

**STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER
SOUTHCENTRAL REGION LAND OFFICE**

**PRELIMINARY BEST INTEREST FINDING
AQUATIC FARMSITE LEASE APPLICATION**

**APPLICANT: Tamara L. Richter
ADL #107864**

LOCATION: Jinhi Bay, Southwest of Istku Point

The Department of Natural Resources is accepting public comment on the following preliminary decision document for the renewal of an existing aquatic farm site. **Written comments must be received on or before 5:00 p.m., Tuesday, December 8, 2009.**

PROPOSED ACTION: The applicant is requesting an aquatic farm site lease south and west of Istku Point within Jinhi Bay just off Tuxekan Island, approximately 1.4 miles northwest of the community of Naukati, Alaska. The applicant is proposing two shellfish grow-out areas. Each grow-out area consists of 10, 16 ft. x 24 ft. floating rafts for hanging oyster gear. Between the grow-out rafts and within the farm site footprint, the applicant proposes a 50 ft. x 40 ft. covered processing facility.

The total acreage of the farm site proposal is 2.71 acres, more or less.

The farm site location is only accessible by boat or floatplane. A location map is attached to this decision.

AUTHORITY: AS 38.05.035; AS 38.05.070; AS 38.05.075; AS 38.05.083; AS 38.05.127;
AS 38.05.128; 11 AAC 63.020

This decision addresses and is based on those issues under the authority of the Department of Natural Resources (DNR) under Title 38. While other issues may be addressed that are not within the scope of DNR's responsibilities, this decision's purpose is to determine whether or not to issue a DNR lease and does not make any determinations whatsoever on the issuance of other agency authorizations that are necessary for aquatic farming activities.

ADMINISTRATIVE RECORD: The administrative record for this application is **ADL 107864**.

GEOGRAPHIC LOCATION: The farm site is located on state-owned tide and submerged within Jinhi Bay, south of Istku Point and west of Tuxekan Narrows, approximately 1.4 miles northwest of the community of Naukati.

USGS MAP COVERAGE: Craig D-4

NAUTICAL CHART: 17403

LEGAL DESCRIPTION:

Township 69 South, Range 80 East, Copper River Meridian

And more specifically described as:

Section 23; NE ¼, in the western portion of Jinhi Bay.

The total area encompassed by this aquatic farm proposal is approximately 2.71 acres, more or less.

Lands are located in the Ketchikan Recording District.

LATITUDE/LONGITUDE: The four corners of the proposed aquatic farm site are to be sited at:

NE Corner:	W 133°15.069'	N 55°52.540'
SE Corner:	W 133°15.064'	N 55°52.491'
SW Corner:	W 133°15.185'	N 55°52.491'
NW Corner:	W 133°15.187'	N 55°52.540'

POLITICAL INFORMATION:

BOROUGH/MUNICIPALITY: This existing aquatic farm application is outside of an organized borough.

COASTAL DISTRICT: The application lies outside of an approved coastal district. The nearest coastal district is the City of Klawock.

REGIONAL CORPORATION: Sealaska Corporation

FISH AND GAME ADVISORY COMMITTEES: Edna Bay Fish and Game Advisory Committee.

TITLE:

ACQUISITION AUTHORITY: Submerged Lands Act of 1953. (PL 31, 83rd Congress, First Session; 67 Statute 29); Equal Footing Doctrine; Section 1 of the Alaska Statehood Act.

TITLE REPORT: A title report was requested on November 2, 2009

PLANNING AND CLASSIFICATION:

LAND MANAGEMENT PLAN: Prince of Wales Island Area Plan, Unit 7, Sea Otter Sound, Subunit 7b.

LAND CLASSIFICATION: The Prince of Wales Island Area Plan designates state owned tidelands in the within the proposed farm site area as:

(D) Shoreline development (industrial). Tidelands and submerged lands where commercial or industrial facilities may be located.

(Ra) Recreation (anchorage). Locations commonly used by recreation or commercial vessels for anchoring.

(Rc) Recreation (commercial). Areas where commercial recreation facilities may be located.

SURFACE MINERAL ORDERS: All state lands in subunit 7b are open to mineral entry.

ALASKA COASTAL MANAGEMENT PROGRAM: The proposed aquatic farm is currently undergoing Alaska Coastal Management consistency review. If the project is found to be inconsistent the project can not obtain a lease.

ACCESS: Access to the proposed sites is by boat or floatplane. A fifty-foot-wide easement will be reserved to protect public access in accordance with 11 AAC 63.050(b)(6) and 11 AAC 53. If additional specific easements are required, they will be addressed under the final recommendation section of this document.

SURVEY AND APPRAISAL:

SURVEY: A survey is not required by law before issuing a 10-year negotiated lease. However, the department has the right to require one in the future, at the applicant's expense, if boundary conflicts or disputes over acreage arise.

APPRAISAL: A site-specific appraisal is not necessary because the Division of Mining, Land and Water has approved an administrative lease fee schedule for aquatic farm sites. The most current lease fee schedule will be used to establish the fair market rental each lessee must pay. The applicant has the option to have a site-specific appraisal done, at the applicant's expense, before the lease is issued, if he or she does not want to use the fee schedule. If an applicant opts for a site-specific appraisal, the approved appraisal will establish the rental for the affected lease, and the applicant cannot later decide to switch back to the fee-schedule rate.

PUBLIC/AGENCY NOTICE AND COMMENTS: Public notice of the proposal has been sent to various newspapers, post offices, agencies, boroughs/cities, native corporations and Fish and Game Advisory committees. Public and agency comments are welcome during the comment period and will be considered in the final best interest finding. Only those who provide written

comments during the comment period or who testify at a public hearing will be sent a copy of the final best interest finding and will be eligible to appeal. The final best interest finding will include an explanation of the appeal process. The public comment period begins on November 9, 2009 and will end on December 8, 2009.

The preliminary best interest finding is subject to public comments received during the comment period. The final best interest finding will consider and address any comments related to the subject proposal. The final best interest finding will include explanation of the appeal process. The public comment period begins on November 9, 2009 and will end at 5:00 p.m. on December 8, 2009.

The Alaska Department of Fish and Game has provided the following information:

The Alaska Department of Fish and Game (ADF&G) has reviewed the subject proposal and has done a partial review and determination of this proposal under its statutory and regulatory requirements.

Project Description

The applicant is requesting a proposed aquatic farm site located in Jinhi Bay under ADL 107864, approximately 2 miles north of Naukati, Alaska, on state-owned tide and submerged lands. The northeast corner of the site is located at 55° 52.540' N, 133° 15.069' W and runs south 300 feet then west 405 feet for a total of 2.8 acres.

Evaluation

I. Physical and Biological Characteristics: The proposed aquatic farm site is located in a location area that has physical and biological characteristics that are suitable for culture of oysters.

Protection from Oceanographic and Atmospheric Extremes: The proposed aquatic farm operation project is in an area that appears to be protected from extreme oceanographic and atmospheric extremes. The farm gear proposed for use at the site have a similar configuration and anchoring systems as existing adjacent aquatic farms in the area and appears to be able to withstand these extremes.

Sufficient environmental conditions: The proposed aquatic farm operation project is in an area that appears to have sufficient water exchange, water temperatures, currents, salinity, and primary production to support an aquatic farm and maintain healthy environment for other marine organisms.

Sufficient Water Depth: The water depth at the aquatic farm site appears to have sufficient to prevent gear from grounding and impacting the benthos under floating structures.

Eelgrass and Kelp Beds Maintained: Based on the application information provided by

the applicant there does not appear to be any eelgrass in the proposed project area. The exact locations and extent of kelp beds is not well documented in the area. If health and the abundance of kelp beds in the area are not properly maintained within the proposed aquatic farm site, project modifications to the Aquatic Farm Operations Permit will be made to correct the condition.

Anadromous Fish Streams: Anadromous streams catalogued for various salmon species are located near the proposed project¹. The proposed aquatic farm operation is not located within 300 feet of the mouth of an anadromous fish stream. The closest anadromous stream is 1.1 miles from the site being proposed. Table 1 summarizes the distance between the aquatic farm site coordinate and the mouth of the anadromous stream, the classification number for the stream, and lists all the fish species that reside or spawns there.

Site No.	Location	Name of Stream	Number	Dist. Between site and mouth of stream (feet)	Fish Species
107864	Jinhi Bay		103-90-10920	1.1 miles	coho salmon

II. Existing Uses not Significantly Altered: The proposed aquatic farm site is not expected to cause any significant alterations an established use defined as commercial fishery, sport fishery, personal use fishery, and subsistence fishery. Table 2 summarizes the traditional and existing uses for commercial, sport, and subsistence fisheries and anchorages in the proposed aquatic farm site area.

ADL-site	General Area	Species	ADF&G Stat Area	Geoduc k Commercial Fishery	Sea Cucum b-er Commercial Fishery	Red Urchin Commercial Fishery	Salmon Gillnett -ing Commercial Fishery	Salmon Troll- ing/ Salmon Purse Sein- ing	Herring / Dunge- ness crab	Recrea- tional Sport Fishery/ Person- al Use	Anchor	Sub- sistenc e
107864	Jinhi Bay	Pacifi c	103-90	No	Yes	No	No	Yes	No	Probably	No	No

¹¹Johnson, J. and K. Klein. 2009. Catalog of waters important for spawning, rearing, or migration of anadromous fishes - Southeast Region, Effective June 1, 2009. Alaska Department of Fish and Game, Special Publication No. 09-04, Anchorage.

		oysters										
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Commercial Fisheries: The proposed aquatic farm is located in ADF&G Commercial Fisheries Division Statistical Area subdistrict 103-90. The proposed aquatic farm site is not expected to cause any significant alterations to the existing commercial fishery uses in the area.

Geoducks: The site is 5 miles away, from the Turn Point geoduck commercial fishery harvest area bed code 103-90-003 in subdistrict 103-90. The proposed aquatic farm site is not expected to cause any significant alterations to the existing geoduck commercial dive fishery uses in the area.

Sea cucumber: This site is in the Sea Otter Sound commercial sea cucumber dive fishery harvest statistical area 010390. On a three year rotation, the last fishery occurred there in 2008/09. The number of permits (individuals) for this statistical area harvesting sea cucumbers accounted for 33% (38 out of 116) of all the 2008/09 season permits recorded that harvested in the Ketchikan Management Area. The proposed aquatic farm site is not expected to cause any significant alterations to the existing sea cucumber dive fishery uses in the area.

Red Sea Urchins: No commercial red sea urchin dive fishery takes place at the site.

Salmon: No salmon gillnetting fishery, salmon trolling, or gillnet salmon fishery occurs at the site. The site lies within a subdistrict area where commercial salmon seine and troll fisheries occur. In 2009, there were 381 recorded salmon landings for this statistical subdistrict area. The proposed aquatic farm site is not expected to cause any significant alterations to the existing salmon commercial fishery uses in the area.

Herring: No commercial herring fishery occurs in this area.

Dungeness crab: No commercial crab fishery occurs in this area.

Sport Recreational Fishery: The area is not a significant site for Sport Anglers. Traditional troll and bottom fishing area for sport fishers is not known to occur in this area. Due to their design, oyster farms have not seemed to have significant negative impact on anglers. The proposed aquatic farm site is not expected to cause any significant alterations to the existing sport recreational fishery uses in the area.

Subsistence Fishery Use: This proposed aquatic farm site is not thought to significantly alter existing subsistence fishery use in the area.

Anchorage: This area is not known to have any critical vessel anchorages.

III. Compatible with Fish and Wildlife Resources: The proposed aquatic farm site is compatible with fish and wild life resources in the area.

Predator and Pest Control Methods: Predator exclusion devices to be used at the proposed site are expected to be utilized in a manner that minimizes impacts on non-targeted fish and wild life resources in the area.

Sensitive Wildlife: The proposed aquatic farm site is not expected to adversely impact seabird colonies, sea lion haulouts and rookeries, seal haulouts and pupping areas, and walrus haulouts.

Sea Bird Colonies – There are no sea bird colonies identified within 1 mile of the proposed sites.²

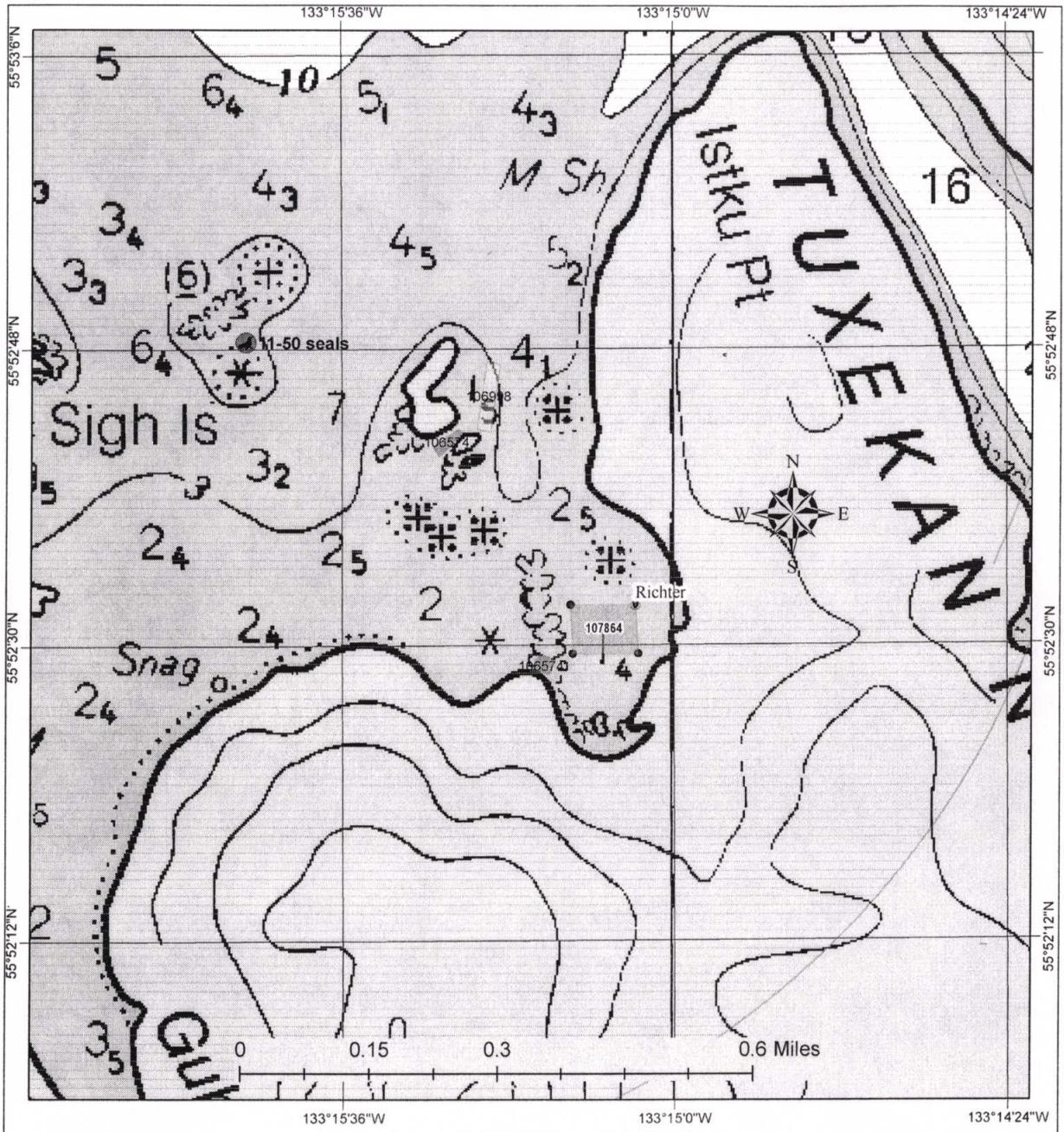
Sea Mammal Habitat - The proposed aquatic farm is located within 1 mile of a known harbor seal haulout area based on the linear distance from the northeastern latitude and longitude coordinate of the proposed aquatic farm site and the center point of the nearest known marine mammal haulout³ (See the attached map, Figure 1, for the location of the farm site and the haulout areas). During survey of 1998, a mean count of between 11 and 50 harbor seals were present at this haulout. During the survey of 2007, no counts were determined for harbor seals at this haulout. Relative to the numbers of the population stock for this management area, the haulout is secondary based on the harbor seal counts. The primary haulout for harbor seals in this area based on a count of between 101 and 500 seals is 5.2 miles away. This proposed aquatic farm project is not expected to adversely impact sea mammal habitats. Table 1 summarizes the actual estimated distances from harbor seal haulout areas.

Figure 1: Harbor seal haulouts and one mile buffer in area of Jinhi Bay.

*** Map on following page**

² U.S. Fish and Wildlife Service, (current year). Beringian Seabird Colony Catalog -- computer database. U.S. Fish and Wildlife Service, Migratory Bird Management, Anchorage, Alaska 99503.

³ Analysis completed by NOAA Fisheries Service, Alaska Region, Protected Resources Division. Specifically, the data used to complete this analysis were provided by researchers from NOAA Fisheries Service, Alaska Fisheries Science Center, and National Marine Mammal Laboratory.



Legend

- 2009 Aquatic Farm Applicants
- Harbor Seal Haulout - Mean Count
- 0-10
- 11-50
- Harbor Seal Haulout 1-mile Buffer

Tamara Richter
 Jinhi Bay, Tuxekan Island
 Southeast Alaska

AFOP: 09-108-AF-SE
 DNR ADL: 107864

NOAA Chart 17403
 Not for Navigational Use

Created by ADF&G
 L. Vercesi
 October 12, 2009

ADL	General Area	Applicant Contact Name	Species	Sea Lion Haulout	Harbor Seal Haulout	Count	Distances from Haulout Area (miles)
107864	Jinhi Bay	Richter	Pacific oyster	No	Yes	11-50	0.5 mile
107864	Jinhi Bay	Richter	Pacific oyster	No	Yes	101-500	5.2 miles

Endangered species: The proposed aquatic farm site will not adversely impact endangered and threatened species recovery and habitat efforts.

IV. Operation and Development Plan:

Increase Productivity: The operation and development plan for this project sufficiently describes how the operation will improve the productivity of the species intended for culture above what would occur in natural conditions using approved methods such as predator exclusion, reduction of competing species, destiny manipulation, import of naturally produced seed, import of hatchery produced seed, programming harvest to optimize growth and shellfish condition, and habitat improvements.

Maintenance: The operation and development plan for this project indicates that support facilities and culture gear and anchoring system will be installed with sufficient anchors and maintained.

Rotation Schedule: The projected rotation schedule is consistent with the life history of the species intended for culture.

V. Species to be Cultured and Site Suitability

The department has not conducted a site suitability study for this site. Based on information provided by the applicant, the proposed site is capable of supporting the activities proposed. The proposed parcels in this aquatic farm operation project are located in an area that is thought to be suitable for suspended oyster culture.

ENVIRONMENTAL RISK QUESTIONNAIRE: The applicant has indicated that this proposed activity will not generate, use, store, transport, disposal of, or otherwise come in contact with toxic and/or hazardous materials, and/or hydrocarbons

BONDING AND INSURANCE: Bonding, or another form of security, is required under AS 38.05.083 and 11 AAC 63.080. The bond must cover the costs of site cleanup and restoration, any associated cleanup costs after termination of the lease, including any unpaid rentals or other obligations accruing until site restoration is complete. The regulations require:

The minimum security amount of \$2,500 (or \$1,250 with an association bond) for an

aquatic farm lease. Factors such as location and amount of improvements at the site are taken into consideration when the bond amount is determined. Please refer to the Recommendation section at the end of this decision for the bond amount that was determined appropriate for this proposal.

At this time, the Department does not require these operations to have insurance. Insurance may be required in the future depending on the operation and the policies of the department at the time changes are made to the lease or another lease is issued. Insurance, such as Workman's Compensation Insurance, may be required under other state laws.

TRADITIONAL USE FINDING: Information available at this time suggests that an aquatic farm would not disrupt traditional uses such as subsistence activities. Through agency and public input, more traditional and existing use information may surface. If such information becomes available, any potential conflicts will be addressed in the final decision.

Existing aquatic farms in southeast Alaska have caused no known disruption of traditional and/or existing uses such as commercial and sport fishing, subsistence activities, boat travel, and recreation.

PRINCE OF WALES ISLAND AREA PLAN INFORMATION SPECIFIC TO THIS PROPOSAL:

This farm site lies within Unit 7, Sea Otter Sound, Subunit 7b. The Bay is designated:

(D) Shoreline development (industrial). Tidelands and submerged lands where commercial or industrial facilities may be located.

(Ra) Recreation (anchorages). Locations commonly used by recreation or commercial vessels for anchoring.

(Rc) Recreation (commercial). Areas where commercial recreation facilities may be located.

UPLAND OWNER MANAGEMENT: The uplands surrounding the proposed aquatic farm site are State owned and are designated (Gu) general use. Lands which may have a number of important resources but for which a specific resource allocation decision is not possible because of inadequate economic, resource or other information; or is presently inaccessible and remote and development is not likely to occur within the next 20 years; or contains one or more resource values, none of which is of sufficiently high value to merit designation as a primary use. A number of different types of uses, including forest harvest, may be appropriate in portion of areas designated General use.

CONSIDERATIONS: The following criteria, set out in 11 AAC 63.050(b), has been considered and represents what is known at this time:

Land Management: There are no known land management policies or designations, other than those in the Alaska Coastal Management Program and the Prince of Wales

Island Area Plan that may impact this proposal. Measures taken to mitigate impacts on the resources identified in the above-mentioned plans are listed below.

Pending/Existing Uses:

1. There are no known pending use conflicts or potential impacts to nearby communities or residential land due to the placement of this farm at the proposed location.
2. Information available suggests the aquatic farm should not disrupted traditional and existing uses of the site for use as an anchorage, commercial and sport fishing, recreation, and tourism.
3. There are no historic and cultural resources known to exist in the area.
4. There are no commercial or industrial facilities known to exist in the area.

Public Access: Public access has been and will be protected in accordance with 11 AAC 63.050(b)(6) and 11 AAC 53 and will be addressed in any resultant lease agreement.

Public Trust Doctrine: Any resultant lease agreement is subject to the principles of the Public Trust Doctrine in order to protect the public's right to use navigable waters and the land beneath them for navigation, commerce, fishing, and other purposes.

Mitigation Measures: In addition to the mitigation measures identified above under Pending/Existing Uses, paragraph 2, any resultant lease renewal may include additional stipulations necessary to mitigate conflicts identified during the public/agency comment period

Social, Economic, and Environmental Concerns: There are no known significant social, economic, and environmental effects from the existing lease.

Surface Area: The proposal does not encumber more than a third of the surface area of a bay, bight, or cove in accordance with 11 AAC 63.050(c).

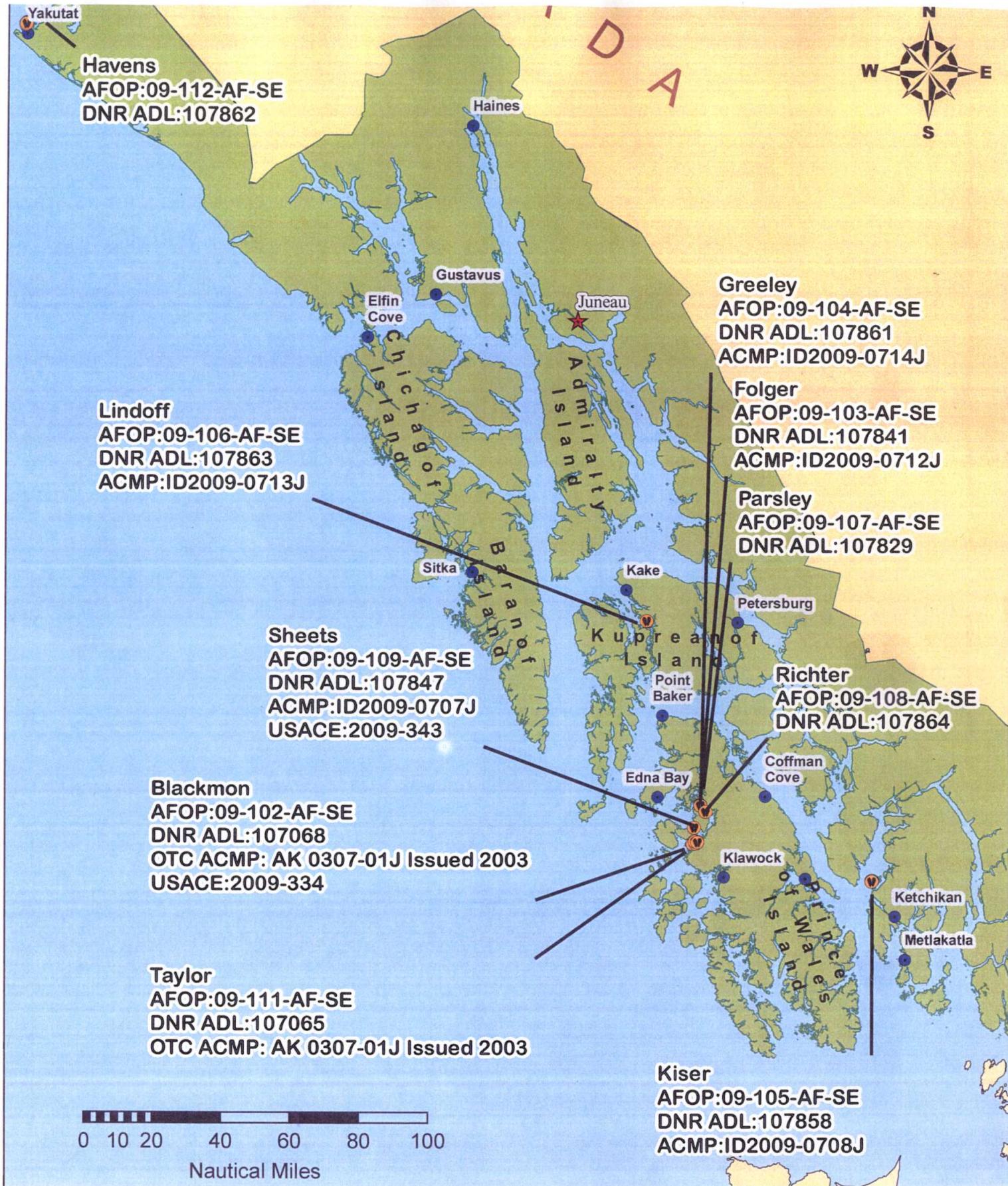
ADVANTAGES AND DISADVANTAGES OF THE PROPOSAL: This aquatic farm could provide opportunities to increase income and diversify the state's economy by utilizing state tide and submerged lands for this purpose. The advantage of this lease on state owned tide and submerged lands would be possible employment opportunities as well as any secondary jobs created or increased from businesses involved in marketing, transport or sale of farmed products.

There are no obvious disadvantages of this activity on state owned tide and submerged lands. The public should be aware that access through the site, as well as access to any of the common property resources not being cultured at the site are public uses that remain intact. Therefore, any resultant lease would stipulate the requirement that there is proper signage of the aquatic farm sites to inform the public of the owners name, address, ADFG and DNR permit and lease numbers.

RECOMMENDATION: Considering the information known at this time and described within this decision, it appears to be in the state's best interest to proceed forward toward the lease for approximately 2.71 acres more or less to the applicant for shellfish culture. Any resultant lease will include stipulations that may be identified as a result of public comments. Approval of the application is recommended with a security bond set at \$2,500 or \$1250 with an association bond. Should the Division of Governmental Coordination find the project inconsistent with the Coastal Management Program, the lease would not be issued.

John S. Thiede
John S. Thiede, Aquatic Farm Program Manager

November 6, 2009
Date

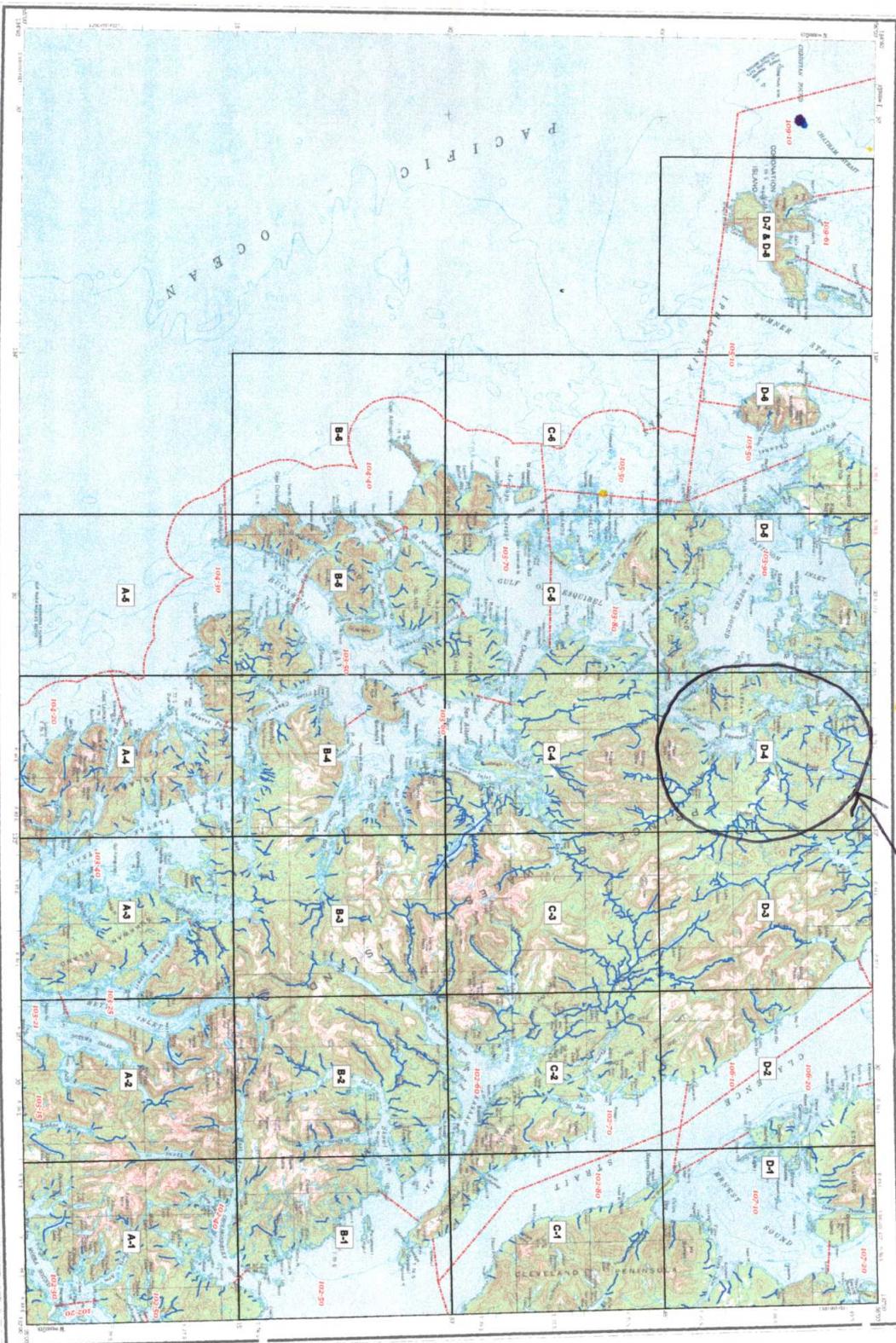


2009 Aquatic Farm Opening Sites Southeast Alaska

Attachment
ADL # 107864
Page 1 of 15

-  2009 Aquatic Farm Application Sites
-  Capital





PROPOSED AREA

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ALASKA TERRITORIAL SERIES
CRAIG

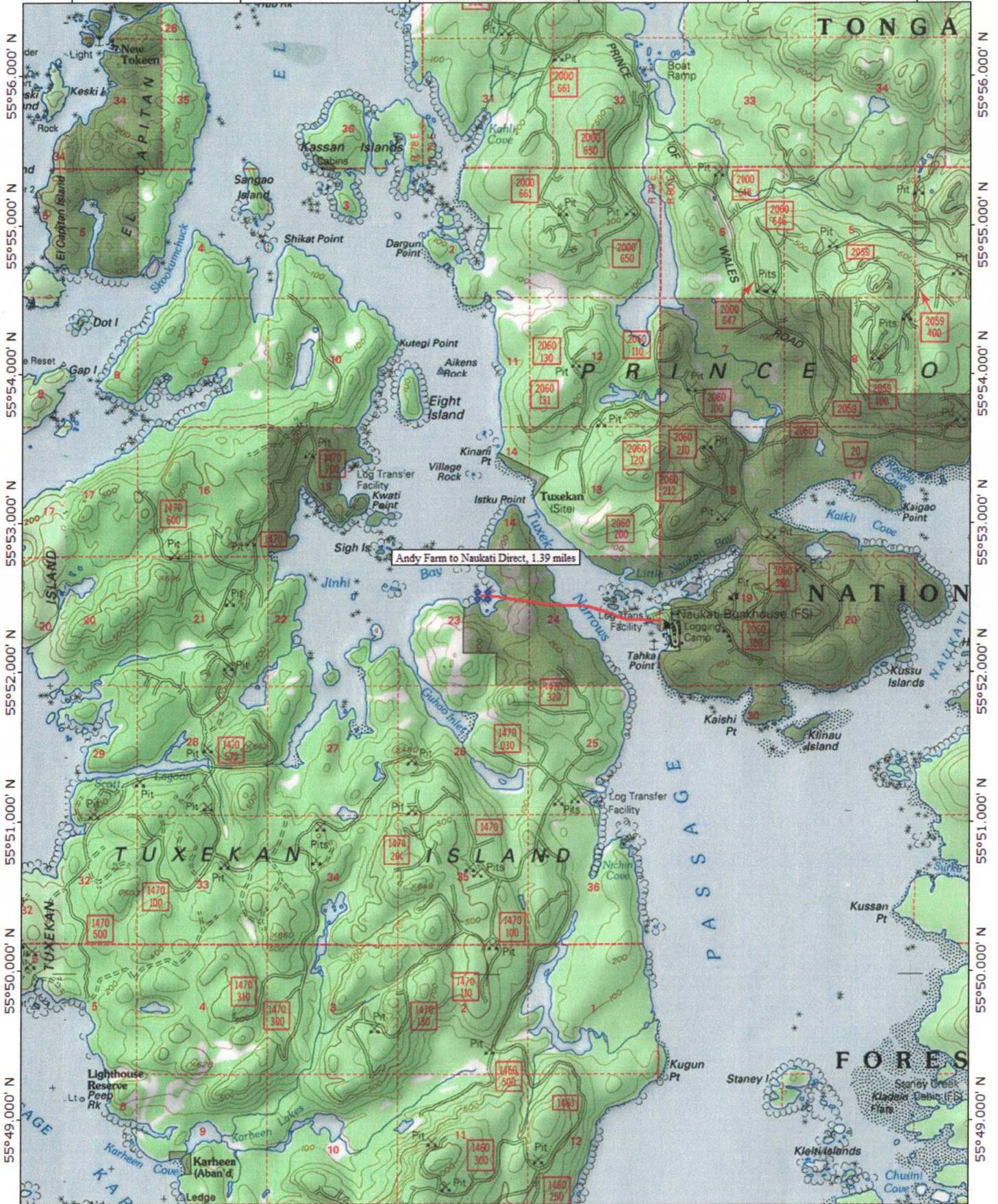
Legend
 - National Boundary
 - Section Boundary
 - 1:250,000 Contour Interval
 - 1:250,000 Contour Interval
 - 1:250,000 Contour Interval
 - 1:250,000 Contour Interval



Fish Distribution Database Atlas
 Card No. 003
Craig
 Index
 Edition No. 1/2008

CRAIG, ALASKA
 1:250,000
 1987

ATTACHMENT L



Andy Farm to Naukati Direct, 1.39 miles



ATTACHMENT M



TN MN
21 1/4°

Map created with TOPO! © 2002 National Geographic (www.nationalgeographic.com/topo)

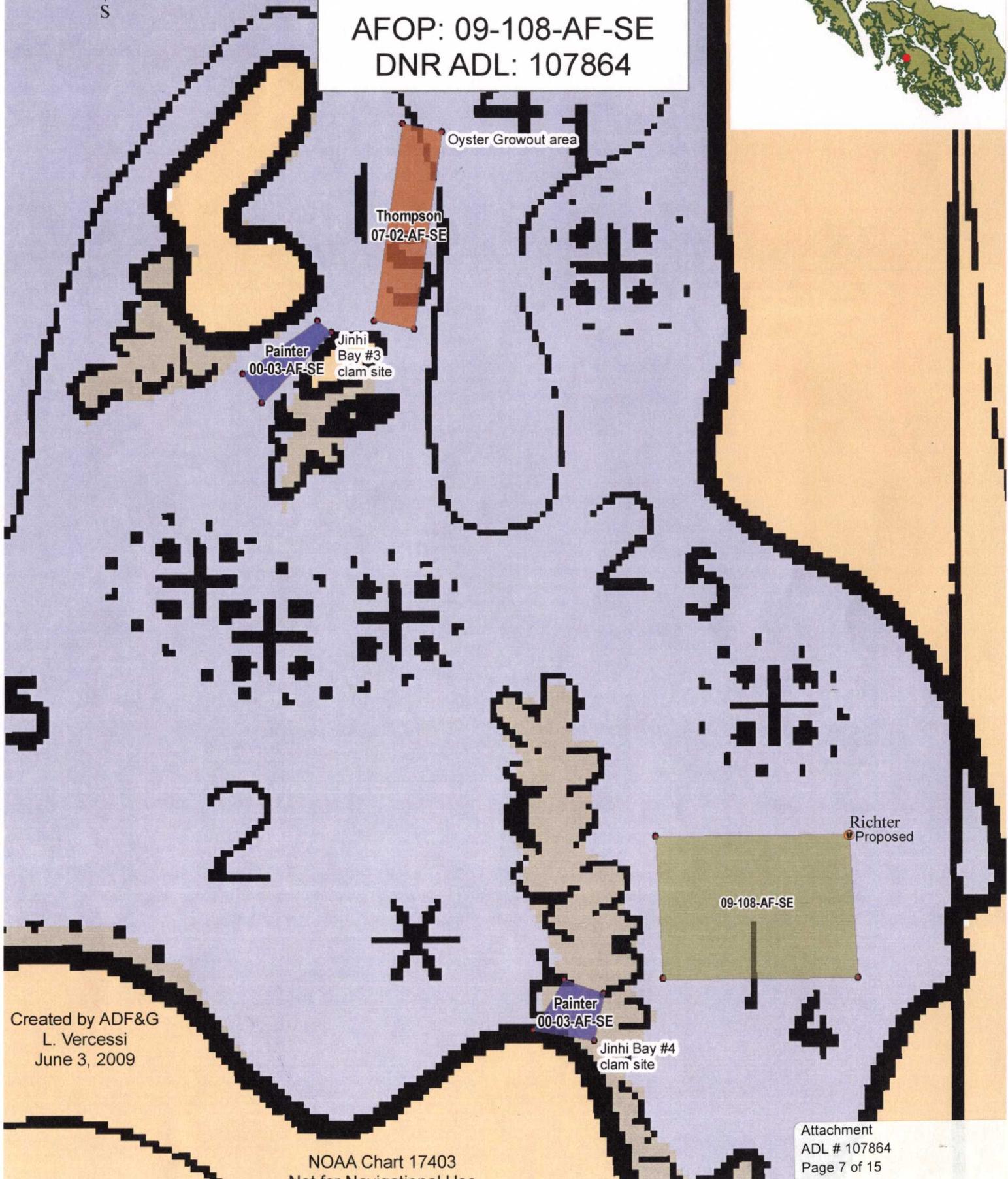
ATTACHMENT ©

Attachment
ADL # 107864
Page 6 of 15



Tamara Richter
Jinhi Bay, Tuxekan Island
Southeast Alaska

AFOP: 09-108-AF-SE
DNR ADL: 107864

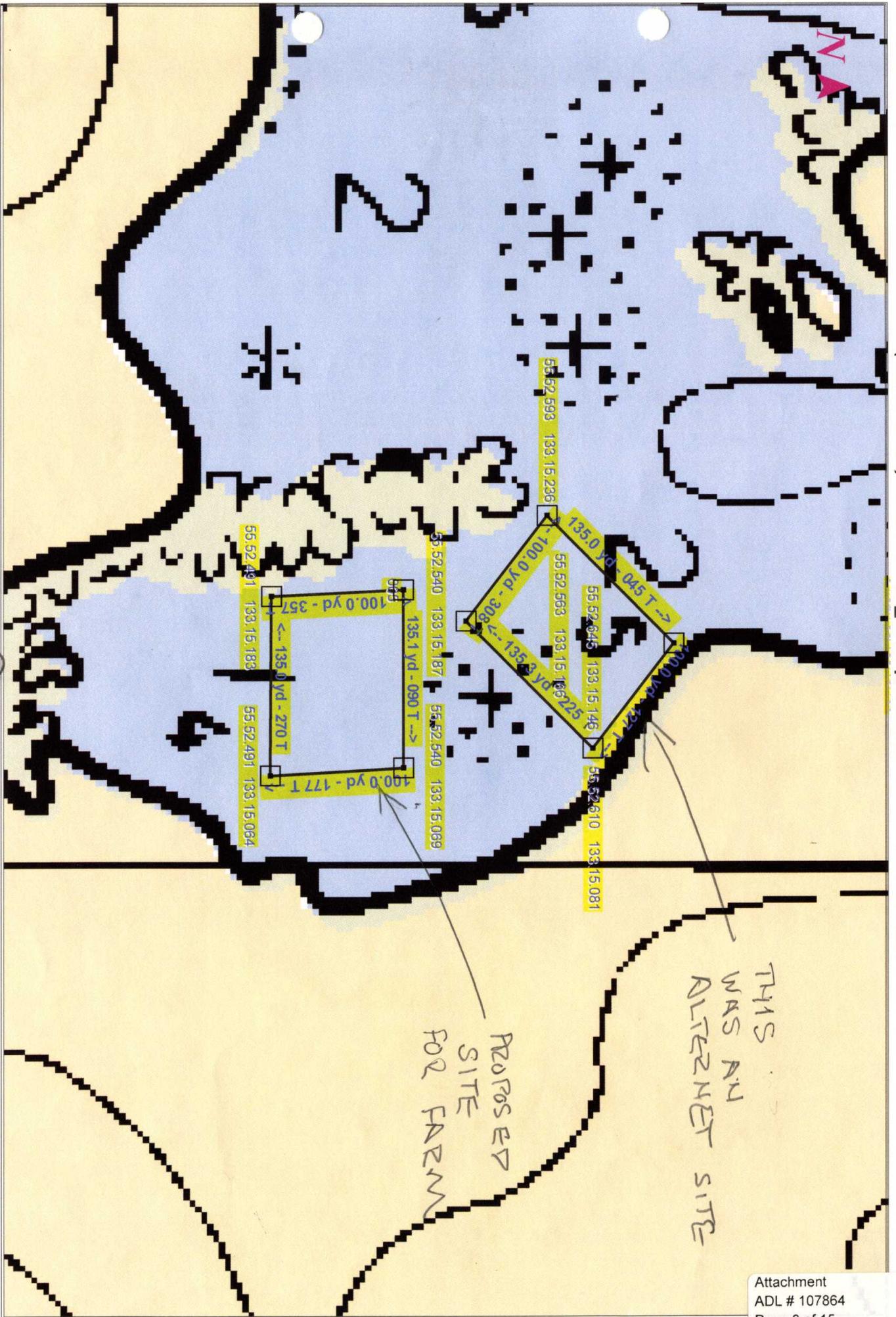


Created by ADF&G
L. Vercessi
June 3, 2009

NOAA Chart 17403
Not for Navigational Use

Attachment
ADL # 107864
Page 7 of 15

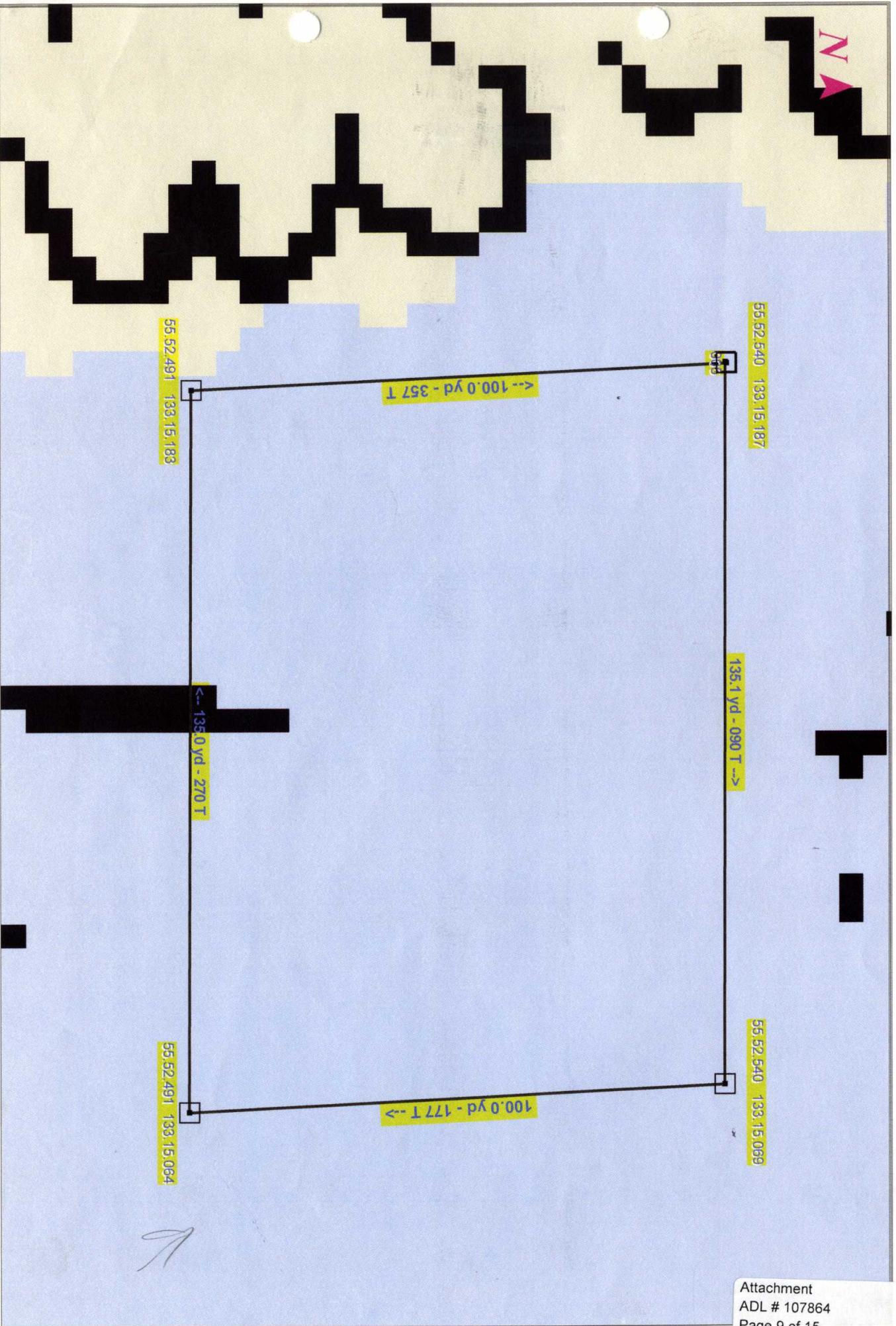
DAVIDSON INLET AND SEA OTTER SOUND - 1 : 16,000
(NOAA Chart) Chart #17403_1 - Depth Units: FATHOMS AND FEET



DO NOT USE FOR NAVIGATION
SOME NAVIGATION AIDS MAY NOT BE SHOWN

ATTACHMENT C

DAVIDSON INLET AND SEA OTTER SOUND - 1 : 4,000
(NOAA Chart) Chart #17403_1 - Depth Units: FATHOMS AND FEET



Attachment
ADL # 107864
Page 9 of 15

DO NOT USE FOR NAVIGATION
SOME NAVIGATION AIDS MAY NOT BE SHOWN

ATC HWSMT (B)

N 55' 52.540'
W 133' 15.187'

NOTE: NEAREST COMMUNITY 2 MILES (2) SOUTH
NAUKATI BAY ALASKA
135.1 YRD - 90 T
N 55' 52.540'
W 133' 15.069'

TIDE (E/B)

100.0 YRD - 357 T

N 55' 52.491'
W 133' 15.183'

PREVAILING WIND SE. LOCATION ALLOWS PROTECTIVE

2000 LB CONC ANCHORS TYP.

1-1/4" POLY ANCHOR LINES

(2.99 ACERS) TOTAL AREA

WORK FLOAT / PROCESSER

10' GROW OUT RAFTS 16' X 20' TYP (SEE ATTACHMENT)

24" ANCHOR BOBY TYP.

NOTE:

- *ENGINEERING ON PROCESSING FLOAT (SEE DETAIL)
- *REMOVABLE GRAY WATER STORAGE TANKS (SEE DETAIL)
- *FRESH WATER RAIN CATCHMENT SYSTEM (SEE DETAIL)
- *FUEL STORAGE DOUBLE CONTAINMENT (SEE DETAIL)

135.0 YRD - 270 T

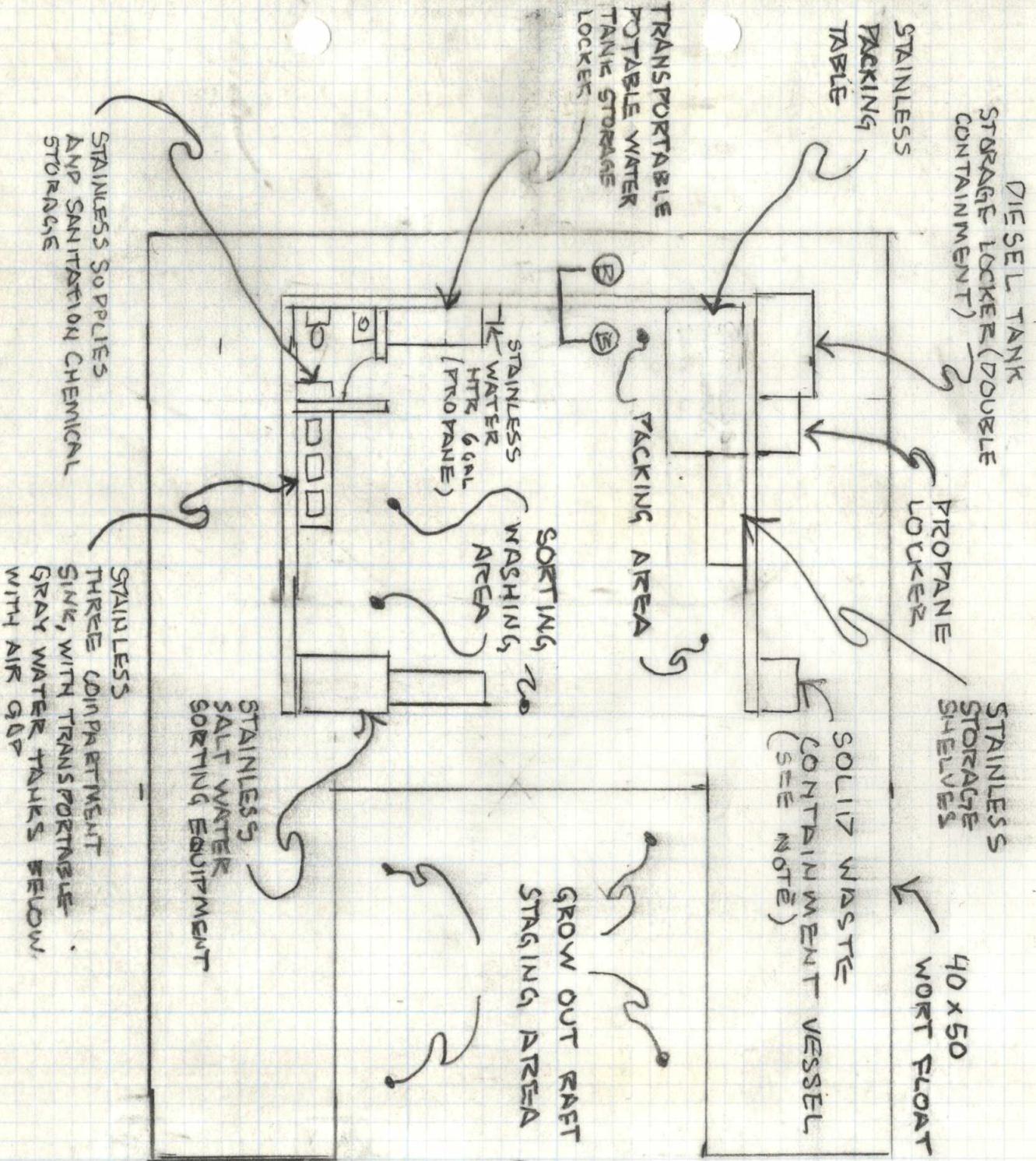
N 55' 52.491'
W 133' 15.064'

UPLAND OWNERS STATE OF ALASKA

ATTACHMENT (A)

1" = 56'-0"

0-1-18/1



NOTE:

- * SOLID WASTE WILL BE REMOVED ON WEEKLY WORK SCHEDULE,
- * LOCAL PICK-UP IS AVAILABLE AND WILL BE USED.

NOTE:

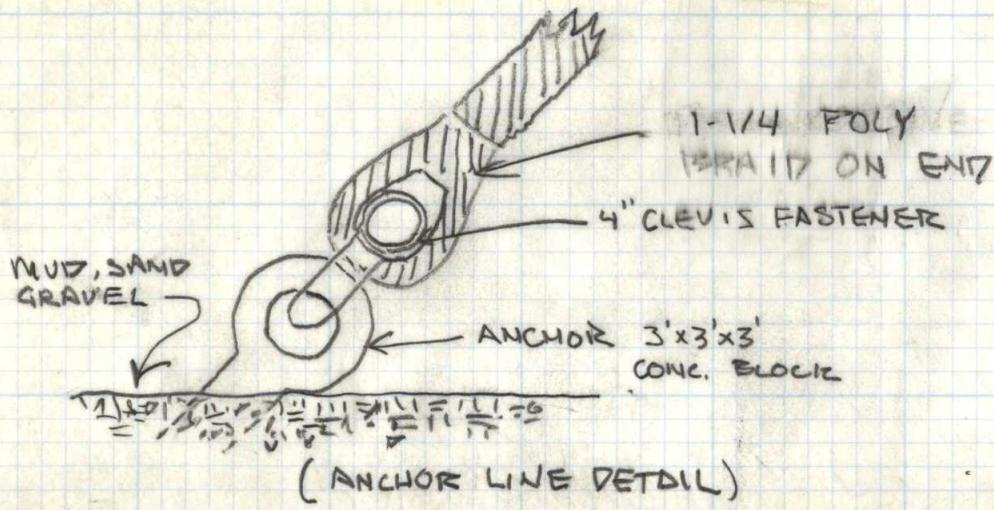
- * WATER CATCHMENT SYSTEM WILL BE USED AS TO ALLOW FOR CLEAN-UP AND WASH DOWN

ATTACHMENT ⑦

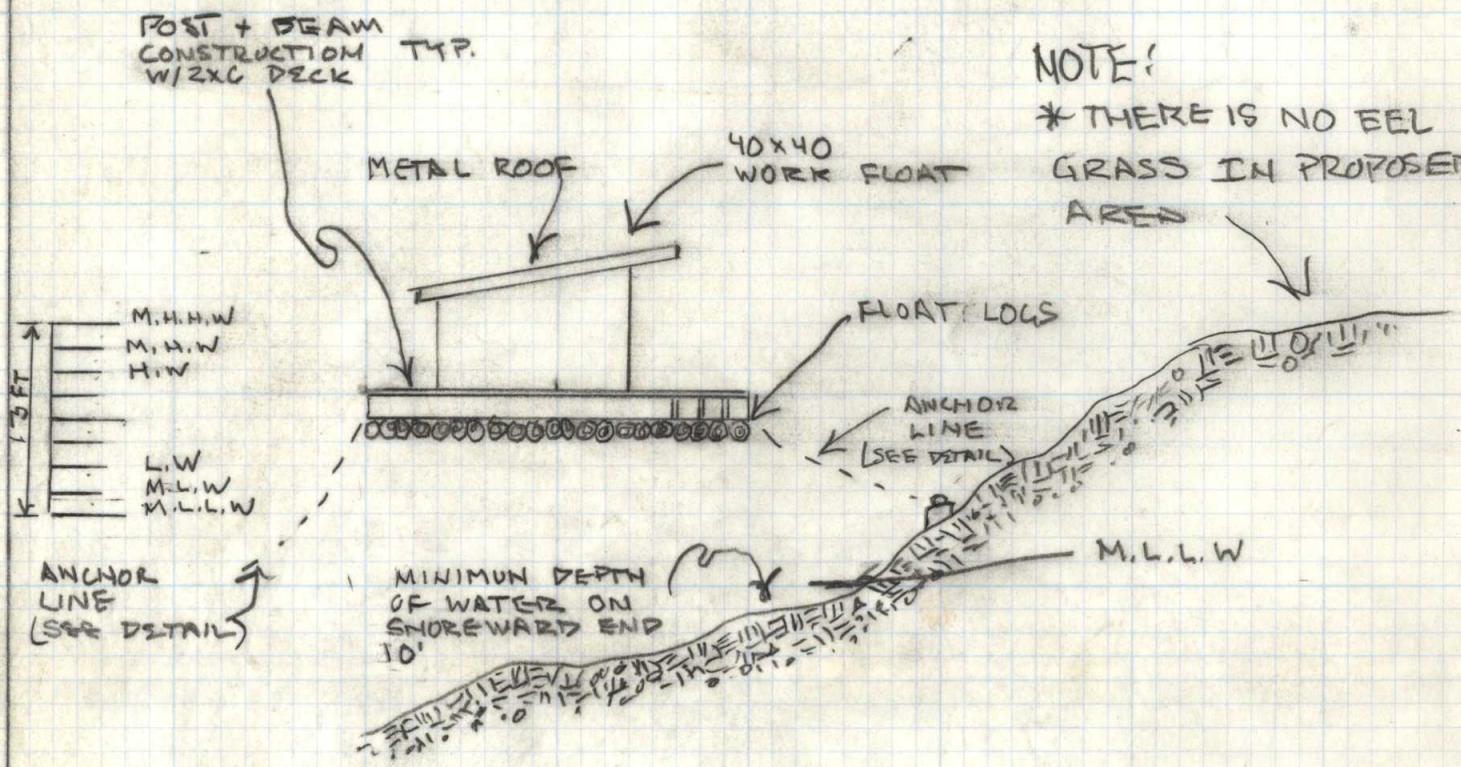
WORK FLOAT DETAIL

SCALE	DATE
1/8"=1'-0"	4-20-09

DRAWN BY ANTON BIKHTEL



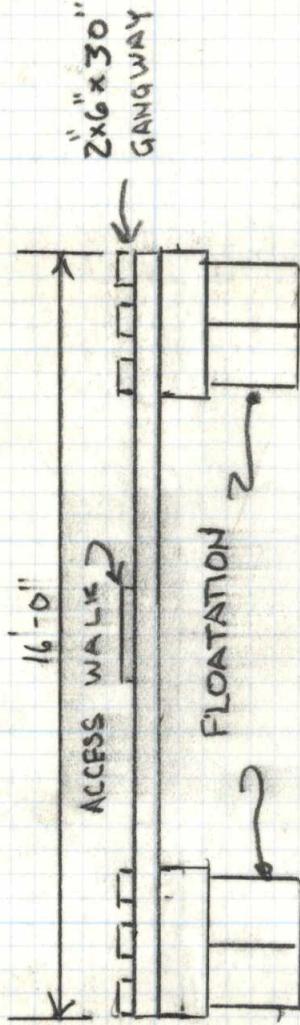
NOTE:
* THERE IS NO EEL GRASS IN PROPOSED AREA



- * SOUNDINGS IN FATHOMS AND FEET TO ELEVEN FATHOMS OF M.L.L.W
- * M.L.L.W 20' FEET MEAN TIDE LEVEL 10.0 FEET
M.L.L.W 0.0 FEET
EXTREMUM LOW WATER -4.0
- * NOT WITHIN ANY CORPORATE LIMITS
NO FEDERAL HARBOR LINES ESTABLISHED
- * THERE WILL BE NO EXCAVATION OR FILL BELOW THE HIGH TIDE LINE OR ON WETLANDS NECESSARY

ALASKA NORTH PACIFIC OYSTERS	
ATTACHMENT (E)	
Attachment ADL # 107864 Page 12 of 15	
SCALE 1" = 20'-0"	CROSS SECTION DETAIL

NOTE: RAFT CONSTRUCTION OF ROUGH SAWN LUMBER. ALL FASTENERS AND BRACKETS STAINLESS OR MARINE GRADE



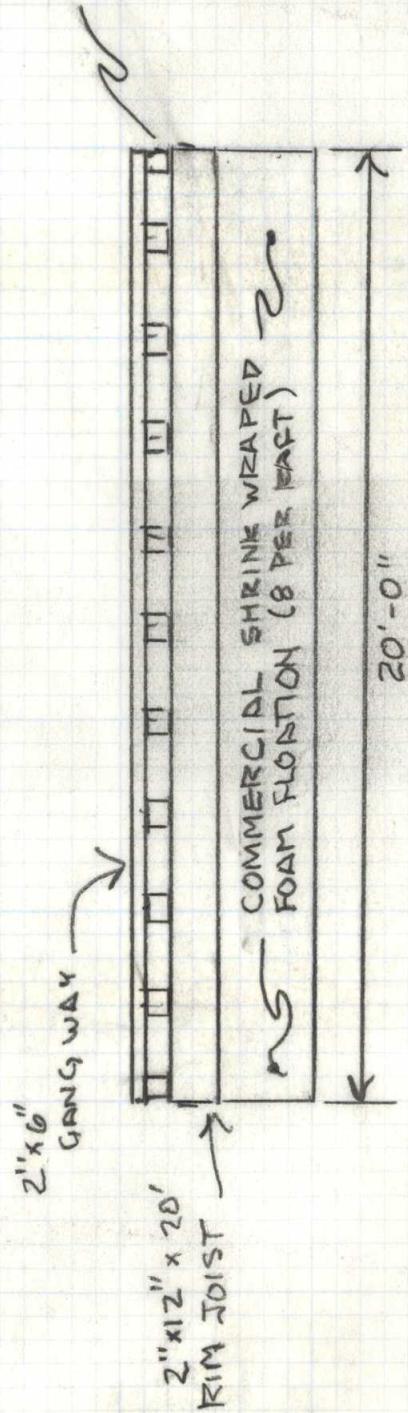
END VIEW

DETAIL-A

1/4" = 1'-0"

NOTE: EACH RAFT CAN HANDLE UP TO 42 HANGING STAKS OF TRAYS EACH STACK HOLDS 8 TRAYS W/CAPACITY WHEN FULL OF APPROX 40,000 + OYSTERS, OF MARKETABLE SIZE.

4x6x16'
24" O.C



SIDE VIEW

DETAIL-B

ATTACHMENT J

GROW OUT RAFT
DETAIL

SCALE: 1/4" = 1'-0"



Grow Out Rafts

Rafts are 16' X 20' and are constructed wood with foam floatation. The foam floatation is commercially wrapped in heavy shrink wrap. All fasteners on the raft are non corrosive marine type to add longevity and structural integrity to the raft.

Each raft can hold 42 stacks of 8 trays for a total of 336 trays. Trays are 22" square and stack 8 high. Oyster spat when purchased from Naukati Bay Shellfish Nursery are approximately 25mm (1") in size, each tray can hold 1000 spat.

At marketable size each tray can hold approximately 120 oysters, 960 per stack, 40,320 per raft or 3,360 dozen.

15
12
10
8
6
4
2

The Grow Out Raft method takes much less space on the tide land area as compared to the Boom Stick and hanging Lamina Net method.

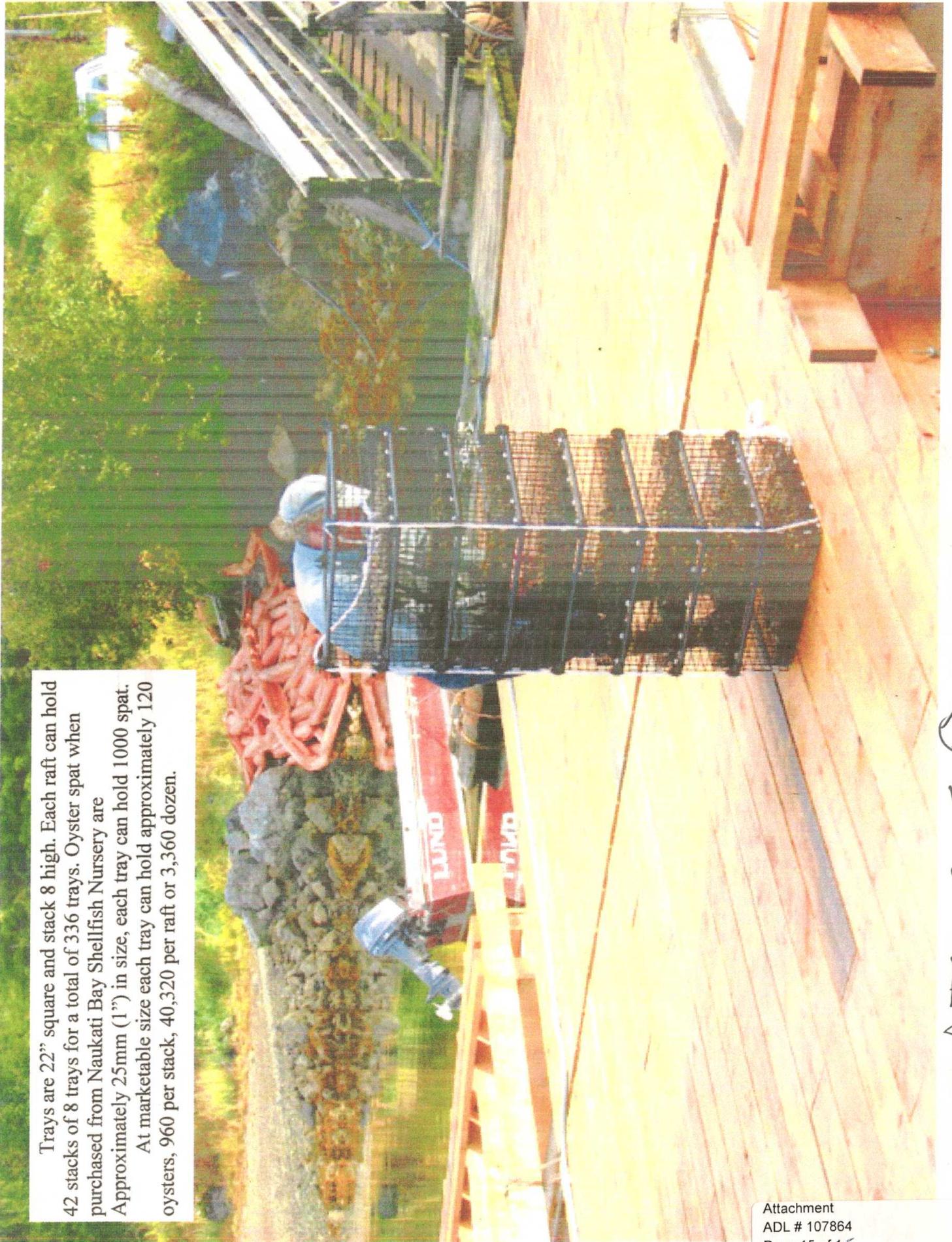
This Grow Out Raft method using hanging trays is the operation of choice for farms in the British Columbia area.



ATTACHMENT (G)

Trays are 22" square and stack 8 high. Each raft can hold 42 stacks of 8 trays for a total of 336 trays. Oyster spat when purchased from Naukati Bay Shellfish Nursery are approximately 25mm (1") in size, each tray can hold 1000 spat.

At marketable size each tray can hold approximately 120 oysters, 960 per stack, 40,320 per raft or 3,360 dozen.



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GROSS
SECTION

ATTACHMENT (H)