

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

LAND USE PERMIT APPLICATION

AS 38.05.850

Receipt Types: 7A – Application for Authorization, except
RR – Application for Authorization on Recreational Rivers System

Applicants must complete all sections of this application. In addition, applicants proposing:

- the use of the uplands and non marine waters must also complete the Supplemental Questionnaire for Use of Uplands and Non Marine Waters accompanying this application;
- off-road travel must also complete the Supplemental Questionnaire for Off-Road Travel accompanying this application; and/or
- the use of tide and submerged lands must also complete the Supplemental Questionnaire for Use of Marine Waters accompanying this application.

Other items that must accompany the completed application are:

- **a (non-refundable) application fee;** see current Director's Fee Order for applicable fees;
- a 1:250,000 or 1:63,360 scale USGS map showing the location of the proposed activity;
- additional items identified and required in any supplemental questionnaire(s) to this application; and
- additional pages if more space is necessary to answer the questions completely.

Completed Land Use Permit Applications should be mailed to one of the following offices:

Public Information Center
550 W. 7th Ave, Suite 1360
Anchorage, AK 99501
(907) 269-8400

Public Information Center
3700 Airport Way
Fairbanks, AK 99709
(907) 451-2705

MLW Information Office
400 Willoughby, #400
P.O. Box 111020
Juneau, AK 99811-1020
(907) 465-3400

LAS # 33299

Applicant Information:

| | | | |
|---|--|---------------------------|--|
| <u>NATIVE CONSERVANCY</u> | | <u>N/A</u> | |
| Applicant Name | | Date of Birth | |
| Doing Business As | | <u>(Joe Arvidson)</u> | |
| Contact Person | | EIN | |
| <u>P.O. Box 90715 Anchorage, AK 99509</u> | | <u>300131766</u> | |
| Mailing Address with City, State and Zip | | Email Address | |
| Home Phone | | <u>JOEAR23X@GMAIL.COM</u> | |
| Work Phone | | Cell Phone | |
| () () | | <u>(907) 201-1027</u> | |
| Home Phone | | FAX | |
| If you are applying for a corporation, give the following information: | | | |
| Name, address and place of incorporation: <u>Native Conservancy - a 501(c)3 private non-profit</u> | | | |
| <u>2804 W Northern Lights Blvd, Anchorage, AK 99509</u> | | | |
| Is the corporation qualified to do business in Alaska? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, provide name, address and phone number of resident "registered" | | | |
| agent: <u>Glen "Dune" Lankard PO Box 460, 410 Main Street, Cordova, AK 99574</u> | | | |
| <u>Cell: 907-952-5265</u> | | | |
| Type of User, Select one: <input type="checkbox"/> Private non-commercial (personal use) <input type="checkbox"/> Commercial Recreation or Tourism | | | |
| <input type="checkbox"/> Public Non-profit including Federal, State, Municipal Government Agency <input checked="" type="checkbox"/> Other commercial or industrial | | | |

private non profit 501(c)3
Research project

Duration of Project: The proposed activity will require the use of state land for: (Check one)

☐ a single term of less than one year. **Beginning month:** _____ **Ending month:** _____

☒ a multi year term for up to 5 years. **Beginning year:** 2020 **Ending year:** 2024

If multi year and seasonal, circle months of use in each year. Jan. Feb. Mar. Apr. May Jun. Jul. Aug. Sept. Oct. Nov. Dec.

Project Location

NW Corner DDM SHEEP BAY

Latitude/Longitude or UTM: 60° 40.741N / 145° 59.620W



Section: _____, Township: _____, Range: _____, Meridian: _____
(The spaces below are to be used if the boundaries of the proposed project cross section lines.)

Section: _____, Township: _____, Range: _____, Meridian: _____

Section: _____, Township: _____, Range: _____, Meridian: _____

Proposed project will require the use of up to _____ acres. (Add additional sheets as necessary)

Project Description - Describe in detail your intended use of state land. (State land also includes all tide and submerged lands beneath coastal waters and all shorelands beneath other navigable water bodies of the state.) Discuss development and activities. (Attach additional pages as necessary.)

See Attached Project Description and Array
Schematics

Should a portion of the permitted area be closed to the general public? Yes ☐ No ☒. If yes, explain which portion and provide justification for exclusive use:

Site Description - Briefly describe the current condition of the proposed site of use, noting any trash, garbage, debris or signs of possible site contamination (If significant, we recommend you provide pictures to establish initial conditions):

Site is "on-water" and is in good condition

Are there improvements or materials on the site now? Yes ☐ No ☒ If yes, briefly describe the improvements, their approximate value, and who owns them (We recommend you provide pictures of improvements):

Site Description continued - Describe the natural vegetation --- ground cover, trees, shrubs --- and any proposed changes. Describe the location of any estuarine, riparian, or wetlands and any noticeable animal use of area.

On-water in Prince William Sound including anchoring on submerged lands

Site Access - Describe how you plan to access the site, and your mode of transportation.

Watercraft including bowpicker & seine boat type vessels

If your access is by aircraft, specify the type and size of aircraft: N/A

To access the site, the aircraft is equipped with floats ☐ wheels ☐ skis ☐. N/A

Number of people

1. Indicate the number of employees and supervisors who will be working on the site. 4 periodically aboard a boat.
2. Indicate the number of customers who will be using the site per year or season. 0
3. Indicate the number of days the site will be used per year or season. 365

Environmental Risk / Hazardous Substances - In the course of your proposed activity will you generate, use, store, transport, dispose of, or otherwise come in contact with toxic and/or hazardous materials, and/or hydrocarbons? Yes | ~~No~~ |. If yes, please describe:

The types and volumes of fuel or other hazardous substances present or proposed: None - other than fuel & oil aboard the boat used to visit/monitor the site

The specific storage location(s): N/A

The spill plan and prevention methods: N/A - vessel dependent

Environmental Risk/Hazardous Substances (continued) - If you plan to use either above or below ground storage containers (like tanks, drums, or other containers) for hazardous material storage, answer the following questions for each container:

Where will the container be located? N/A

What will be stored in the container? N/A

What will be the container's size in gallons? N/A

Give a description of any secondary containment structure, including volume in gallons, the type of lining material, and configuration:

Will the container be tested for leaks? Yes | | No | | N/A

Will the container be equipped with leak detection devices? Yes | | No | |. If no, describe: N/A

Do you have any reason to suspect, or do you know if the site may have been previously contaminated? Yes | | No | |. If yes, please explain: N/A

Date Stamp:

Signature of Applicant or Authorized Representative

Title

JOE ARVIDSON

Permitting agent for Native Conservancy

AS 38.05.035(a) authorizes the director to decide what information is needed to process an application for the sale or use of state land and resources. This information is made a part of the state public land records and becomes public information under AS 40.25.110 and 40.25.120 (unless the information qualifies for confidentiality under AS 38.05.035(a)(8) and confidentiality is requested, AS 43.05.230, or AS 45.48). Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210. In submitting this form, the applicant agrees with the Department to use "electronic" means to conduct "transactions" (as those terms are used in the Uniform Electronic Transactions Act, AS 09.80.010 – AS 09.80.195) that relate to this form and that the Department need not retain the original paper form of this record: the department may retain this record as an electronic record and destroy the original.

**Land Use Permit Application Supplemental Questionnaire for:
Use of Marine Waters (Tide & Submerged Lands)**

Tidelands are that portion of the intertidal zone below the elevation of mean high water. This elevation varies by location. Contact the nearest DNR regional office for assistance. **Submerged lands** are those below the lowest tidal elevation. The State of Alaska, with few exceptions, owns these lands out to 3 miles off shore. – If your activity includes the use of State tide and or submerged lands and the waters above them, answer the questions below and those applicable sections determined below. All site development details identified in this section must be represented graphically in the scaled drawings on Page 9 of the supplement.

Does the applicant own the directly adjacent, upland water front property? Yes ☐ No ☒ If no, give name(s) and current address / phone # of that property owner.

Eyak Corporation P.O. Box 340 Cordova, AK 99574
907-424-7161

Give names and current addresses / phone #s for both upland property owners on either side of the above water front property. _____

N/A

Note: You must obtain the upland owner's written permission for any use of uplands you do not own including for waste disposal, access to roads, waterlines, power lines, or shore ties above MHW, and you must provide a copy to DNR before a permit is issued. If not the immediately adjacent upland property owner, does the applicant have legal access across the uplands? Yes ☐ No ☐ Please explain.

N/A - site will be on-water only and require
no upland use

Will your tideland use also involve any use of adjacent State owned uplands? Yes ☐ No ☒ (If yes, indicate uses and show on your development plan diagram.) ☐ Shore tie ☐ Waterline ☐ Power line ☒ Access to roads ☐ Other Explain:

N/A

Type of Use, Activity, Development (Answer All)

Will you be developing / using a Mooring Buoy system or anchoring a commercial or industrial use vessel for more than 14 days? Yes ☐ No ☒ (If yes, please also answer all questions in **Part 1 on pg. 2** and **Part 6 on pg. 8.**)

Will you be anchoring or mooring a commercial or industrial related floating facility that is or can be occupied, i.e. a float camp or floating lodge, a float house you rent, a seafood processor? Yes ☐ No ☒ (If yes, please answer all questions in **Part 2, pgs. 2, 3** and **Part 6 on pg. 8.**)

Will you be anchoring or mooring your own personal use Float house? Yes ☐ No ☒ (If yes, please also answer all questions in **Part 2, pgs. 2, 3** and **Part 6 on pg. 8.**)

Will you be placing non-occupied structures including but not limited to Piling, Dolphins, Fixed docks, Floating docks, or other floating structures? Yes ☒ No ☐ (If yes, please also answer all questions in **Part 3, pg. 3** and **Part 6 on pg. 8.**)

Type of Use, Activity, Development (continued)

Are you seeking authorization to use or develop a Log Transfer Facility, a floating Log Storage area, or a Log Ship Loading site? Yes [] No [X] (If yes, please also answer all questions in **Part 4, pgs. 4, 5, 6 and Part 6 on pg. 8.**)

Will you be placing fill or dredging material on a beach?

Yes [] No [X] (If yes, please also answer all questions in **Part 5, pgs. 6, 7 and Part 6 on pg. 8.**)

Part 1. Anchoring vessels and mooring buoy systems

Does the proposed use location include a known anchorage? Yes [] No [X] If yes, have alternative locations been considered to reduce impact to the anchorage? Yes [] List below. No [] If no, explain why.

What type of vessel will use the site? [] Commercial Fish Tender/ Processor [] Log Ship [] General Cargo Ship

[] Unoccupied Barge [] Fuel Barge [] Passenger Vessel [X] Other: No vessels will anchor on site

Does the anchoring vessel require the ability to be able to occupy this site all year long? Yes [] No [X] If No, what months will the site be needed? From _____ to _____ N/A

What is the maximum swing radius of vessel at anchor? Length _____ feet (distance from anchor to the aft of the vessel) N/A

Will the vessel require the placement of a mooring buoy system? Yes [] No [X] Number of buoys: _____

If placing buoys, fill out applicable parts of Part 3 to explain the anchoring system. N/A

N/A **Part 2. Floathouses and Commercial, Industrial Floating Lodges, Float camps, Caretaker Residences** (including seafood processors). An associated part of approving this type of use is The US Army Corps of Engineers (USACE) permit. Their general permit, GP 89-4N, for occupied floating facilities can be obtained you meet all conditions of GP 89-4N. Please obtain a copy of GP 89-4N from the Corps, review the conditions and indicate below if your facility will meet all of these conditions. This will help streamline the approval process.

Does your project meet all conditions for general permit GP 89-4N? Yes [] No []

If no, you must Contact USACE at 1-800-478-2712 and apply for an individual Corps of Engineers permit.

Description of Facility Note: The structures and dimensions must be shown on the development plan diagram

Float Dimensions: float ____ x ____ float ____ x ____ float ____ x ____ Total float area ____ sq ft

Living quarters total area: ____ sq ft. Number of stories: ____ Maximum occupancy ____ persons

Describe other structures on floats, such as storage and generator sheds; give structure dimensions.

Describe anchoring system and address all that apply: No. of anchors ____ Type ____ Weight ____

No. of Rock bolts ____ No. of Shore ties ____

Other methods ____

Part 2. (continued)

N/A

Grounding is prohibited. What is the water depth beneath the facility at extreme low tide _____

How many feet of maximum draft does the floating facility have _____

Describe your potable Water Source: type, location, ownership of the source _____

Wastewater System. Describe how you will handle human waste, black water, grey water _____

Do you have an approved ADEC marine sanitation system **Yes** | **No** | Approval # _____

Describe how you will dispose of all solid waste including human waste and household garbage generated on facility _____

Part 3. Non occupied structures - Piling, Dolphins, fixed docks, floating docks, or other floating structures.

Select all boxes that apply for structures located below MHW and show all on the development plan diagram

- ☐ Fixed pile-supported dock, wharf or landing (non-floating) - dimensions ____ x ____ feet No. of pilings ____
- ☐ Ramp to floating dock - dimensions ____ x ____ feet
- ☐ Boat haulout or non-floating ramp - dimensions ____ x ____ feet
- ☐ Floating dock Dimensions ____ x ____ feet; ____ x ____ feet; ____ x ____ feet; ____ x ____ feet; ____ x ____ feet;
- ☐ Floating breakwater - materials _____ Dimensions ____ x ____ feet
- ☒ Other floating structures (e.g., net pens, gear storage float) - describe materials, structures, dimensions _____
Research array 100'x20' rectangle plus 2 data buoys. Total Buoys on site will be 12 with 3 submerged kelp grow lines 100'+ tie in lines
**See attached schematics*
- ☐ Storage sheds or similar structures on docks - description _____ Dimensions ____ x ____
- ☐ Bulkhead - type (log crib, sheet pile, etc) _____ Dimensions ____ x ____ Cubic Yards of Fill _____
- ☐ Individual pilings not counted under fixed dock above. Number _____
- ☐ Dolphins - Number _____ Number of piling per dolphin _____
- ☒ Anchors- Number 5 Type 2000lb block or Weight 300-2000 LBS
300# Danforts or Helical
- ☐ Rock bolts- Number _____
- ☐ Shore ties- Number _____ Note: You must obtain the upland owner's permission to place shore ties above MHW before a permit is issued.

Note: Grounding is prohibited.

What is the water depth beneath the floating structures at extreme low tide? _____ feet

→ 54' below surface buoys
47' below grow out lines

N/A

Part 4. Temporary log transfer facility (LTF) including floating log storage area.

Siting of an LTF which discharges wood into the marine waters must meet the 1985 Alaska Timber Task Force siting criteria guidelines and the criteria established under the US EPA's - NPDES general permit and the AK Dept of Environmental Conservation 401 certification.

What is the maximum length of time that you will need to use the facility _____ years.

What will be your seasonal periods of operation? _____

What is the total timber volume you need to transfer across this LTF? _____ mmbf.

How many total acres do you need for this facility? _____ acres.

Note: This acreage must include all improvements including the anchors and lines. It must include the area required for such items as log raft construction, off shore storage, associated barge and vessel moorage, and shoreties.

Does the associated transfer site require a log raft building area? **Yes** [] **No** [] If yes then:

How many boom logs _____ and anchors _____ and what is the total length of boom logs _____ feet, that you need for the rafting area?

Will the log rafts ground or be moored in water at depths less than 40 feet as measured from MLLW? **Yes** [] **No** []

What is the near shore depth _____ feet, and the offshore depth _____ feet, of the log rafting area as measured from MLLW (0.0' elevation)?

What nautical chart did you use for reference _____, please include a copy of this area of the chart with the attachments.

Will you need an associated in-water log storage area? **Yes** [] **No** [] If yes, then answer the set of questions in the **Floating Log Storage Area section of Part 4.**

Will you need an associated log ship moorage and loading area? **Yes** [] **No** [] If yes then complete Part 1 on page 2.

What kind of transfer facility do you propose to operate? (i.e. A-Frame letdown, slide ramp, drive down ramp, barge ramp)

Will you be transferring logs into the marine waters?

[] **No, logs will never be discharged into the water, they will always be transported directly onto barges.**

[] **Yes - new facility.** The applicant must conduct a dive survey of the near shore area to document the pre-project underwater topography and habitat conditions that will be covered by the discharge of bark on to the likely one-acre zone of deposit. The initial dive survey must be done to guidelines established for bark monitoring by the USEPA and the Alaska Department of Environmental Conservation. A written report of findings including photographic documentation must be submitted prior to review and consideration of this application.

[] **Yes - existing facility.** Include a report of the last dive survey with attachments. The applicant / operator is responsible to conduct bark monitoring dive surveys, done to the guidelines established by the US EPA and the Alaska Department of Environmental Conservation to document the current extent of bark accumulation at the site. A written report of current monitoring findings must be submitted prior to review and consideration of this application.

Is this an existing LTF that has been fully approved and used to transport timber in the past? **Yes** [] **No** []

If Yes, then answer the following set of questions. If No, you are finished with **Part 4.**

N/A

Part 4. (continued)

Was the facility constructed before 1985? **Yes** [] **No** []

Is the facility currently authorized? **Yes** [] **No** [] If Yes, provide the Army Corp of Engineer's Permit Name and number (i.e. Mud bay 43) : _____ and attach a copy of it and all modifications.

What is the EPA - NPDES authorization number? _____ Date of approval _____ and who is the authorized operator: _____

When was the facility last actively used? _____ How long was it used for? _____
How much volume was transferred? _____ mmbf

What type of log entry system is currently authorized? (i.e. A-Frame letdown, slide ramp, drive down ramp, barge ramp)

Is there a tideland survey for the site? [] **Yes** [] **No**, ATS# _____

Does the existing facility require a physical modification? **Yes** [] **No** [] If yes, please submit your modification request to the USACE and include a copy with this application. Please briefly explain the modification.

Floating Log Storage Area

Will the storage area be inside the permit area at the log transfer facility? **Yes** [] **No** [] If no, Will there be a separate tract or tracts? **Yes** [] **No** [] If yes how many tracts do you need? _____ and list below the acreage of each tract.

How long do you need to use the storage area (s)? _____

How much volume will be moved thru this storage area? _____ mmbf.

How many log booms and anchors and what is the total length of the log boom perimeter that will be needed for storage?
of log booms _____, #of anchors _____ total length of all log booms _____ feet.

Will you be using shore ties? **Yes** [] **No** [] If yes how many? _____ and if you are not the upland owner have you received permission to place shore ties? **Yes** [] **No** [] If yes, provide a copy of this permission, if no, you need to obtain and provide this.

Will the log rafts ground or be moored in water at depths less than 40 feet as measured from MLLW? **Yes** [] **No** []

What is the near shore depth and the offshore depth of the log storage area as measured from MLLW?
Near shore depth _____ feet, Offshore depth _____ feet.

What nautical chart did you use for reference _____. If possible please include a copy with the attachments.

N/A

Part 4. (continued)

If the log storage area is one which has been fully approved and used to store log rafts in the past then answer the following:

When was the site last actively used? _____ and for how long? _____

If known, how much volume was stored here? _____ mmbf

Is the facility currently authorized? **Yes** [] **No** [] If yes, provide the Army Corp of Engineer's Permit Name and number (i.e. Mud bay 43) : _____ and attach a copy of the permit and all modifications

What is the DNR authorization number? _____

What is the EPA - NPDES authorization number? _____ Date of approval _____ and who is the authorized operator: _____

Has there been a recent dive survey completed? **Yes** [] **No** [] If yes, then include a copy of this report with the attachments.

Note: The applicant may have to conduct a dive survey of the log storage area to document the underwater topography and habitat that would be covered by the bark zone of deposit or to establish current bark accumulation levels. If required due to level of use, a bark monitoring dive survey must be done to guidelines established by the USEPA and the Alaska Department of Environmental Conservation to document the current conditions at the site

Part 5. Use that involves dredging, placing fill material or altering beaches.

NOTE: When altering the location of the line of mean high water on a beach by placing fill on or seaward of this line you need to be aware of the following. The line of mean high water (MHW) is the boundary where State (public) ownership of tide and submerged land begins. This boundary is an elevation contour on the beach and is determined by the tidal stage of MHW water elevation against the beach topography. This line is not fixed by a past survey of the upland property if that land survey shows a meandered boundary as is typically done. A meandered boundary is intended to be dynamic and move over time as natural forces affect the beach. Natural forces can either erode beach material or deposit material and as a result, the boundary can naturally move. Another natural way that boundaries can change is in tidal areas where glaciers have recently receded and the land is rebounding or uplifting over time. When any natural process is interrupted by the actions of man, such as placing material to stop erosion, the boundary line becomes fixed from that point on.

What is the elevation of the line of MHW at the proposed permit site? _____ feet

Are you proposing to alter the line of MHW in any manner? **Yes** [] **No** [] If yes, explain what you intend to do?

Placing fill material on a beach.

What is the purpose of the fill? _____

Is there an upland survey that has established a meandered boundary line? **Yes** [] **No** [] If yes, Survey # _____
(if a subdivision survey please provide a legible copy) (ATS, ASLS, US Survey#)

N/A

Part 5. (continued)

Will heavy equipment be used below the mean high water line to alter the beach? **Yes** [] **No** [] If yes, explain

How many cubic yards of fill are you proposing to place at and below the line of MHW? _____ cubic yards

What are the dimensions of fill area below MHW elevation? _____

How many linear feet along the (beach) line of MHW will be covered with fill? _____ feet.

Is there more than one area along the beach which will be filled? **Yes** [] **No** [] Identify the location of each area on the development plan diagram.

Will any of the fill material come from State owned uplands or tide and submerged lands? **Yes** [] **No** [] If yes, then what is the source? _____ and how many cubic yards? _____.

If you are intending to limit beach fill to the area above the current line of MHW will any of the fill or associated retaining wall material including the toe of the fill or retaining wall extend beyond the line of MHW? **Yes** [] **No** []

Is the adjacent upland property encumbered with a public easement along the waterfront boundary? **Yes** [] **No** []

How will the fill affect public access along the beach? _____

Excavation of materials from a beach.

What is the purpose of the excavation? _____

How many linear feet along the beach will be affected? _____ feet

To what depth will you be excavating? _____ feet

How many cubic yards will be excavated from the area seaward of the line of MHW? _____ cubic yards and what will this excavated material be used for or where will it be disposed of?

Part 6. Dismantle, Removal, Restoration Plan – The permit will require that upon expiration, completion, or termination the site shall be vacated and all improvements and personal property removed. The site shall be left in a clean, safe condition acceptable to the Regional Manager. Your answers to the following questions will establish your proposed restoration plan.

A. Explain how you plan to dismantle and remove the improvements and restore the site to a clean, safe condition acceptable to the Regional Manager. **Note:** One acceptable alternative is returning the permit site to the condition that existed before the site was developed or used.

Return the permit site to the condition that existed before the site was developed or used as a kelp grow-out array research site with an additional data collection buoy system.

B. If your project involves fill describe how it will be removed and where will it be removed to. How will you document that the original line of Mean High Water has been restored? (i.e. photo documentation, resurvey)

N/A

C. If your project involves anchors and/or pilings how do you plan on removing them? Where is the nearest community that provides this type of removal equipment / service?

The project will involve setting 4 anchors on the corners of the 100' x 20' array and setting one anchor for the data collection buoy system. To remove the anchors a research vessel with a crane & winch will be chartered by Native Conservancy - out of Cordova, Alaska - likely the same boat that sets anchors initially.

D. Describe the disposal method and identify the disposal site or sites for structural components, solid wastes, and hazardous wastes.

The structural components on the site will be anchors, chain, 3/4" crab line, 7/16" crab line, a data cord and buoys. These will all be removed upon completion of the lease - if not earlier - some components may be removed seasonally.

E. If components can be reused for other projects, such as anchors, identify where they would be stored?

All structural components listed in #D above can be stored in a private warehouse in Cordova, Alaska.

SITE DEVELOPMENT DIAGRAM

| | | | | | | | | | | | |
|---|---|----------------|-------------------|---|--|---------------------------------|--|---|--|----------|-------|
| <div></div> | <div></div> | | | | | | | | | | |
| | VICINITY MAP | | | | | | | | | | |
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| <div></div> | <table border="1"><tr><td>Date Prepared:</td><td>Applicant's Name:</td></tr><tr><td colspan="2">ALASKA DEPARTEMENT OF NATURAL RESOURCES DIV. OF MINING, LAND , WATER LAND USE PERMIT</td></tr><tr><td colspan="2">SITE DEVELOPMENT DIAGRAM</td></tr><tr><td colspan="2">Sec.(s) _____ T. _____ S., R. _____ E., _____ M</td></tr><tr><td>SHEET OF</td><td>LAS #</td></tr></table> | Date Prepared: | Applicant's Name: | ALASKA DEPARTEMENT OF NATURAL RESOURCES DIV. OF MINING, LAND , WATER LAND USE PERMIT | | SITE DEVELOPMENT DIAGRAM | | Sec.(s) _____ T. _____ S., R. _____ E., _____ M | | SHEET OF | LAS # |
| Date Prepared: | Applicant's Name: | | | | | | | | | | |
| ALASKA DEPARTEMENT OF NATURAL RESOURCES DIV. OF MINING, LAND , WATER LAND USE PERMIT | | | | | | | | | | | |
| SITE DEVELOPMENT DIAGRAM | | | | | | | | | | | |
| Sec.(s) _____ T. _____ S., R. _____ E., _____ M | | | | | | | | | | | |
| SHEET OF | LAS # | | | | | | | | | | |

PROJECT DESCRIPTION

RESEARCH SITE #3 OF 7

NATIVE CONSERVANCY
SHEEP BAY, PWS
JUNE 15, 2020

1. Site location

The proposed aquatic farm site is located within Sheep Bay on the east side of Prince William Sound, Alaska. More specifically the site is located on state waters in the bay approximately 12 miles NW of Cordova, Alaska, by air and approximately 22 nautical miles by boat.

2. Site dimensions, acres for each parcel

The site is approximately one acre in area (43,550 square feet) in a rectangular shape with a width of approximately 130' and a length of approximately 335'.

This Application is for one “on-water” parcel for a submerged longline kelp grow-out research site. No other on-water or upland parcels are requested.

3. Total acres of parcel

Approximately one acre.

4. Species you intend to grow out for research

Sugar Kelp; *Saccharina Latissima* & Ribbon Kelp; *Alaria Marginata* & Bull Kelp; *Nereocystis luetkeana*).

5. Seedstock

Seedstock will be obtained from Alutiiq Pride Shellfish Hatchery in Seward, AK. Native Conservancy (NC) will assist the hatchery in the collection of fertile kelp blades, within 50 km of the aquatic research site and from at least 50 different plants per species to maintain genetic diversity, as requested by hatchery staff, for development of seedstock at the hatchery facility.

In September or October, sporophyte of approximately 2.5 mm in length will be transferred to the site on “seed strings” – kite string with sporelings embedded on it – and this will be applied to the longlines by running a pvc pipe with the kite seed string on it over the longline so the seed string unwinds and wraps onto the longline effectively seeding the longline.

The site will be monitored at least two times monthly during the growing season from October until on or about May 15, to check for issues such as entanglement of lines, to monitor the pH, salinity, turbidity and water temperature and to check the growth of the kelp itself. The site will also be monitored following storm events.

6. Gear (type, size, number, configuration, material, mesh size, and anchoring system)

Within the 130' x 335' parcel "site" there will be one suspended grow-out submerged longline array with the following dimensions: 100' long x 20' wide with three (3) grow-out longlines of 100' length of 7/16" longline "dungy crab" line per array, for a total length of submerged grow-out lines of 300'. The longlines will be 10' apart along the 20' width of the array. This configuration will allow the array and its respective anchors & tackle to fit within the rectangular shaped parcel. The array will have four (4) anchors. Anchor type and size may vary as part of this research project to determine the best anchors for kelp farms in PWS. The optional anchors are: four 2000 lb. cement block anchors (one per corner), or four 300 pound Danforth anchors, or four helical "screw in" anchors.

The corner anchors will have 3/4" poly king crab line attached to 6' of 3/4" galvanized chain on the anchor block or shank – the line will run to the surface where it will be attached to mooring buoys with a minimum of 100 lb. buoyancy rating. The line length will be 2:1 (depth) for scope to maintain a better hold and to keep the array properly suspended in current. There will also be six gillnet buoys on the array (2 per grow out line) with weighted droppers down to the submerged grow-out lines to keep the lines submerged to the proper depth of 7' below the surface of the water.

Depth: The depth on-site is 54' at the surface buoys at mean low water and 47' under the submerged grow out lines.

The likely distribution of kelp species on the grow-out lines on the array will be: one 100' line per species – so one line will have sugar kelp, one line will have ribbon kelp and one line will have bull kelp.

The grow-out longlines, depth control system dropper weights, gillnet buoys and related tackle will all be removed after the growing season and stored in a warehouse in Cordova, Alaska. The concrete block, Danforth, or helical anchors & related mooring buoys and tackle will remain at the site year-round.

In addition to the grow-out research array, each site will have a smart data buoy apparatus on site that will record the water temperature near the surface and near the sea floor. The data buoy setup consists of two surface buoys attached via a data cable extending down to a 1/2" galvanized chain and one 2000 block anchor on the sea floor. The smart data buoy apparatus will remain on site year round.

See the Attachments for the detailed design schematics and specifications of the research array and the smart data buoy configuration.

7. Harvest equipment and method

The aquatic research site will be operational from mid to late September through approximately May 15.

Kelp may be harvested twice yearly; the initial harvest will be on or about March 1 and if it is determined that a second harvest will produce necessary data, the second harvest will be on or about May 1.

The kelp will be harvested by lifting the longline to the surface onto a bowpicker vessel with a hydraulic pulley set-up – kind of like a crab block but more central to the vessel. The kelp will be cut from the longlines with Victorinox knives and put into fish totes (the type and size used for ice transport on salmon tenders). “Wet weight yield” will be measured to determine biomass grow rates on site per foot by species.

Note: As this is a research site the kelp may not be sold into commerce but may be used for palatability testing and for vitamin, mineral and heavy metal content testing, among other things.

8. Support Facilities (type, size, number, configuration, material, and anchoring)

There are no on-water or upland support facilities requested for in this Application

9. Access to and from site

The site will be accessed by a bowpicker (boat) from Cordova, Alaska, at least twice a month.

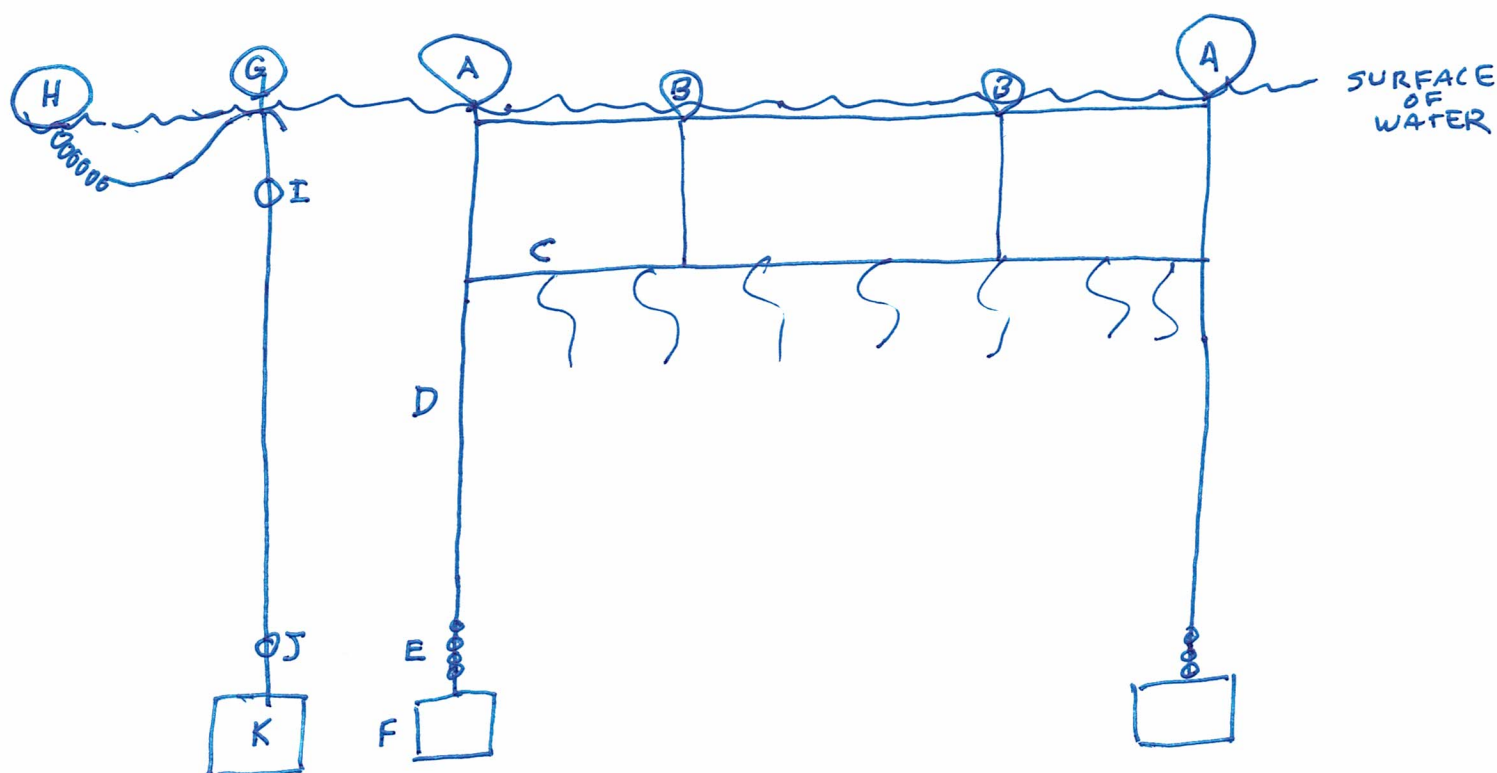
10. Storage location of equipment and gear when not in use

Cordova, Alaska in a warehouse located on my private property.

11. Scope of project

This project is being undertaken with Native Conservancy partners Alutiiq Pride Shellfish Hatchery of Seward, Alaska, and Blue Wave Futures PWS LLC, of Cordova, Alaska (a collective of future PWS aquatic kelp farmers). Although this permit is for one research site, there will be seven (7) total research site permit applications submitted for this project. The sites will stretch across PWS from near Chenega Village in the southwest to near Tatitlek Village in the North to near Cordova in the East. The partners are undertaking this project to determine if certain species of kelp grow best in different regions of the sound, to obtain kelp for research purpose (to test for vitamin, mineral and heavy metal content in various regions of the sound) and to test out different anchor and buoy types for securing the arrays. Along with this on-water research the three partners will also be collecting kelp sorus in the fall from three regions within PWS and nursing it onto seed strings at the Alutiiq Pride Shellfish Hatchery in both the hatchery itself and in a community kelp nursery 40’ van mobile unit (another pilot project) and using those seed strings to grow-out the kelp at the seven research sites. This project will commence in the summer/fall of 2020 and will continue until 2024.

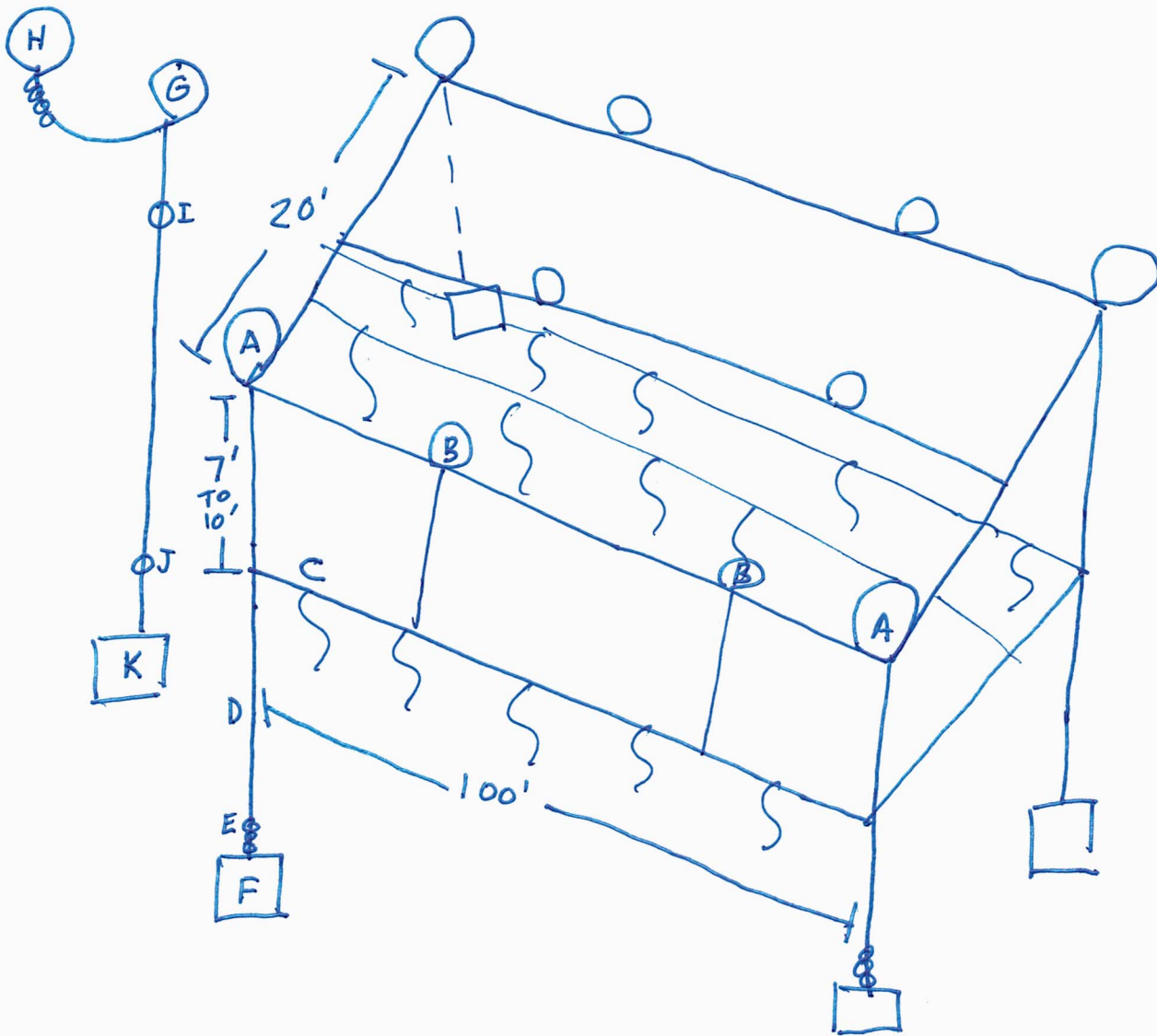
PILOT RESEARCH GROW-OUT PROJECT
 NATIVE CONSERVANCY
 ARRAY SIDE VIEW
 JUNE 1, 2020



- A. MOORING BUOY FOR MAINTAINING BUOYANCY - NOT FOR VESSELS
- B. GILLNET BUOYS WITH WEIGHTED DROPPERS
- C. 100' GROW-OUT LONGLINE SUBMERGED 7'-10' BELOW SURFACE (7/16")
- D. MOORING LINE 3/4" poly crabline
- E. 1 FATHOM OF 1/2" GALVANIZED CHAIN
- F. 2000 BLOCK CONCRETE ANCHOR NOTE: THIS MAY BE MODIFIED AND A 300# DANFORTH ANCHOR OR HELICAL ANCHOR USED TO TEST DIFFERENCE IN ANCHORS
- G. SURFACE FLOAT FOR SMART DATA BUOY CONFIGURATION
- H. SPOTTER BUOY FOR SMART DATA BUOY CONFIGURATION
- I&J. TEMPERATURE SENSORS
- K. 2000 BLOCK CONCRETE ANCHOR

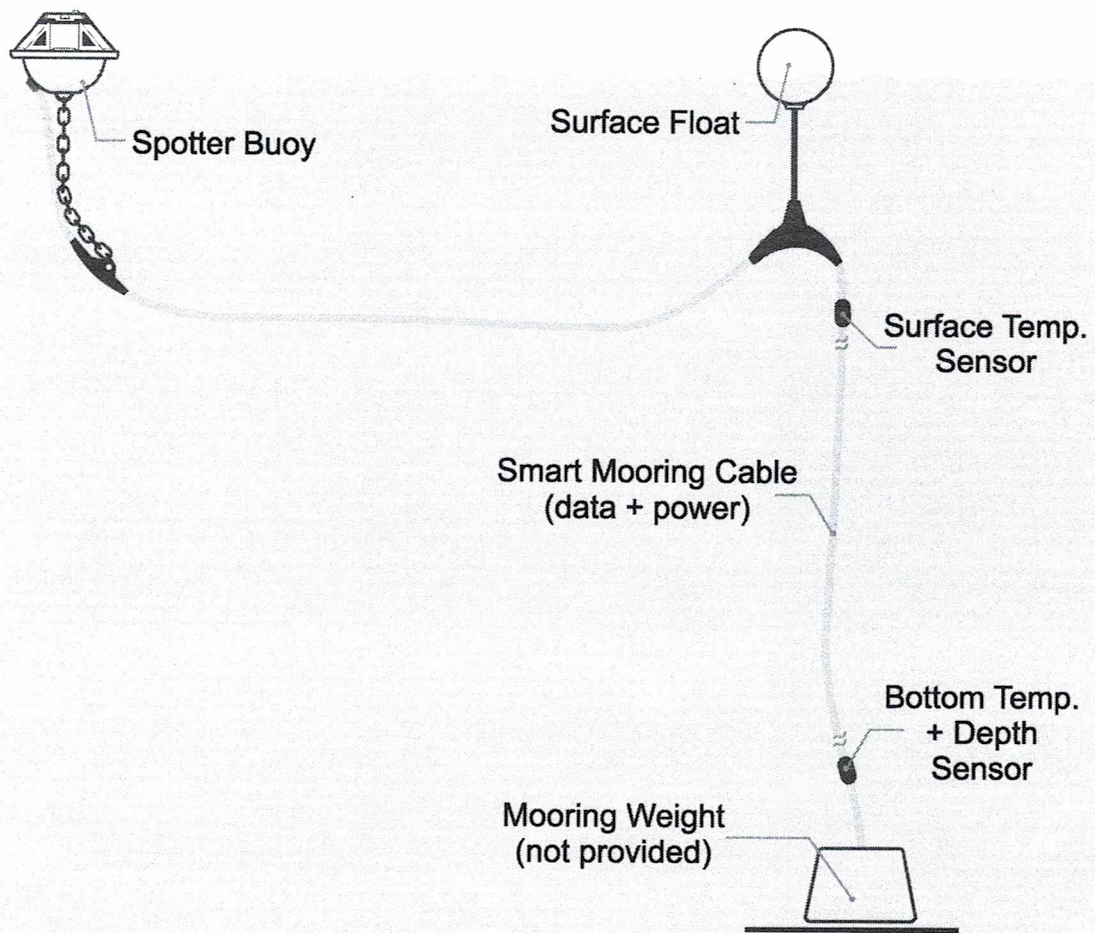
100' x 20' ARRAY WITH 3 100' LONG 7/16" GROW OUT LINES
TOTAL GROW OUT 300' (100' x 3)

A MOORING BUOYS
B GILLNET BUOYS WITH WEIGHTED DROPPERS
C GROW OUT 7/16" LONG LINES 100' LONG SUBMERGED 7'-10'
D MOORING LINE
E 1 FATHOM 1/2" GALVANIZED CHAIN
F 2000 LB BLOCK ANCHOR OR 300# DANFORTH OR HELICAL ANCHOR
G-K IS SMART DATA BUOY SETUP WITH TWO TEMP SENSORS





Spotter + Smart Mooring Project “Dory” Configuration



Specifications:

| | |
|------------------|--|
| DEPTH RANGE | 5m to 40m |
| OUTER JACKET | Polyurethane, high visibility yellow, UV stabilized, cut and abrasion resistant. |
| MAX TENSILE LOAD | 3000N kevlar reinforced |
| TEMP. SENSORS | Customizable; configured for 2 (surface and bottom) |
| TEMP. ACCURACY | +/- 0.1°C |
| TEMP. RESOLUTION | 0.02°C |
| TEMP. RANGE | -5°C TO 50°C |
| DEPTH ACCURACY | +/- 75mbar (0.75m) |
| DEPTH RESOLUTION | 0.2cm |

SPOTTER™

Technical Specifications

SIZE AND WEIGHT

| | |
|---|-------------------------------|
| EXTERNAL DIMENSIONS [W X H] | 42cm x 31cm (16.4in x 12.2in) |
| WEIGHT (WITHOUT EXTERNAL BALLAST CHAIN) | 5.4kg (12lbs) |
| STAINLESS STEEL BALLAST CHAIN WEIGHT | 2.174kg (4.79lbs) |

CONNECTIVITY:

| | |
|--------------|-------------------------|
| CONNECTIVITY | Iridium SBD (satellite) |
|--------------|-------------------------|



BATTERY AND POWER:

| | |
|----------------------|---|
| PRIMARY POWER SOURCE | Solar Powered, 5x 2 Watt, 6 Volt solar panels |
| BATTERY | Lithium-ion, capacity 11,200 mAh, 3.7v (rechargeable) |




MOTION SENSING:

| | |
|-----------------------------|---|
| MOTION DATA FORMAT: | x (easting), y (northing), z (vertical, positive up), latitude (deg), longitude (deg) |
| WAVE FREQUENCY RANGE: | 0.03-1 Hz (30s to 1s) |
| WAVE DIRECTION RESOLUTION: | 0 - 360 degrees (full circle) |
| SAMPLING RATE: | 2.5 Hz (Nyquist @ 1.25Hz) |
| WAVE DISPLACEMENT ACCURACY: | Approximately +/- 2cm accuracy depends on field of view, weather conditions, and GPS system status. |
| CALIBRATION: | Not needed, ever. |

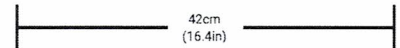
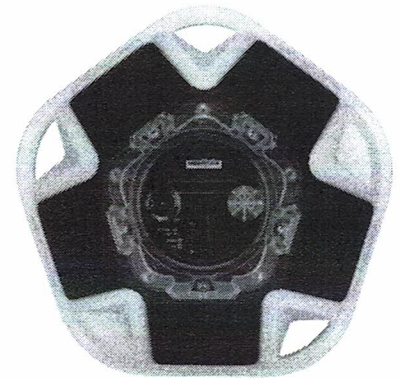
DATA STORAGE:

| | |
|--|---|
|  ON-BOARD (SD CARD) | Records time series of 3D displacement data, ships with 16GB (256GB MAX capacity), FAT16 or FAT32 Format required |
|  CLOUD STORAGE (ONLINE DASHBOARD) Click here to demo | Access to online account that includes: Real-time and historical data outputs, Spotter configurations, alerts, maps and two-way communication. |

DATA OUTPUTS:

| |  STANDARD MODE |  SPECTRUM MODE |  ON DEVICE |
|--|---|---|---|
| SIGNIFICANT WAVE HEIGHT | X | X | X* |
| PEAK PERIOD | X | X | X* |
| MEAN PERIOD | X | X | X* |
| PEAK DIRECTION | X | X | X* |
| MEAN DIRECTION | X | X | X* |
| PEAK DIRECTIONAL SPREAD | X | X | X* |
| MEAN DIRECTIONAL SPREAD | X | X | X* |
| VARIANCE DENSITY SPECTRUM | | X | X |
| DIRECTIONAL MOMENTS (a1, b1, a2, b2) | | X | X |
| 3D DISPLACEMENT TIME SERIES @ 2.5 Hz (x,y,z) | | | X |
| WIND SPEED | X | X | |
| WIND DIRECTION | X | X | |
| DRIFT SPEED | | | X* |
| DRIFT DIRECTION | | | X* |
| GEOGRAPHICAL COORDINATES (lat, lon) | X | X | X* |

* Can derive from SD card data.



OTHER

| | |
|-----------------------|--|
| SYSTEM MONITORING | Battery power status |
| ADVISED MOORING DEPTH | Any depth |
| Visibility LED | 1 flash every 2.5 seconds, at least 1 mile visibility under normal conditions. |
| FIRMWARE UPGRADE | Standard micro-USB (cable included) |
| USABILITY | Magnetic on/off switch, Run/Idle mode, user LED's and integrated grab handles. |

SMART MOORING

Technical Specifications

SMART MOORING

| | |
|--------------------|---|
| SENSOR OPTIONS: | Fully modular and interchangeable, wide range of available sensors supported. |
| REAL TIME DATA: | Iridium satellite, available in Spotter dashboard and Sofar API. |
| OPERATIONAL DEPTH: | 10m - 100m |

CABLE

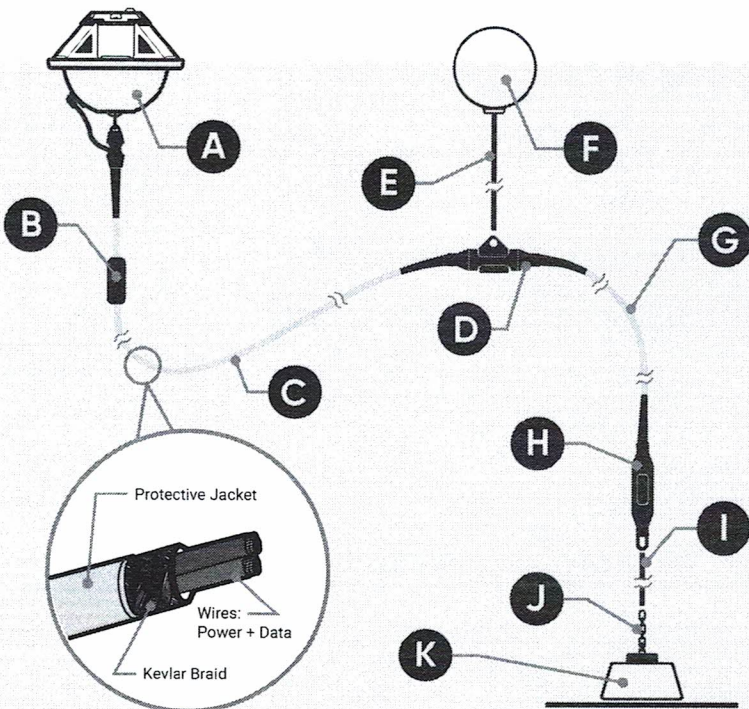
| | |
|-----------------------|--|
| AVAILABLE LENGTHS: | 10m, 50m (interchangeable) |
| JACKETING: | Thermoplastic polyurethane, high-visibility yellow, UV stabilized, cut and abrasion resistant. |
| WORKING LOAD: | 2000N, kevlar reinforced |
| DIAMETER: | 10mm |
| MINIMUM BEND RADIUS: | 80mm |
| MAXIMUM POWER LENGTH: | 300m |
| CONDUCTORS: | 2-conductor, 16ga (power + data) |
| TERMINATORS: | Either Sofar OP power + data connection or mooring shackle |

SENSOR NODES:

| | |
|--------------------|--|
| PLACEMENT: | Sensor nodes can be placed in series at any smart mooring cable termination. |
| COMMUNICATION: | Sofar OP |
| POWER PROVIDED: | 3.3V, 5V, and 12V |
| NODES PER MOORING: | Recommended max of 10 |

TEMPERATURE NODES:

| | |
|---------------|----------------|
| ACCURACY: | +/- 0.1 °C |
| RESOLUTION: | 0.02 °C |
| RANGE: | -5 °C to 50 °C |
| DEPTH RATING: | 100m |



Smart Mooring Elements

- A Spotter Buoy
- B Clump weight
- C First section cable (default 10m)
- D Temperature sensor #1
- E Adjustable line
- F Float
- G Second section cable (configurable)
- H Temperature sensor #2
- I Adjustable line
- J Anchor chain
- K Anchor weight (not included)

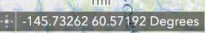


FIGURE 1A
RESEARCH SITE #3
NOAA CHART
SCALE 1": 0.6 MILES
NATIVE CONSERVANCY
SHEEP BAY, PWS
June 15, 2020

