            | 6            | 6  | 6  |             |
| 6     | 6  | 6  | 6        | 6            | 6            | 6      | 6            | 6            | 6            | 6  | 6  |             |

## Wildlife Observations/ General Comments:

PIGEON GUILLEMOT -3 DEER CARCASS ON BEACH - UNOILED

BALD EAGLE -2

## Ecological Considerations:

NONE

## I General Comments

A. HABITATS - 1) High Angle Bedrock / Boulder / Cobble ,  
2) Low angle Cobble / Pebble beaches .

B. Exposure - Moderate exposure to waves

### C. MAJOR SPECIES

1) Barnacles - 3 species of barnacles are present, with spat or juveniles of at least 2

2) Mytilus - generally sparse on headlands, with occasional moderate densities.

3) Gastropods -

Littorines moderate to dense - egg masses frequent in middle zone

Limpets - moderate to sparse

Whelks - moderate to dense in mid to low zone.

4) Fucus - Abundant in patches on bedrock & boulders ,  
but ~~but~~ less dense on cobble .

II. Oil-related comments - Although portions of this subdivision were moderately to heavily oiled, mortality is difficult to discern, except where barnacles were covered by a coat of oil in the upper zone.

Cleanup operations should have no negative impacts

DI 66 B.

APRIL 8 1990

4/6  
24

# IV Species List

## A. MARINE PLANTS

1) DIATOMS / BLUE GREEN ALGAE M-D 123

2) GREEN ALGAE - CHLOROPHYTA

ACROSIPHONIA MD123

CLADOPHORA S12

EUTERMORPHA M123

~~GREEN CRUZZ.~~

ULVA S123

ULRSPORA MD23

3) RED ALGAE - RHODOPHYTA

~~BOSSTOLIA~~

~~ELICTATHEDON~~

-CORALLINA R12

CRYPTOSIPHONIA S12

-ENDOCALASIA MURICATA R12

HALOSACCION GLANDIFORMIS S123

IRIDAEA R12

~~MYSTOCARPUS~~

MEMBRANOPTERA S123

MICROCLADIA S123

LITHOTHAMNION PALIPICUM S12

PETROCELLIS MIDENDORFFII S12

PORPHYRA spp. S12

RHODOMELA CORIX S12

~~RHODOMELA~~ PALMATA S12

4) BROWN ALGAE - PHAEOPHYTA

ALARIA MARGINATA U

AGARUM spp. U

COSTARIA U

FUCUS DISTICHUS S12

HEDOPHYLLUM SESSILE U

HILDOMBRANDIA S12

LAMINARIA U

NERIOCYSTIS U

RALPSIA S12

SCYTOSIPHON COMENTARIA S123

ECTOCARPUS D23.

A SPAT OR JUVENILES  
PRESENT

D DENSE

M MODERATE

S SPARSE

R RARE

1 BEDROCK

2 BOULDER

3 COBBLE

4 PEBBLE

U. SUBTIDAL

## B MARINE INVERTEBRATES

### 1) ANEMONES

~~SENECA~~ ~~ANTHEMIS~~?  
~~ANTHEMIS~~ ~~CONFUSION~~  
~~ANTHEMIS~~ ~~GLORIOSA~~  
 A. ANTHEMIS R12  
~~A. KANTHAROS~~

### 2) ANNELID WORMS

Polychaetes  
 Nereidae  
 Nephtyidae  
 Serpulidae  
~~Serpula~~  
~~Gnathopore~~  
 Spirochaete  
 Spirochaete MS 23 A

### 3) PEANUT WORMS - SPENCULID

~~PARACOLOSCOMA~~ ~~HERBERT~~

### 4) MOLLUSCS

#### a) CHITONS

~~CHITON~~ ~~TOXICA~~  
 TOXICELLA LINIATA R12  
~~MOXICA~~ spp.

#### b) Snails - GASTROPODS

Littorina scutellata BMD 123  
 L. sitkana MD 123  
 Nucella lamellosa M 23 A  
 N. emarginata MD 23 A  
 Scutella dora S23A  
 Amphissa columbiana R23A  
 Tachyrrhynchus spp. R23

#### c) Nudibranchs

~~Lamettidopsis~~ ~~fusca~~

#### d) Limpets

Lottia digitalis S12A  
 Aemaea mitra R12A  
 Lottia persena S12A

### d) Limpets (cont)

Tectura scutum S13A  
~~T. persena~~  
~~Siphonaria~~ ~~hercules~~  
~~Diadema~~ ~~capasa~~

### e) Murels -

Mytilus edulis SM 123A

### f) Clams

Single - PODOCOSTMUS GEP10 R12  
~~Hyadella~~ spp. ~~S23A~~  
~~Protokala~~ ~~stomach~~  
~~Protokala~~ spp.

### g) Crustaceans

#### 1) BIVALVES

Semibalanus cariosus S12A  
 Balanus glandula SM 123A  
 Chthamalus dalli S23A

#### 2) Crabs

~~Haplogaster~~ spp.  
 Hemigrapsus oregonensis S23  
~~Pagotia~~ spp.  
 Hermit Crabs - Paguridae MD

#### 3) Beach Hopper

ISOPODA - S23A  
 AMPHIPODA  
 Orchestra? SM 23A

#### h) Bryozoans

Schizoporella spp? S12

#### i. Echinoderms

1) Sea Stars  
 S23A Pycnopoda helianthoides  
 SM 23A Dermasterias imbricata  
 R23A Leptasterias hexactis  
 Echinaster hutchingsi  
 Orthasterias koehleri  
 Pteraster ochraceus.

SPECIES LIST (cont)

6/6

2 Echinoderms (cont)

2) Brittle Star

~~Ophiodon sp?~~

3) Sea Cucumber

~~Cucumaria stans~~

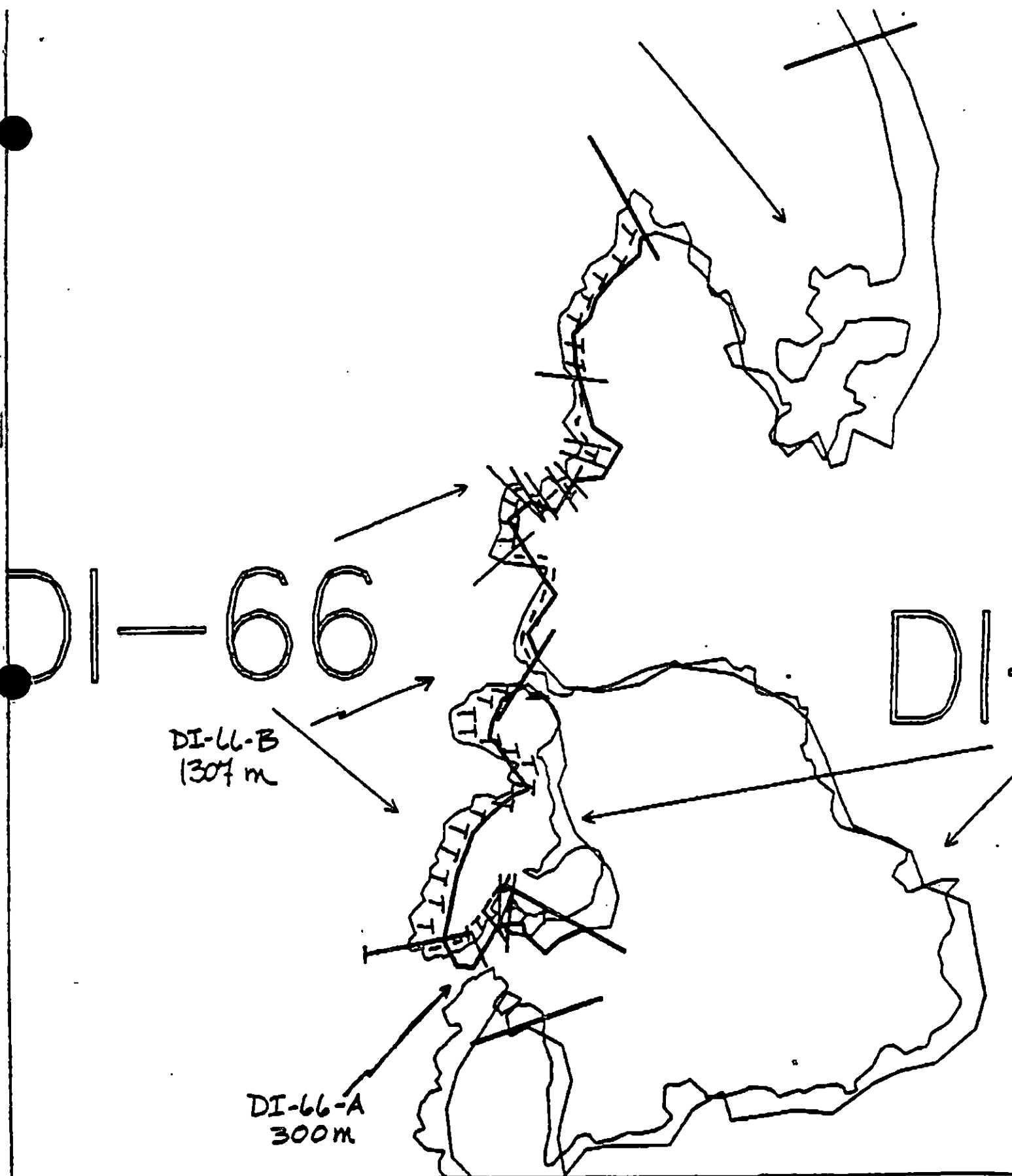
3) Sea Urchin

~~Strongylocentrotus droebachiensis~~

C. Marine Vertebrates

1) Fish: PNOIDAE - m 230

COTTIDAE S 230



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

DI-66

EXXON Segment Length: 1607m

ADEC Segment Length: 1261m

0 100 200 300  
METERS

Map Key: PWS-98

Name: C. DILLON

Date: 4/19/90

Data Entered:

# SHORELINE EVALUATION

SEGMENT ST/ DI-67 SUBDIVISION A (1 OF 1) DATE 4/19/90

## SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Possible uncatalogued anadromous stream entering lagoon.

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.

SHPO SIGNATURE: *[Signature]*

DATE: 5/1/90

## OILING CATEGORIZATION:

Wide 183 m: Medium 76 m: Narrow 193 m: V.Light 515 m: No Oil 85 m  
Subsurface Oil Observed: Yes X No      Maximum Depth 10 cm

## RECOMMENDATIONS:

     No Treatment Recommended

X Treatment Recommended

     Manual Pickup

     Bioremediation

X Tarmat Removal

     Snare/Absorbent Booms

     Oil Snares (pom poms)

     Absorbents (pads, rolls, etc)

     Spot Washing:      Wands

     Beach Cleaner

     Other (see comments)

COMMENTS: Recommended treatment includes manual removal of tarmats in  
three areas indicated on sketch map. No specific time sensitive eco-  
logical constraints identified.

TAG COMMENTS:     

TAG APPROVAL DATE: 5/1/90.

ADEC *[Signature]*

EXXON *[Signature]*

NOAA *[Signature]*

USCG *[Signature]*

FOSC: *[Signature]*

DATE: 5-8-90

# PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

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

## FIELD SHORELINE COMMENT SHEET

DRAFT

SEGMENT ST 1 DI-67 SUBDIVISION: A DATE 4/19/90

USCG

NAME William E. White SIGNATURE William E. White☐ NO TREATMENT RECOMMENDED  
COMMENTS☒ TREATMENT SUGGESTED

Manual pick of ASPHALT PAVEMENT.

ADEC

NAME Peter Montezano SIGNATURE Peter Montezano☐ NO TREATMENT RECOMMENDED☒ TREATMENT SUGGESTED

COMMENTS I disagree with the sketch map characterization of the lagoon. At the time of visit the lagoon was completely separated from the open salt water. The opening on the map is better thought of as interstitial runoff. The lagoon is relatively stagnant, consequently, Biologist Barry, Exxon Stiles, and I agreed that Bioremediation is inappropriate for this Segment.

- Remove Asphalt while avoiding traffic on marshy organics IN SE Corner.

- Area by Pit 4 was washed numerous times in 1989, and the penetration tapers off rapidly heading north.

NOTE: The deepest Southern end of Segment was inaccessible and NOT surveyed.

LAND MANAGER USDA Forest ServiceNAME Don J. Breitzinger SIGNATURE Don J. Breitzinger☐ NO TREATMENT RECOMMENDED  
COMMENTS☒ TREATMENT SUGGESTED

Spot pick up and/or breakup of fat patties along  
DI-67.

## SHORELINE OILING SUMMARY

REVISION NO. 04-12-98

OG C. DILLON USCG PSI E. WHITE SEGMENT ST/ DI-67  
 BIO J. BARRY LAND REP D. BRIGHTWATER (NES) SUBDIVISION A (LOFT)  
 EXXON G. STILES ADEC P. MONTESANO TIME 16:50/18:30  
 TEAM NO. 6 TIDE LEVEL +2.5 to +4.5 DATE 04/19/90  
 EST. SUBDIVISION LENGTH: 1594 m ☒ Sun ☒ Clouds ☐ Fog ☒ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: SW to NE  
 SURFACE SEDIMENTS: R 15 % B 5 % C 35 % P 45 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Long 90 % Hang 5 % Vert 5 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
 OIL CATEGORY LENGTH: W 250 m M 75 m N 300 m VL 794 m NO 175 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   |   | IMPACTED ZONES |   |   |   |
|------------------|--------------|---|---|---|------------------|---|---|---|---|----------------|---|---|---|
|                  | N            | S | P | R | 1                | 2 | 3 | 4 | 5 | SW             | U | M | E |
| ASPHALT PAVEMENT | X            | ✓ | X |   |                  | ✓ |   | X |   | ✓              | X |   |   |
| POOLED           |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| COVER            |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| COAT             |              | X | X | 0 |                  | X |   |   |   | X              | X | X | X |
| STAIN            |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| MOUSSE           |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| PATTIES          |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| TARBALLS         |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| FILM             |              | X |   |   |                  | X | X |   |   |                | X |   |   |
| NO OIL           |              |   |   |   |                  |   |   |   |   | X              |   |   |   |

PAVEMENT (4) F 425 sq. m by 2 cmPATTIES / TARBALLS 0 BAGSNEAR SHORE SHEEN? (NO) BR RW SL TL

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

DID YOU COLLECT DEBRIS?

YES ☒ NO ☐TYPE Oiled Vest#BAGS 1

Photographs:

Roll No. ST-6-6Frames 3

SUBSURFACE OIL \* oiled interval &lt; 5cm in pit 3 does not constitute subsurface oil.

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |   |   | A<br>N<br>A | SHEER (Y/N) | ▽ | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|---|---|---|----------|---|---|---|-------------|-------------|---|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                     | UG    | UC | 1                | 2 | 3 | 4 | 5 | SW       | U | M | E |             |             |   |                                |
| 1       | 30             |                          |    |    |    | X  | 0-0                 |       | X  |                  |   |   |   |   |          |   |   | X | N           | -           |   | P-P/G                          |
| 2       | 25             | X                        |    |    |    |    | 7-10                |       | X  |                  |   | X |   |   |          |   | X |   | Y           | 10          |   | P-P/G                          |
| * 3     | 30             | X                        |    |    |    |    | 0-2                 |       | X  |                  |   | X |   |   |          |   | X |   | N           | -           |   | P/G - G/S                      |
| 4       | 12             | X                        |    |    |    |    | 0-6                 |       | X  |                  |   | X |   |   |          |   | X |   | N           | -           |   | CP - P/G                       |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |          |   |   |   |             |             |   |                                |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |          |   |   |   |             |             |   |                                |

COMMENTS

MAIN PORTION OF SUBDIVISION IS A LONG, WIDE LOW ANGLE LAGOON AND INTERTIDAL ZONE.

REVIEWED YWDATE 4/21/90

00 C. DIL

SEGMENT ST/ DL-67

SUBDIVISION A

DATE 04 / 19 90

# CHECKLIST

- ☐ N Area
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dtd.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. NW/SE/NE
- ☐ SCL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ PR Location(s)
- ☐ Photo Location(s)

## LEGEND

1 A

PH - No Subsurface Oil

2 A

PH - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

[CT/D]

Patchy Distribution

[CT/S]

Splashed Distribution

lll

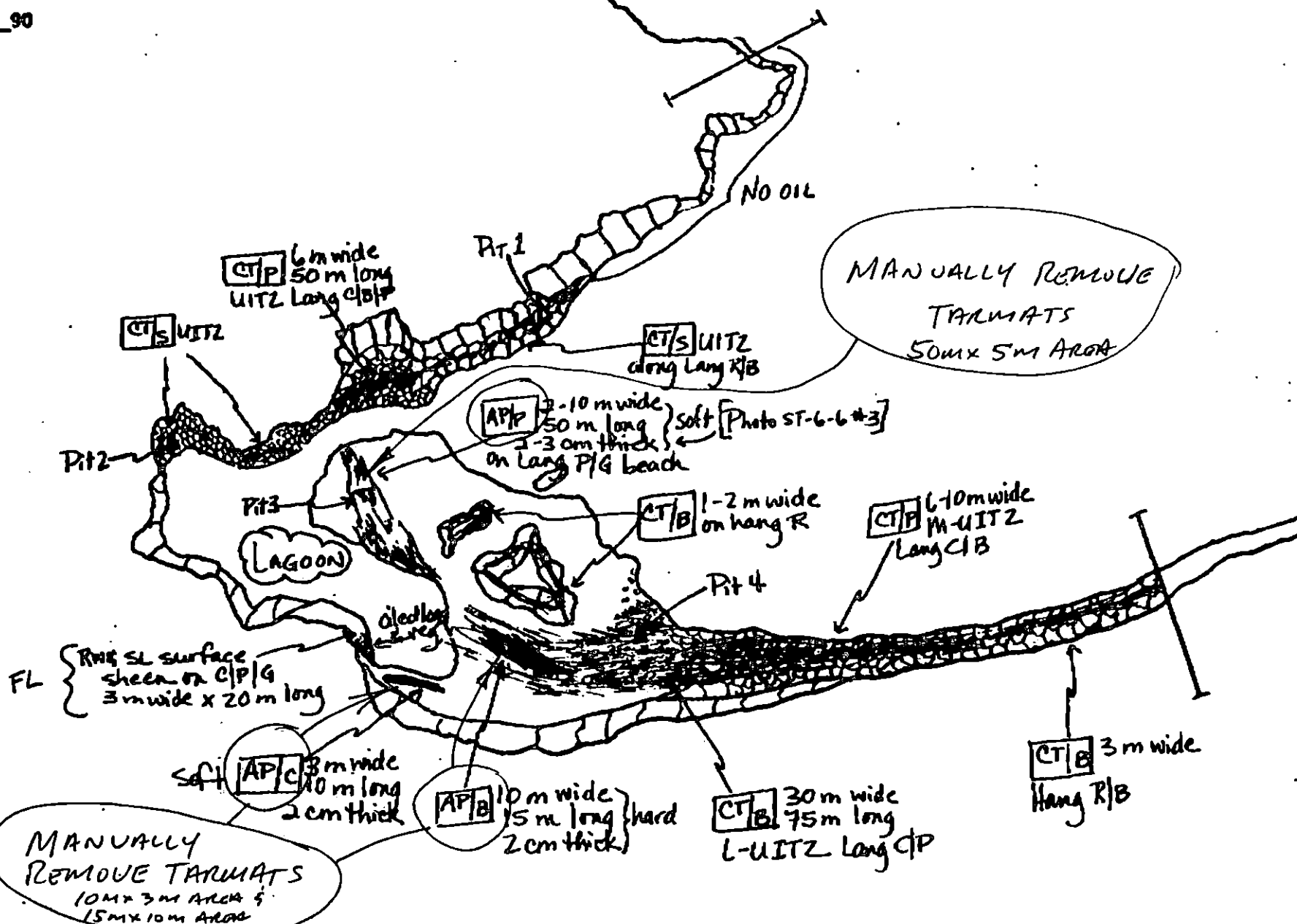
Old Vegetation

1 00

Photo location, direction, and number

## SKETCH MAP

N



Character Length (m): AP 75 PO 0 CV 0 CT 1324 ST 0 MS 0 PT 0 TB 0 FL 20 NO 175

REVISION 00/000

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 08/22/90

Segment ST / DI 67-A Subdivision A Date (mo / day / yr) APRIL 19 1990

Time (24 hr) 1650-1850 Biologist Jim Barry Length 1594m

1/9

(A) Substrate type and % of segments:  
(1) Bedrock 15 (2) Boulder 5 (3) Cobble 35 (4) Pebble 45 (5) Sand 0 (6) Silt 0

(B) Overall % cover of biota (% of segment): Dense 30 Moderate 65 Low 5

(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. NO PHOTOS

Frames \_\_\_\_\_

## BARNACLES

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare |    |              |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|------|----|--------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L           |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | <del>2</del> |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | <del>3</del> |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | <del>4</del> |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | <del>5</del> |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | <del>6</del> |

NOT PRESENT

## MYTILUS

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare |    |              |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|------|----|--------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L           |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | <del>2</del> |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | <del>3</del> |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | <del>4</del> |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | <del>5</del> |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | <del>6</del> |

NOT PRESENT

## GASTROPODS

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare |    |              |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|------|----|--------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L           |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | <del>2</del> |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | <del>3</del> |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | <del>4</del> |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | <del>5</del> |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | <del>6</del> |

NOT PRESENT

## FUCUS

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare         |    |              |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|--------------|----|--------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U           | 1M | 1L           |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | 2  | <del>2</del> |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | 3  | <del>3</del> |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | 4  | <del>4</del> |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | 5  | <del>5</del> |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | 6  | <del>6</del> |

NOT PRESENT

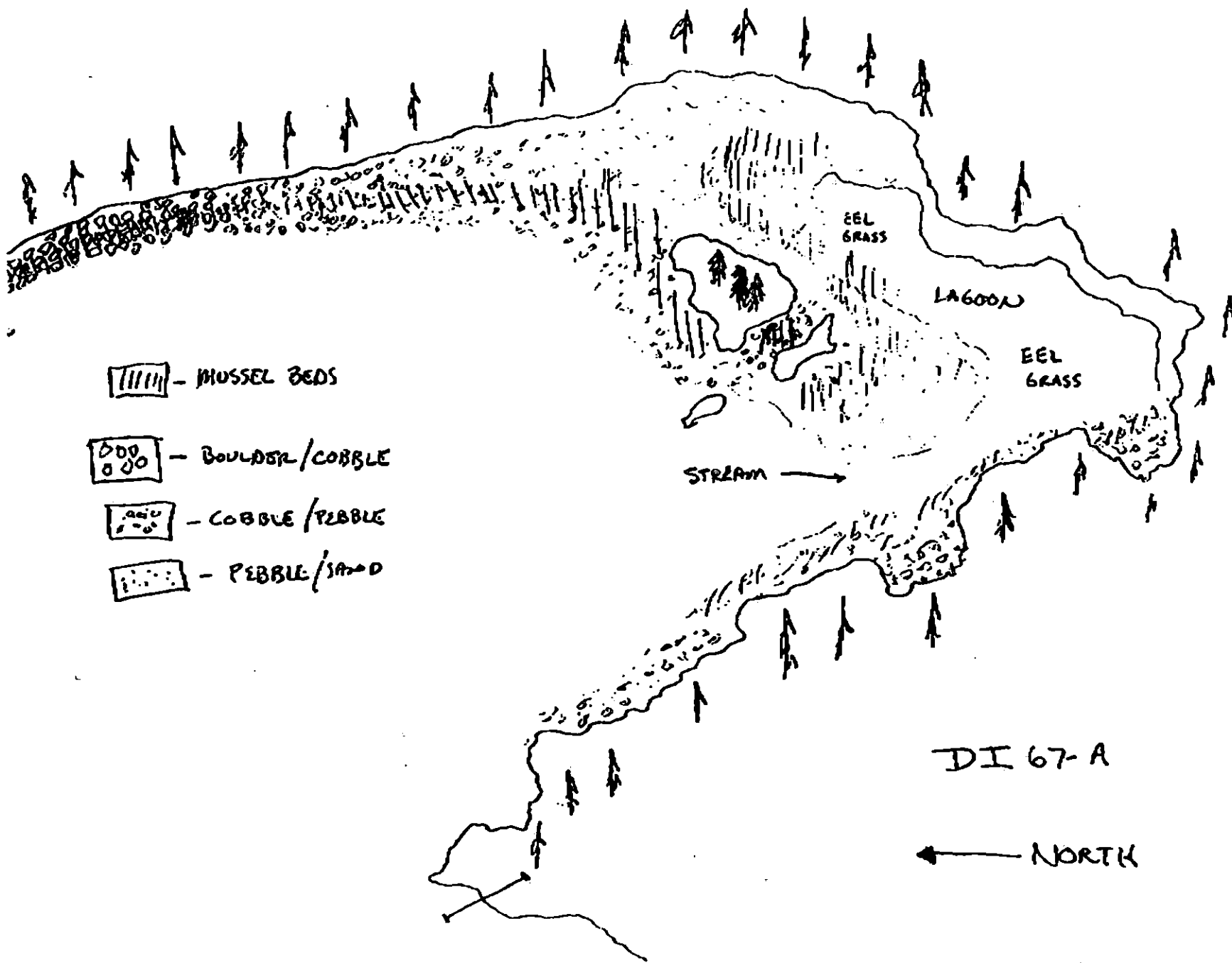
## Wildlife Observations/ General Comments:

Great Blue Heron - 1 Common Merganser - 2  
Common Goldeneye - 3 Bald Eagle - 2

## Ecological Considerations:

ALTHOUGH NONE WERE LISTED, THE MUSSEL, CLAM, AND EEL GRASS BEDS SHOULD NOT BE DISTURBED.

2/9



DI-67-A

DI-

DI-65

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

DI-67-A  
Exxon Segment Length: 1594m  
ADEC Segment Length: 1047m

0 100 200 300  
METERS

Map Key: PWS-99

Name: C. DILLON

Date: 4/19/90

Date Entered: \_\_\_\_\_

# SHORELINE EVALUATION

SEGMENT ST/ DI-68 SUBDIVISION A (1 OF 1) DATE 4/20/90

## SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

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.

SHPO SIGNATURE: J. David McManis DATE: 5/1/90

## OILING CATEGORIZATION:

Wide 0 m: Medium 55 m: Narrow 57 m: V.Light 223 m: No Oil 399 m  
Subsurface Oil Observed: Yes      No X Maximum Depth     

## RECOMMENDATIONS:

|                                      |                                           |
|--------------------------------------|-------------------------------------------|
| <u>    </u> No Treatment Recommended | <u>    </u> Snare/Absorbent Booms         |
| <u>X</u> Treatment Recommended       | <u>X</u> Oil Snares (pom poms)            |
| <u>X</u> Manual Pickup               | <u>    </u> Absorbents (pads, rolls, etc) |
| <u>    </u> Bioremediation           | <u>X</u> Spot Washing: <u>4</u> Wands     |
| <u>    </u> Tarmat Removal           | <u>    </u> Beach Cleaner                 |
|                                      | <u>    </u> Other (see comments)          |

COMMENTS: Recommend treatment includes spot hot water washing in three  
areas indicated on sketch map. No specific time sensitive ecological  
constraints identified. Manual Pickup of Tarballs Prior to Spot Wash.

TAG COMMENTS:       
      
      
    

TAG APPROVAL DATE: 4/30/90  
ADEC ART WEAVER  
EXXON ART WEAVER  
NOAA GARY KETNER  
USCG KENNETH KEENE

FOSC: W/L DATE: 5-9-90

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

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST 1 DI-68 SUBDIVISION: A DATE 4/20/90

## USCG

NAME William E. White SIGNATURE William E. White

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

SHOW NO SUBSURFACE OIL

## ADEC

NAME Peter Montesano SIGNATURE Peter Montesano

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

The First 2 'Hang B' beaches from DI67 are spot washable. CV/Ct can be Pecked off with steam wands. Shore is easily accessible with LCU. Recovery would be minimal and would require 2 CWHP hoses to Flush removed oil from under Boulders. Boulders too large and resting too far above smaller Sediments for bioremediation.

## LAND MANAGER USDA - Forest Service

NAME Don J. Bretinger SIGNATURE Don J. Bretinger

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED  
COMMENTS

DI-68 serves as a recreation anchorage, for the period of 6/1-9-15.

The first two Hang B beaches on DI-68 - need some form of treatment - the form of treatment to be determined by the treatment specialists.

## SHORELINE OILING SUMMARY

REVISION NO. 04/13/90

OG C. DILLON USCG PS1 E. WHITE SEGMENT ST/ DI-68  
 BIO J. BARRY LAND REP D. BRIGHTENGER (NCS) SUBDIVISION A (1 OF 1)  
 EXXON G. STILES ADEC P. MONTESANO TIME 13:45 15:15  
 TEAM NO. 6 TIDE LEVEL +4.5 to +2.25 DATE 04/20/90  
 ST. SUBDIVISION LENGTH: 241 m ☒ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☐ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: S to N  
 SURFACE SEDIMENTS: R 80 % B 10 % C 7 % P 3 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Lang 15 % Hang 10 % Vert 75 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 35 m N 75 m VL 346 m NO 385 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   |   | IMPACTED ZONES |   |   |   |
|------------------|--------------|---|---|---|------------------|---|---|---|---|----------------|---|---|---|
|                  | C            | B | P | R | 1                | 2 | 3 | 4 | 5 | W              | M | N | U |
| ASPHALT PAVEMENT |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| POOLED           |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| COVER            |              |   | X | X |                  |   |   | X |   |                |   | X |   |
| COAT             | X            | X | X | X | X                |   |   |   |   |                |   | X |   |
| STAIN            |              |   | X | X |                  |   |   | X |   |                |   | X |   |
| MOUSSE           |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| PATTIES          |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| TARBALLS         |              |   |   | X | X                |   |   |   |   |                |   | X |   |
| .M               |              |   |   |   |                  |   |   |   |   |                |   |   |   |
| NO OIL           |              |   |   |   |                  |   |   |   |   | X              | X | X |   |

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

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

DID YOU COLLECT DEBRIS?

YES ☐ NO ☒TYPE 0#BAGS 0

Photographs:

Roll No. ST-6-6Frames 4

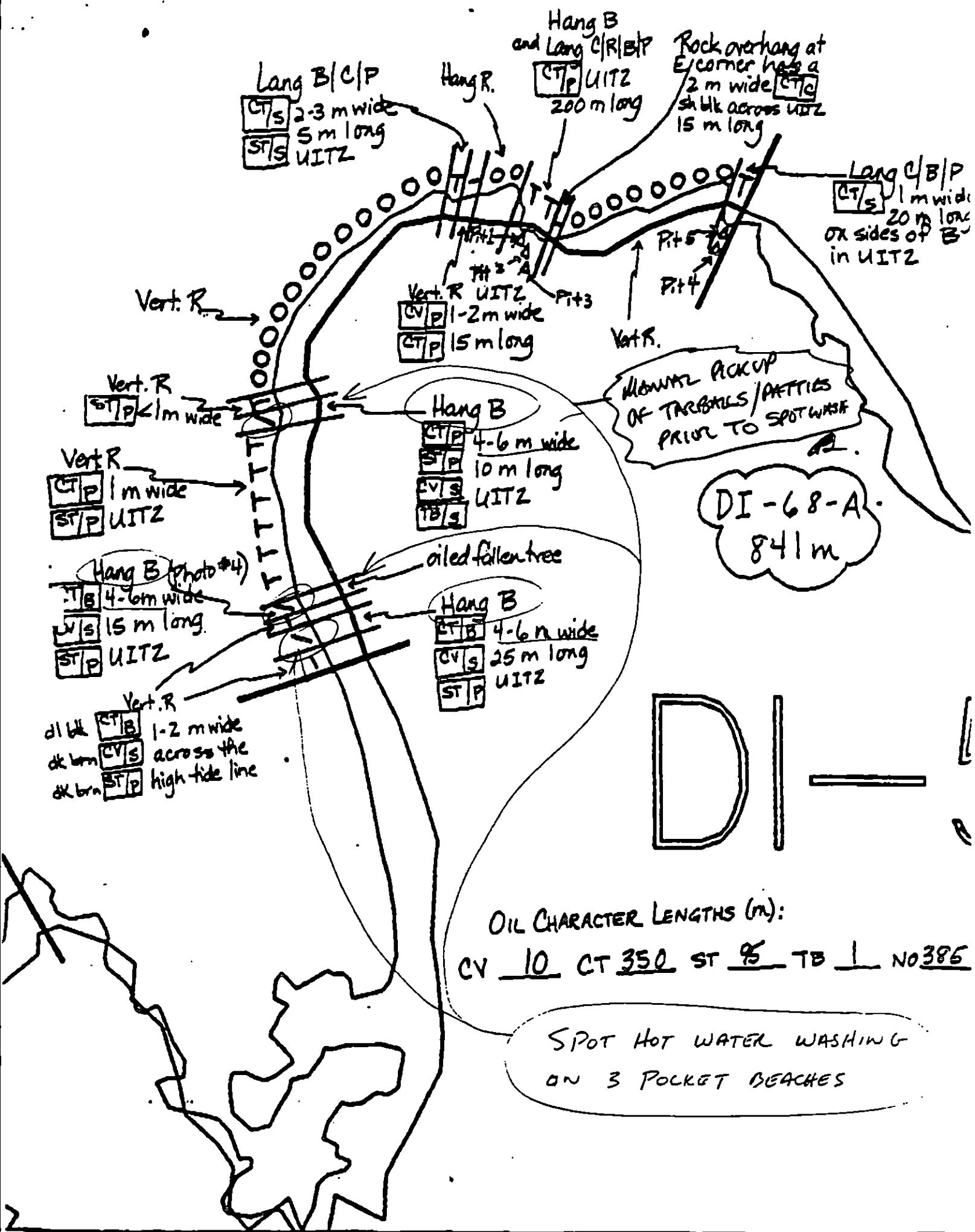
## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |   |   | A<br>N<br>A | SHEEN (Y/N) | F | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|---|---|---|---|----------|---|---|---|-------------|-------------|---|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                | UO    | OG | 1                | 2 | 3 | 4 | 5 | W        | M | N | U |             |             |   |                                |
| 1       | 30             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |   |          |   | X |   | N           | 25          |   | C/P - P/G                      |
| 2       | 35             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |   |          |   | X |   | N           | 30          |   | P - P/G/R                      |
| 3       | 25             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |   | X        |   |   |   | N           | -           |   | C/P - P/G/R                    |
| 4       | 30             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |   |          |   | X |   | N           | 30          |   | P - P/C/G                      |
| 5       | 25             |                          |    |    |    | X  | .              |       | X  |                  |   |   |   |   |          |   | X |   | N           | 25          |   | C/P - P/C/G                    |
|         |                |                          |    |    |    |    | .              |       |    |                  |   |   |   |   |          |   |   |   |             |             |   |                                |

COMMENTS SUBDIVISION IS ALMOST ENTIRELY VERY HIGH VERTICAL ROCK WITH A FEW HANG BOULDER POCKETS AND A COUPLE OF LANG COBBLE/BOULDER/PEBBLE POCKETS.

THERE IS ONE LANG C/R/B/P BEACH ABOUT 150 m LONG. THE R/B HAVE C/P BUT 3 PITS SHOW NO SUBSURFACE OIL. SAME IS TRUE FOR THE 20 m LONG C/B/P BEACH AT THE NE END OF DI-68-A. DUE TO LACK OF VARIATION IN OILING AND GEOMORPHOLOGY, NO SKETCH MAP DONE.

REVIEWED YU DATE 4/21/90



# SHORELINE ECOLOGICAL SUMMARY

REVISION: 08/22/78

Segment ST / DI 68 Subdivision A Date (mo / day / yr) 4/20/90  
 Time (24 hr) 1350 - 1915 Biologist Jim Barry 1011 m length

- (A) Substrate type and % of segments:  
 (1) Bedrock 80 (2) Boulder 10 (3) Cobble 7 (4) Pebble 3 (5) Sand 0 (6) Silt 0
- (B) Overall % cover of biota (% of segment): Dense 0 Moderate 95 Low 5
- (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-6-6

Frames 5

## BARNACLES

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare |    |    |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|------|----|----|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | 3  |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | 4  |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | 5  |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | 6  |

NOT PRESENT

## MYTILUS

| Dense |    |    | Moderate     |              |    | Sparse       |              |              | Rare |    |              |
|-------|----|----|--------------|--------------|----|--------------|--------------|--------------|------|----|--------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L | 1U           | 1M           | 1L           | 1U   | 1M | 1L           |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | 2  | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | <del>2</del> |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | 3  | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | <del>3</del> |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | 4  | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | <del>4</del> |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | 5  | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | <del>5</del> |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | 6  | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | <del>6</del> |

NOT PRESENT

## GASTROPODS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare |    |    |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|------|----|----|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U   | 1M | 1L |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | 3  |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | 4  |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | 5  |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | 6  |

NOT PRESENT

## FUCUS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare |    |    |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|------|----|----|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U   | 1M | 1L |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | 2    | 2  | 2  |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | 3    | 3  | 3  |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | 4    | 4  | 4  |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | 5    | 5  | 5  |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | 6    | 6  | 6  |

NOT PRESENT

## Wildlife Observations/ General Comments:

GLAUCOUS-WINGED GULL - 19 Common Merganser - 2  
 Raven - 2 Pigeon Guillemot - 2  
 Bald Eagle - 2

Ecological Considerations: 6V - Anchorage sites - no impact

APRIL 1990

# IV Species List

## A. MARINE PLANTS

1) DIATOMS / BLUE GREEN ALGAE M-D 123

2) GREEN ALGAE - CHLOROPHYTA

ACROSIPHONIA MD 123

CLADOPHORA S12

ENTEROMORPHA M123

GREEN CRUST. S12

ULVA S123

URUSPORA - - MD 23

3) RED ALGAE - RHODOPHYTA

BOSSIELLA R12

CALLIARTHROD R12

CORALLINA R12

CRYPTOSIPHONIA MD 123

ENDOLLADIA MURICATA S1

HALOSACCION GLANDIFORME M12

IRIDAEA S1 ?

MASTOCARPUS R12?

MEMBRANOPTERA SM 12

MICROCLADIA ? SM 12

LITHOTHAMNION PALPICUM SR1

PETROCELLIS MIOBENDORFFII S1

PORPHYRA SPP. S12

RHODOMELA LUTEA M123

PALMARIA PALMATA M12

4) BROWN ALGAE - PHAEOPHYTA

ALARIA MARGINATA U

AGARUM SPP. U

COSTARIA U

FUCUS DISTICHUS M123

HEODOPHYLLUM SESSILE U

HILDONBRANDIA S1

LAMINARIA U

NEREOCYSTIS UR

RALPSIA S1

SCYTOSIPHON COMENTARIA S123

ECTOCARPUS MD 123

A SPAT OR JUVENILES  
PRESENT

D DENSE

M MODERATE

S SPARSE

R RARE

1 BEACH

2 BOULDER

3 COBBLE

4 PEBBLE

U. SUBTIDAL

X PROBABLY PRESENT

### B MARINE INVERTEBRATES

#### 1) ANEMONES

EPIACTIS RITZEL ? S12  
 URTICARIA CRASSICORNIS R12  
 Anthopleura elegantissima R1  
 A. artimisa S12  
~~A. contracta~~

#### 2) Annelid Worms

Polychaetes  
 Nereidae X  
 Nephtyidae X  
 Serpulidae  
 Serpula S12  
 Crassifera S12 X  
 Spirobrachia  
 Spirobrachia m23 X

#### 3) Peanut Worms - Sipunculid

~~Pascosolenia~~ thecatus ?

#### 1) MOLLUSCS

##### a) CHITONS

CATHERINA TUCATA S1 X  
 TOXICELLA LINEATA R1 X  
~~Murex spp.~~

##### b) Snails - GASTROPODS

Littorina scutulata M0123 X  
 L. sitkana M0123 X  
 Nucella lamellosa M123 X  
 N. emarginata M123 X  
 Scarlisia dixa S23  
 Amphissa columbiana R23 X  
 Tachyrrhynchus spp. R23

##### c) Nudibranchs

Lamellidors fusca S12

##### d) LIMPS

Lottia digitalis S1 X  
 Acmaea mitra X  
 Lottia persena M12 X

#### d) Limpets (cont)

Tectura scutum M23 X  
 T. persena ?  
 Siphonaria thersites S12 X  
 Diadora aspera X

#### e) Mussels -

Mytilus edulis R5123 X

#### f) Clams

Single - Pecten septio X  
 Hiatella spp. R23 X  
~~Protothaca staminea~~  
 Macoma spp.

#### g) Crustaceans

##### 1) BRYOZOANS

Semibalanus cariosus M-012 X  
 Balanus glandula SMD12 X  
 Chthamalus dalli M123 X

##### 2) Crabs

Haplogaster spp X  
 Hemigrapsus oregonensis S23  
 Pugetia spp. ?  
 Hermit Crabs - Paguridea M02

##### 3) Beach Hopper

ISOPODA S23 X  
 AMPHIPODA  
 Orchestra? M23 X

##### h) Bryozoans

Schizoporella spp? S23 X

##### i) Echinoderms

1) Sea Stars  
 R23 X Pycnopoda helianthoides  
 R23 X Dermasterias imbricata  
 S3 X Leptasterias hexactis  
 R3 Eustheria fruschi  
~~Arctostriatus koehleri~~  
 S12 Pisaster ochraceus.

SPECIES LIST (cont)

2 Echinoderms (cont)

2) Brittle Star

Ophiurus spp? X

3) Sea Cucumber

Cucumora miniata X

3) Sea urchin

~~Strongylocentrotus droebachiensis~~

C. Marine Vertebrates

1) Fish: Stichaeidae 11; Xiphister spp. 5234  
COTTIDAE 5124

START 1350 TIDE +4 → +2  
STOP 1513 WIND

DI 68-A

APRIL 20 1990

2

## I General Comments

DI 68-A is comprized by a series of vertical bedrock cliffs separated by cobble/boulder or pebble beaches. Most of the segment is exposed to moderate sized waves.

- 1) Vertical Bedrock cliffs are covered by a moderately dense cover of 3 species of barnacles (*Semibalanus*, *Chthamalus*, *Balanus*), ~~and~~ sparse *Mytilus* cover, a moderate to dense *Fucus* cover, and several other species of algae and ~~the~~ invertebrates. Several species typical of healthy, moderately exposed beaches.

- 2) Cobble/Boulder and Pebble beaches. These habitats have sparser densities of biota in general, but are fairly typical of similar beaches in the area. Barnacles are moderate to sparse, with sparse *Mytilus* densities.

## II Oil Related comments -

- 1) *Mytilus* is generally sparse in the segment, particularly the adults - Mussel spat and small juveniles are more abundant than adults. It is not clear whether low *Mytilus* density is related to oiling or cleanup activities, I suspect that it is not related. Regardless, mussels appear to be recruiting in the segment.

- 2) Except for the coat in the upper intertidal at pocket beaches with boulder & cobble, oiling effects are minimal. ~~Barnacles~~ Barnacles are beginning to settle on highly weathered oil, but have not yet been seen on oil coats thick enough to have embedded organics.
- 3) ~~2~~ Clean up operations will have minor negative effects in this segment.

## II Recruitment and Mortality.

### A. Barnacles -

Balanus sp. are sparse to moderate on the segment & present on highly weathered oil (rarely). Semibalanus recruits are sparse on headlands. Mortality from oil coats (presumably) is highly variable. The greatest source of mortality in lower zone appears to be from smaller predators.

- B. Mysis - Juveniles  $\leq 10$  mm are present in crevices and other habitats throughout the segment. Dead mysids were rare and the source of mortality unknown. One cobble/puddle beach has moderate mysids densities.

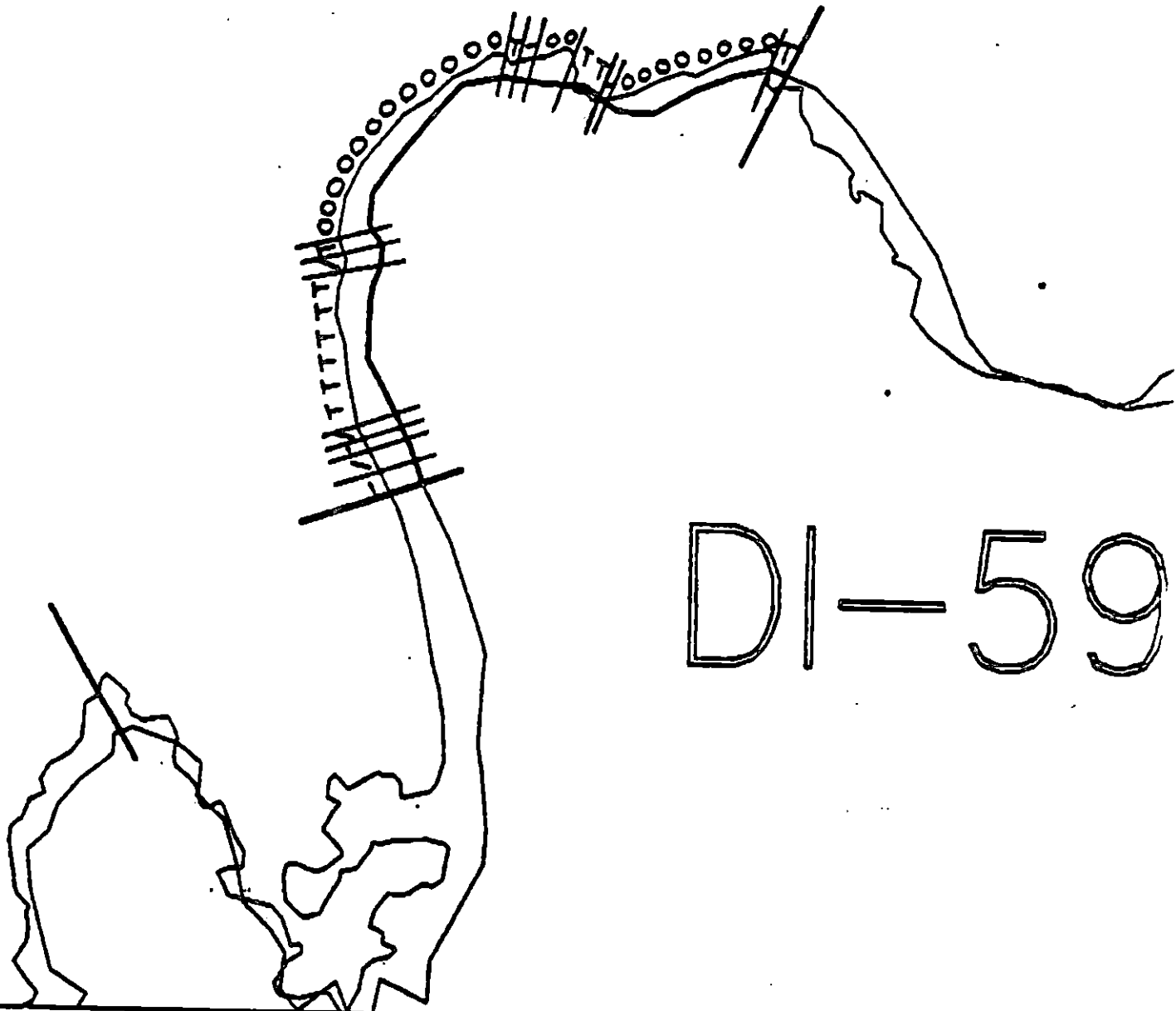
### C. Gastropods

Littorines and Nucella are patchy, but generally moderate in density. Both are presently reproducing, as shown by the numerous egg masses.

- D. Fucus. Juveniles present throughout the intertidal zone, from the lower edge of the upper zone to the lower zone.

- E. Other species. Chiton juveniles (Katharina) are present rarely through the segment.

DI-68



DI-59

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

DI-68

EXXON Segment Length: 841m

ADEC Segment Length: 734m



Map Key: PWS-100

Name: C. DILLON

Date: 4/20/90

Data Entered:

## ADDENDUM: SUBDIVISION CONSTRAINTS

### SEGMENT DI-68 SUBDIVISION A (1 of 1)

| WORK WINDOW                              |        |
|------------------------------------------|--------|
| Manual Pickup                            | CLOSED |
| Spot Washing<br>Other Approved Treatment | CLOSED |

#### ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

#### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

5T     Bald Eagle Nest     USFWS 6/1/90 map indicates an active nest in Subdivision A. Closed to manual pickup, spot washing, and other approved treatment within 400m of active nest.

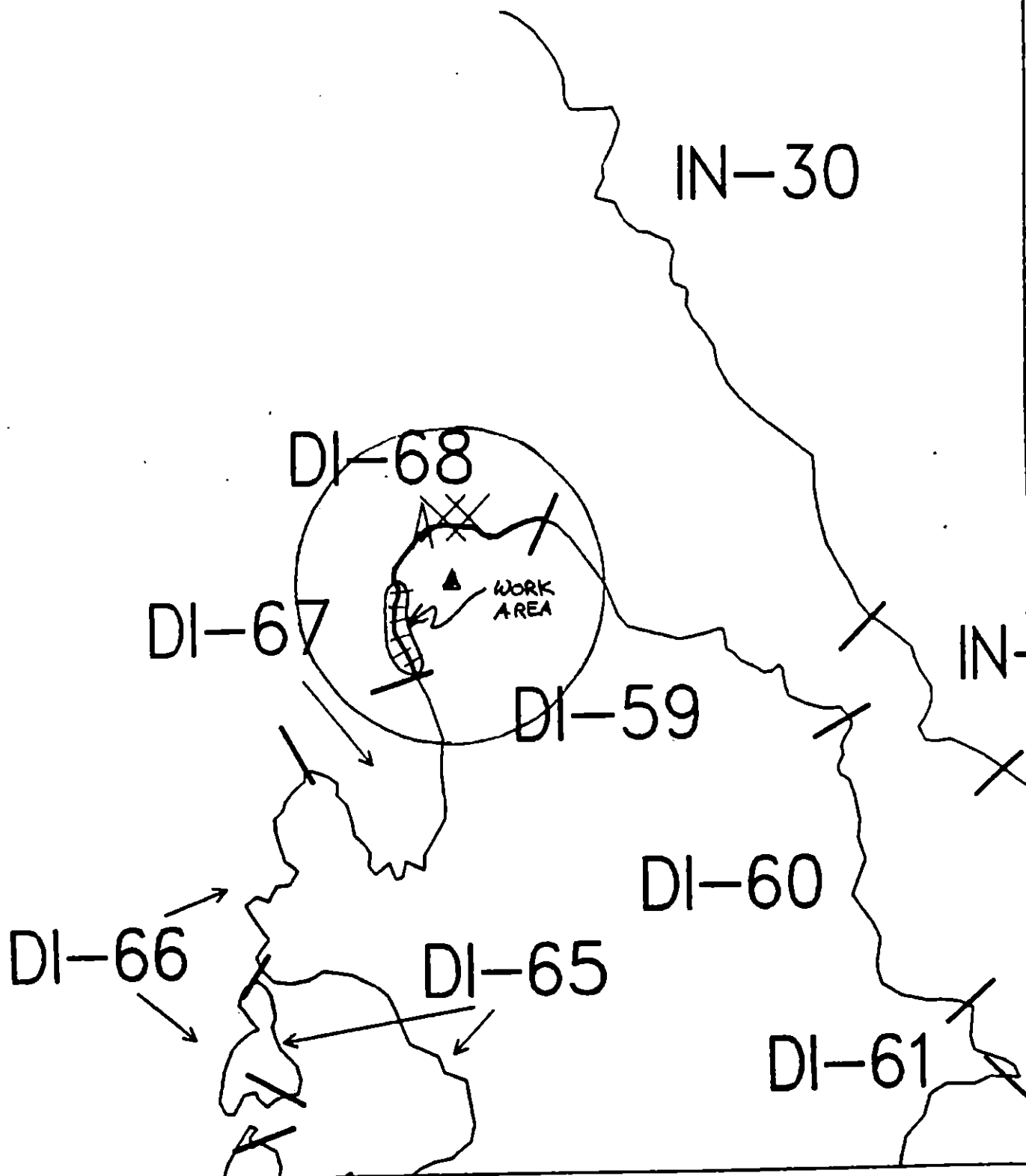
#### OTHER ECOLOGICAL CONSIDERATIONS

If eagle nest constraint is removed, other ecological considerations will apply.

FOSC \_\_\_\_\_ Date 6-10-90

Prepared by J. P. Phillips <sup>6/14/90</sup> Date 6/10/90

1. ADD 7-1-1 1988  
 2. USFWS SURVEIL 7-1-15  
 3. 01-1-88



Exxon Company, USA  
 Map Key: KNI-DI-68



**ECOLOGY MAP**  
 SEGMENT DI-68  
 SUBDIVISION A (1 of 1)  
 METERS



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

1:10000 = 1245 feet

# SHORELINE EVALUATION

SEGMENT ST/ DI-69 SUBDIVISION A (1 OF 1) DATE 4/21/90

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

## SUBDIVISION ECOLOGICAL CONSTRAINTS:

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

SHPO SIGNATURE: Charles J. Hines DATE: 5/5/90

## OILING CATEGORIZATION:

Wide 0 m: Medium 24 m: Narrow 187 m: V. Light 229 m: No Oil 16 m  
Subsurface Oil Observed: Yes X No        Maximum Depth 20 cm

## RECOMMENDATIONS:

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

COMMENTS: Recommend bioremediation of pocket beaches shown on sketch  
map. No ecological time constraints identified.

TAG COMMENTS: MANUAL RAKING + SNARES IN AREA OF TP 2-3  
PRIOR TO BIO.

TAG APPROVAL DATE: 5/4/90  
ADEC ART WEINER NO WEINER  
EXXON AMY GEL REAR FOSC: W L DATE: 5-9-90  
NOAA GARY DELANEY GARY DELANEY  
USCG G.A. BEITER G.A. BEITER

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST / DI-69 SUBDIVISION: A DATE 4/21/90

USCG

NAME William E. White

SIGNATURE

William E. White

☒ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

MANUALLY REMOVE - oil of POCKETS IN AREA -  
OF pits 1, 2, AND 3 (SUB SURFACE OIL) - BIOREMEDIATION  
SHOULD BE CONSIDERED.

ADEC

NAME Peter Montesano

SIGNATURE

Peter J. Montesano

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

The double faced UITE where pits 2+3 were dug holds the  
heaviest subsurface oil that I have observed this Spring. Surface of  
PIS is only stained or coated with P/C becoming cementlike with  
weathered crude to trap the subsurface oil.

- Pits 1, 2, 3; Not effectively washable due to locations on unique beach.  
manually remove oiled subsurface sediments after which consider bioremediation  
of all applicable oiled areas on beach.

The remainder of Subdivision contains light and moderate pockets

of Boulder shadow oiling.

LAND MANAGER USDA - Forest Service

NAME Don J. Bortner

SIGNATURE

Don J. Bortner

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS

Manually remove oil with potant  
material in the area of pits 1, 2 and 3. Additional treatment  
should then be considered, i.e. bioremediation or fertilization

## SHORELINE OILING SUMMARY

REVISION NO. 04/13/90

OG C. DILLON USCG PS1 E. WHITE SEGMENT ST/ D1-69  
 BIO J. BARRY LAND REP D. BRIGHTENGER (NES) SUBDIVISION A (1 OF 2)  
 OXON G. STILES ADEC P. MONTESANO TIME 15:50 10/2/15  
 TEAM NO. 6 TIDE LEVEL +2.5 to +1 DATE 04/21/90  
 EST. SUBDIVISION LENGTH: 700 m ☒ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: NE to SW  
 SURFACE SEDIMENTS: R 85 % B 10 % C 4 % P 1 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Long 5 % Hang 10 % Vert 85 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 40 m N 200 m VL 435 m NO 25 m

## SURFACE OIL

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

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

| OILED DEBRIS | AMOUNT |    |    |
|--------------|--------|----|----|
|              | SM     | MD | LG |
| Logs         |        |    |    |
| Vegetation   |        |    |    |
| Trash        |        |    |    |
| Debris       |        |    |    |

DID YOU COLLECT DEBRIS?

YES ☐ NO ☒TYPE 0#BAGS 0

Photographs:

Roll No. ST-6-6Frames 9-15

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |   |   | A N A | SHEEN (Y/M) | F  | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|---|---|---|----------|---|---|---|-------|-------------|----|--------------------------------|
|         |                | OP                       | OR | OL | OP | NO |                     | UO    | UC | 1                | 2 | 3 | 4 | 5 | SU       | U | M | U |       |             |    |                                |
| 1       | 20             |                          | X  |    |    |    | 0-4                 |       | X  |                  |   |   | X |   |          | X |   |   |       | N           | 15 | B/C - P/G/m                    |
| 2       | 25             | X                        |    |    |    |    | 0-8                 | X     |    |                  |   |   | X |   |          | X |   |   |       | N           | 20 | C/P - P/G                      |
| 2       | 25             |                          |    |    | X  |    | 8-20                |       | X  |                  |   |   | X |   |          | X |   |   |       | N           | 20 | P/G - P/G                      |
| 3       | 35             | X                        |    |    |    |    | 0-8                 | X     |    |                  |   |   | X |   |          | X |   |   |       | N           | -  | C/P - P/G/m                    |
| 3       | 35             |                          |    |    | X  |    | 8-10                |       | X  |                  |   |   | X |   |          | X |   |   |       | N           | -  | P/G - G/m                      |
| 4       | 50             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |   |          | X |   |   |       | N           | -  | P - P/G                        |
| 5       | 15             | X                        |    |    |    |    | 0-1                 |       | X  |                  |   |   | X |   |          | X |   |   |       | N           | -  | R/B - C/P/m                    |

REVIEWED 7WDATE 4/23/90

OG C. DILL TEAM 6

SEGMENT ST/ UI-69

SUBDIVISION A

DATE 4/21/90

# CHECKLIST

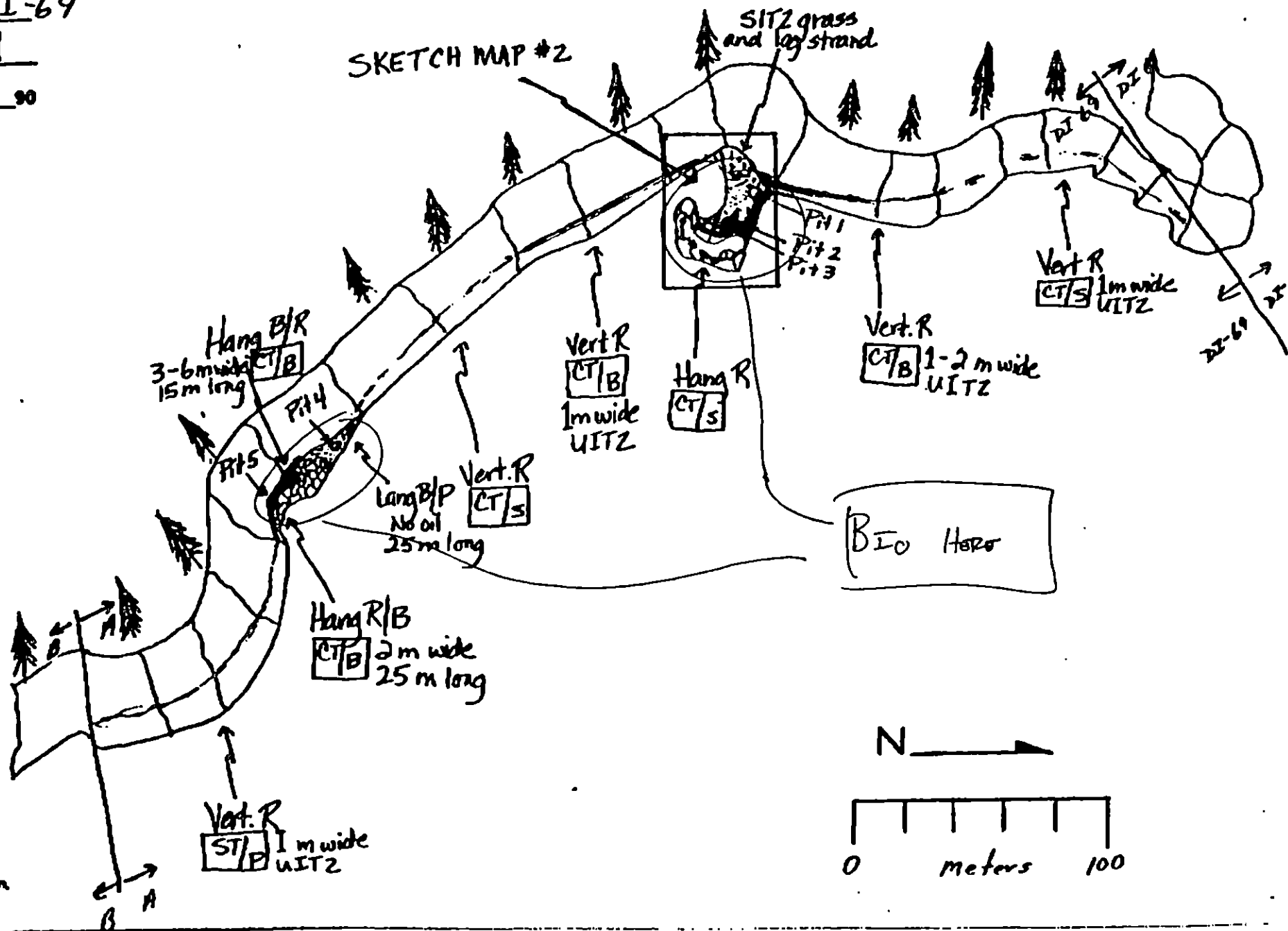
- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dist.
- ☐ Wash
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HAV/L/ML
- ☐ SOL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ PH Location(s)
- ☐ Photo Location(s)

## LEGEND

- 1 Δ<sub>1</sub>  
PH - No Substrate Oil
- 2 Δ<sub>2</sub>  
PH - Substrate Oil
- CT/C  
Continuous Distribution
- CT/B  
Broken Distribution
- CT/P  
Patchy Distribution
- CT/S  
Splashed Distribution
- eee  
Old Vegetation
- 1 →  
Photo location, direction, and number

S CH MAP #1

## SKETCH MAP #2



Oil Character Length (m): AP 0 FO 0 CV 20 CT 595 ST 60 MS 0 PT 0 TB 0 FL 0 NO 25

REVISIONS

SEGMENT ST/ -69

SUBDIVISION A

DATE 4/21/90

CHECKLIST

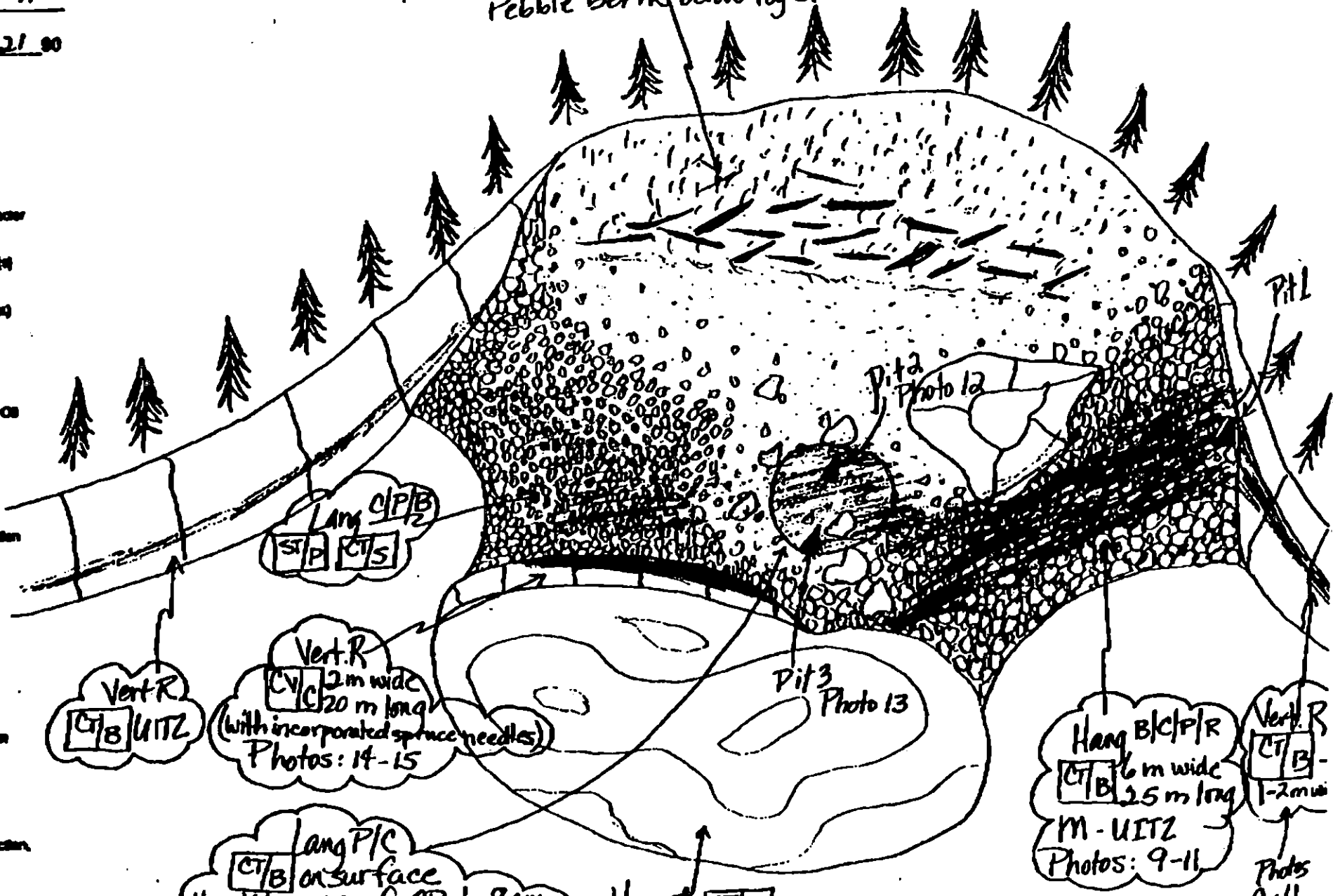
- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Entry
- ☐ Oil Dist.
- ☐ Wash
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWA/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ P/L Location(s)
- ☐ Photo Location(s)

LEGEND

- 1 Δ
- PH - No Subsurface Oil
- 2 Δ
- PH - Subsurface Oil
- CT/C
- Continuous Distribution
- CT/B
- Broken Distribution
- CT/P
- Patchy Distribution
- CT/S
- Spashed Distribution
- eee
- Oil Vegetation
- 1 ●
- Photo location, direction, and number

SKETCH MAP #2

SITZ: g... is, log strand, algae strand  
Pebble berm below log strand



Oil Character length for bench only

Oil Character Length (m): AP 0 PO 0 CV 20 CT 30 ST 15 MS 0 PT 0 TB 0 FL 0 NO 0

REVISIONS

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 03/22/70

Segment ST/ DI 69 Subdivision A Date (mo / day / yr) 4/21/90  
 Time (24 hr) 1550 - 1645 Biologist Jim Barry Length = 700 m 1/7

- (A) Substrate type and % of segments:  
 (1) Bedrock 85 (2) Boulder 10 (3) Cobble 7 (4) Pebble 1 (5) Sand 0 (6) Silt 0
- (B) Overall % cover of biota (% of segment): Dense 55 Moderate 30 Low 15
- (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-6-6  
 Frames 16

## BARNACLES

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |             |

## MYTILUS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |             |

## GASTROPODS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |             |

## FUCUS

| Dense |    |    | Moderate     |              |              | Sparse       |              |              | Rare         |              |              | NOT PRESENT |
|-------|----|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| 1U    | 1M | 1L | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           | 1U           | 1M           | 1L           |             |
| 2     | 2  | 2  | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> | <del>2</del> |             |
| 3     | 3  | 3  | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> | <del>3</del> |             |
| 4     | 4  | 4  | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> | <del>4</del> |             |
| 5     | 5  | 5  | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> | <del>5</del> |             |
| 6     | 6  | 6  | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> | <del>6</del> |             |

## Wildlife Observations/ General Comments:

SEA OTTER - 3  
BALD EAGLE - 2 GLAUCOUS-WINGED GULLS - 3  
Merganser - 2

Ecological Considerations: NONE LISTED

TIME 1550-1645

TIDE +2 → +1

I General Comments

This segment is composed by highly exposed vertical cliffs, high angle boulder beaches and some small pocket beaches w/ cobble & pebbles.

## A. HABITATS

- 1) Vertical Cliffs: These bedrock cliffs often are sheer to fairly deep water, thus allowing large swells to directly impact intertidal biota. Barnacles are frequently dense, particularly the large acorn barnacle Semibalanus cariosus in the middle to low zone. In the high zone, Balanus glandula and Lithanellus are moderately to densely abundant. These species also are present in lower zones, but at lower densities. Mussels are sparse on these cliffs for much of the segment. Small juveniles and spat are more common than are adults. Gastropods, including periwinkles (Littorines), limpets, and whelks, are moderate to dense. The most exposed faces have slightly lower densities of gastropods. Nucella, the predatory whelk, is frequently present in high densities.

Algae are abundant in the middle to low zones. Fucus is generally moderate, with many other blade-like red and green algae dense in cover in the low zone. These rapidly growing species may be disturbed & removed by large storms.

- 2) High angle boulder and cobble shores have similar species compositions <sup>to vertical cliffs</sup>, but due to their higher structural complexity, provide a wider variety of microhabitat types. As such, species diversity is somewhat higher in these habitats. In addition to high cover of barnacles

## I (cont)

as found on vertical cliffs, mussels are slightly more abundant, as are some gastropods. Small pools have sea anemones, scallops, chitons, shore crabs, hermit crabs, and sea cucumbers, as well as several species of coralline algae. Urchins also are found under cobble and in some isolated pools.

## 3) Cobble (Pebble) Beaches.

These beaches are mostly exposed to high waves during storms. Thus, diatoms are scoured from cobble surfaces. Algae cover was low, except in low zones where filamentous green and brown algae (and diatoms) cover the rocks. Littorines, hermit crabs, and limpets (*Tectum tectum*) are ~~sp~~ patchy, but generally moderate in density. Mytilus spat or small juveniles are occasionally found under cobble.

## B. Oil Related Comments

- 1) Oil seems to have collected in the upper zone of 1 beach. This oil may be affecting the biota in the cobble as it runs or seeps into the low zone. Other oiling shows as a coat or cover over sections of the upper zone. Barnacle mortality associated with this oil is variable depending upon its thickness. Recruitment of barnacles and algae is highly limited, usually with no new organisms present on the oil, even though new individuals are found immediately adjacent to it. Highly weathered oil has ~~in~~ a few ~~in~~ new barnacles on it.

- 2) No ecological sensitivities exist to restrict clean up operations.

# IV Species List

## A. MARINE PLANTS

- 1) DIATOMS / BLUE GREEN ALGAE M-D 123
- 2) GREEN ALGAE - CHLOROPHYTA

ACROSIPHONIA M 123 C  
 CLADOPHORA S 12 BC  
 ENTEROMORPHA B SM 123 BC  
 GREEN CRUST S 1 AB  
 ULVA M 123 BC  
 UROSPORA M D 123 C

## 3) RED ALGAE - RHODOPHYTA

BOSSIELLA S 1 BC  
 CALLIARTHRON S 1 BC  
 CORALLINA S 1 BC  
 CRYPTOSIPHONIA M 123 C  
 ENDOLLADIA MURICATA S 12 AB  
 HALOSACCION GLANDIFORME SM 123 BC  
 IRIDAEA ?  
 MASTOCLADUS ?  
 MEMBRANOPTERA M 123 BC  
 MICROCLADIA ?  
 LITHOTHAMNION PACIFICUM S 1 BC  
 PETROCELLIS MIOBENDORFFII S 12 AB  
 PORPHYRA spp. S 12 BC  
 RHODOMELA LOEHLI SM 12 BC  
 PALMARIA PALMARIA M 123 BC

## 4) BROWN ALGAE - PHAEOPHYTA

ALARIA MARGINATA U  
 AGARUM spp. U  
 COSTARIA U  
 FUCUS DISTICHUS M 123 BC  
 HEDOPHYLLUM SESSILE U  
 HILDONBRADIA S 12 A  
 LAMINARIA U  
 NERIOCYSTIS RU  
 RALPSIA S 12 AB  
 SCYTOSIPHON COMENTARIA S 12 BC

A SPAT OR JUVENILES  
 PRESENT

D DENSE

M MODERATE

S SPARSE

R RARE

1 BEDROCK

2 BOULDER

3 COBBLE

4 PEBBLE

U. SUBTIDAL

X Probably Present

A High Zone

B Middle Zone

C Low Zone

# B MARINE INVERTEBRATES

DI 69 \*

## 1) ANEMONES

- EPIACTIS RITTAE ? X
- URTICINA CRASSICORNIS R12 BC.
- Anthopleura elegantissima S12 BC.
- A. ornata S12 BC
- A. xanthogrammica ?

## 2) Annelid Worms

- Polychaetes
- Nereidae S123 BC
- Nephtyidae S123 BC
- Serpulidae
- Serpula S12 \* BC
- Cirratulus X
- Spirorbidae
- Spirorbis S123 \* BC

## 3) Peanut Worms - Sipunculid

- PHASCOLOSOMA HERBERTI X

## 4) MOLLUSCS

### a) CHITONS

- CATHARINA TUCATA S12 \* BC
- TONICELLA LINATA S12 \* BC
- MOPALIA spp. X

### b) Snails - GASTROPODS

- LITTORINA SCUTULATA MD123 ABC
- L. SITKANA MD123 ABC
- NUCULLA LAMELLOSA SMD12 BC
- N. EMARGINATA SMD12 BC
- SESSILEA DINA S23 BC
- AMPHISSA COLUMBANA R23 \* BC
- TACHYRHYNCHUS spp. X

### c) Nudibranchs

- LAMELLIDORIS FUSCA S12 \* AB

### d) Limpets

- LOTTIA DIGITALE S12 \* A
- ACMAEA MITRA S12 \* BC
- LOTTIA PERSONA S12 \* 23

## d) Limpets (cont)

- Tectura scutellum MS23 \* BC
- T. persona S23 \* AB
- Biphonaria thersites S12 \* A
- Diadema aspera X

## e) Mussels

- Mytilus edulis SMD123 \* ABC

## f) Clams

- Single - PODOPTERUS SEPPIO S2 \*
- Hiatella spp. R23 \* BC
- ~~Protothaca staminea~~
- ~~Macoma spp.~~

## g) Crustaceans

### 1) Barnacles

- Semibalanus cariosus D12 \* BC
- Balanus glandula MD12 \* AB
- Cithamalus dallii MD12 \* AT

### 2) Crabs

- Haplogaster spp S123 BC
- Hemigrapsus oregonensis S123 \*
- Pagurus spp. RS23 \* BC
- Hermit Crabs - Paguridae MD123 \*

### 3) Beach Hopper

- ISOPODA X
- AMPHIPODA
- Orchestoidea? MD123 \* BC

## h) Bryozoans

- Schizoporella spp? S23 \* BC

## i

### Echinoderms

- 1) Sea Stars
- S123 \* C Pycnopoda helianthoides
- S123 \* C Dermasterias imbricata
- S123 \* BC Leptasterias hexactis
- S123 \* C Evasterias troschelii
- R123 C Orthasterias koehleri
- M12 C Pisaster ochraceus.

6/7

SPECIES LIST (cont)

DI 69-A

4/20/90

7/7

Brittle Stars

*Ophiurus* spp X

Sea Cucumbers

*Cucumaria minicata*

Sea urchins

*Strongylocentrotus droebachiensis* X

Sponges

yellow sponge ? S23 C

Vertebrates

Fishes

*Xiphister* spp. m 3\* BC

DI-61

DI-69

DI-69-A  
700m

DI-69-B  
579m

XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

DI-69

EXXON SEGMENT LENGTH: 1279m

ADEC Segment Length: 1125m

0 100 200 300  
METERS

Map Key: PWS-101

Name: C. DILLON

Date: 4/21/90

Date Entered:

SEGMENT ST/ DI-69 SUBDIVISION B (2 OF 2) DATE 4/21/90

**SUBDIVISION ECOLOGICAL CONSTRAINTS:**

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

Wide 0 m: Medium 0 m: Narrow 59 m: V.Light 528 m: No Oil 82 m  
Subsurface Oil Observed: Yes \_\_\_\_\_ No X Maximum Depth \_\_\_\_\_

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

COMMENTS: \_\_\_\_\_

**TAG COMMENTS:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TAG APPROVAL DATE: 5/4/70.

ADEC ART WELDER Dithleens

EXXON *Ampl KAR Seal*

NOAA Gary Peterson

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

FOSC: W/L DATE: 5-9-90

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ DI-69 SUBDIVISION: B DATE 4/21/90

**USCG**

NAME William E. White SIGNATURE William E. White

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

MAJORITY OF THE SUBDIVISION IS VERT-HANG.  
ROCK AND BOUNDER - BROKEN STRAIN TO PATCH COAT, ALSO  
SOME OF THE SUBDIVISION HAS NO SURFACE OIL OR SUB-  
SURFACE OIL. NATURAL CLEANING CONTINUOUS.

**ADEC**  
NAME

Peter Montesano

SIGNATURE

Peter Montesano

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Subdivision has Pockets of boulder shallow oiling DBL+SB4 under  
and around Sometimes mixed into smaller Sediments trapped between  
Boulder. By and large inaccessible.

**LAND MANAGER** USDA - Forest Service

NAME Don J. Breitinger

SIGNATURE

Don J. Breitinger

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Natural wave action cleaning appears to be the  
best method of cleaning.

## SHORELINE OILING SUMMARY

REVISION NO. 0013-0

OG C. DILLON USCG PS1 E. WHITE SEGMENT ST/ DI-69  
 BIO J. BARRY LAND REP D. BRIGHTENGER (NCS) SUBDIVISION B (2 OF 2)  
 EXXON G. STILES ADEC P. MONTESANO TIME 17:15 to 18:30  
 TEAM NO. 6 TIDE LEVEL 1.1 to 1.75 DATE 04/21/90  
 EST. SUBDIVISION LENGTH: 579 m ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: NE to SW  
 SURFACE SEDIMENTS: R 45 % B 40 % C 10 % P 5 % G 0 % S 0 % M 0 % V 0 %  
 SLOPE: Lang 15 % Hang 50 % Vert 35 % WAVE EXPOSURE: ☐ Low ☒ Med ☒ High  
 OIL CATEGORY LENGTH: W 0 m M 0 m N 30 m VL 474 m NO 75 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   |   | IMPACTED ZONES |   |    |   |
|------------------|--------------|---|---|---|------------------|---|---|---|---|----------------|---|----|---|
|                  | N            | E | S | W | 1                | 2 | 3 | 4 | 5 | SW             | U | SE | U |
| ASPHALT PAVEMENT |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| POOLED           |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| COVER            |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| COAT             |              | X | X | X |                  | X |   |   |   |                | X |    |   |
| STAIN            |              | X | X | X |                  |   | X |   |   |                | X |    |   |
| MOUSSE           |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| PATTIES          |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| TARBALLS         |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| FILM             |              |   |   |   |                  |   |   |   |   |                |   |    |   |
| NO OIL           |              |   |   |   |                  |   |   |   |   | X              |   | X  | X |

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

| OILED DEBRIS | AMOUNT |    |    | DID YOU COLLECT DEBRIS?                                             |
|--------------|--------|----|----|---------------------------------------------------------------------|
|              | SM     | MD | LG |                                                                     |
| Logs         |        |    |    | YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> |
| Vegetation   |        |    |    |                                                                     |
| Trash        |        |    |    | TYPE <u>G</u>                                                       |
| Debris       |        |    |    | #BAGS <u>0</u>                                                      |

Photographs:

Roll No. NONEFrames 1

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL (cm) | BELOW |    | OIL / FILM COLOR |   |   |   |   | PIT ZONE |   |    |   | A N A | SHEEN (Y/N) | ↓ | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|---------------------|-------|----|------------------|---|---|---|---|----------|---|----|---|-------|-------------|---|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                     | SO    | US | 1                | 2 | 3 | 4 | 5 | SW       | U | SE | U |       |             |   |                                |
| 1       | 60             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |   | X        |   |    |   |       | N           | - | C/P-P/G/C                      |
| 2       | 65             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |   |          | X |    |   |       | N           | - | P-P/G/C                        |
| 3       | 30             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |   |          |   | X  |   |       | N           | - | P-P/G                          |
| 4       | 35             |                          |    |    |    | X  | .                   |       | X  |                  |   |   |   |   | X        |   |    |   |       | N           | - | P-G                            |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |          |   |    |   |       |             |   |                                |
|         |                |                          |    |    |    |    | .                   |       |    |                  |   |   |   |   |          |   |    |   |       |             |   |                                |

COMMENTS MAJORITY OF SUBDIVISION IS VERT/HANG ROCK & BOULDER WITH A SPORADIC TO BROKEN STAIN AND SPORADIC TO PATCHY COAT UP TO 1 m WIDE ALONG THE HIGH TIDE LINE. A 30 m LONG HANG BOULDER AREA IN THE CENTER OF THE SUBDIVISION HAS A 1 m WIDE BROKEN COAT (NARROW). 2 SMALL LANG C/P BEACHES (AT THE NE AND SW ENDS OF SUBDIVISION) HAVE NO SURFACE OR SUBSURFACE OIL. THE OFFSHORE ROCK (UNOILED) IS NOT INCLUDED IN THE OIL CATEGORY/CHARACTER LENGTHS OR THE SUBDIVISION LENGTH.

REVIEWED 70 DATE 4/23/90

# SHORELINE ECOLOGICAL SUMMARY

REVISION: 0

Segment ST / DIG Subdivision B Date (mo / day / yr) 4/21/90

Time (24 hr) 1645-1845 Biologist JIM BARRY 579 m

(A) Substrate type and % of segments:  
(1) Bedrock 75 (2) Boulder 40 (3) Cobble 10 (4) Pebble 5 (5) Sand 0 (6) Silt 0

(B) Overall % cover of biota (% of segment): Dense 70 Moderate 25 Low 5

(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-6-6

Frames 17

## BARNACLES

|    | Dense        | Moderate      | Sparse        | Rare |
|----|--------------|---------------|---------------|------|
| 1U | <del>2</del> | <del>1M</del> | <del>1L</del> | 1U   |
| 2  | <del>2</del> | <del>2</del>  | <del>2</del>  | 1M   |
| 3  | <del>3</del> | <del>3</del>  | <del>3</del>  | 1L   |
| 4  | <del>4</del> | <del>4</del>  | <del>4</del>  | 2    |
| 5  | <del>5</del> | <del>5</del>  | <del>5</del>  | 3    |
| 6  | <del>6</del> | <del>6</del>  | <del>6</del>  | 4    |

NOT PRESENT

## MYTILUS

|    | Dense        | Moderate      | Sparse        | Rare |
|----|--------------|---------------|---------------|------|
| 1U | <del>2</del> | <del>1M</del> | <del>1L</del> | 1U   |
| 2  | <del>2</del> | <del>2</del>  | <del>2</del>  | 1M   |
| 3  | <del>3</del> | <del>3</del>  | <del>3</del>  | 1L   |
| 4  | <del>4</del> | <del>4</del>  | <del>4</del>  | 2    |
| 5  | <del>5</del> | <del>5</del>  | <del>5</del>  | 3    |
| 6  | <del>6</del> | <del>6</del>  | <del>6</del>  | 4    |

NOT PRESENT

## GASTROPODS

|    | Dense        | Moderate      | Sparse        | Rare |
|----|--------------|---------------|---------------|------|
| 1U | <del>2</del> | <del>1M</del> | <del>1L</del> | 1U   |
| 2  | <del>2</del> | <del>2</del>  | <del>2</del>  | 1M   |
| 3  | <del>3</del> | <del>3</del>  | <del>3</del>  | 1L   |
| 4  | <del>4</del> | <del>4</del>  | <del>4</del>  | 2    |
| 5  | <del>5</del> | <del>5</del>  | <del>5</del>  | 3    |
| 6  | <del>6</del> | <del>6</del>  | <del>6</del>  | 4    |

NOT PRESENT

## FUCUS

|    | Dense        | Moderate      | Sparse        | Rare |
|----|--------------|---------------|---------------|------|
| 1U | <del>2</del> | <del>1M</del> | <del>1L</del> | 1U   |
| 2  | <del>2</del> | <del>2</del>  | <del>2</del>  | 1M   |
| 3  | <del>3</del> | <del>3</del>  | <del>3</del>  | 1L   |
| 4  | <del>4</del> | <del>4</del>  | <del>4</del>  | 2    |
| 5  | <del>5</del> | <del>5</del>  | <del>5</del>  | 3    |
| 6  | <del>6</del> | <del>6</del>  | <del>6</del>  | 4    |

NOT PRESENT

## Wildlife Observations/ General Comments:

GOLDEN EAGLE - 1 GLAUCOUS-WINGED GULL - 3  
BALD EAGLE - 2 MURRES - 2  
SEA OTTER - 2 PIGEON GUILLEHOT - 2

## Ecological Considerations:

NONE LISTED

TIME: 1645-1845

TIDAL WINDOW +1 → +3

I General Comments

This subdivision is very similar to DI 69-A. In addition to the habitats found in that subdivision, DI 69-B had a few small offshore headland islands and a larger cobble/pebble beach.

A. HABITATS -

1) Vertical Cliffs and high angle ~~sh~~ boulder shores - See DI 69-A

2) Offshore headland islands.

These habitats are composed of highly exposed high angle and vertical shores. Biota are similar to the vertical cliffs and boulder shores of the remainder of the segment, except with greater abundance of the rarer species, and perhaps slightly higher diversity overall. Biota are generally dense overall on these habitats.

3) Cobble pebble beaches -

These beaches are highly exposed to waves. Cobble & pebbles are smooth. Littorinids and pagurids are generally abundant, as are limpets and amphipods under larger cobble. Perchle banks are moderate to dense in the low zone, especially under medium to large cobble. Mussel beds are densest adjacent to these beaches, where well defined mussel bands occasionally occur.

B. Oil related comments -

1) Oil is present mainly as a coat in some areas, impacting the high zone barnacles. See DI 69-A

APRIL 21 1990

DI 69-B

P. 01/87

3/5

# IV Species List

## A. MARINE PLANTS

1) DIATOMS / BLUE GREEN ALGAE M-D 123

2) GREEN ALGAE - CHLOROPHYTA

ACROSIPHONIA M123C

CLADOPHORA S12C

ENTEROMORPHA SM123BC

GREEN CRUST. SIAB

ULVA M123BC

UROSPORA M123C

3) RED ALGAE - RHODOPHYTA

BOSSIELLA S1BC

CALLIARTHRA S1BC

CORALLINA S1BC

CRYPTOSIPHONIA ~~SM~~ M123C

ENDOCALDIA MURICATA S12AB

HALOSACCION GLANDIFORME SM123BC

IRIDAEA ?

MASTOCARPUS ?

MEMBRANOPTERA M123BC

MICROCALDIA ?

LITHOTHAMNION PALIFICUM S12BC

PETROCELIS MIDDENDORFFII S12AB

PORPHYRA spp. S123BC

RHODOMELA CANIX SM123BC

PALMARIA PALMARIA M123BC

4) BROWN ALGAE - PHAEOPHYTA

ALARIA MARGINATA U

AGARUM spp. U

COSTARIA U

FUCUS DISTICHTUS M123BC

HEDOPHYLLUM SESSILE U

HILDEMBRANDIA  $\pm$  S12AB

LAMINARIA U

NEROCYSTIS RU

RAUPSID S12AB

SCYTOSIPHON COMENTARIA S12BC

A SPAT OR JUVENILES  
PRESENT

D DENSE

M MODERATE

S SPARSE

R RARE

1 BEACH

2 BOLDER

3 COBBLE

4 PEBBLE

U. SUBTIDAL

X - Probably present

A - HIGH ZONE

B - MIDDLE ZONE

C - LOW ZONE

# B. MARINE INVERTEBRATES

D169.B 4/2/90

## 1) ANEMONES

- EPIACTIS RITTBAE ? M 12 BC \*
- URTICINA CRASSICORNIS R 2 BC
- ANTHOPLURA ELEGANTISSIMA S 12 BC A
- A. ANTIMISEA \* S 12 BC
- A. KANTHOGRAMMICA ?

## 2) ANNELID WORMS

- POLYCHAETES
- NEREIDAE S 123 BC
- NEPHTHYDAE S 123 BC
- SERPULIDAE
- SERPULA S 12 BC \*
- CRUCIGERA \* S 12 BC
- SPIROBIDAE
- SPIROBIS M 23 ABC

## 3) PEANUT WORMS - SIPUNCULID

- PHASCOLOSOMA HERBERTI X

## 4) MOLLUSCS

### a) CHYTONS

- KATHARINA TUCATA SM 12 BC \*
- TONICELLA LINATA S 12 ABC
- MOTALIA spp. S 12 BC

### b) SNAILS - GASTROPODS

- LITTORINA SCUTULATA MD 123 ABC
- L. SITKANA MD 123 ABC
- NUCULLA LAMELLOSA SM 12 BC
- N. EMARGINATA SM 12 BC
- SCUTILELLA DINA S 123 BC
- AMPHISSE COLUMBANA R 23 BC \*
- TACHYCHNECHUS spp. X

### c) NUDIBRANCHS

- LAMELLIDORIS FUSCA S 12 ABC

### d) LIMPETS

- LOTTIA DIGITULIS S 12 A \*
- ACMAEA MITRA R 12 BC
- LOTTIA PERSONA S 12 ABC

## d) Limpets (cont)

4/5

- TECTURA SECTUM M S 23 ABC
- T. PERSONA S 23 ABC
- BIPHONAREA HERBERTI S 12 A \*
- DIADORA ASPERA X

## e) MURELS -

- MYTILUS EDULIS SM 123 ABC

## f) CLAMS

- SINGLE - PODOCYSTUS CEPHIO S 2 \*
- HYALIA spp. R 23 ABC
- PROTHACA STAMINEA
- MACOMA spp.

## g) CRUSTACEANS

### 1) BARNACLES

- SEMIBALANUS CARIOSUS M 12 ABC
- BALANUS GLANDULA M 12 ABC
- CITHOMALUS DALLI MD 12 ABC

### 2) CRABS

- HAPLOGASTER spp S 23 BC \*
- HEMIGRAPHUS OREGONENSIS S \*
- PUGITIA spp. R S 23 ABC
- HERMIT CRABS - PAGURIDAE MD 23 ABC

### 3) BEACH HOPPER

- ISOPODA X
- AMPHIPODA MD 34 BC
- ORCHESTRA ?

### h) BRYOZOANS

- SCHIZOPORELLA spp. ? S 23 A

### i. ECHINODERMS

- 1) SEA STARS
- S 123 AC PTEROPODA HELIANTHOID
- S 123 AC DERMATARIAS IMBRIATA
- S 123 AC LEPTASTERIAS LEACHII
- S 123 C EVERTERIAS TRUSCHELI
- X ORTHOSTERIAS KOECHERI
- M 12 C PISASTER OCHROCEUS

SPECIES LIST (cont)

DI 69-B Apr 12 21 1980

5/5

Echinoderms (cont)

2) Brittle Stars

*Ophiolus* spp? X

3) Sea Cucumbers

*Eupentacta quinquesemita* 523 C

*Cucumaria miniata* 523 C

*Cucumaria vegae* 523 C

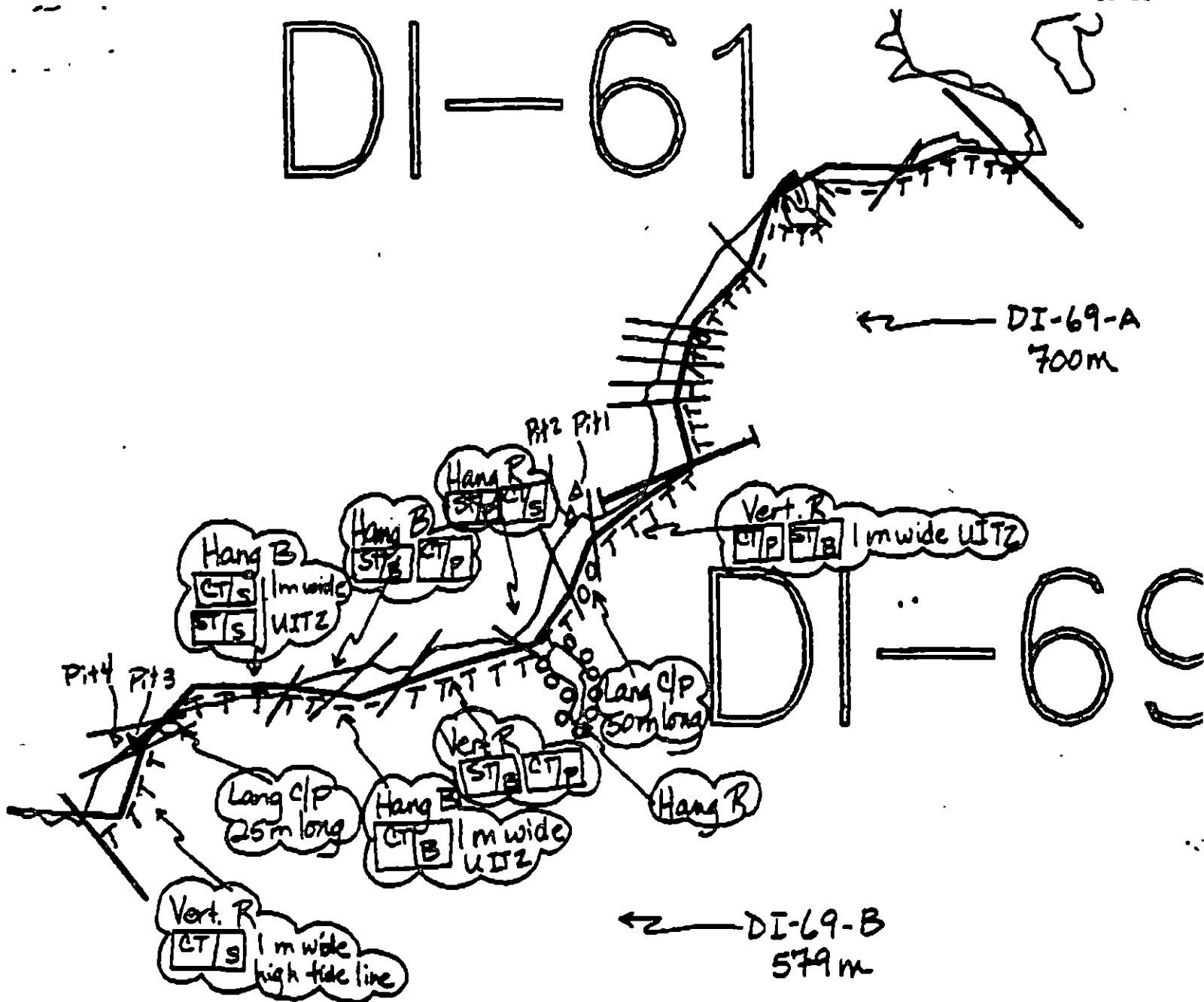
4) Sea Urchins

*Strongylocentrotus droebachiensis* 523 C

Fishes

*Xiphaster* spp. - *Predeltolepis* M 23 + BC

# DI-61



OIL CHARACTER LENGTHS (m): CT 345 ST 159 NO 75

(OFFSHORE UNCOILED ROCK IS NOT INCLUDED IN SUBDIVISION, OIL CHARACTER OR OIL CATEGORY LENGTHS)

Wide  
Medium  
Narrow  
Very Light  
No Oil

## DI-69

EXXON SEGMENT LENGTH: 1279m  
ADEC Segment Length: 1125m

0 100 200 300  
METERS

Map Key: PWS-101

Name: C. DILLON

Date: 4/21/90

Date Entered:

# SHORELINE EVALUATION

SEGMENT ST/ DW-01 SUBDIVISION A (1 OF 1) DATE 4/19/90

## SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

ADF&G anadromous stream no. 224-40-14910 rev. 10/84

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

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

6U Recreation: Tent sites (6/1 to 9/15)

Plus one uncatalogued anadromous stream.

See attached Ecological Constraint sheet for specific constraints and contacts.

## SUBDIVISION ECOLOGICAL CONSTRAINTS:

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

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

## OILING CATEGORIZATION:

Wide 0 m: Medium 0 m: Narrow 0 m: V.Light 133 m: No Oil 8679 m  
Subsurface Oil Observed: Yes      No X Maximum Depth     

## RECOMMENDATIONS:

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

COMMENTS:       
      
      
    

TAG COMMENTS:       
      
      
    

TAG APPROVAL DATE: 5/8/90

ADEC Art Weimer Art Weimer

EXXON Andy Tate Andy Tate

NOAA Gay Paterson Gay Paterson

USCG G.A. Reiter G.A. Reiter

FOSC: ML DATE: 5-12-90

## 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 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 uncoiled intertidal and subtidal algae and seagrass. Contact ADF&G for specific dates and locations.

3N, 3P  
3O, 3Q

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

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

Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts.

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

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

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

Restrict all activity to essential minimum, especially air traffic.

5T All Bald Eagle nests (3/1 to 6/1)

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

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



Recreation: Tent sites (6/1 to 9/15)

6V Anchorages (6/1 to 9/15)

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

6X Lodge (6/1 to 9/15)

6Y Special use destination

7Z Subsistence area: Salmon harvesting (5/1 to 9/30)

7HH Finfish harvesting

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

7JJ Invertebrate harvesting

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

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST/ DW-001 SUBDIVISION: A DATE 4/19/90

**USCG**

NAME SCOTT RAMSEY SIGNATURE Scott Ramsey MST

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

**ADEC**

NAME Lori Stratton SIGNATURE Lori Stratton

☒ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Segment consisted of predominantly bedrock granite slabs and pocket beaches of white sand/gravel. Some locations had VL tarball splashes and mouse patches on surface sediments. Cover and coat were observed over  $\approx 1m^2$  area. In 5-6 areas, HZ tarballs were picked up, amounting to  $\approx 2$  liters. At one location, 6-10 tarball <sup>packages</sup> were broken up & dispersed into sediments.

Mussel mortality was high at the cobbled beginning section of beach with tidal fl. (sketch #1).

No treatment is recommended due to insignificant amount of oil present in segment.

**LAND MANAGER**

NAME U.S. Forest Service SIGNATURE Lee Taylor

☐ NO TREATMENT RECOMMENDED  
COMMENTS

☐ TREATMENT SUGGESTED

Conditions described by ADEC. Aspect w/ scattered splashes in Rock/Boulder area's are could not access. Not enough oil to require manpower or equipment. - Continue Natural Cleaning. - Don't

Deep Water Bay receives significant public use. The oil present is hard to spot b the untrained eye and the majority of it is found on the boulders and bedrock, not on the beaches. Very remote chance of contamination to visitors or their equip. No treatment recommended.

Leigh Carlson

Leigh Carlson ADNR

## SHORELINE OILING SUMMARY

REVISION NO 04-13/90

OG G. MacDonald USCGS R41W5FORD SEGMENT ST/ DW-1  
 BIO MA. SCOTT LAND REP LEOHEELER NPS SUBDIVISION A (1 OF 1)  
 EXXON J. BUTLER ADEC L. STRATTON TIME 12:30 to 16:35  
 TEAM NO. 344 TIDE LEVEL +5 to +2 DATE 1 / 1 / 90  
 EST. SUBDIVISION LENGTH: 8.64 m ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☒ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☒ Boat ☐ Helo WORKING DIRECTION: S to N  
 SURFACE SEDIMENTS: R 80 % B 5 % C 5 % P 1 % G 7 % S 1 % M 1 % V 0 %  
 SLOPE: Long 5 % Hang 20 % Vert 75 % WAVE EXPOSURE: ☒ Low ☐ Med ☐ High  
 OIL CATEGORY LENGTH: W 0 m M 0 m N 0 m VL 100 m NO 9596 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   | IMPACTED ZONES |   |   |   |
|------------------|--------------|---|---|---|------------------|---|---|---|----------------|---|---|---|
|                  | C            | N | P | S | 1                | 2 | 3 | 4 | BU             | U | M | L |
| ASPHALT PAVEMENT |              |   |   |   |                  |   |   |   |                |   |   |   |
| POOLED           |              |   |   |   |                  |   |   |   |                |   |   |   |
| COVER            |              |   |   | X | X                |   |   |   | X              |   |   |   |
| COAT             |              |   |   | X | X                |   |   |   | X              |   |   |   |
| STAIN            |              |   |   |   |                  |   |   |   |                |   |   |   |
| MOUSSE           |              |   |   |   |                  |   |   |   |                |   |   |   |
| PATTIES          |              |   |   |   |                  |   |   |   |                |   |   |   |
| TARBALLS         |              |   |   | X | X                |   |   |   | X              | X |   |   |
| FILM             |              |   |   |   |                  |   |   |   |                |   |   |   |
| NO OIL           |              |   |   |   |                  |   |   |   |                |   | X | X |

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

| OILED DEBRIS | AMOUNT |    |    |
|--------------|--------|----|----|
|              | SM     | MD | LG |
| Logs         |        |    |    |
| Vegetation   |        |    |    |
| Trash        |        |    |    |
| Debris       |        |    |    |

DID YOU COLLECT DEBRIS?

YES ☒ NO ☐TYPE Pom. Pump & TB#BAGS 1

Photographs:

ST-3-3

Roll No. ST-4-2Frames 1, 21-4

## SUBSURFACE OIL

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |   |   |   | PIT ZONE |   |   |   | A N A | SHEEN (Y/N) | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|---|---|---|----------|---|---|---|-------|-------------|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                | UC    | UC | 1                | 2 | 3 | 4 | BU       | U | M | L |       |             |                                |
| 1       | 40             |                          |    |    |    | X  | -              |       |    |                  |   |   |   |          | X |   |   |       |             | GS                             |
| 2       | 70             |                          |    |    |    | X  | -              |       |    |                  |   |   |   |          | X |   |   |       |             | GS                             |
| 3       | 50             |                          |    |    |    | X  | -              |       |    |                  |   |   |   | X        |   |   |   |       |             | GS                             |
| 4       | 20             |                          |    |    |    | X  | -              |       |    |                  |   |   |   |          | X |   |   |       |             | GS                             |
| 5       | 25             |                          |    |    |    | X  | -              |       |    |                  |   |   |   |          |   | X |   |       |             | GS M                           |
| 6       | 10             |                          |    |    |    | X  | -              |       |    |                  |   |   |   | X        |   |   |   |       |             | M, Veg.                        |

## COMMENTS

Pristine embayment set in granite cliffs. Surface oil as rare tarballs (>90% vegetation) @ MITZ-SUITZ Especially on small granule pocket beaches; 1m<sup>2</sup> cover behind ladder. All surface oil collected or broken-up by SCAT Teams. No subsurface oil

REVIEWED 7W DATE 5/1/90

SEGMENT ST/ DW-1 SUBDIVISION A (1 OF 1)

## SUBSURFACE OIL (CONTINUED)

| PIT NO. | PIT DEPTH (cm) | SUBSURFACE OIL CHARACTER |    |    |    |    | OILED INTERVAL | BELOW |    | OIL / FILM COLOR |              |              |              |              |              | PIT ZONE     |              |              |   | A | N | A | SCREEN (Y/N) | ↓ | SURFACE SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---|---|---|---|--------------|---|------------------------------|
|         |                | OP                       | OR | OL | OF | MO |                | UO    | UC | <del>1</del>     | <del>2</del> | <del>3</del> | <del>4</del> | <del>5</del> | <del>6</del> | <del>7</del> | <del>8</del> | <del>9</del> | W |   |   |   |              |   |                              |
| 7       | 30             |                          |    |    |    | X  | - . -          |       |    |                  |              |              |              |              |              |              |              | X            |   |   |   |   |              | - | FGM                          |
| 8       | 40             |                          |    |    |    | X  | - . -          |       |    |                  |              |              |              |              |              |              |              |              | X |   |   |   |              | - | GM                           |
| 9       | 20             |                          |    |    |    | X  | - . -          |       |    |                  |              |              |              |              |              |              |              |              |   | X |   |   |              | - | MSC                          |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |
|         |                |                          |    |    |    |    | .              |       |    |                  |              |              |              |              |              |              |              |              |   |   |   |   |              |   |                              |

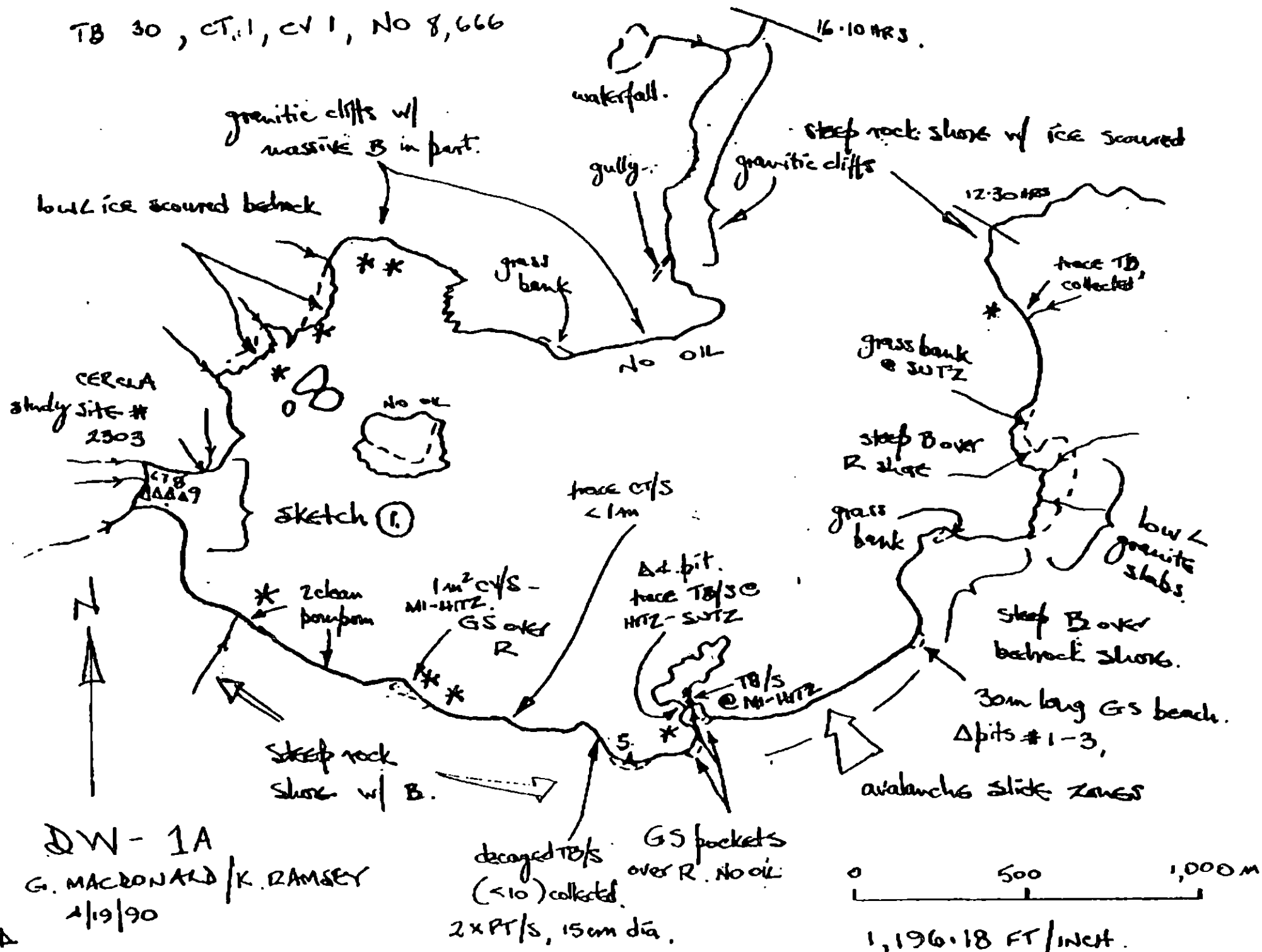
## COMMENTS

Teams 3 & 4 surveyed Deep Water Bay in a joint effort.

This area had no prior SCAT activity.

REVIEWED JW DATE 5/1/90

TB 30, CT:1, CV 1, No 8,666





# SHORELINE ECOLOGICAL SUMMARY

REVISION: 032

Segment ST / DW-1 Subdivision A Date (mo / day / yr) 04 / 19 / 90

Time (24 hr) 1235 Biologist PENN / Scott

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

(B) Overall % cover of biota (% of segment): Dense 50 Moderate 10 Low 30

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

Photographs: ST-4-2, 57  
Roll No. ST-4-2, 57

Frames 3 + 4 ; 1 + 2

## BARNACLES

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

NOT PRESEN

## MYTILUS

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

NOT PRESEN

## GASTROPODS

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

NOT PRESEN

## FUCUS

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

NOT PRESEN

## Wildlife Observations/ General Comments:

1 Eagle - juvenile

6 Sea otter

11 Golden eyes

1 Red necked Grebe

17 Swans

3 Seal

1 Bear Scot

7 gulls

3 crabs

## Ecological Considerations:

- robust Biotic Communities - Low diversity probably due to Granite substrates

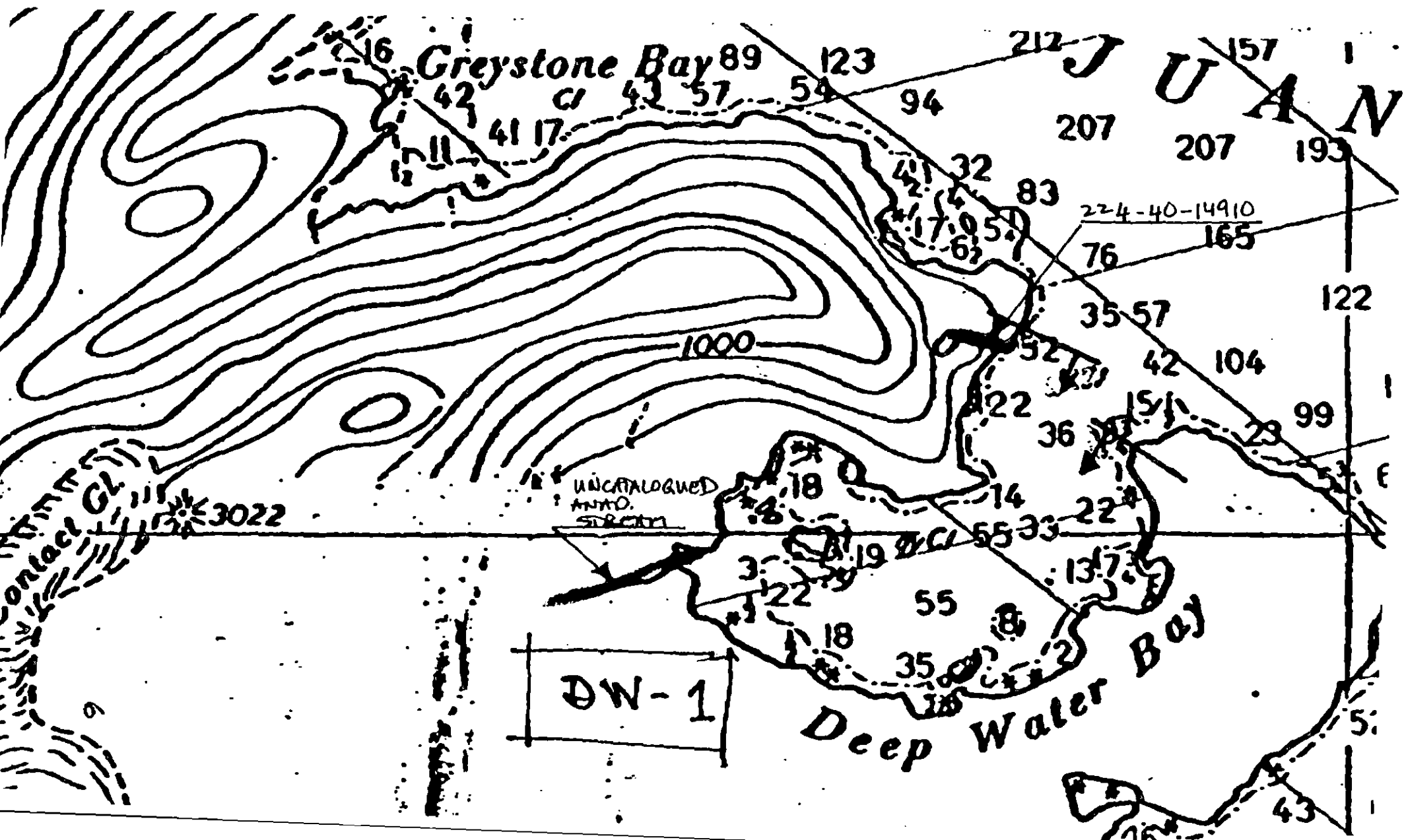
- 2 streams - possible anadromous at base (west) of bay

- Mytilus - only in crevices of rock borders (no large beds); high mortality (~50%) in cobble areas, no apparent sign of ailing

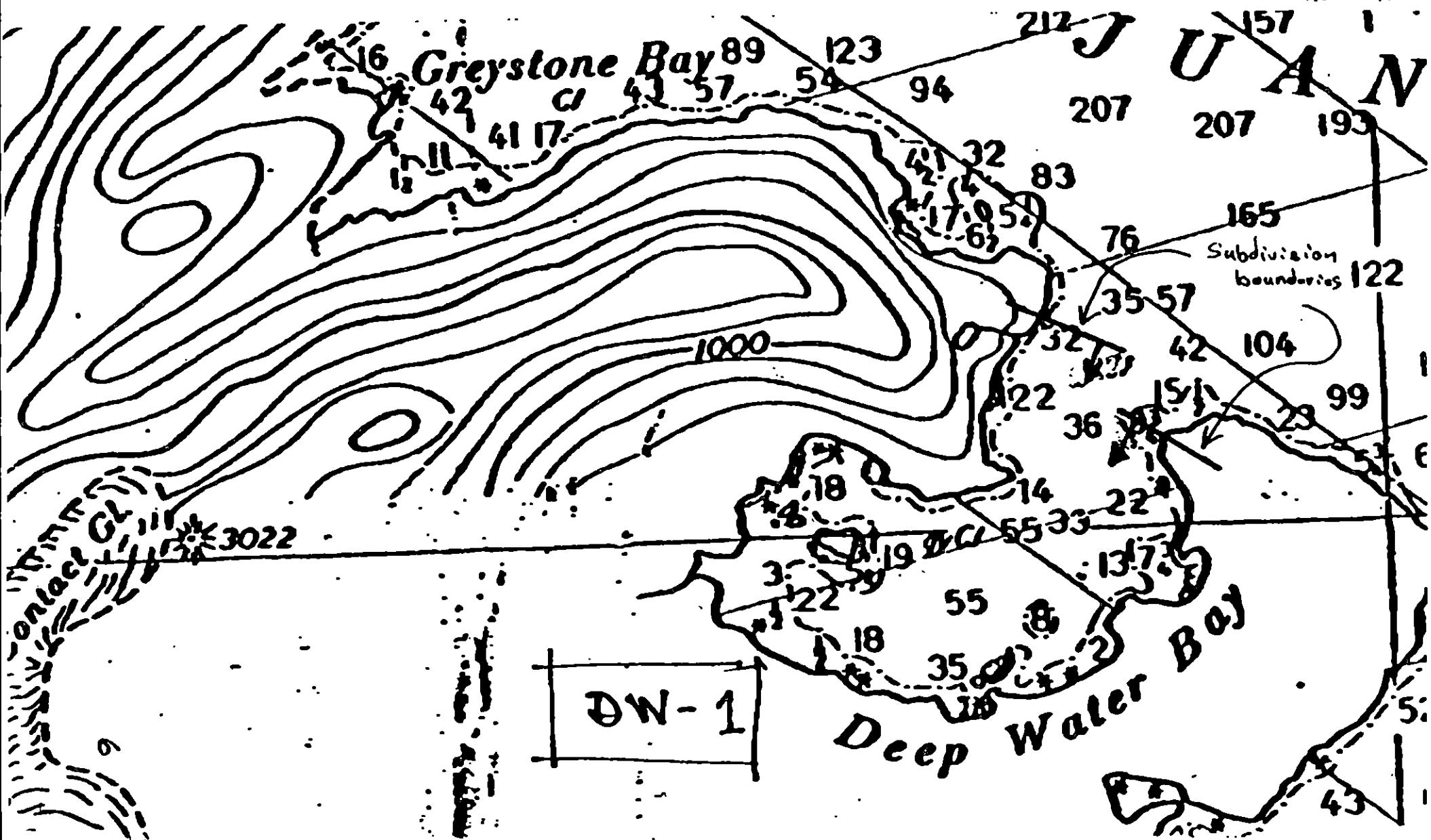
- Zostera in subtidal

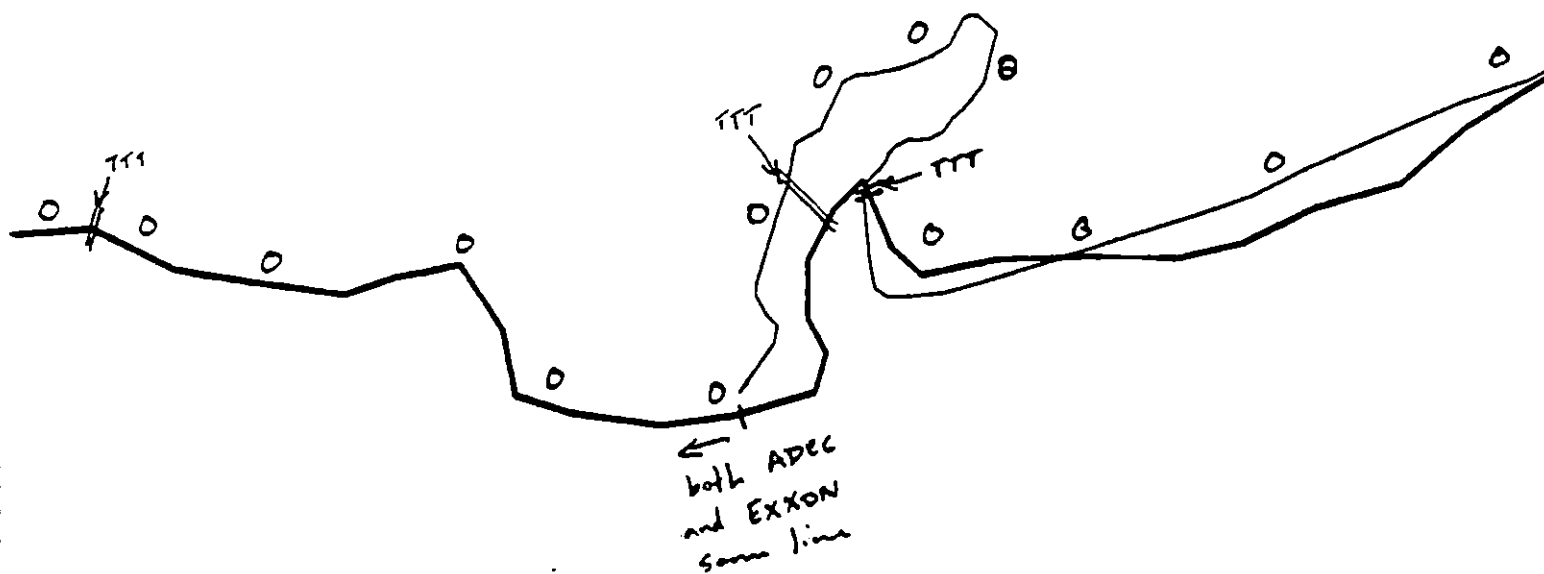
ECOLOGY MAP

REFERENCE MAP FOR ST/DW-1.



REFERENCE MAP FOR ST/DW-1.





XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

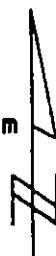
0000 No Oil

DW-1

Approx. Segment Length: 6173m



METERS

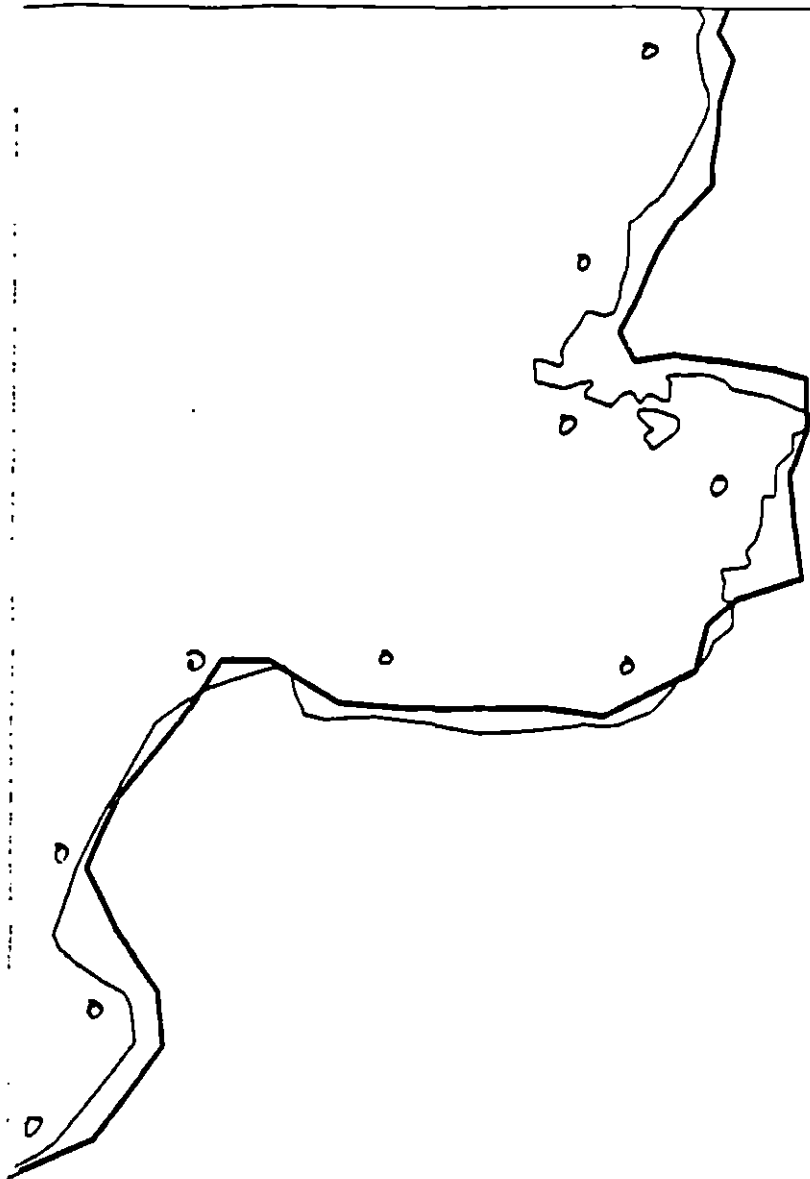


Map Key: PWS-DW-1b

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Data Entered: \_\_\_\_\_



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

DW-1

Approx. Segment Length: 6173m

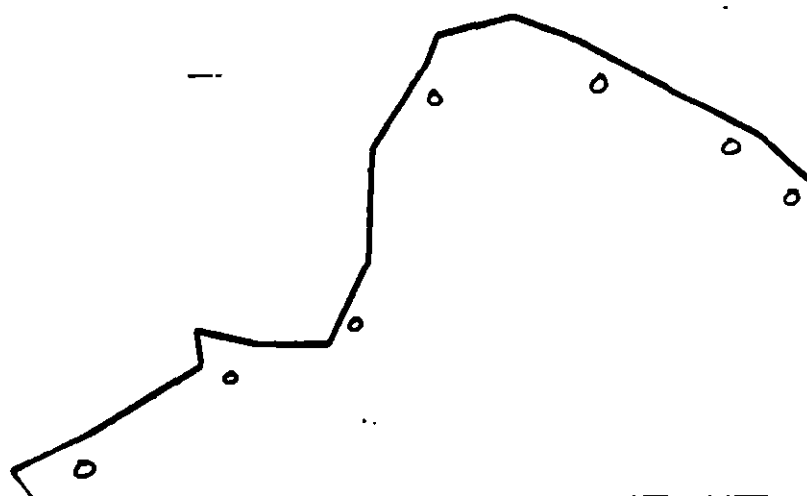


Map Key: PWS-DW-1c

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Data Entered: \_\_\_\_\_



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

DW-1

Approx. Segment Length: 6173m

0 100 200 300

METERS



Map Key: PWS-DW-1d

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Data Entered: \_\_\_\_\_



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

DW-1

Approx. Segment Length: 6173m

0 100 200 300  
METERS

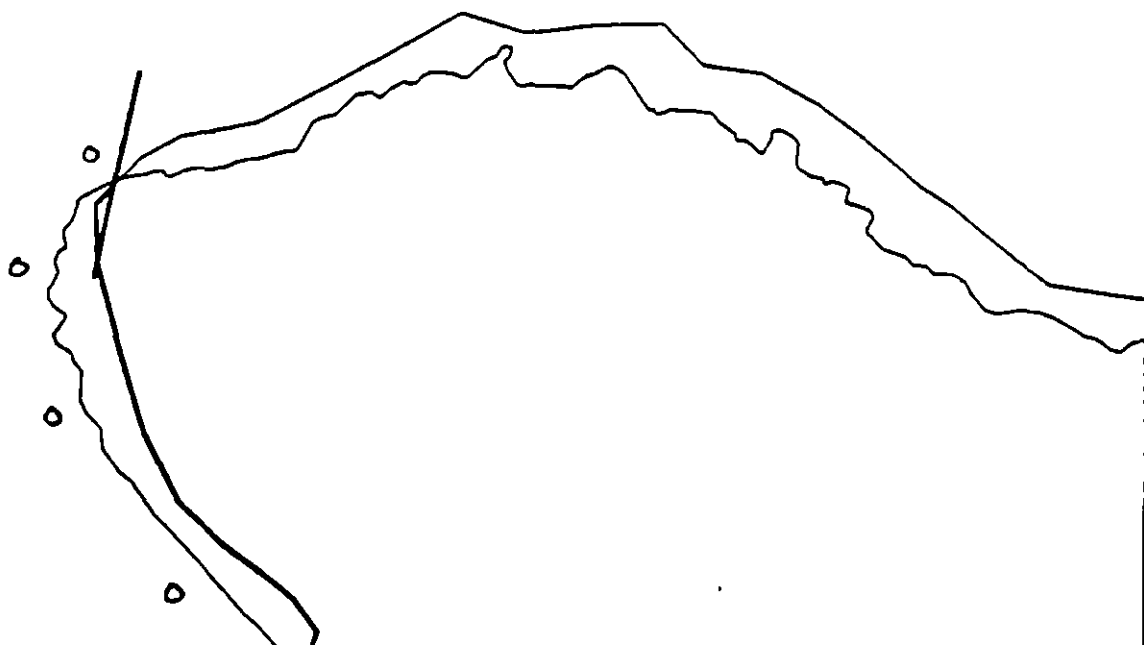


Map Key: PWS-DW-1a

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Data Entered: \_\_\_\_\_



XXXX Wide

DW-1

Map Key: PWS-DW-1f

/// Medium

Name: \_\_\_\_\_

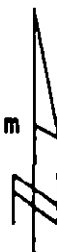
---- Narrow

Approx. Segment Length: 6173m

Date: \_\_\_\_\_

TTTT Very Light

0000 No Oil



Data Entered: \_\_\_\_\_



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