

HABITAT AREAS OF PARTICULAR CONCERN (HAPC) PROPOSAL

Date: January 9, 2004
Name of Proposer: NOAA Fisheries
P.O. Box 21668
Juneau, Alaska 99802

Please check applicable box (es):	
<input type="checkbox"/>	GOA Groundfish FMP
<input checked="" type="checkbox"/>	BSAI Groundfish FMP
<input type="checkbox"/>	Scallop FMP
<input checked="" type="checkbox"/>	BSAI Crab FMP
<input type="checkbox"/>	Salmon FMP

Title of Proposal:
Aleutian Island Coral Gardens

Summary Statement of the Proposal.

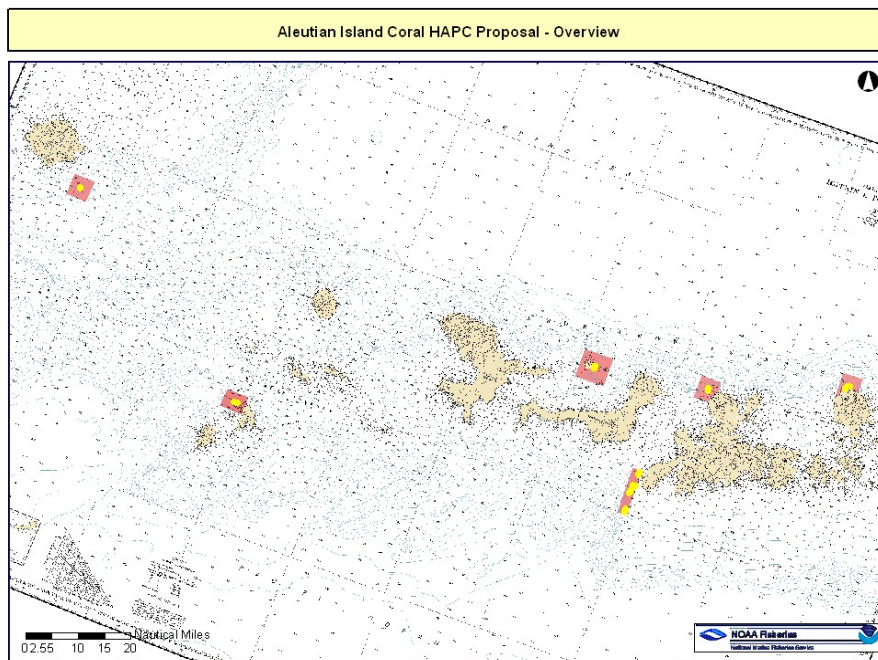
(Provide a brief paragraph concisely describing the HAPC.)

In 2002, NMFS/AFSC scientists discovered unique habitat in the central Aleutian Islands (AI) consisting of high density "gardens" of corals, sponges, and other sedentary invertebrates. This habitat had not been previously documented in the North Pacific Ocean or Bering Sea and appeared to be particularly sensitive to bottom disturbance. Garden habitat was observed *in situ* with the DSV *Delta* and was found at 9 of 40 dive locations. Garden habitat was found at depths between 150 and 365 m and can be distinguished from other coral habitat in that the seafloor is completely covered (100%) by sedentary invertebrates including hydrocorals, gorgonian corals, alcyonacean corals, and sponges (predominantly demosponges). These gardens are similar in structural complexity to tropical coral reefs with which they share several important characteristics including a rigid framework, complex vertical relief, and high taxonomic diversity. This HAPC proposal recommends 6 areas of unique coral garden habitat in the AI for consideration. Each area warrants consideration as an HAPC based on the specific characteristics of each site. The proposal suggests management measures to lessen impacts to coral gardens within the HAPC area.

HAPC Site Location.

(Specific latitude/longitude or geographic reference. Include NOAA Chart number, if known.)

Six HAPC Proposal Areas in the Central Aleutian Islands. *(Note: Attached to the end of the proposal are six AI Coral Garden HAPC areas.)*



HAPC Site	Latitude	Longitude	NOAA Chart Number
Adak Canyon	51.6500° N	177.0500° W	16471
	51.6500° N	177.0000° W	
	51.5000° N	177.0000° W	
	51.5000° N	177.0500° W	
Bobrof Island	51.9600° N	177.4900° W	16467
	51.9600° N	177.3300° W	
	51.8600° N	177.3300° W	
	51.8600° N	177.4900° W	
Cape Moffet	51.9300° N	176.8800° W	16767
	51.9300° N	176.8100° W	
	51.9700° N	176.7800° W	
	52.0000° N	176.7800° W	
	52.0000° N	176.8800° W	
Great Sitkin	52.1600° N	176.2100° W	16741
	52.1600° N	176.1000° W	
	52.1100° N	176.1000° W	
	52.0800° N	176.2100° W	
Semisopochnoi Island	51.8900° N	179.8900° E	16460
	51.8900° N	179.7800° E	
	51.8100° N	179.7800° E	
	51.8100° N	179.8900° E	
Ulak Island	51.3700° N	178.9800° W	16460
	51.4300° N	179.1000° W	
	51.3700° N	179.1000° W	
	51.4300° N	178.9800° W	

Habitat Type and Species Information.

(Identify of any habitat type(s) and FMP species of the HAPC.)

Habitat types for each proposed HAPC site are described in the table below.

HAPC site	General habitat features
Adak Canyon	Large, geologically active submarine canyon on the south end of Adak Strait. Eastern flank of the canyon is rich in corals and other sedentary invertebrates. The area contains a series of small coral gardens on the island arc slope between about 150m and 300m in depth.
Bobrof Island	Area contains series of small coral gardens on the island arc slope between 150-250 m depth.
Cape Moffet	Area contains series of small coral gardens on the island arc slope between 150-250 m depth.
Great Sitkin	Area contains series of small coral gardens on the island arc slope between 300-365 m depth.
Semisopochnoi Island	Submarine volcano, Amchixtam Chaxsxii, whose summit is at ~115 m MLLW, with an overall height of 580 m. Lava flows extend 14 km downslope to the southeast of the volcano. Strong currents were observed. Coral garden habitat exists on the west side of volcano from the summit to a depth of 365m. AFSC scientists suspect the entire undersea volcano is likely covered with coral garden habitat. Large Primnoa spp. colonies present at 365m indicate that the submarine volcano may not have erupted within the last several hundred years.
Ulak Island	Area contains series of small coral gardens on the island arc slope between 150-250 m depth.

The following FMP species were observed *in situ* at each proposed HAPC location.

Common name	Scientific name	Adak Canyon	Bobrof Island	Cape Moffet	Great Sitkin	Semisopochnoi Island	Ulak Island
Pacific cod, adults	<i>Gadus macrocephalus</i>	✓	✓	✓		✓	✓
Atka mackerel, adults	<i>Pleurogrammus monopterygius</i>	✓	✓	✓		✓	✓
Rougheye rockfish, adults	<i>Sebastes aleutianus</i>	✓	✓	✓	✓	✓	✓
Rougheye rockfish, adult gravid females	<i>Sebastes aleutianus</i>	✓	✓	✓		✓	✓
Rougheye rockfish, juvenile	<i>Sebastes aleutianus</i>				✓		
Northern rockfish, adults	<i>Sebastes polyspinis</i>	✓	✓	✓		✓	✓
Northern rockfish, juveniles	<i>Sebastes polyspinis</i>	✓	✓	✓		✓	✓
Sharpchin rockfish, juveniles	<i>Sebastes zacentrus</i>	✓	✓	✓		✓	✓
Pacific ocean perch, adults	<i>Sebastes alutus</i>	✓	✓	✓	✓	✓	✓
Pacific Ocean Perch, juveniles	<i>Sebastes alutus</i>	✓	✓	✓		✓	✓
Dusky rockfish, adults	<i>Sebastes ciliatus</i>	✓	✓	✓		✓	✓
Shortraker rockfish, adults	<i>Sebastes borealis</i>	✓	✓	✓	✓	✓	✓
Shortraker rockfish, juveniles	<i>Sebastes borealis</i>				✓		
Shortspine thornyhead, adults	<i>Sebastolobus alascanus</i>	✓	✓	✓	✓	✓	✓
Sablefish, adults	<i>Anoplopoma fimbria</i>				✓		
Golden king crab, adults	<i>Lithodes aequispina</i>	✓	✓	✓		✓	✓
King crab	(Unidentified)				✓		
Skate	(Unidentified)	✓	✓	✓	✓	✓	✓
Sculpin	(Unidentified)	✓	✓	✓	✓	✓	✓
Squid	(Unidentified)	✓	✓	✓	✓	✓	✓

Describe How the Proposal Addresses the each of the 4 HAPC Considerations (50CFR 600.815):

The IMPORTANCE of the ecological function provided by the habitat.

Detailed ecological studies have yet to be conducted, but coral gardens likely serve many important ecological functions. Several FMP species, at a variety of life stages have been observed in coral gardens. Gardens likely provide important structural habitat for many of these species, including refuge for juvenile life stages of several species. The presence of gravid females may indicate that the habitat may provide important breeding or spawning habitat for at least one FMP species. Additionally, these gardens provide an elevated feeding platform for many sessile invertebrates and may provide a source of prey for species of fish that aggregate there. Furthermore, coral gardens may play an important role in meso-scale nutrient cycling due to the presence of large numbers of filter feeding corals and sponges.

The extent to which the habitat is SENSITIVE to human-induced degradation.

Many of the species that comprise garden habitat are fragile, long-lived, and slow-growing. Some species are very susceptible to damage from anything that contacts them and will likely require long periods of time to recover from disturbance. The proposed HAPCs would protect known coral garden habitats from disturbance to ensure their continued availability as refuge habitat for rockfish and other species.

Whether, and to what extent, the activity STRESSES the habitat type.

Garden habitat is generally located on high relief bedrock and coarse talus in areas where mobile bottom-contact fishing gear (e.g. otter trawls) is seldom used. There was evidence, however, of disturbance consistent with that caused by longlining and pot longlining. Some derelict longline gear was observed in garden habitat.

The RARITY of the habitat type. (*Mandatory requirement*).

Garden habitat is uncommon and may be unique to the Aleutian Islands. Prior to its discovery during the 2002 Aleutian submersible surveys coral gardens had not been documented during hundreds of submersible dives conducted by AFSC scientists in Alaskan waters. It has not previously been reported in the North Pacific Ocean and was observed at only 9 of 40 dive locations in the central Aleutian Islands during the 2002 surveys. Coral gardens may be a unique habitat for high latitudes.

Statement of Purpose and Need.

(Provide a specific purpose as why the HAPC needs to be identified.)

Coral gardens are a new discovery to the North Pacific Ocean and may be a unique habitat in high latitude marine ecosystems. Many of the species that comprise coral garden habitat are fragile, long-lived, and slow-growing. Some species are very susceptible to damage from anything that contacts them and will likely require long periods of time to recover from disturbance.

Objectives of the Proposal.

(List objectives specific to the identification of the HAPC.)

The objective of this proposal is to conserve the integrity of coral gardens, protect them from incidental disturbance caused by bottom contact fishing gear, and to provide sanctuary to FMP species documented in these areas.

Describe any Proposed Solutions to Achieve These Objectives.

(How might the problem be solved? Include concepts of methods of measuring progress towards those objectives.)

Protection of these six sites should include restrictions for unnatural sources of disturbance (such as bottom tending fishing gear and anchorage). Currently, these sites have been minimally affected by fishing disturbance. Protection of these coral gardens from disturbance by bottom contact gear will provide sanctuary for the corals, invertebrates, and FMP species that use that habitat. Archived submersible video documentation will allow scientists to monitor the establishment of new colonies and recovery of damaged habitat, and document changes in the abundance of FMP species over time.

Describe any Proposed Management Measures for the HAPC.

(Include specific objectives, if appropriate.)

All Council-managed fishing would be prohibited within the proposed HAPCs. The NOAA Fisheries Office of Law Enforcement notes that management measures will be much easier to enforce if all fishing is prohibited in the proposed HAPCs. Other potential management options might include requiring VMS on all vessels, or prohibiting vessels from carrying bottom contact gear in these areas.

The spatial configuration and size of the proposed buffer area at each site is based on the need to protect documented, coral garden areas from stray fishing gear. Note that *in situ* observations were not made throughout the entire proposed buffer area to confirm the overall extent of the gardens. However, adjacent areas are likely to contain similar coral garden habitats given similarity in depth strata, substrate type, and current regime in those areas.

HAPC Site	Latitude	Longitude	NOAA Chart Number	Area*
Adak Canyon	51.6500° N 51.6500° N 51.5000° N 51.5000° N	177.0500° W 177.0000° W 177.0000° W 177.0500° W	16471	9 nm by 2 nm (18 nm ²)
Bobrof Island	51.9600° N 51.9600° N 51.8600° N 51.8600° N	177.4900° W 177.3300° W 177.3300° W 177.4900° W	16467	5.5 nm by 5.5 nm (30.2 nm ²)
Cape Moffet	51.9300° N 51.9300° N 51.9700° N 52.0000° N 52.0000° N	176.8800° W 176.8100° W 176.7800° W 176.7800° W 176.8800° W	16767	4.2 nm by 3.8 nm (16.0 nm ²)
Great Sitkin	52.1600° N 52.1600° N 52.1100° N 52.0800° N	176.2100° W 176.1000° W 176.1000° W 176.2100° W	16741	4.0 nm by 4.0 nm (16 nm ²)
Semisopochnoi Island	51.8900° N 51.8900° N 51.8100° N 51.8100° N	179.8900° E 179.7800° E 179.7800° E 179.8900° E	16460	4.0 nm by 4.0 nm (16.0 nm ²)
Ulak Island	51.3700° N 51.4300° N 51.3700° N 51.4300° N	178.9800° W 179.1000° W 179.1000° W 178.9800° W	16460	4.5 nm by 3.4 nm (15.3 nm ²)

*Details of HAPC Areas:

- Area will ensure protection of observed coral gardens and possibly protect extensions of these gardens not observed.
- Areas will also protect the habitat from stray fishing gear and siltation caused by gear coming into contact with soft sediments in adjacent areas.
- AFSC scientists suspect that the entire island arc slope of Bobrof Island is rich in corals and sponges given their *in situ* observations and the steep bathymetry.
- The larger Adak Canyon area is necessary to encompass four submersible dives with observed garden habitat.

The proposed HAPC buffer areas overlap with Steller sea lion critical habitat (listed rookeries and haulouts), and therefore are subject to existing restrictions on fishing. The proposed HAPC areas are based on the presence of unique coral garden habitat, and not because they are already subject to existing fishery closures.

The proposed HAPC's include habitats in state waters. For these proposed HAPC's to be effective, any new management measures developed by the Council would need to be coordinated with the Board of Fisheries to develop corresponding state regulations.

The proposal identifies the HAPC's as rectangular areas to facilitate management and enforcement. Circles or other shapes are possible for the buffer areas around the identified habitat features, but NOAA Fisheries Office of Law Enforcement recommended using rectilinear areas to facilitate enforcement.

Identify any Expected Benefits to Habitat or FMP species.

(Include specific information regarding a species life history stage, if known.)

These proposed areas would be protected from existing or potential degradation from bottom fishing activities. These thick, living substrate areas are highly diverse in species composition, vulnerable to damage, provide complex habitat features for several FMP species in various life history stages.

Identify Fishery, Stakeholders, and/or Communities, which may Benefit from the Proposed HAPC.

(Who may or may not benefit from the proposal? Include any known or indirect socioeconomic costs.)

Observer records indicate that a moderate amount of long line and bottom trawl fishing occurs in the immediate area of the proposed closure areas. Additionally, some pot long lining for golden king crab (*Lithodes aequispina*) occurs in the vicinity of a few of the proposed HAPC's. Fisherman presently using these gear types within the proposed HAPC will be displaced from these small areas, but presumably they would benefit in future years by enhanced recruitment of targeted species within the HAPC's.

Support Data or Information Sources

(List data sources, information resource, literature, and any traditional knowledge for the proposal.)

Heifetz, J. 2002. Coral in Alaska: distribution, abundance, and species associations. *Hydrobiologia* 471: 19-27.

Witherall, D. and C. Coon. 2001. Protecting gorgonian corals from fishing impacts. Pages 117-125 In: J. H. Willison et al. (eds.) 2001. *Proceedings of the First International Symposium on Deep-Sea Corals*, Ecology Action Centre and Nova Scotia Museum, Halifax, Nova Scotia.

Unpublished Data and Reports in Progress

Stone, R. P. and P. W. Malecha. 2003. Deep-sea coral habitat in the Aleutian Islands of Alaska. In: 2nd International Symposium on Deep-Sea Corals, Abstracts Volume. Erlangen, Germany. p.81.

Stone, R. P. In preparation. Depth distribution, fisheries interactions, and habitat of deep-sea corals in the Aleutian Islands of Alaska.

Reuter, Rebecca and Spencer, Paul. 2002 Rockfish Slope Habitat Investigations in the Aleutian Islands. Alaska Fisheries Science Center, Resource Ecology and Fisheries Management, Seattle, Washington. (206) 526-4249.

Send Completed Proposals to or Request Further Information from:

North Pacific Fishery Management Council (<http://www.fakr.noaa.gov/npfmc/default.htm>)

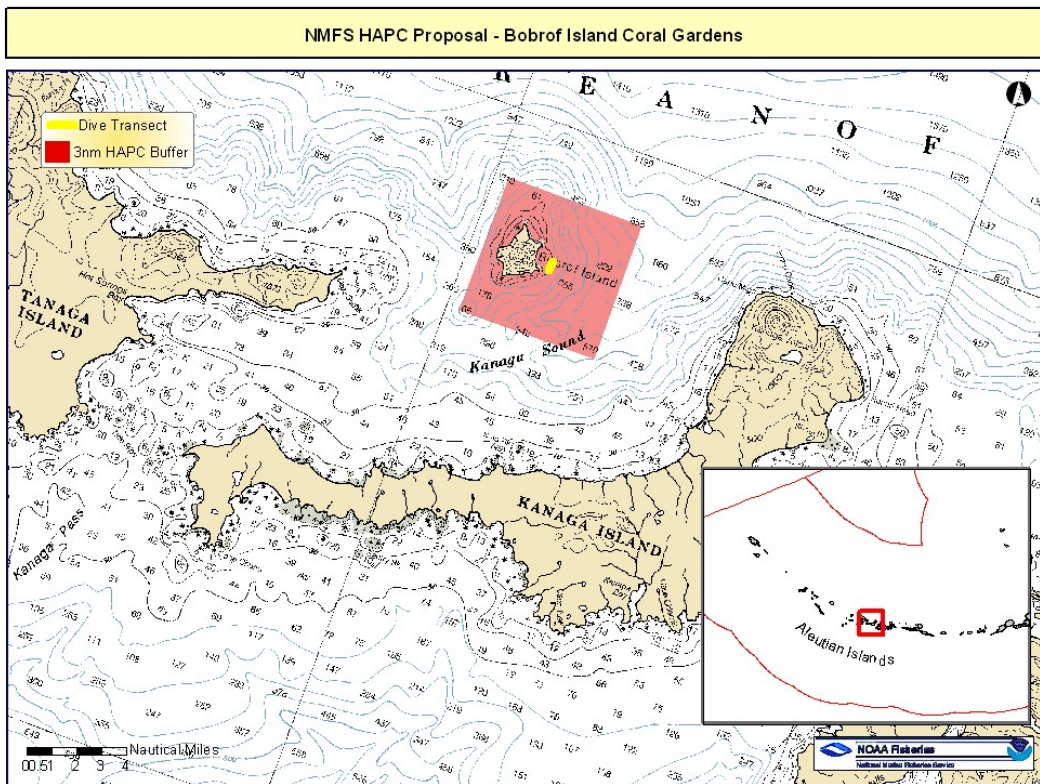
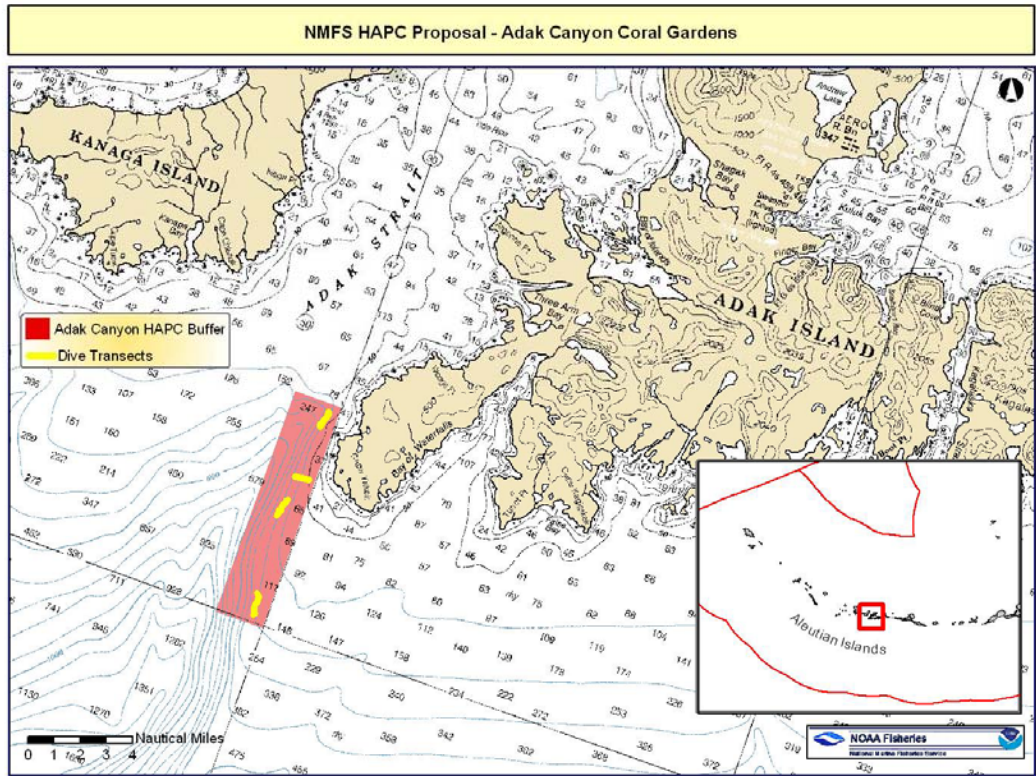
Attn: Cathy Coon

605 W 4th Ave Suite 306

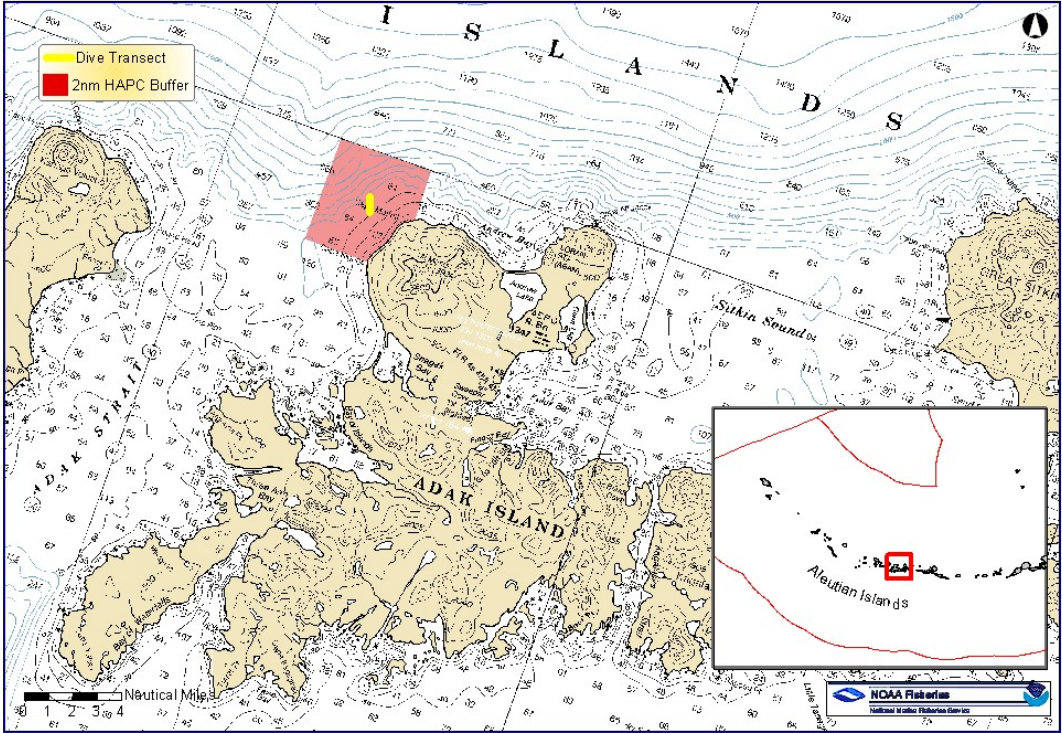
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(907) 271-2809

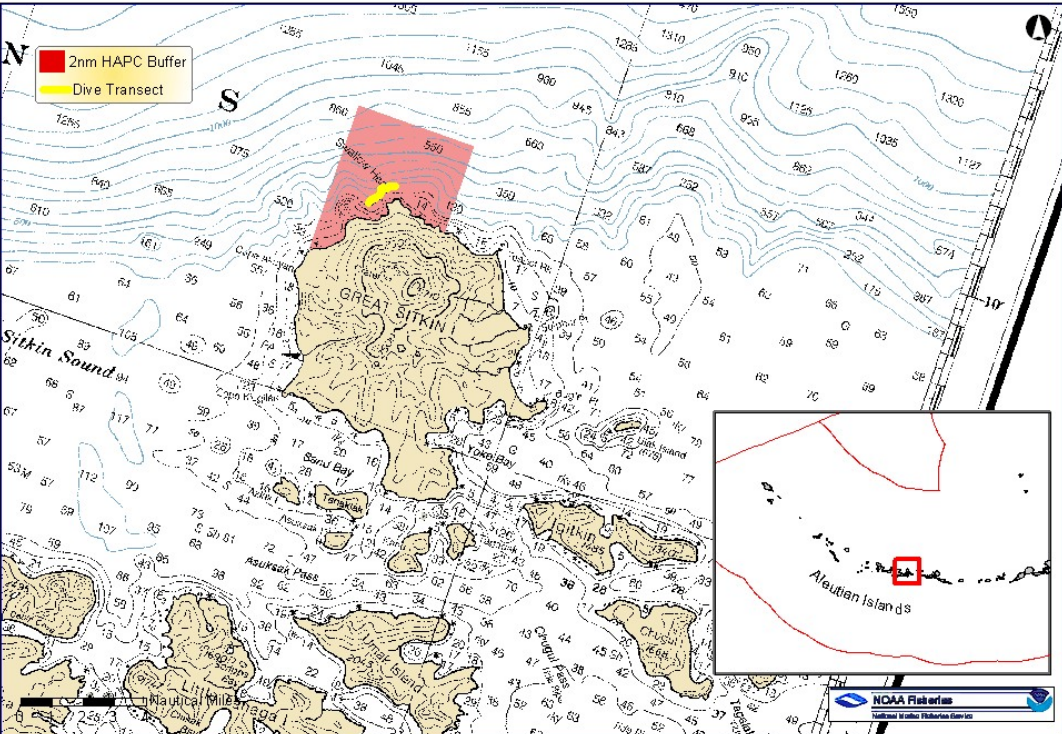
AI Coral Garden HAPC Sites



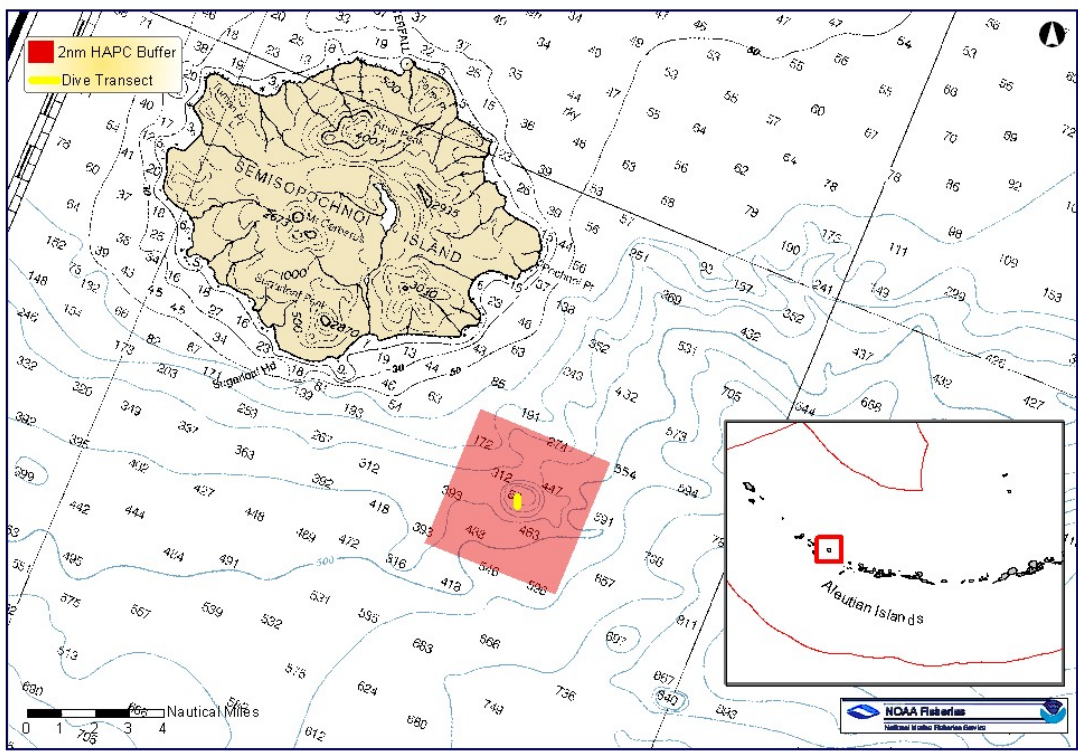
NMFS HAPC Proposal - Cape Moffett Coral Gardens



NMFS HAPC Proposal - Great Sitkin Coral Gardens



NMFS HAPC Proposal - Semisopochnoi Island Coral Gardens



NMFS HAPC Proposal - Ulak Island Coral Gardens

