NOAA FISHERIES

Alaska Region
AOA Spatial Planning Workshop

Welcome and Recap Day 2

Alicia Bishop, *NOAA Fisheries Alaska Regional Aquaculture Coordinator*

NOAA JNU AOA Spatial Planning Workshop
March 26-27, 2024

Illustrations by Juliana Cornett

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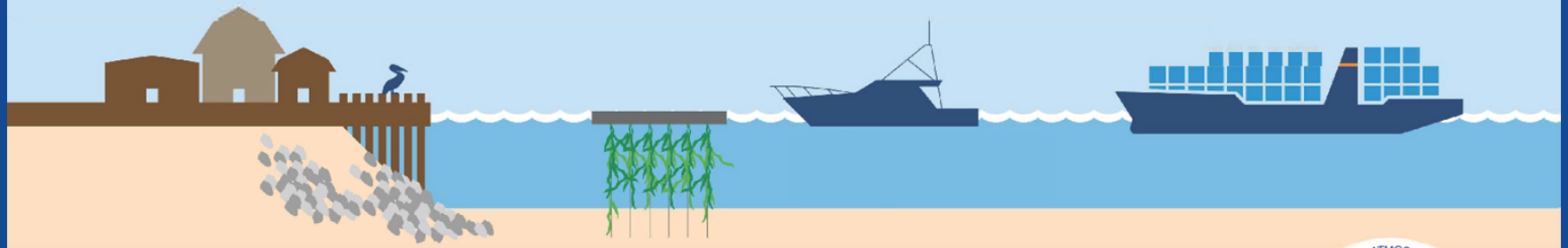
NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

What is an Aquaculture Opportunity Area?

AOAs will expand economic opportunities in coastal and rural areas, and increase our nation's seafood security.

AOAs use the best available science to find appropriate spaces for sustainable aquaculture.

AOAs minimize interactions with other users, such as shipping, fishing, subsistence activities, and the military.



Aquaculture Opportunity Areas show high potential for commercial aquaculture. A science and community-based approach to identifying these areas helps minimize interference with other enterprises, account for current fishing patterns, subsistence and cultural activities, and protect the ecosystem.

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U.S. DEPARTMENT OF COMMERCE

What is the Process?

- The AOA process is anticipated to take approximately four years.
  - 2 years suitability analysis
  - 2 years environmental review (NEPA)
- Some of the products of this process include: spatial analysis (Atlas) and environmental review (NEPA).
- The AOA identification process is public driven. Public input is essential in the design and location of AOAs.

NEPA: National Environmental Policy Act

Alaska AOA Process Timeline
2023-2024

June 2023

Now: March 2024

2025

Alaska Next Steps:
Announce start of process to identify Aquaculture Opportunity Areas in Alaska
Engagement and data collection. Gather feedback on study area parameters
RFI in October 2023; Nov/Dec three listening sessions
Finalize study areas based on public input
NCCOS data collection and modeling for siting analysis
Spring 2024 Mapping Workshops
NCCOS draft Aquaculture Opportunity Atlas; peer review

*Tasks and timeframes may shift due to resource restrictions or need

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AOA Goals

- Meet the directives of Executive Order 13921
- Utilize a science-based approach to inform marine aquaculture planning
- Find areas that could be suitable for multiple future aquaculture projects
- Address interests and concerns regarding seaweed and invertebrate aquaculture siting
- Address the increasing demand for seafood



Key Points

- Multi-year planning process, not regulatory, no new NOAA authorities
- AOAs are *not* pre-permitted sites. Federal and state leasing and permit requirements remain the same
- In Alaska, AOAs will be sited in state waters and will support **seaweed** and **invertebrate** aquaculture (finfish farming is prohibited)
- Identification of AOA location(s) will not be made until end of NEPA process
- Aquaculture projects don't have to be located in an AOA

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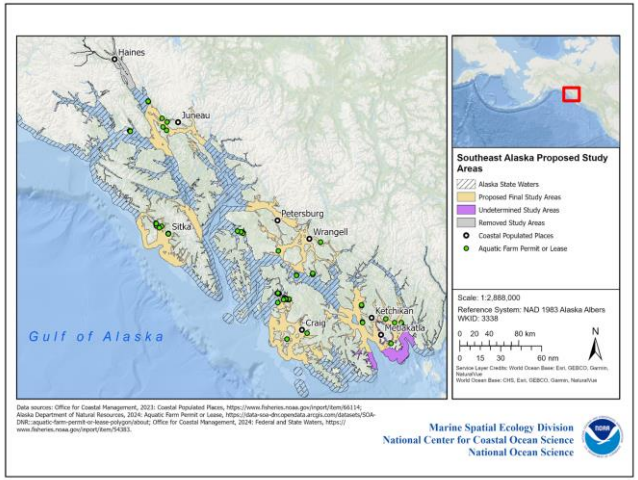
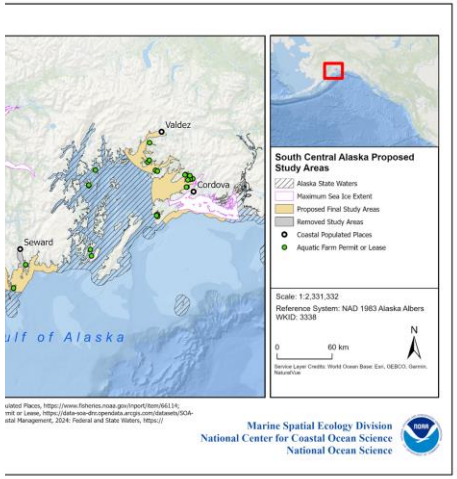
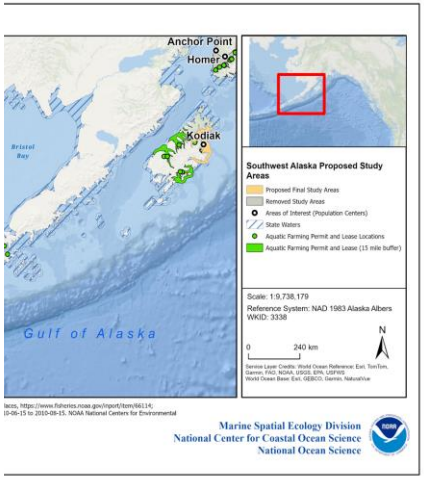
AOA Final Study Areas

- New website!

  https://www.fisheries.noaa.gov/alaska/aquaculture/final-aoa-study-areas-alaska





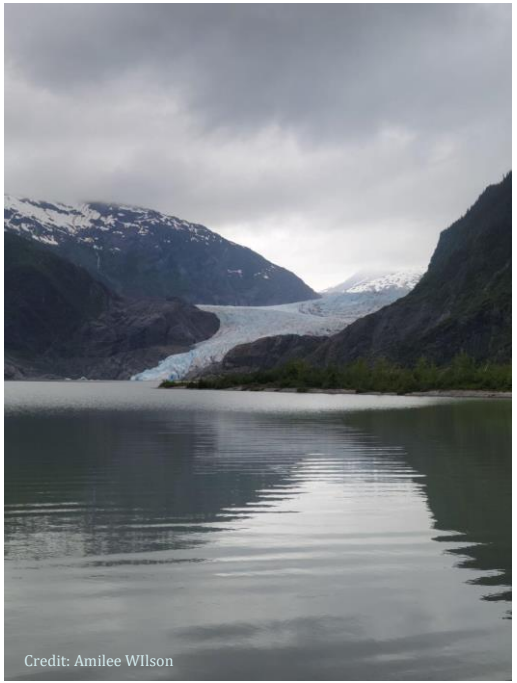


NOAA Fisheries Tribal Responsibilities and Consultation Overview

Amilee Wilson, Alaska Regional Tribal Relations Coordinator
March 27, 2024

Importance of Tribal Voices and Consultation

- NOAA has management responsibilities for issues of importance to tribes (e.g., federal fisheries management, habitat restoration, coastal management, marine protected areas)
  - Treaty Responsibility
  - Trust Responsibility
  - Co-management
  - Co-stewardship
- Indigenous Knowledge can improve management decisions



Credit: Amilee WIlson

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What is a Tribal Consultation?

- An "accountable process ensuring meaningful and timely input from tribal officials on Department policies that have tribal implications" (DAO 218-8)
- A means of communication that may involve formal policy level … understood by both NOAA and tribe to be a formal government-to-government meeting
- Used to exchange information, deliberate, and address Federal policies that have tribal implications
- Not a format for consensus decision-making … a process to consider the sovereignty, rights, and resources of Indian Tribes during the development of Federal policies or actions

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What is Tribal Engagement?


Credit: NOAA Fisheries

- Definition in NOAA Tribal Consultation Handbook:

  The range of interactions with tribal governments that may be similar to (but does not rise to) the level of formal government-to-government consultation (e.g., sharing of information, data, perspectives, feedback and concerns, joint projects, education and outreach)

- Everything else
  - Relationship building
  - Informal meetings
  - Staff level discussions
  - Phone calls
  - Overview or briefings of upcoming actions

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Thank you for your gift of time.

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NOAA's Spatial Planning Approach For Alaska Aquaculture Opportunity Areas

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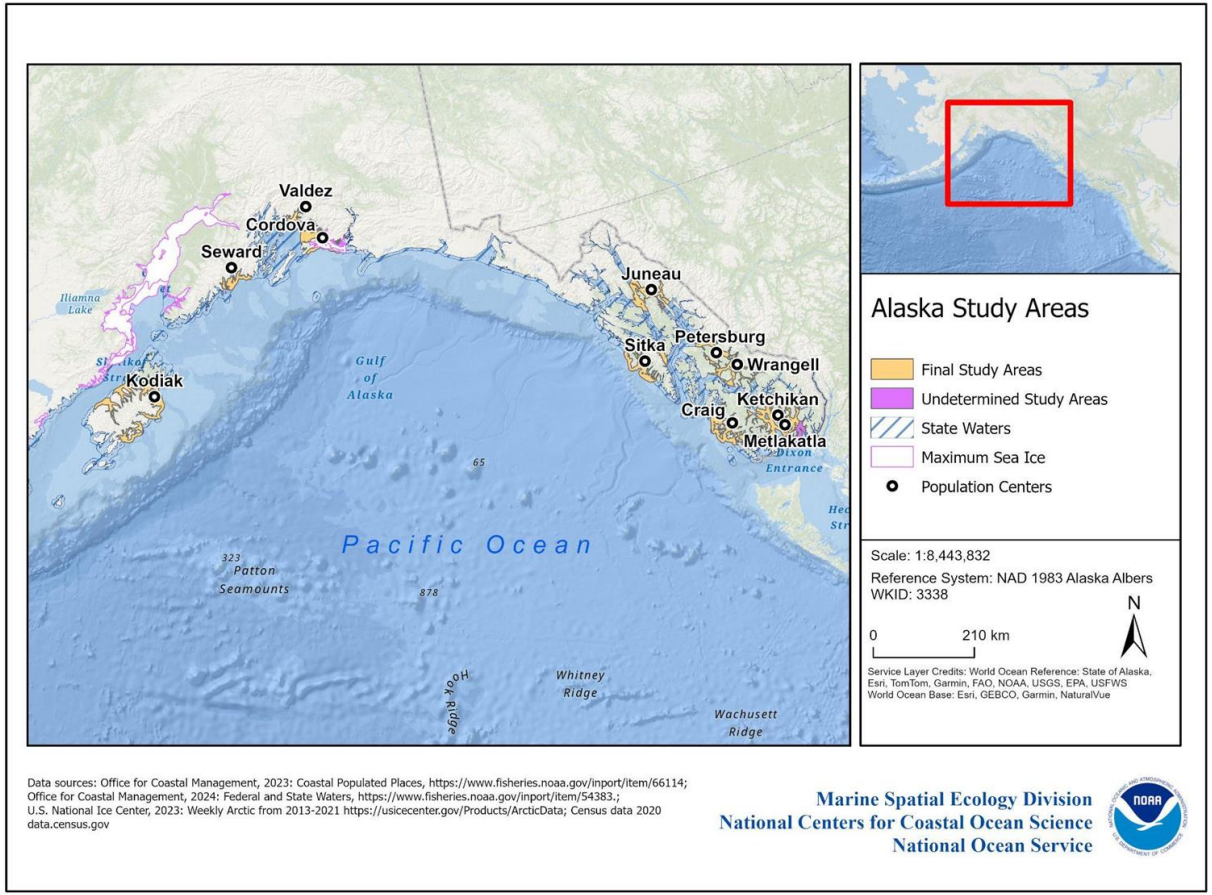
Juneau

March 26, 2024

Marine Spatial Ecology Division
National Centers for Coastal Ocean Science
National Ocean Service
christopher.schillaci@noaa.gov

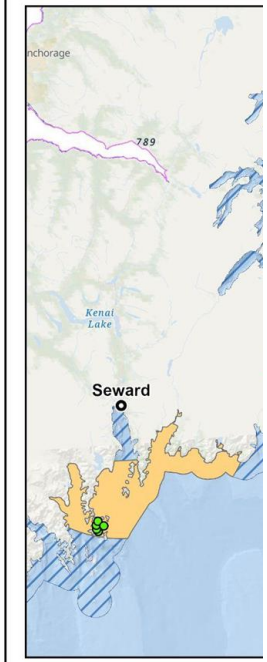
Step 1 - Study Area Parameters

- Alaska state waters
- Use distance from coastal population centers as proxy for infrastructure
    - 25 miles from top 25 coastal communities by population (2010 census data)
- Ice cover is considered a significant constraint for aquaculture (greatest sea ice extents between 2013-2021)
- Consideration of areas in proximity to existing aquaculture that are not captured by population center and ice analysis



Maps for demonstration only

Step 2 - Identify Study Areas



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Alaska Department of Natural Resources, 2024: A
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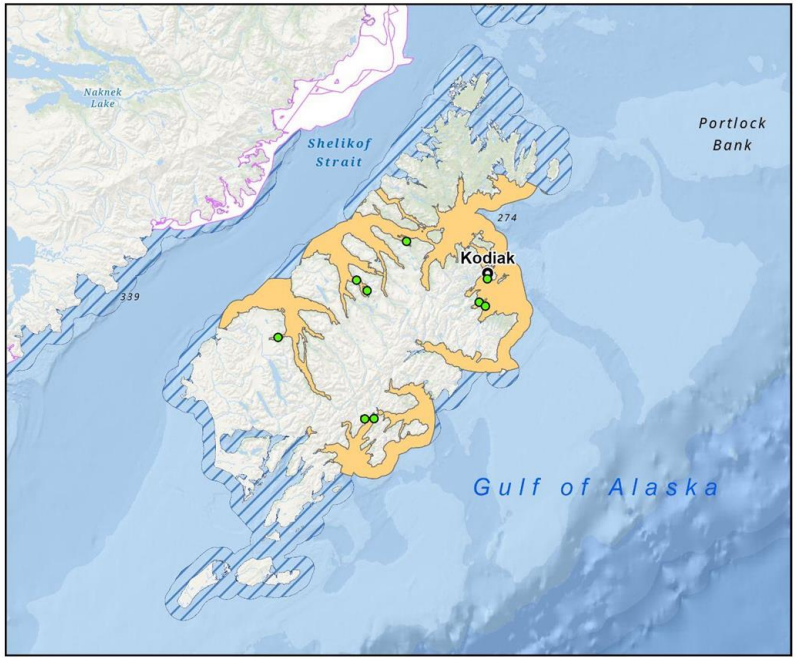
Office for Coastal Management, 2024: Federal an
U.S. National Ice Center, 2023: Weekly Arctic fror
data.census.gov

Data sources: Alaska Department of Fish and
gis.adfg.alaska.gov/mapping/rest/services/CF_
Coastal Populated Places, https://www.fisherie
Office for Coastal Management, 2024: Federal
U.S. National Ice Center, 2023: Weekly Arctic f
data.census.gov



Kodiak Study Area

- State Waters
- Maximum Sea Ice
- Final Study Areas
- Active Farm Lease Areas
- Population Centers

Scale: 1:1,812,374

Reference System: NAD 1983 Alaska Albers
WKID: 3338

N

0 40 km

Service Layer Credits: World Ocean Base: Esri, GEBCO, Garmin
World Ocean Reference: State of Alaska, Esri, TomTom, Garmin,
FAO, NOAA, USGS, EPA, NPS, USFWS
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue

Data sources: Alaska Department of Fish and Game. (2024). ADF&G Active Aquatic Farming Operation Areas. https://
gis.adfg.alaska.gov/mapping/rest/services/CF_public/Aquatic_Farming_Operations/MapServer; Office for Coastal Management, 2023:
Coastal Populated Places, https://www.fisheries.noaa.gov/inport/item/66114;
Office for Coastal Management, 2024: Federal and State Waters, https://www.fisheries.noaa.gov/inport/item/54383.;
U.S. National Ice Center, 2023: Weekly Arctic from 2013-2021 https://usicecenter.gov/Products/ArcticData; Census data 2020
data.census.gov

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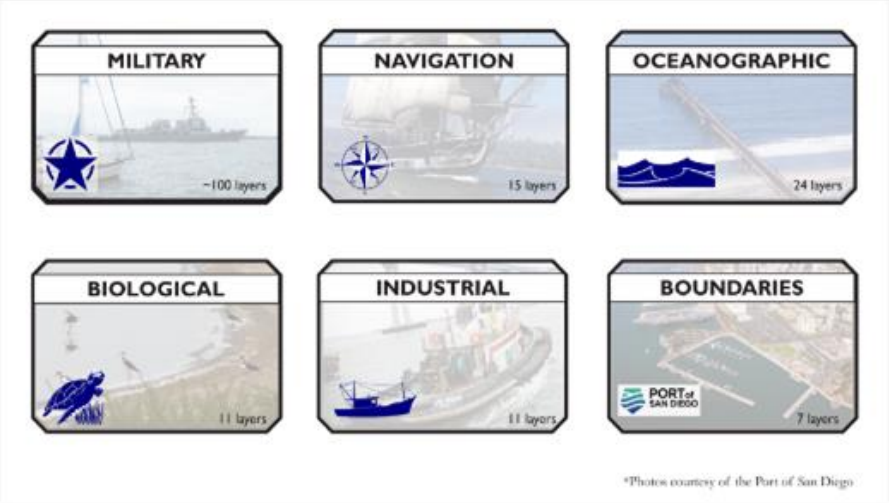
National Ocean Service

Step 3 - Compile comprehensive geodatabase



Step 4 - Build the suitability model

MAPAK
ALASKA GEOSPATIAL OFFICE

MarineCadastre.gov

An Ocean of Information
A joint BOEM and NOAA initiative providing authoritative data to meet the needs of the offshore energy and marine planning communities.

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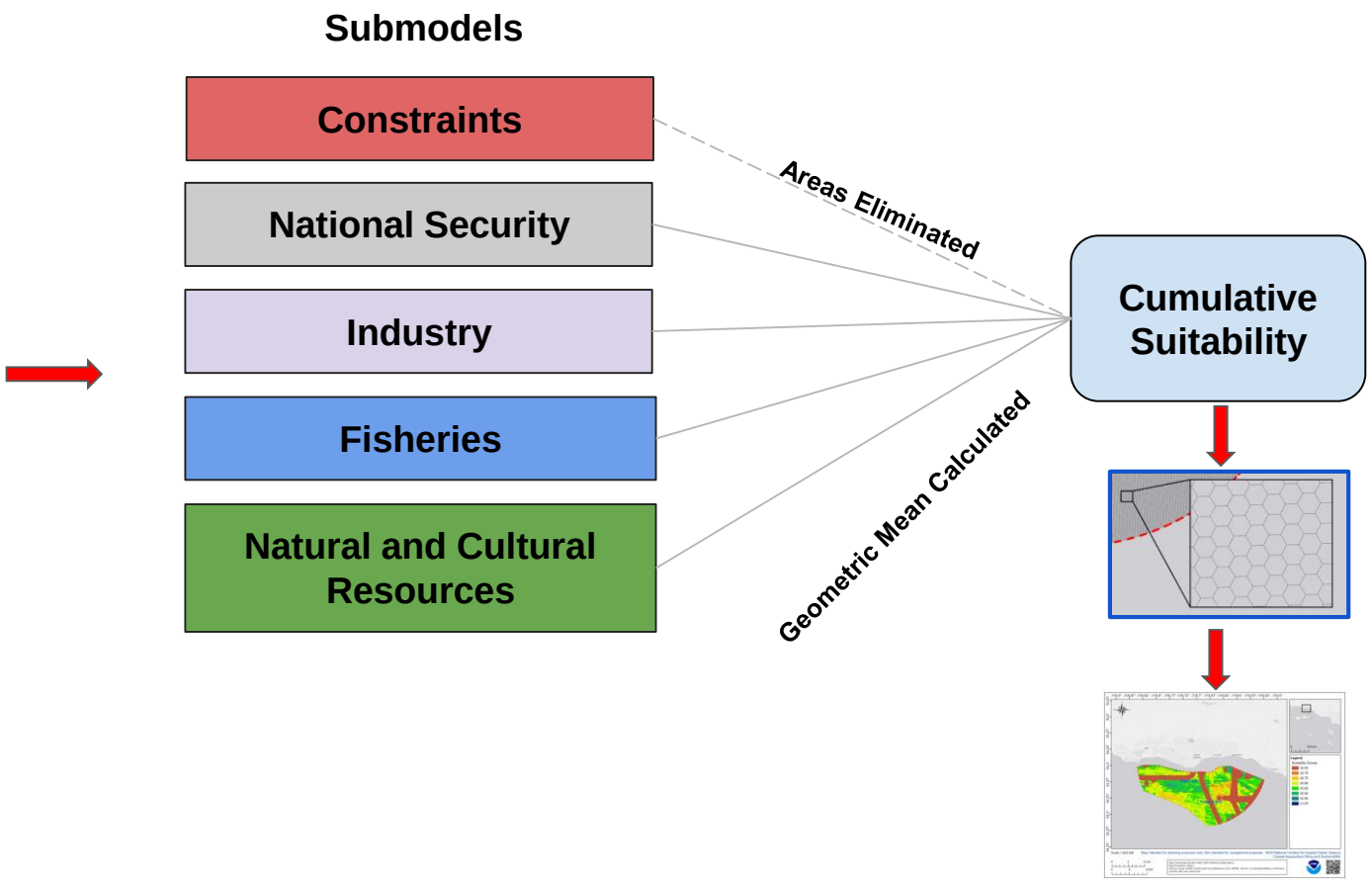
State Agencies

BOEM
Bureau of Ocean Energy Management

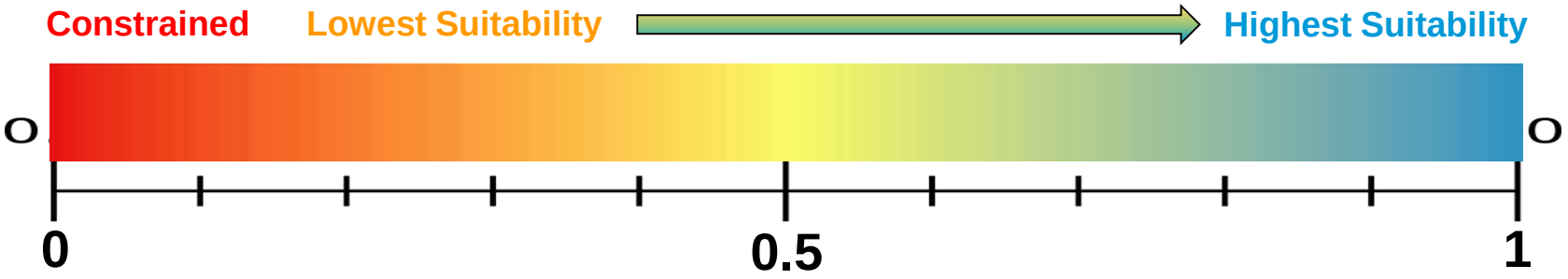
NCCOS

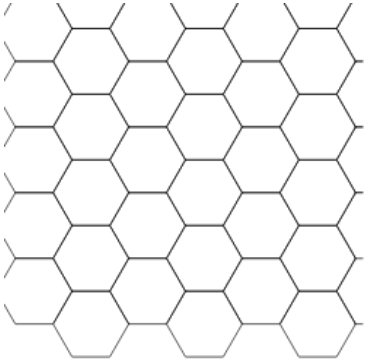


Data Categories

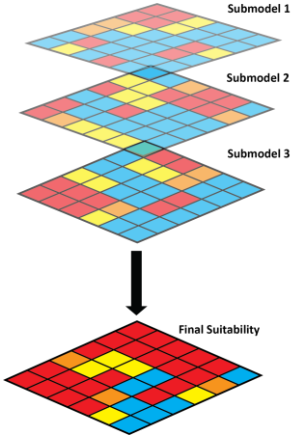
1. ***Boundaries:*** state and federal boundaries, locations for existing military activities, area management plans, and designated parks and refuges, etc.
2. ***Oceanographic Data:*** meteorological and oceanographic conditions, water depth and slope (bathymetry), buoys and weather forecasting stations, etc.
3. ***Natural Resources:*** information about protected species and sensitive habitats
4. ***Cultural and Social Resources:*** cultural, subsistence, personal and traditional/historical uses of the environment, demographic data, shipwrecks, etc.
5. ***Fisheries:*** areas where both commercial and sport fisheries are active
6. ***Industries and Navigation:*** locations of vessel traffic, key industrial considerations (shipping lanes, pipelines, submarine cables), and outfalls, etc..

Step 4 - Build the suitability model





Scores are assigned to each grid cell for each separate data layer

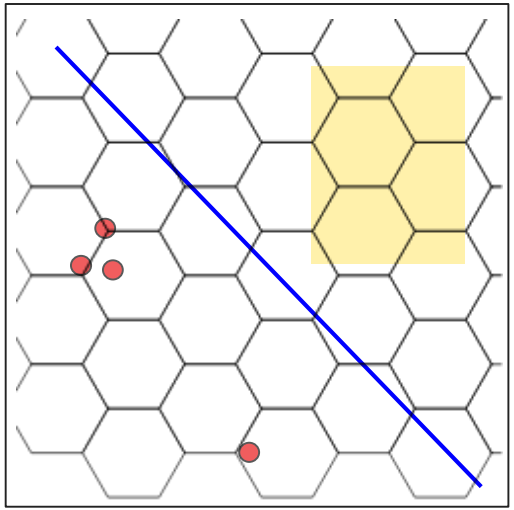


Cumulative scores for each submodel are calculated

The geometric mean of all submodels is calculated to determine final suitability

Step 4 - Build the suitability model

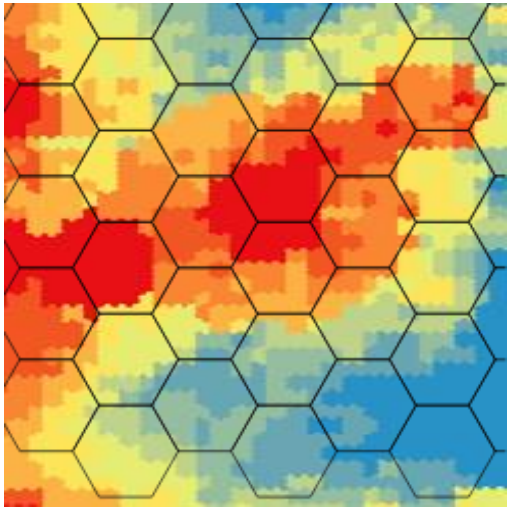
Categorical data



Presence/Absence Data
0 - 1 score is assigned to grid cell if that data layer is present inside of cell or overlaps the cell

Examples: Deep-sea corals, Cables, Pipelines, Wrecks, Military restriction areas, Hardbottom

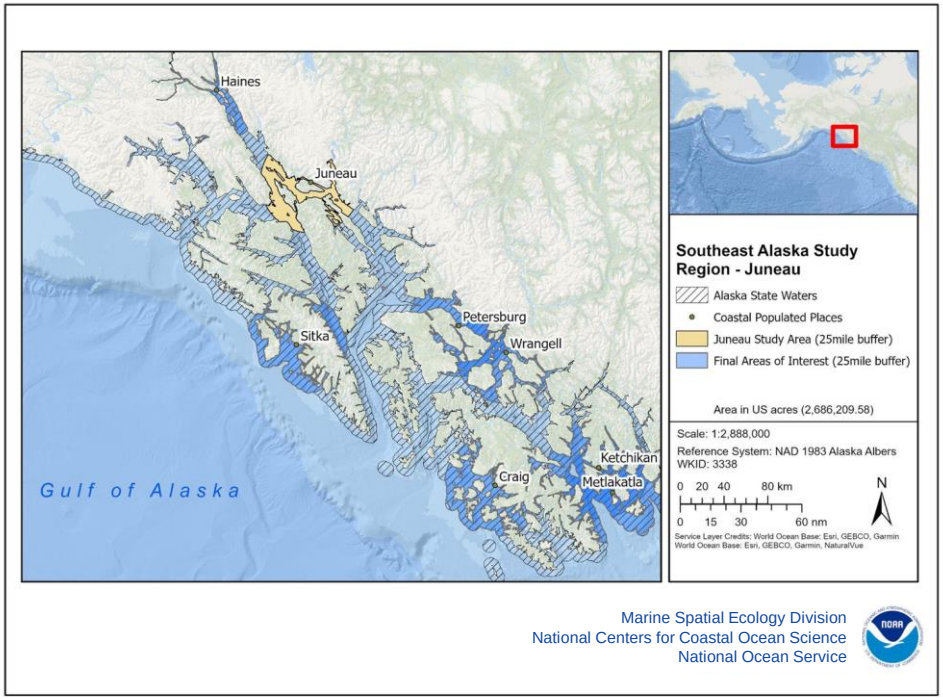
Continuous data



Raster Data - Changes over space and time
Data are rescaled 0 - 1 using a z-membership function (ZMF)

Examples: Fishing effort, Vessel traffic, Protected resources

Step 4 - Build the suitability model



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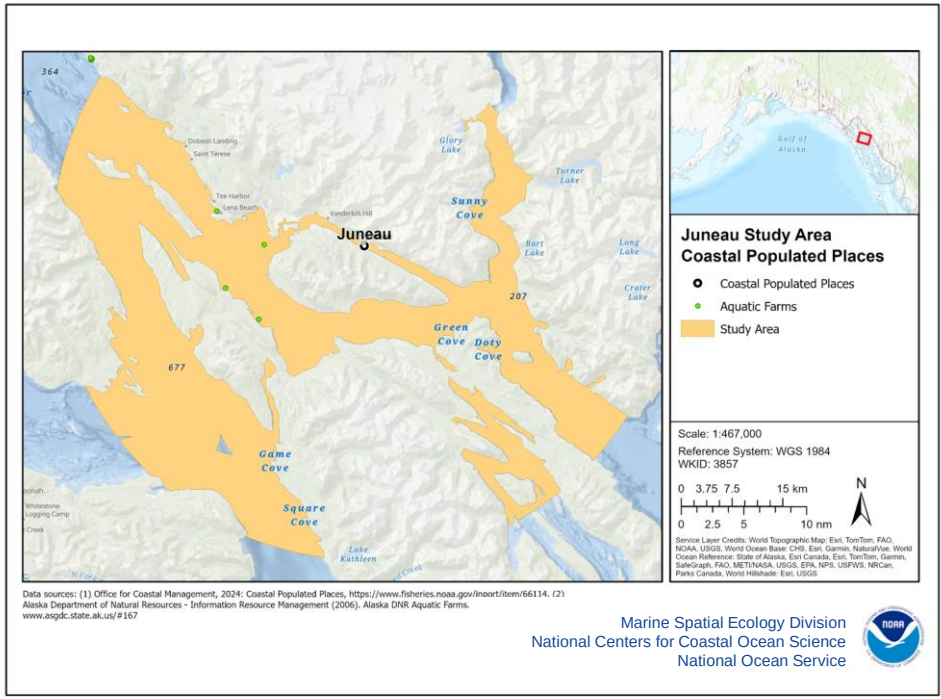

Data sources: (1) Office for Coastal Management, 2024: Coastal Populated Places, https://www.fisheries.noaa.gov/inport/item/66114. (2) Alaska Department of Natural Resources - Information Resource Management (2006). Alaska DNR Aquatic Farms. www.asgdc.state.ak.us/#167

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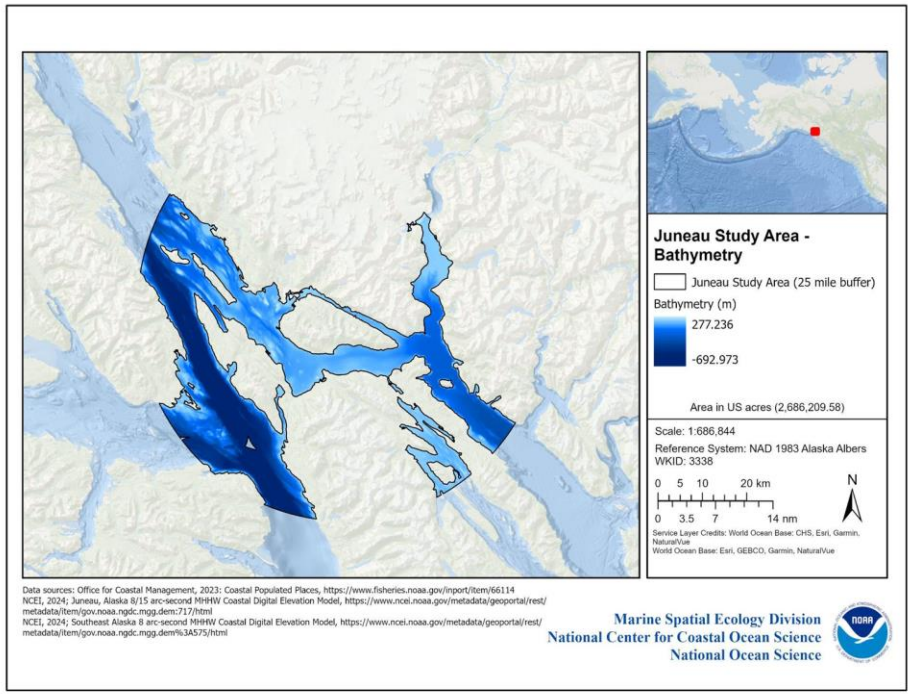
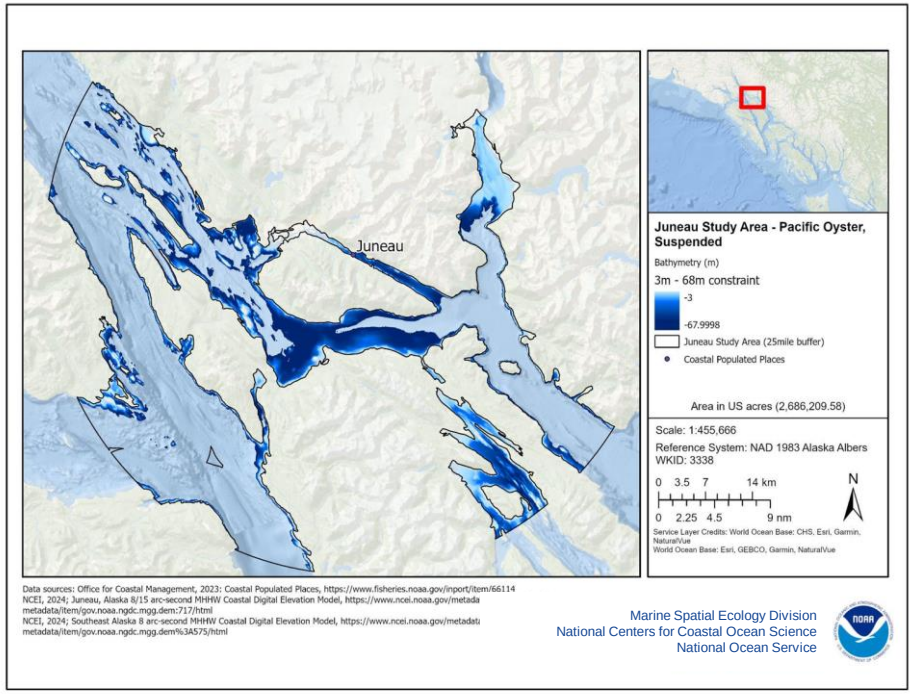
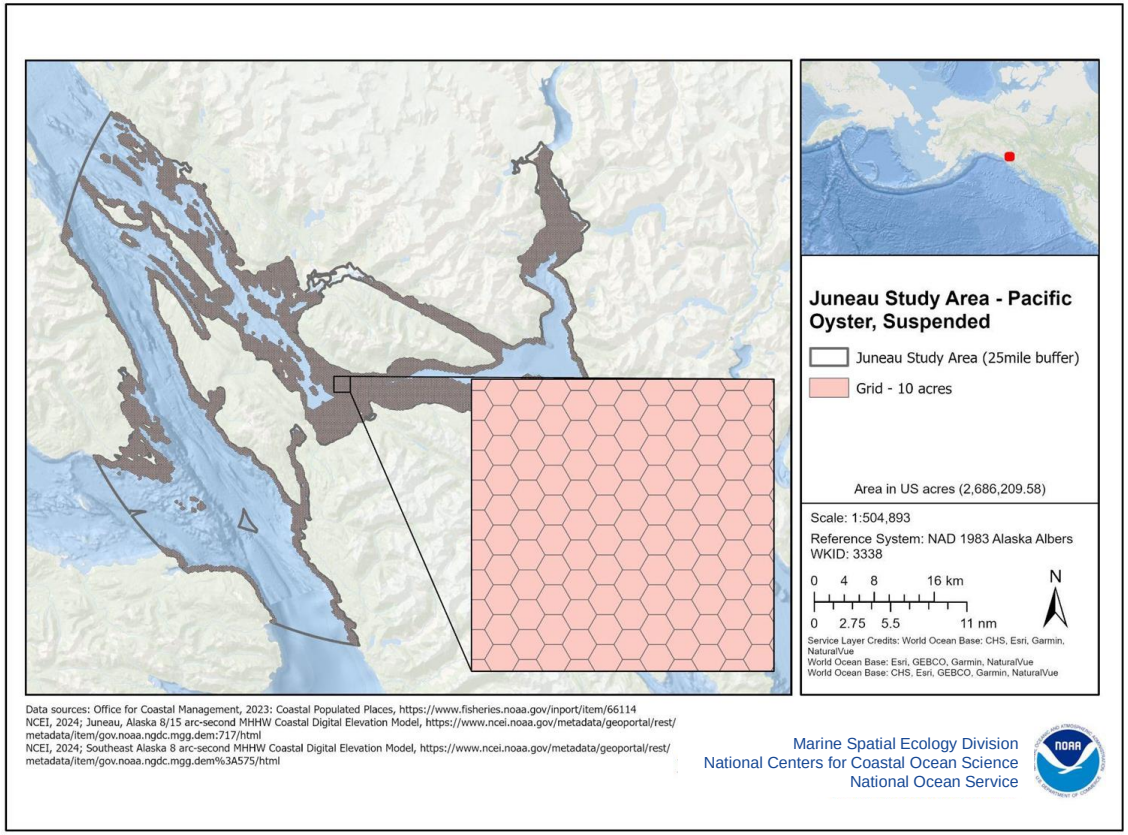
Step 4 - Build the suitability model





Step 4 - Build the suitability model



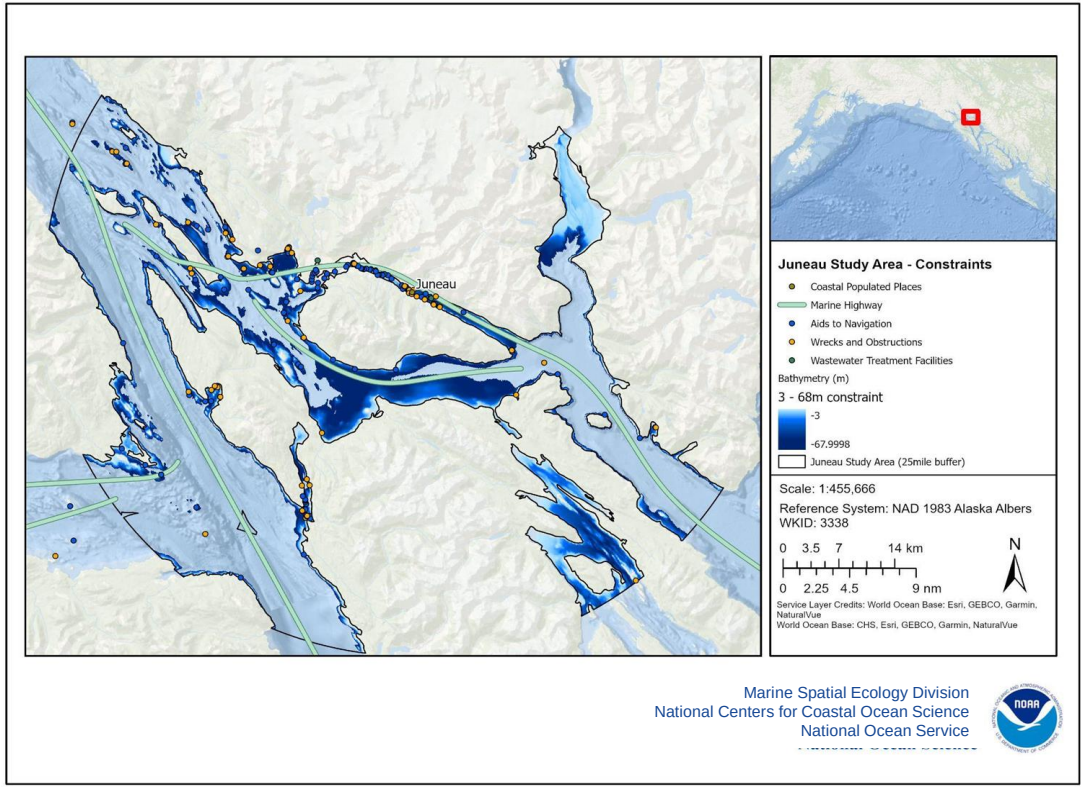
10 acre grid cell size

Within 25 miles of Coastal Populated Town

9-220’ depth

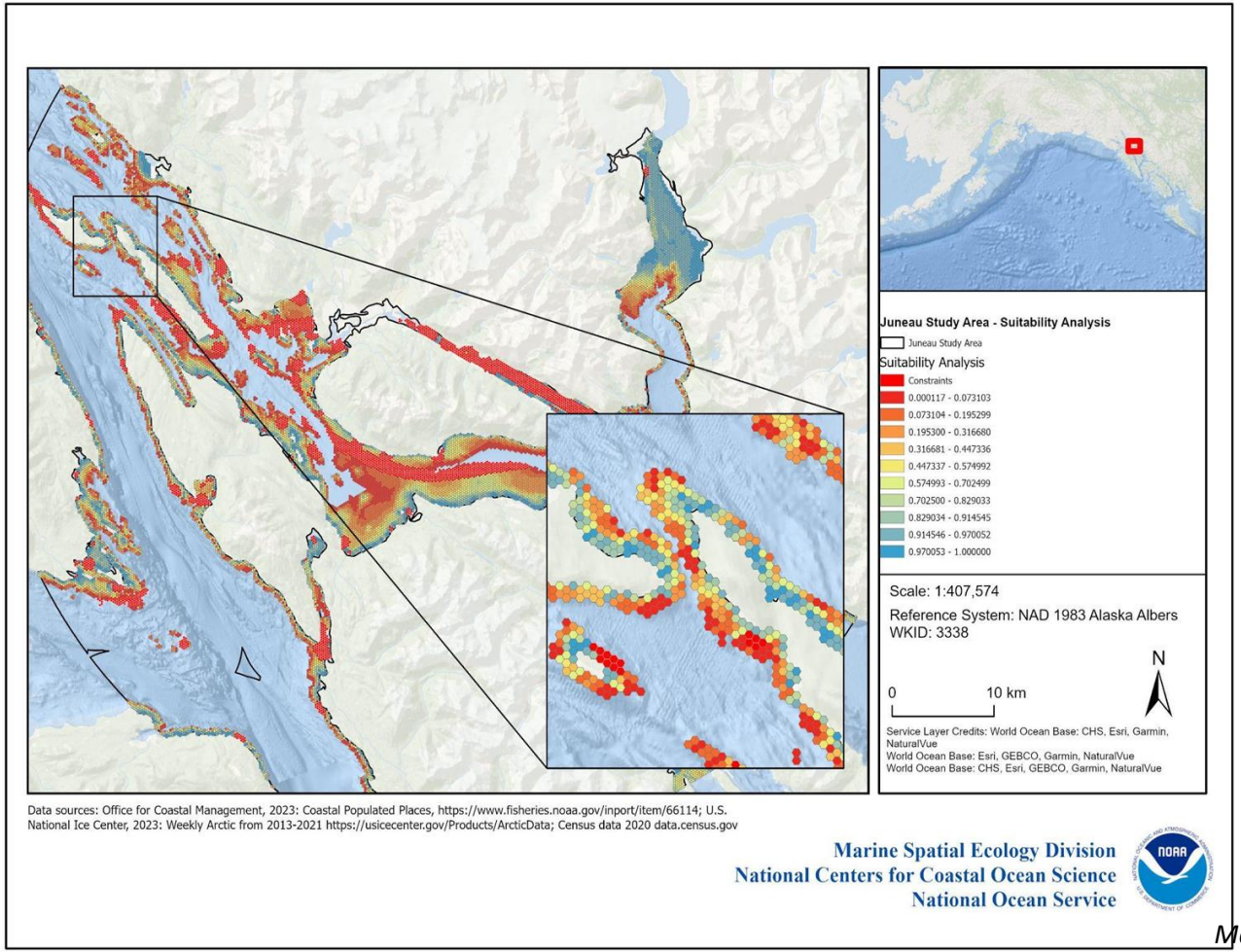
Step 4 - Build a suitability model

Datasets	Scoring
Wrecks and obstructions - 152.4 m setback	0
Aids to navigation - 500 m setback	0
Ocean disposal sites - 500 m setback	0
Marine Highways - 500 m setback	0
Anadromous streams	0
Bathymetry (3 m to 68 m)	linear
AIS Vessel Traffic 2021	continuous



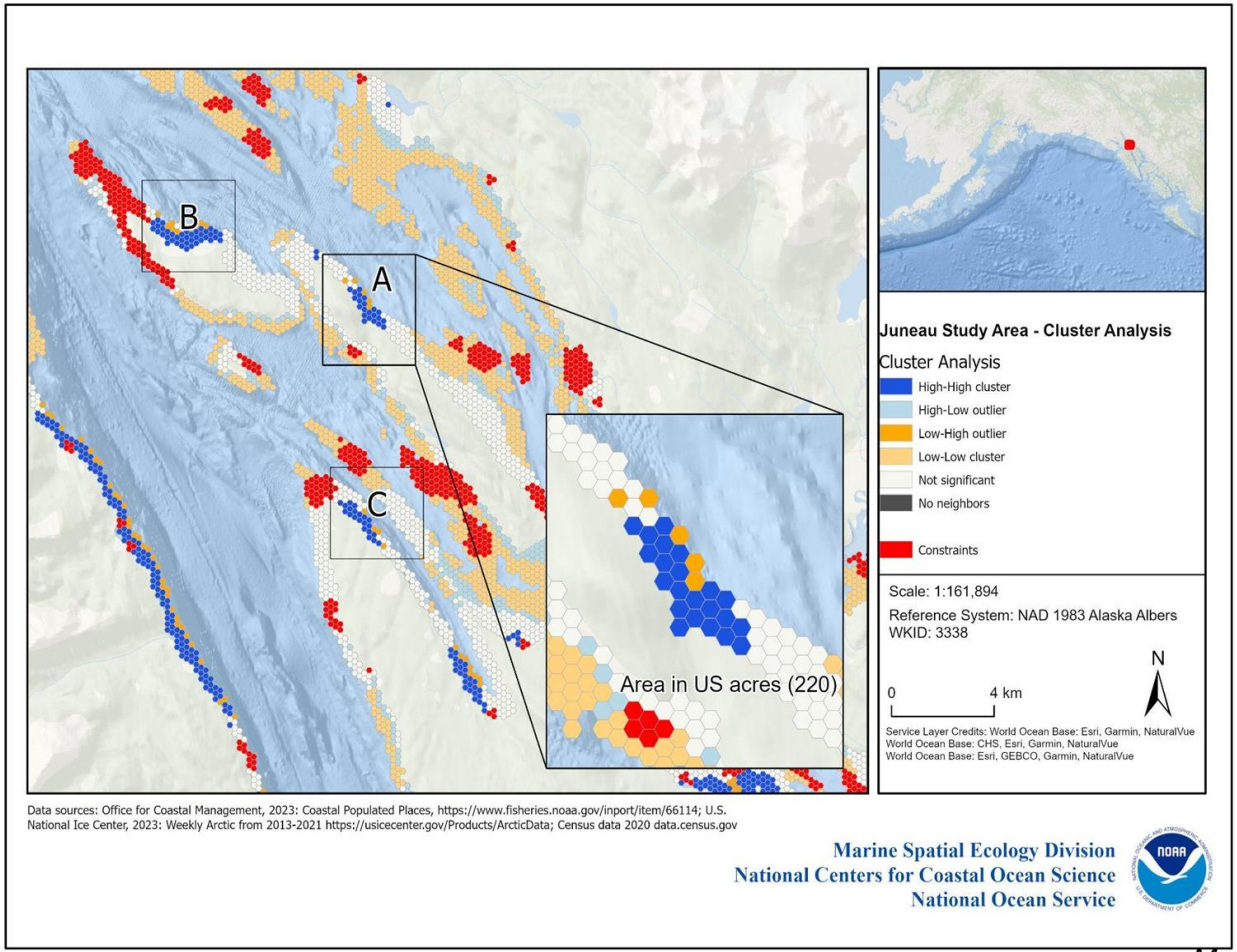
Maps for demonstration only

Step 4 - Build a suitability model



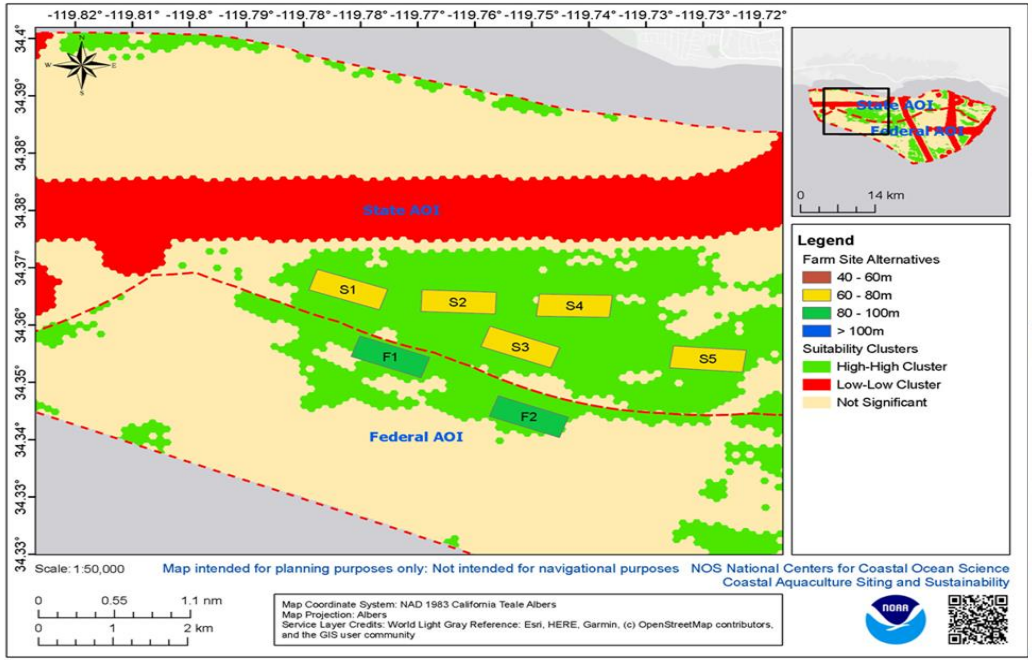
Maps for demonstration only

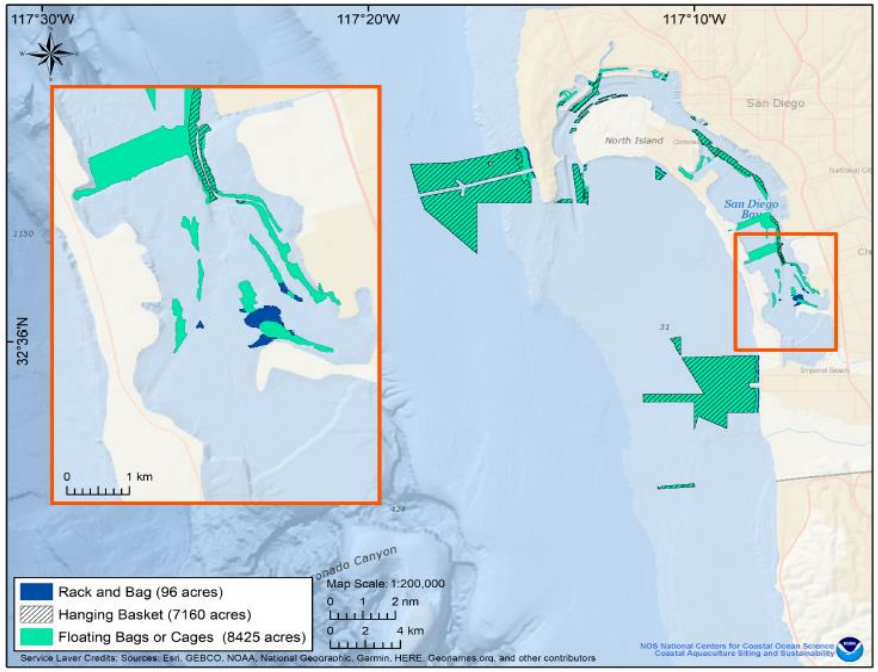
Step 5 - Cluster groups of highest scoring cells within study a



Maps for demonstration only

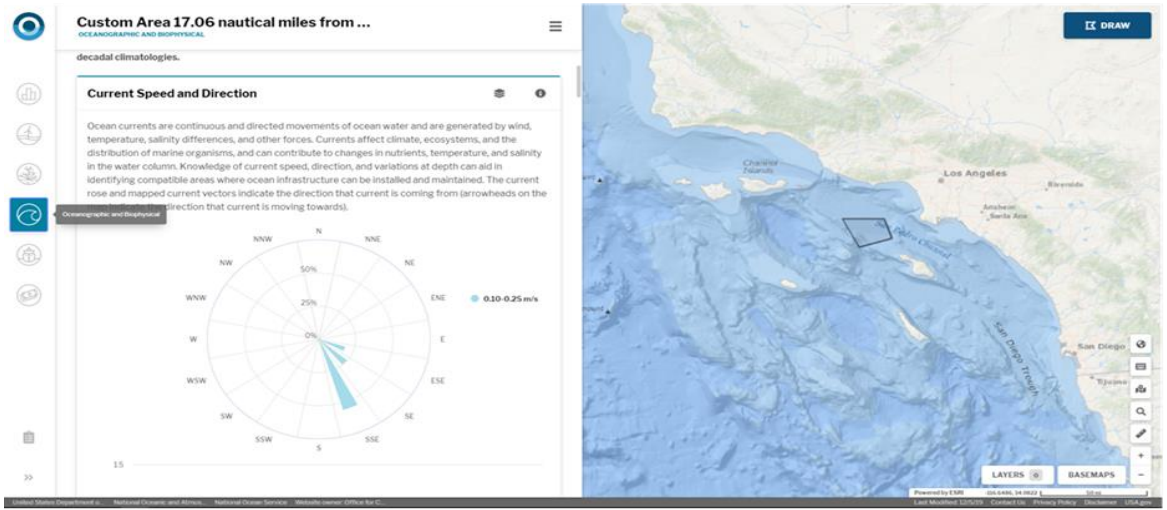
Step 6 - Identify best options within study areas

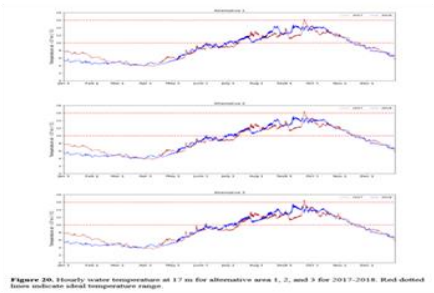




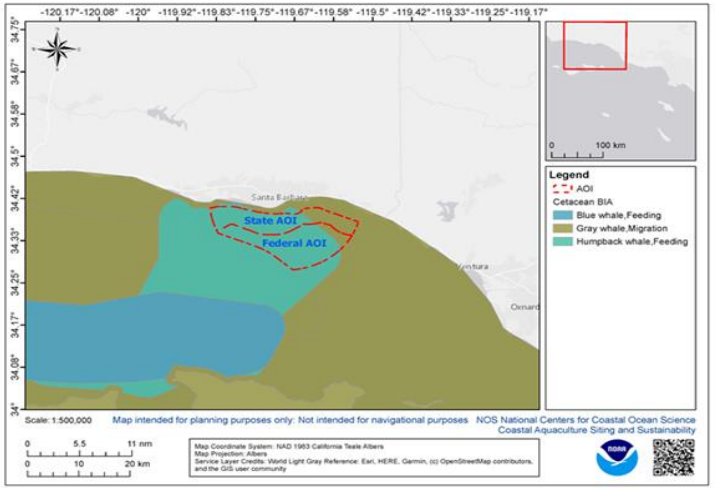
Maps for demonstration only

Step 7 - Characterize options





Parameter	Location A	Location B	Location C	Location D
Area (Acres)	390	1630	2640	840
Mean Suitability Score	0.86	0.86	0.84	0.86
Mean Bathymetry	44	39	37	33
Mean Slope	0.30	0.43	0.71	0.47
Mean Sediment grain size	0.29	0.68	0.43	0.32
Wave Height hours	50	54	68	58
Temperature hours	3933	3924	3908	3904
Mean VMS Traffic (2009-2019)	23	24	17	12
AIS 2017 Other vessel transits per 1 ha	1.66	2.34	1.90	2.84
AIS 2017 Tug/Tow vessel transits per 1 ha	0.24	0.13	0.33	0.45
AIS 2017 Tanker vessel transits per 1 ha	0	0	0	0
AIS 2017 Pleasure vessel transits per 1 ha	3.66	1.37	1.43	4.04
AIS 2017 Passenger vessel transits per 1 ha	1.03	5.50	3.66	0.57
AIS 2017 Cargo vessel transits per 1 ha	0	0	0	0
AIS 2017 Fishing vessel transits per 1 ha	0.43	1.21	2.38	0.50
Closest Port	Rye Harbor	Hampton Harbor	Newburyport	Newburyport
EPA Region	1	1	1	1
Coast Guard District	1	1	1	1
US Army Corps of Engineers District	New England	New England	New England	New England
Unexploded Ordnance	Yes	No	No	No



Maps for demonstration only

Step 8 - Develop report/atlas

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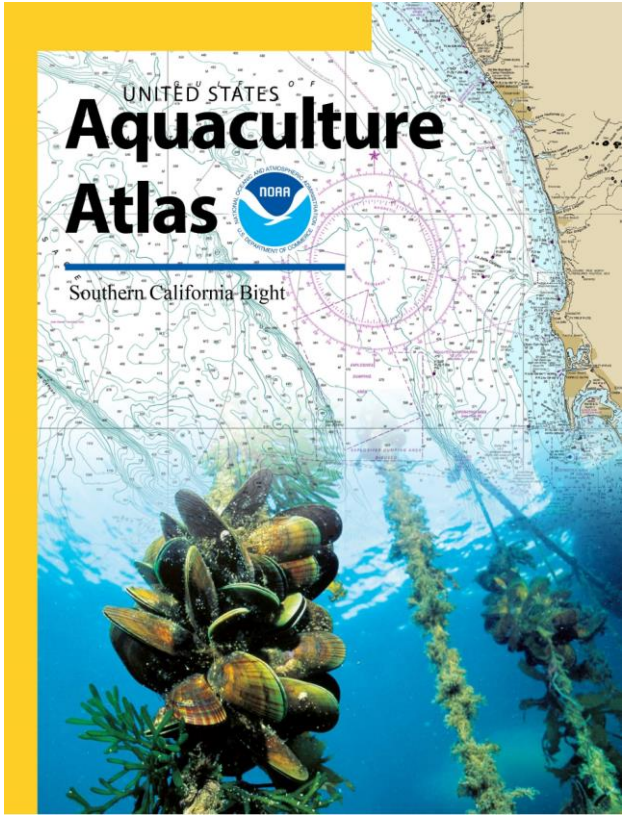
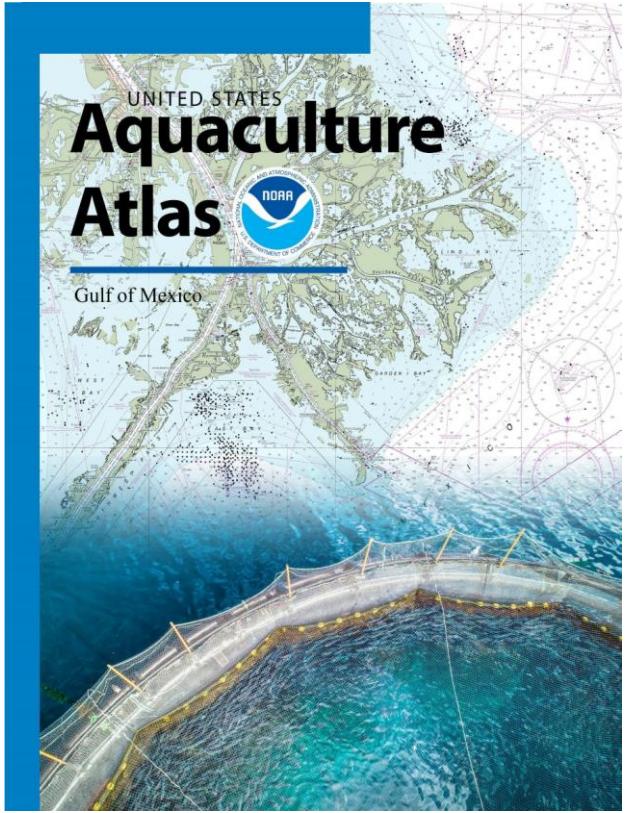




Cultural and Social Resources

- Coastal infrastructure/working waterfronts
- *Personal use and Subsistence fisheries
- *Traditional/ceremonial or important recreational uses of marine or coastal areas (dive sites, sandbars, transit routes to those areas, etc)
- *Underwater and/or coastal actual or possible archeological sites

***Limited current spatially explicit public information**

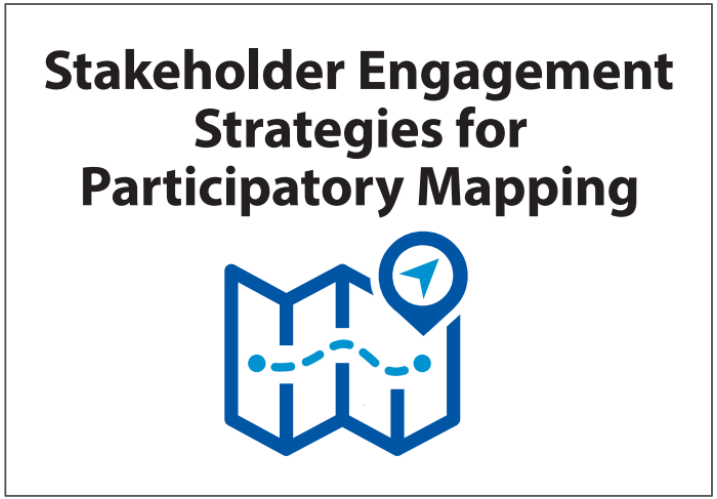
Partnerships for participatory mapping and engagement

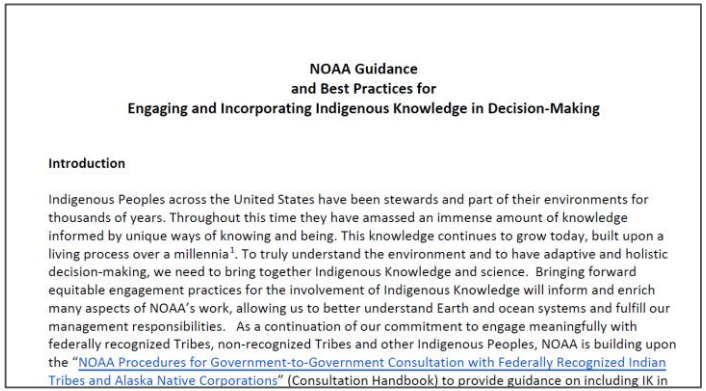
Bring on project partners to:

- Help NOAA address subsistence and tribal data scarcity
- Identify methods to support integration of indigenous and traditional knowledge into analysis
- Identify data sharing protocols that do not compromise data sensitivity and sovereignty
- Identify tribal resources need for participation
- Identify existing spatial data sets

Use participatory mapping opportunities to:

- Develop new datasets to support spatial analysis





NOAA Guidance
and Best Practices for
Engaging and Incorporating Indigenous Knowledge in Decision-Making

Introduction

Indigenous Peoples across the United States have been stewards and part of their environments for thousands of years. Throughout this time they have amassed an immense amount of knowledge informed by unique ways of knowing and being. This knowledge continues to grow today, built upon a living process over a millennia[1]. To truly understand the environment and to have adaptive and holistic decision-making, we need to bring together Indigenous Knowledge and science. Bringing forward equitable engagement practices for the involvement of Indigenous Knowledge will inform and enrich many aspects of NOAA's work, allowing us to better understand Earth and ocean systems and fulfill our management responsibilities. As a continuation of our commitment to engage meaningfully with federally recognized Tribes, non-recognized Tribes and other Indigenous Peoples, NOAA is building upon the "NOAA Procedures for Government-to-Government Consultation with Federally Recognized Indian Tribes and Alaska Native Corporations" (Consultation Handbook) to provide guidance on including IK in