

Habitat Areas of Particular Concern (HAPC)

Skate Nurseries

Discussion Paper and Initial Alternatives

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*North Pacific Fishery Management Council
National Marine Fisheries Service, Alaska Region*

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1 Introduction

1.1 Background

Habitat Areas of Particular Concern (HAPC) are geographic sites that fall within the distribution of Essential Fish Habitat (EFH) for the Council's managed species. HAPCs are areas of special importance that may require additional protection from adverse effects. EFH provisions provide a means for the North Pacific Fishery Management Council (Council) to identify HAPCs (50 C.F.R. 600.815(a)(8)) within Fishery Management Plans (FMP). Specific to fishery actions, HAPCs are areas within EFH that are rare and are either ecologically important, sensitive to disturbance, or may be stressed. The Council has a formalized process identified within its FMPs for selecting HAPCs. Under this process, the Council periodically considers whether to set priority habitat type. If so, the Council initiates a call for proposals for HAPC candidate areas that meet the specific priority habitat type. Members of the public, organizations, Federal, and other agencies may submit HAPC proposals. Sites proposed under this process are then sent to the Council's Plan Teams for scientific review to determine ecological merit. Council and agency staff also review proposals for socioeconomic and management and enforcement impacts. This combined information is then presented to the Scientific and Statistical Committee (SSC), Advisory Panel (AP), and Council, which may choose to select HAPC proposals for full analysis and implementation. The Council may also modify proposed HAPC sites and management measures during its review, and request additional stakeholder input and technical review.

1.2 2010 HAPC proposal process

At the April 2010 meeting, the Council set a habitat priority type—**skate nurseries**—and issued a call for proposals in conjunction with the completion of the EFH five-year review process. The Request for Proposals (RFP), which included the Council's recently adopted revised evaluation criteria, was announced in the Federal Register (75 FR 21600) and Council newsletter. The proposal period opened April 26, 2010 and continued until August 31 (extended from August 16). Council staff initially screened proposals received to determine consistency with the habitat priority type, HAPC criteria (rarity is required), and for general adequacy and completeness. At the October 2010 meeting, staff presented the preliminary report of the screening results to the AP and the Council. The Council provided its selection of a proposal to forward on for further analysis for skate nursery HAPCs from the Alaska Fisheries Science Center (AFSC). At their fall 2011 meeting, the joint Groundfish Plan Teams reviewed the HAPC proposals for ecological merit; the plan teams' recommendations are included in this discussion and within a matrix based on the Council's revised evaluation criteria.

For the February 2011 meeting, Council and agency staff have reviewed the Council's selected proposal for socioeconomic and enforcement and management considerations concerns. Note that the Ecosystem and Enforcement Committees are scheduled to take up the discussion paper during the February 2011 meeting and will report out to the Council. A schedule outlining the steps involved in the current HAPC proposal cycle is provided in Table 1.

Table 1. The current HAPC proposal cycle

| Steps in the HAPC process | Timeline |
|--|---------------------------------|
| Council identifies and sets HAPC priorities; criteria tables adopted. | April 2010 |
| FR Notice of Request For Proposals (RFP); period to submit opens and closes. | April 26 – August 31 (18 weeks) |
| Council staff initial screening for adherence to priorities and completeness | September 2010 |
| Plan Teams initial review for ecological merit | September 2011 |
| Council review and decision on proposals to forward for further review | October 2010 |
| Council staff review of proposals for socioeconomic considerations | October 2010 – January 2011 |
| <i>Ecosystem and Enforcement Committees conduct review and provide comments</i> | <i>February 2010 (*)</i> |
| <i>Council decision on whether to formulate proposals into an amendment analysis</i> | <i>February 2011 (*)</i> |
| Analysis occurs | February – May 2011 (T) |
| Initial review of amendment analysis | June 2011 (T) |
| Final action on amendment analysis | October 2011 (T) |

(*) = The Council is currently at this step of HAPC proposal cycle.

(T) = Tentatively scheduled.

1.3 History

In 2005, the Council formally revised its approach to designate HAPCs by adopting a site-based approach. To date, there has been one complete HAPC nomination process, initiated in October 2003. As a result, the Council adopted several new HAPCs at the February 2005 meeting. Twenty sites in the Gulf of Alaska and Aleutian Islands of seamounts and high density coral areas were identified as HAPCs. To protect these sites and eliminate the environmental impacts due to fishing, the Council prohibited fishing in these areas using gear types that contact the bottom. These sites and measures became effective in June 2006. In 2007, the Council considered initiating another HAPC process but, after taking public comment, the Council determined there was no pressing need to set priorities at that time.

1.3.1 HAPC recommendations for Council consideration

Since the Council last initiated a HAPC proposal cycle in 2003-2004, there have been various occasions on which the Council has considered HAPC priorities or candidate sites. In some cases, the Council has directed that these priorities or areas be brought forward for their upcoming consideration of whether to re-initiate a HAPC proposal cycle (Tables 2 and 3). During the 2003-2004 HAPC proposal cycle, six proposals were received not meeting the Council's designated priorities at that time that identified three deepwater canyons: two in the Bering Sea and one in Prince William Sound. The April 2004 Council minutes note these proposals were removed from that analysis, but were placed on hold for further consideration under the next HAPC cycle. The proposals would be considered "alive" and need not be re-submitted, though it was expected the submitters would participate in updating and revising their proposals.

In 2006-2007, the Council considered whether to initiate a HAPC proposal process during discussion related to Bering Sea Habitat Conservation. The Council reviewed the previous HAPC cycle process and decided a review of process was needed to address plan team and public concerns. Some of these concerns included: how the Council assembles proposed HAPC nominations; the need to ensure uniformity in the information provided in the proposals; and the need for better definitions of the HAPC criteria, such as the requirement for 'rarity' of candidate HAPCs. The Council formally revised the HAPC process to address many of these concerns and asked the SSC to provide further definition of the HAPC criteria prior to the next Council call for proposals. Following discussion through an SSC, agency, and plan team workgroup, the Council adopted the SSC's recommended revisions to the HAPC criteria.

Secondly, the Council considered whether to set a HAPC priority for Bering Sea skate nurseries and/or Bering Sea canyons. The AFSC was contacted in October 2006 and asked to produce a white paper summarizing current scientific information on Canyons and skate nursery areas in the eastern Bering Sea. The Council received the paper at the December 2006 meeting (AFSC 2006). Following public input and pan team and SSC review, the Council determined that it would be premature to initiate a call for proposals because there were no identified conservation concerns at that time.

Table 2. Recommendations on HAPC priorities from previous Council discussions

| HAPC discussion at the Council | Priority types forwarded for consideration in 2010 |
|---|---|
| 2006-2007 discussion of Bering Sea Habitat Conservation | skate nurseries (in the Bering Sea) deepwater canyons (Pribilof and Zemchug) |

In June 2009, the Council considered whether to set priorities for identifying HAPCs and to re-solicit for HAPC proposals. The Council opted to postpone this decision pending the completion of its five-year EFH review. Recommendations on HAPC priorities were identified as a result of the EFH five-year review for individual species:

Table 3. Recommendations on HAPC priorities from the individual species reviews

| Council FMP | Species | Recommendation |
|---|---------|---|
| Bering Sea/Aleutian Islands (BSAI) Groundfish | Skates | The Council may want to consider closing known skate nurseries to fishing activity; the Council has discussed this in the past. <i>Note, this recommendation was originally made by the individual species author, and forwarded by the BSAI Groundfish Plan Team.</i> |

1.3.2 Current HAPC consideration

At the April 2010 meeting, the Council set a HAPC habitat priority type for skate nurseries and issued a call for proposals. Two proposals were received identifying six HAPC candidate sites. The Council selected one proposal to forward on for further review: Plan Team assessment using evaluation criteria the Council adopted at its April meeting; Council staff review for socioeconomic considerations; and Committee review for enforcement and management considerations. The Council determined that the second HAPC proposal received was subsumed within the AFSC proposal, which was more extensive.

The HAPC proposal forwarded on for further review and analysis, as well as the 2010 Request for Proposals and the Application package, is posted on the Council website at: www.alaskafisheries.noaa.gov/npfmc. Applicants were asked to specify: the geographic delineation of the proposed HAPCs; the purposes and objectives; any proposed management measures for the site(s); and effects that would be expected from such measures.

1.4 Changes to HAPC cycle timing

At the June 2009 meeting, the Council considered whether to set priorities for identifying HAPCs and re-solicit for HAPC proposals. The Council opted to postpone its decision pending the completion of the EFH five-year review. The Council chose to synchronize the timing of the two actions so that the results from the EFH 5-year review can be considered in setting HAPC priorities and the proposal cycle that might result. At the April 2009 meeting, the SSC recommended that the Council consider permanently changing the timeline for consideration of HAPC priorities and candidate sites to align it with the EFH 5-year review. The Council moved to initiate an amendment to revise the timeline associated with the HAPC process to coincide with the EFH 5-year review, which is incorporated into an EFH Omnibus Amendment analysis tentatively scheduled to go before the Council for Initial Review at the February 2011 meeting. Additionally, a HAPC cycle may be initiated at any time by the Council.

2 Summary of skate nursery HAPC candidate areas

Six skate nursery sites in the BSAI management area are proposed for HAPC designation (Figures 1 and 7). The localized nature of these nursery sites makes them ideal for spatial management: they are very small areas, are static, and have distinct boundaries. The sites have been identified by NMFS scientists. Skates are elasmobranch fishes that reproduce by depositing a small number of large eggs protected by proteinaceous egg cases directly on the seafloor in localized nursery areas. Skate embryos develop inside these cases, a process that can take over three years. During this development period, egg cases provide crucial protection to the fragile embryo and yolk mass. In the Bering Sea, skate species deposit their eggs in highly localized areas known as nursery sites (Figure 5). Skate populations are characterized by low fecundity and slow growth rates, suggesting a bottleneck during early life history stages. As such, areas supporting large numbers of egg cases are extremely important and warrant special consideration. This is especially true because of evidence of extended skate embryonic development (>3 years) and expected vulnerability of egg cases to removal or disturbance by bottom fishing activity.

Because skates are long-lived, slow to mature, and produce few offspring, it is essential to reduce or eliminate the potential for damage to these areas. The primary protection measures proposed are to prohibit the use of any fishing gear contacting the bottom within each nursery site and remotely monitor the sites. Providing some protection for the six nursery areas delineated is intended to reduce the mortality of skate eggs due to fishing activity and to limit the disruption adult skate reproduction.

2.1 Habitat protected

The benthic habitat proposed for protection is used by skates as nursery sites, where egg deposition and embryo development take place. Known nursery sites are small in area and occur at the head of undersea canyons. Of the six skate nursery sites identified in the HAPC proposal, all are on sandy to muddy bottoms with flat topography along the shelf-slope interface between 150 m and 400 m in depth and are associated with slope canyon areas and areas of significant upwelling (Figure 4).

2.2 FMP species protected

The proposed HAPC areas will protect species in the BSAI skate (*Rajidae*) complex. The nursery sites identified in this proposal primarily contain eggs from three species: Alaska skate (*Bathyraja parmifera*), Aleutian skate (*Bathyraja aleutica*), and Bering skate (*Bathyraja interrupta*), although other skate species may also benefit from these areas – some of these nursery sites contain eggs from additional skate species. Therefore the AFSC HAPC proposal may be said to seek protection for the skate complex as a whole.

2.3 Geographic delineation

Six skate nursery HAPC sites in the EBA are proposed (Figures 1 and 7). Each site has been studied and mapped using research bottom trawls to determine the density of egg cases, the extent of the nursery sites, mortality sources to young skates, and distinguishing abiotic features of the site that may define essential fish habitat. The exception is the “Pribilof” site, which was mapped using an autonomous underwater vehicle (AUV) equipped with a high-resolution camera. Additional AUV mapping work has been performed at several of the other sites listed, but those data were not used to delineate the boundaries of the proposed area. At each site, the spatial extent of bottom trawls containing >1,000 egg cases/km² was established (Table 4). The boundary lines were then snapped to the nearest minute of latitude or longitude away from the center of the nursery area (Figure 6). This snapping creates a buffer region to account for the possibility of additional eggs in unsampled areas. Using whole minutes also allows for a simpler boundary line that will be easier to discern by vessels and policymakers. See Figures 8-12.

The six proposed HAPC areas constitute a total of 280 km², or 0.05% of the estimated area for the eastern Bering Sea. The proportion of skate egg cases protected by the proposed HAPC areas is estimated to be 10%-20% for Alaska skate, and potentially larger for Aleutian and Bering skate due to their lower population size.

Table 4. The table below contains information regarding each site including the bounding latitude and longitude lines and the area contained within the proposed boundaries.

| Site | Predominant skate species | Depth of max. egg density (m) | Maximum egg density (eggs/km ²) | Area of proposed HAPC (km ²) | Boundaries of proposed HAPC areas (°N latitude or °W longitude) | | | |
|--|---------------------------|-------------------------------|---|--|---|--------|---------|---------|
| | | | | | North | south | west | east |
| 1. Bering 1 | Alaska | 145 | 800,406 | 63 | 54°53' | 54°49' | 165°46' | 165°38' |
| 2. Bering 2 | Aleutian | 380 | 62,992 | 60 | 54°38' | 54°33' | 165°45' | 165°34' |
| 3. Bristol | Bering | 156 | 6,188 | 47 | 55°21' | 55°17' | 167°40' | 167°34' |
| 4. Pribilof | Alaska | 205 | 16,473 | 4 | 56°11' | 56°10' | 168°28' | 168°26' |
| 5. Zhemchug | Alaska | 217 | 610,064 | 11 | 56°57' | 56°54' | 173°23' | 173°21' |
| 6. Pervenets | Alaska, Bering, Aleutian | 316 | 334,163 | 95 | 59°28' | 59°22' | 177°43' | 177°34' |
| Total number of HAPC sites proposed at this time: 6 | | | | Total area proposed HAPC = 280 km² | | | | |

3 Proposed Purpose

The purpose of the proposed HAPC sites is to protect eggs and developing embryos of skate species in the eastern Bering Sea. A need to conserve rare and ecologically significant areas for managed fish exists and falls with the scope of the EFH mandate. Skate stock experts recommend that all fishing gear that makes contact with the bottom be restricted within these six skate egg case concentration areas (see Figures 2 and 3). This recommendation was discussed and forwarded for further Council consideration by the BSAI Groundfish Plan Team.

3.1 Council discussion and motion

At the October 2010 meeting:

Mr. Tweit moved, which was seconded by Mr. Henderschedt, that the HAPC proposal from the AFSC be moved forward for further consideration in the HAPC process. Mr. Tweit spoke to his motion, noting that the Council received two proposals and that both of them met the screening criteria, but the second was subsumed within the AFSC proposal, which is more extensive. Motion passed without objection (Council minutes).

3.2 Proposed draft Problem Statement

HAPCs are geographic sites that fall within the distribution of EFH for the Council's managed species. The Council has a formalized process, identified in its FMPs, for selecting HAPCs that begins with the Council identifying habitat priorities—here, skate nurseries. Candidate sites must be responsive to the Council priority, must be rare (defined as uncommon habitat that occurs in discrete areas within only one or two Alaska regions), and must meet one of three other considerations: provide an important ecological function; be sensitive to human-induced degradation; or be stressed by development activities.

The candidate HAPC sites will protect the eggs, egg casings, and developing embryos of skate species (Rajidae) in the eastern Bering Sea. Skates are elasmobranch fish that reproduce slowly by depositing eggs in small, distinct nursery sites on the seafloor. Embryo development takes multiple years, during which the eggs, egg casings, and embryos are highly susceptible to disturbance, damage, or destruction from fishing gear that contacts the seafloor. Fishing activity may also disrupt the activities of reproductive adult skates depositing eggs in nursery sites. Skates are long-lived, slow to mature, and produce few young; it is therefore important to protect skate nursery sites and limit the potential loss of skates in the early life stages.

4 Description of Action and Proposed Alternatives

Staff has developed the following alternatives for HAPC as proposed means to approach further analysis and possible implementation. **The Council may wish to finalize its preferred alternatives by selecting which HAPC areas and management measures to fully analyze.** Management measures are included for analysis in Alternative 3 only. Following below is the anticipated analytical approach to alternatives and management actions.

The Council's action is to decide whether to initiate a full analysis of the following alternatives and options.

4.1 Alternative 1 – No Action; status quo.

Even if the Council wishes not to go forward with analysis and implementation of the HAPC sites proposed, there may be in practice inadvertent avoidance actions undertaken by fishing vessels. Industry, generally, is aware of some locations of known skate nurseries. Skate nursery sites may be unattractive from a commercial fishing perspective: anecdotal evidence suggests that trawling in areas with high egg case density results in unwanted high egg case catches that are very difficult to remove from trawl nets.

Since the Council last initiated a HAPC proposal cycle in 2003-2004, there have been various occasions when the Council has considered HAPC priorities or candidate sites and has not moved forward with further analysis. In some cases, the Council has directed that these priorities or areas be brought forward for their upcoming consideration of whether to re-initiate a HAPC proposal cycle, which could coincide with the next EFH 5-year review or be initiated at any time by the Council at its discretion. Further, these proposals could be considered "alive," and thus would not need to be re-submitted, though it would behoove submitters to update and revise their proposals at that future time.

4.2 Alternative 2 – Identify skate nursery HAPCs without associated management measures

Under Alternative 2, the proposed HAPCs would only be designated and no new management measures would be implemented. As discussed above, there may be in practice actions undertaken by fishing vessels to avoid extensive bottom contact in the identified HAPC areas so as to avoid interference with fishing gear, though disturbance of reproducing skates and skate nurseries would still be permitted.

The following six areas are identified as skate nurseries for HAPC designation in the eastern Bering Sea (see Figures 1 and 7-12):

1. Bering 1, predominately Alaska skates, 63 km²;
2. Bering 2, predominately Aleutian skates, 60 km²;
3. Bristol, predominately Bering skates, 47 km²;
4. Pribilof, predominately Alaska skates, 4 km²;
5. Zhemchug, predominately Alaska skates, 11 km²;
6. Pervenets, predominately Alaska, Bering, and Aleutian skates, 95 km².

4.3 Alternative 3 – Identify and conserve skate nursery HAPCs.

Under Alternative 3, the six areas identified above as skate nurseries would be designated as HAPCs, incorporated into Alternative 3 by reference. In addition, conservation management measures would be implemented to prevent disturbance. The Council would identify management measures for full analysis in Alternative 3 (see Figures 1-3). Possible conservation measures are described below, as options to Alternative 3.

4.3.1 Options for conservation measures:

Several options are possible for HAPC management measures, including the following (50 C.F.R. 679 [71 FR 36694, June 28, 2006], EFH specific to gear and HAPC):

- A. All fishing gears prohibited;
- B. Mobile bottom fishing gears prohibited:
 - nonpelagic trawl, dredge, or dinglebar gears prohibited;
- C. Bottom contact fishing gear prohibited:
 - nonpelagic trawl, dredge, dinglebar, pot, or hook-and-line gears prohibited.

4.3.2 Additional conservation measures:

Additionally, the AFSC HAPC proposal recommends that:

- D. Skate egg case concentrations be monitored every 2 to 3 years using non-invasive research design, such as *in situ* observation; and
- E. The Council maintains skate conservation and skate egg concentration areas as a priority for EFH and HAPC management, and within Council and NMFS Research Plans.

5 Methodology for Proposal Evaluation

5.1 Evaluation Criteria

The Council has determined, through the HAPC identification process defined in the Council FMPs, that HAPCs in Alaska must be geographic sites that are rare AND must meet one of three other considerations: (1) provide an important ecological function; (2) be sensitive to human-induced degradation; or (3) be stressed by development activities. To provide guidance to proposers and reviewers about how proposals should be evaluated against these considerations, the Council adopted the following criteria:

1. In order to be considered rare, proposals should meet the criteria identified in a score of “2” or “3.”
2. For the other three factors, a score of “0” indicates that a proposal does not meet the particular consideration in question.

Table 5. Criteria to evaluate HAPC proposals for the Council’s consideration

| Score | HAPC Considerations | | | |
|----------|---|--|---|---|
| | Rarity | Ecological Importance | Sensitivity | Level of Disturbance (applicable to activities other than fishing) |
| | <i>The rarity of the habitat type.</i> | <i>The importance of the ecological function provided by the habitat</i> | <i>The extent to which the habitat is sensitive to human induced environmental degradation</i> | <i>Whether and to what extent development activities are or will be stressing the habitat type</i> |
| 0 | N/A | Habitat does not provide any ecological associations ¹ for managed species. | Habitat resilient (not sensitive). | Habitat not subject to developmental stress. |
| 1 | N/A | Habitat provides little structure ² or refugia. Foraging and spawning areas do not exist. | Habitat somewhat sensitive and quickly recovers; 1- 5 years. Effects considered temporary. | Habitat is or will be exposed to minimal disturbance from development. |
| 2 | Habitat uncommon, less frequent, and occurs to some extent in one or two of the Alaska regions: Gulf of Alaska, Bering Sea, Aleutian Islands, and Arctic. | Habitat exhibits structure and provides refugia or substrates for spawning and foraging. | Habitat sensitive and recovery is within 10 years. Effects considered temporary; may be more than minimal, however. | Habitat is or will be stressed by activities. Short term effects evident. |
| 3 | Habitat uncommon and occurs in discrete areas within only one Alaska region. | Complex habitat condition and substrate serve as refugia, concentrate prey, and/or are known to be important for spawning. | Habitat is highly sensitive and slow to recover; exceeds 10s of years. Effects will persist and more than minimal. | Habitat is or will be severely stressed or disturbed by development. Cumulative impacts require consideration from long term effects. |

5.2 Data Certainty Factor

The Data Certainty Factor (DCF) determines the level of information known to describe and assess the HAPC site. The DCF is used to determine if information is adequate prior to taking further action. Thus, a HAPC proposal with a high criteria score and a low DCF is to be highlighted (flagged) as a potential

¹ Ecological associations are those associations where the habitat provides for reproductive traits (i.e. spawning and rearing aggregations) and foraging areas; areas necessary for survival of the species. Associations include habitat complexity (features, structures, etc.) and habitat associations (provide refugia, spawning substrates, concentrate prey, etc.). Ecological importance is not to be applied across all waters or substrates.

² ‘Structure’ refers to three-dimensional structure.

candidate for HAPC and for further consideration as a research priority. In this HAPC cycle, the DCFs are scored according to their weight to further inform the criteria scores, i.e., a DCF of 3, 2, or 1.

Table 6. The Data Certainty Factor (DCF)

| Weight | Data Certainty |
|--------|---|
| 3 | Site-specific habitat information is available. |
| 2 | Habitat information can be inferred or proxy conditions allow for information to be reliable. |
| 1 | Habitat information does not exist; neither by inference nor proxy. |
| N/A | Research Priority Flag – as applicable. |

5.3 HAPC Proposal Rank

The HAPC ranking formula provides a score (sum of criteria scores) to provide information on the proposal as it is considered by the Council in the HAPC process. A highly ranked HAPC proposal with a DCF of 3 has a high criteria score AND information exists to assess the site. High scoring proposals with a low data certainty factor may warrant consideration as a research priority:

HAPC Proposal Rank = Additive HAPC Criteria Score supplemented with Data Certainty Factor

6 Plan Teams' Review of Proposal

At their September 2010 meeting, the Joint Groundfish Plan Teams reviewed the HAPC proposals for ecological merit. The joint plan teams found merit to the proposals, recognizing that there will always be some level of scientific uncertainty in the design of proposed HAPCs and how they meet the criteria and stated goals and objectives. The plan teams highlighted: low population growth rate of skates; the long development time for skate embryos, during which they are vulnerable to fishing gear that contacts the sea floor; and the relatively high level of production provided by small geographic areas of the eastern Bering Sea. The joint plan teams also encouraged allocation of research funds to monitor the effectiveness of the protection measures for skate embryos.

6.1 Evaluation of proposed sites using HAPC Criteria

Table 7. Criteria Evaluation

| | HAPC Considerations | | | |
|--|---|---|--|--|
| | Rarity | Ecological Importance | Sensitivity | Level of Disturbance (applicable to activities other than fishing) |
| | <i>The rarity of the habitat type.</i> | <i>The importance of the ecological function provided by the habitat</i> | <i>The extent to which the habitat is sensitive to human induced environmental degradation</i> | <i>Whether and to what extent development activities are or will be stressing the habitat type</i> |
| Score | 2 | 3 | 2 | 1 |
| Description | Habitat uncommon, less frequent, and occurs to some extent in one or two of the Alaska regions: Gulf of Alaska, Bering Sea, Aleutian Islands, and Arctic. | Complex habitat condition and substrate serve as refugia, concentrate prey, and/or are known to be important for spawning. | Habitat sensitive and recovery is within 10 years. Effects considered temporary; may be more than minimal, however. | Habitat is or will be exposed to minimal disturbance from development. |
| Proposed HAPCs' Responsiveness to HAPC Considerations | | | | |
| Responsiveness | The current state of knowledge indicates that skate nursery sites are very rare. The HAPC areas proposed here constitute only 280 km ² total, compared to an estimated area of 495,218 km ² for the eastern Bering Sea. | Skate nursery sites are distinct benthic habitat sites used for skate egg case deposition and embryo development. Nursery sites concentrate multiple cohorts of early life stages that are highly vulnerable, as well as reproductive adult skates. As a result, they are extremely important for the sustainability of skate populations and have great ecological significance. | Skate egg cases and the embryos they contain are sensitive to being dislodged, damaged, destroyed, or captured by fishing gear contacting the seafloor. Fishing also increases the mortality risk to reproductive adults in nursery sites. | Development is unlikely to affect the six nursery sites identified. |

6.2 HAPC Proposal Rank

The HAPC ranking formula provides a score (sum of criteria scores) to provide information on the proposal as it is considered by the Council in the HAPC process. The HAPC Proposal Rank is the additive HAPC Criteria Score supplemented with the Data Certainty Factor (DCF). DCF determines the level of information known to describe and assess the HAPC sites. Here, detailed and site-specific habitat information is available—in 2009, an AUV was used to map parts of four nurseries using a high-resolution camera (Hoff *et al* 2010).

Table 8. Evaluation of HAPC proposal

| HAPC Evaluation | Proposal Score |
|--------------------------|----------------|
| Rarity* | 2 |
| Ecological importance | 3 |
| Sensitivity | 2 |
| Stress / disturbance | 1 |
| Criteria Score Total (+) | 8 |
| Data Certainty Factor | 3 |
| HAPC Proposal Rank (=) | 11 |
| Research Priority Flag | N/A |

* Proposals must meet the rarity consideration.

6.3 Supporting Research

Much of the information used to support these HAPCs candidate areas comes from the AFSC and years-long research effort by Gerald R. Hoff, AFSC fishery biologist, to identify, map, and study skate nursery sites in the eastern Bering Sea. Hoff's work has been supported by NOAA EFH funds and by grants from the North Pacific Research Board.

Because skate nurseries are rare and small in area, identifying nursery areas has been a major challenge. Data regarding trawl catches of egg cases from research surveys and fishery observers are used to identify potential sites. Dedicated skate nursery research surveys using a bottom trawl and an adaptive sampling design were conducted to map the spatial extent of seven nursery sites and provide information regarding embryo size and viability, as well as egg case predation (Hoff 2010). Nursery sites are small in area and highly localized, with abrupt transitions from areas of high egg case density to areas with little or no egg cases (see Figures 4 and 5). They occur over a narrow depth range (from 150 m to 375 m) on generally flat sandy to muddy bottom, with little bottom structure or attached biota. Sites are associated with major undersea canyons and are generally located in the upper portion of canyon heads. Nursery sites are highly productive, with some sites possessing estimated egg densities of >100,000 eggs/km².

This work and earlier research (Hoff 2008) also identified the presence of multiple cohorts within nurseries and suggested that development time of Alaska skate embryos exceeded 3 years. This may be temperature dependent, a hypothesis supported by subsequent work where viable embryos were raised at different temperatures in the laboratory (Hoff *et al* 2010). This long development time substantially increases the exposure of the delicate embryos to predation and disturbance.

Skates, and elasmobranchs in general, are considered low-productivity species. This results in part from delayed sexual maturity (e.g., 9 years for the Alaska skate; Matta and Gunderson 2007) and low fecundity (e.g., Ebert 2005). Thus skates are considered to be "equilibrium" life history strategists: they put a large amount of energy into a small number of offspring and rely on the high survival rate of offspring for maintaining the strength of populations. This may be compared to species such as Pacific cod that

produce huge numbers of eggs, very few of which are likely to survive. This underscores the importance of skate early life survival and reducing the potential for damage to embryos in nursery sites.

AUV surveys conducted in 2009 were also used to obtain estimates of egg production in the four then-known Alaska skate nursery sites, which were then compared to estimates of egg and juvenile abundance from AFSC research surveys and stock assessments (Hoff 2010b). This work indicated that the known nursery sites probably are not sufficient to sustain the population of Alaska skates and that there are likely to be nursery areas yet to be identified.

7 Management and Enforcement Review of Proposal

7.1 Conservation measures proposed

There are several options offered to conserve skate nursery habitats from fishing effects. HAPC proposers recommend that all fishing gears be prohibited from contact with the seafloor in skate nursery HAPC sites (size dependent on concentration or density of skate egg cases). Conservation areas were offered as a range of conservation areas based upon egg case concentrations of each particular site buffered to the nearest minute of latitude and/or longitude (Figures 6 and 8-12).

Additionally, the AFSC HAPC proposal suggests: 1) monitoring known skate egg case concentrations areas every 2 to 3 years using non-invasive research design, such as *in situ* observation; and 2) the Council maintain the skate nursery areas as a HAPC priority to allow for future sites to be recommended for identification and any subsequent conservation (see Section 9.2).

7.2 Management and Enforcement Committee review

Please note that the Enforcement Committee is scheduled to take up the issue of management and enforcement of the proposed conservation management options described within on Tuesday, February 1, 2011 (Committee Agenda Item C-4(a)) and will report out to the Council on its findings.

[PLACEHOLDER]

7.3 Effects on fishing activities

A thorough analysis of fishing activities occurring in the proposed HAPC areas, and the effects designation may have in those areas, has not yet been fully developed at the time of this discussion. Following below, however, are supposed fishing effects correlating with Figures 1-3, GIS maps of the proposed HAPC areas, and trawl and non-pelagic trawl activity.

Outline 1. Proposed HAPC sites and fishing activities supposed at this time (see Table 9):

1. Bering 1 proposed HAPC site (Figure 8)
 - Likely cod and pollock in the Bering 1 location.
 - Pelagic trawls in the area from 1998-2008 are likely between 101 and 500 trawl;
 - Non-pelagic trawls, 101-500 as well.
 - Figures 1-3
2. Bering 2 proposed HAPC site (Figure 8)
 - Likely cod and pollock in the Bering 2 location.
 - Pelagic trawls in the area from 1998-2008 are likely between 101 and 500 trawls;
 - Non-pelagic, 101-500 trawls as well.
 - Figures 1-3

3. Bristol proposed HAPC site (Figure 9)
 - Pelagic trawls in the area from 1998-2008 are likely between 11 and 50 trawls;
 - Non-pelagic, 11 and 50 trawls as well.
 - Figures 1-3
4. Pribilof proposed HAPC site (Figure 10)
 - Pelagic trawls in the area from 1998-2008 are likely negligible;
 - Non-pelagic, between 11 and 50 trawls.
 - Figures 1-3
5. Zhemchug proposed HAPC site (Figure 11)
 - Pelagic trawls in the area from 1998-2008 are likely between 4 and 10 trawls;
 - Non-pelagic, between 11 and 50 trawls.
 - Figures 1-3
6. Pervenets proposed HAPC site (Figure 12)
 - Likely flatfish - this far north in the Pervenets location would likely be a catcher processor.
 - Pelagic trawls in the area from 1998-2008 are likely negligible;
 - Non-pelagic, between 11 and 100 trawls.
 - Figures 1-3

Table 9. Fishing activities

| Site | Predominant Target species | Trawl Activity | Non-pelagic Trawl Activity | Boundaries of HAPC areas (°N latitude or °W longitude) | | | |
|--------------|----------------------------|------------------------|----------------------------|---|--------|---------|---------|
| | | | | North | South | West | East |
| 1. Bering 1 | Cod, Pollock | High | High | 54°53' | 54°49' | 165°46' | 165°38' |
| 2. Bering 2 | Cod, Pollock | High | Very High to High | 54°38' | 54°33' | 165°45' | 165°34' |
| 3. Bristol | Not yet known | Low | Medium to Low | 55°21' | 55°17' | 167°40' | 167°34' |
| 4. Pribilof | Not yet known | Very Low to Negligible | Low | 56°11' | 56°10' | 168°28' | 168°26' |
| 5. Zhemchug | Not yet known | Low to Very Low | Low to Very Low | 56°57' | 56°54' | 173°23' | 173°21' |
| 6. Pervenets | Flatfish | Very Low to Negligible | Medium to Low | 59°28' | 59°22' | 177°43' | 177°34' |

8 Socioeconomic Review of Proposal

The Magnuson-Stevens Act states that EFH measures are to minimize impacts on EFH to the extent practicable; thus socio-economic considerations must be balanced against expected ecological benefits at the earliest point in the development of measures (50 C.F.R. 600.815(a)(2)). NMFS' Final Rule for developing EFH plans states specifically that FMPs should "identify a range of potential new actions that could be taken to address adverse effects on EFH, include an analysis of the practicability of potential new actions, and adopt any new measures that are necessary and practicable" (50 C.F.R.

600.815(a)(2)(ii)). In contrast to a process where the ecological benefits of EFH or HAPC measures are the singular initial focus and a later step is used to determine practicability, this approach would consider practicability simultaneously.

While a thorough analysis of economic impacts of the proposed HAPC designation is beyond the scope of the discussion at this point, it is likely that impacts on groundfish fisheries will be minimal. The proposed areas are very small. In addition, skate nursery sites may be unattractive from a commercial fishing perspective: anecdotal evidence suggests that trawling in areas with high egg case density results in unwanted high egg case catches that are very difficult to remove from trawl nets. In contrast, all stakeholders will benefit from enhanced sustainability of skate populations. Skate nurseries are ideal candidates for spatial management because they are fixed locations that are highly localized and will receive immediate benefits from elimination of bottom-contact commercial fishing. Designating these areas as HAPC is also consistent with the Council’s emphasis on an ecosystem-based approach to fisheries management.

Table 10. Identification of fisheries, sectors, stakeholders, and communities who would be affected by the establishment of the proposed HAPC

| Stakeholder | Potential Effect | Discussion |
|----------------------|--|---|
| Groundfish fisheries | Slight negative effect | The proposed sites are very small and limitations on areas accessible to groundfish fisheries will be low. For some areas, existing groundfish fishing is already low. |
| Stakeholders | Considerable positive effects; slight negative effects | Benefits from increased sustainability of skate populations. Some stakeholders may experience slight negative effects due to a very small reduction in areas open to unfettered commercial fishing. |
| Communities | No effect | The sites are far offshore of any community. Traditional activities should not be affected, and negative impact on fisheries will be very slight and should not affect communities. |

9 Next Steps

9.1 Council Assessment and Selection

The Council may wish to initiate a full analysis of HAPC selections and management alternatives. Before designating a site as HAPC, the Council may modify proposed HAPC sites, modify management measures, and request additional stakeholder input and technical review. The Council may set up a stakeholder process, as appropriate, to obtain additional input on proposals. The Council may also obtain additional technical reviews as needed from scientific, socioeconomic, and management experts. If directed, staff will prepare a National Environmental Policy Act (NEPA) analysis and any other analyses necessary under applicable laws and Executive Orders. A possible schedule outlining the next steps involved in the current HAPC proposal cycle is provided below:

9.2 Discussion of additional skate nurseries under this HAPC priority

The Council may wish to periodically review the efficacy of HAPC priorities and allow for input, such as new scientific research for priority areas. Specifically, the skate nurseries proposed identify several areas that have been carefully studied using dedicated field sampling (trawls and/or camera AUV surveys) and the presence of skate nurseries at each location has been established (based on density of egg cases, viability of embryos, and presence of reproductively active adult skates). It is also suspected that there may be other skate nursery sites in Alaskan waters. Currently 15 skate species are recognized, which, at

the minimum if each species had 10-20 sites, would equate to approximately 300 sites. Since nursery sites are highly productive and vulnerable, protecting known sites is being proactive in ensuring healthy skate populations. Estimates of egg and juvenile abundance from AFSC research surveys and stock assessments (Hoff 2010b) indicate that the known nursery sites probably are not sufficient to sustain the population of Alaska skates and that there are likely to be nursery areas yet to be identified. Additionally, the AFSC HAPC proposal suggests that the Council maintains skate conservation and skate egg concentration areas as a priority for EFH and HAPC management, and within Council and NMFS Research Plans. The proposers anticipate identification of additional skate nurseries and propose similar HAPC protection for additional sites. An issue raised within this HAPC proposal is how to submit additional HAPC sites that meet existing HAPC priorities. The Council will need to determine if these new sites are to be included within this HAPC cycle, are to be initiated in a separate review, or whether to table new sites for the next cycle.

Recently, ASFC scientists have identified three new skate nursery sites (Figure 13) from recent research efforts. Preliminarily, these sites appear to be of similar size (i.e., small) and nature to the known BSAI skate nursery areas. Importantly, two nursery areas are identified south of the Aleutian Islands. It is too early to determine their overall distribution based upon egg case concentration and site specific research has not been conducted. Therefore, it is recommended that NMFS further investigate these areas.

10 Preparation of document

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Persons and groups consulted

Gerald R. Hoff and Olav A. Ormseth

The Joint BS/AI and GOA Plan Teams; Mike Sigler, Sandra Lowe, Jane DiCosimo, and Diana Stram

11 Literature

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- Figure 3. Non-pelagic Trawls, 1998-2008, and proposed HAPC areas (blocks are 100km² – very large compared to skate nursery areas).
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Color Figures

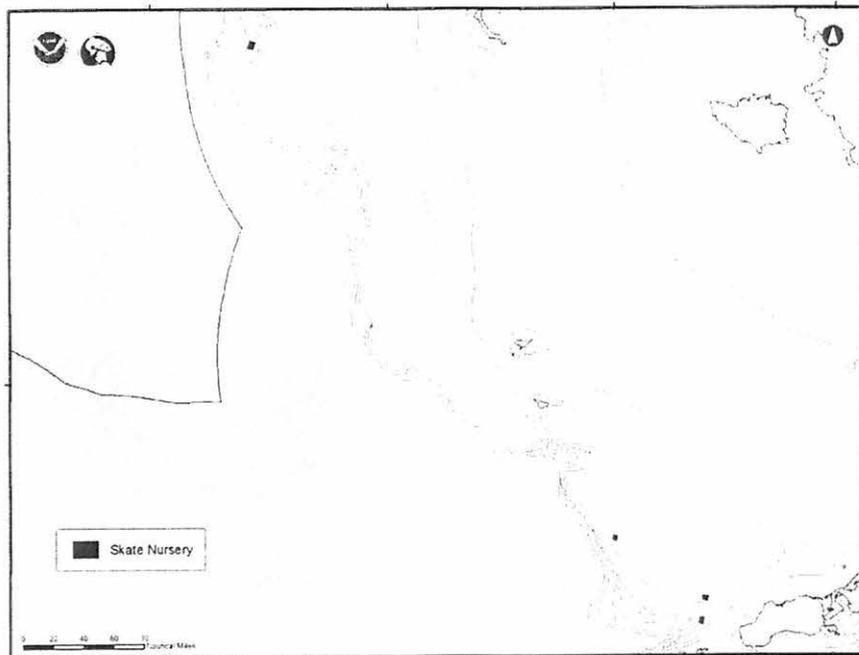


Figure 14. Skate nursery locations.

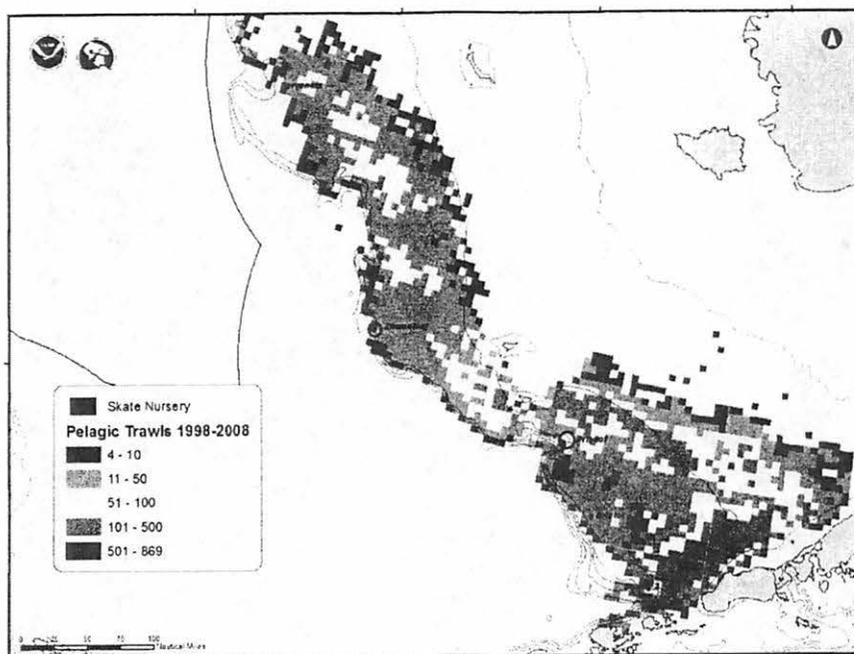


Figure 15. Pelagic Trawls, 1998-2008, and HAPC areas (blocks are 100km² – very large compared to skate nursery areas).

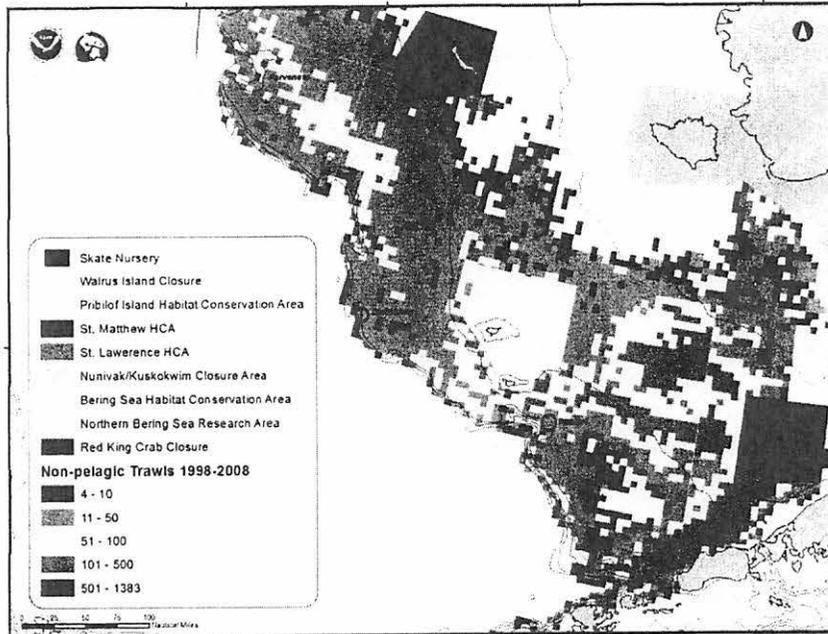


Figure 16. Non-pelagic Trawls, 1998-2008, and proposed HAPC areas (blocks are 100km² – very large compared to skate nursery areas).

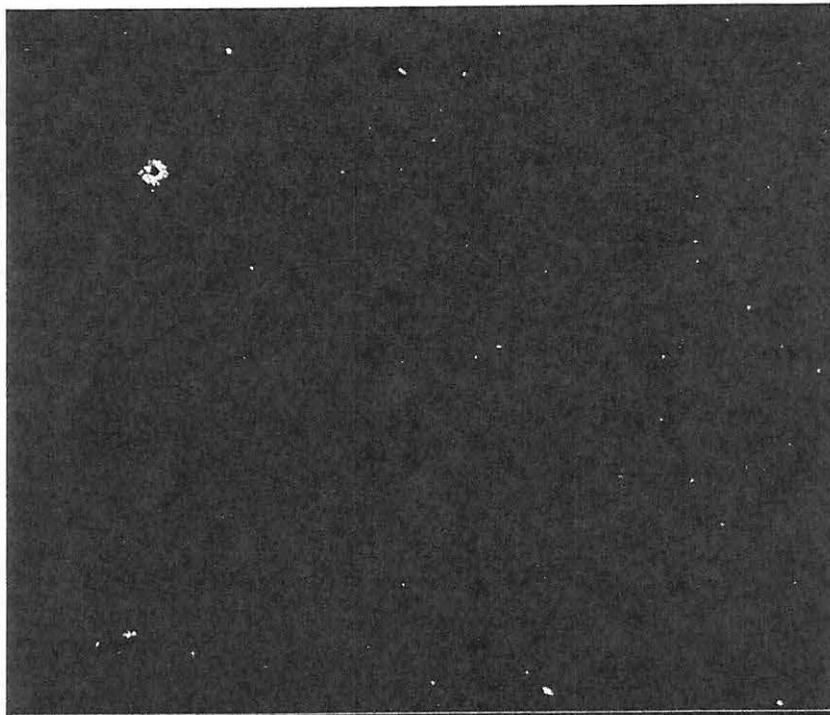


Figure 17. Photograph of the seafloor near a skate nursery site in the eastern Bering Sea, showing seafloor just outside the nursery.

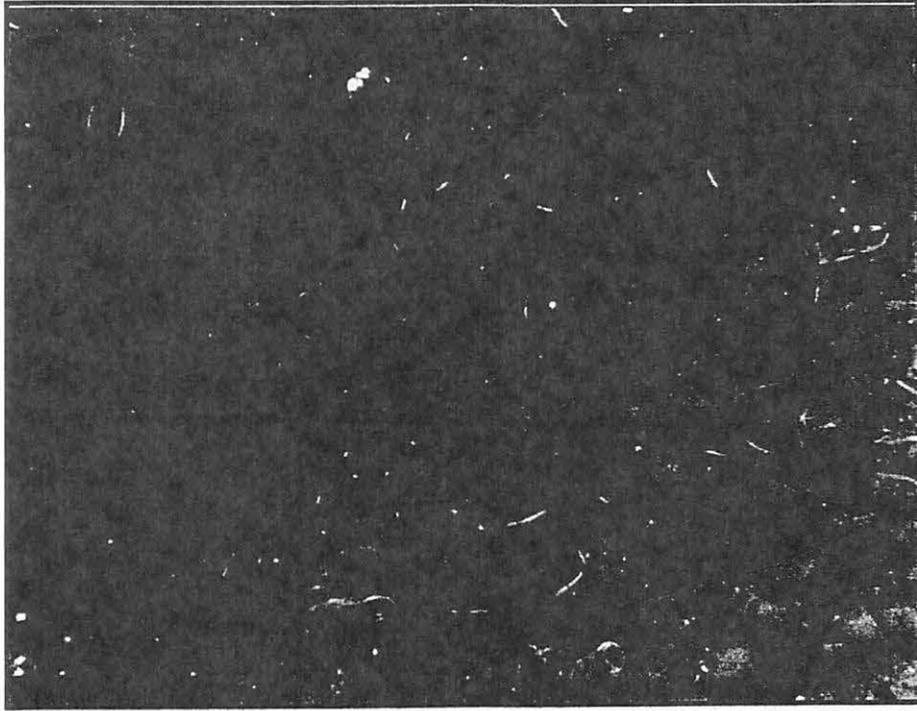


Figure 18. Photograph of the seafloor in a skate nursery site in the eastern Bering Sea, showing seafloor within the nursery. The distance between the locations photographed in Figures 4 and 5 was approximately 500m.

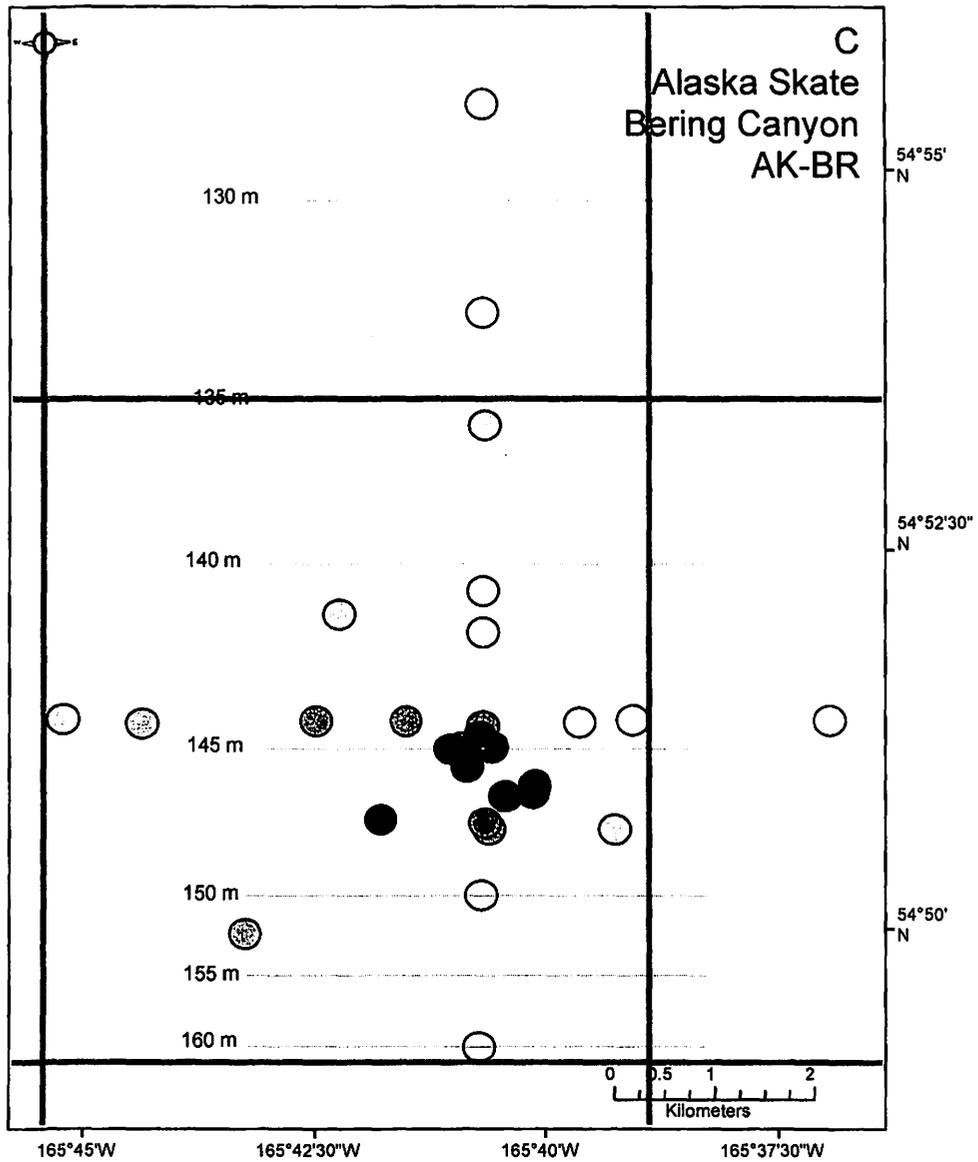


Figure 19. Example of data used to delineate the boundaries of the proposed skate nursery HAPC areas. Red lines indicate the extent of research bottom trawls that contained greater than 1,000 egg cases/ km². The boundary lines were then snapped to the next largest/smallest minute of latitude or longitude (i.e. the nearest minute of latitude/longitude away from the center of the nursery).

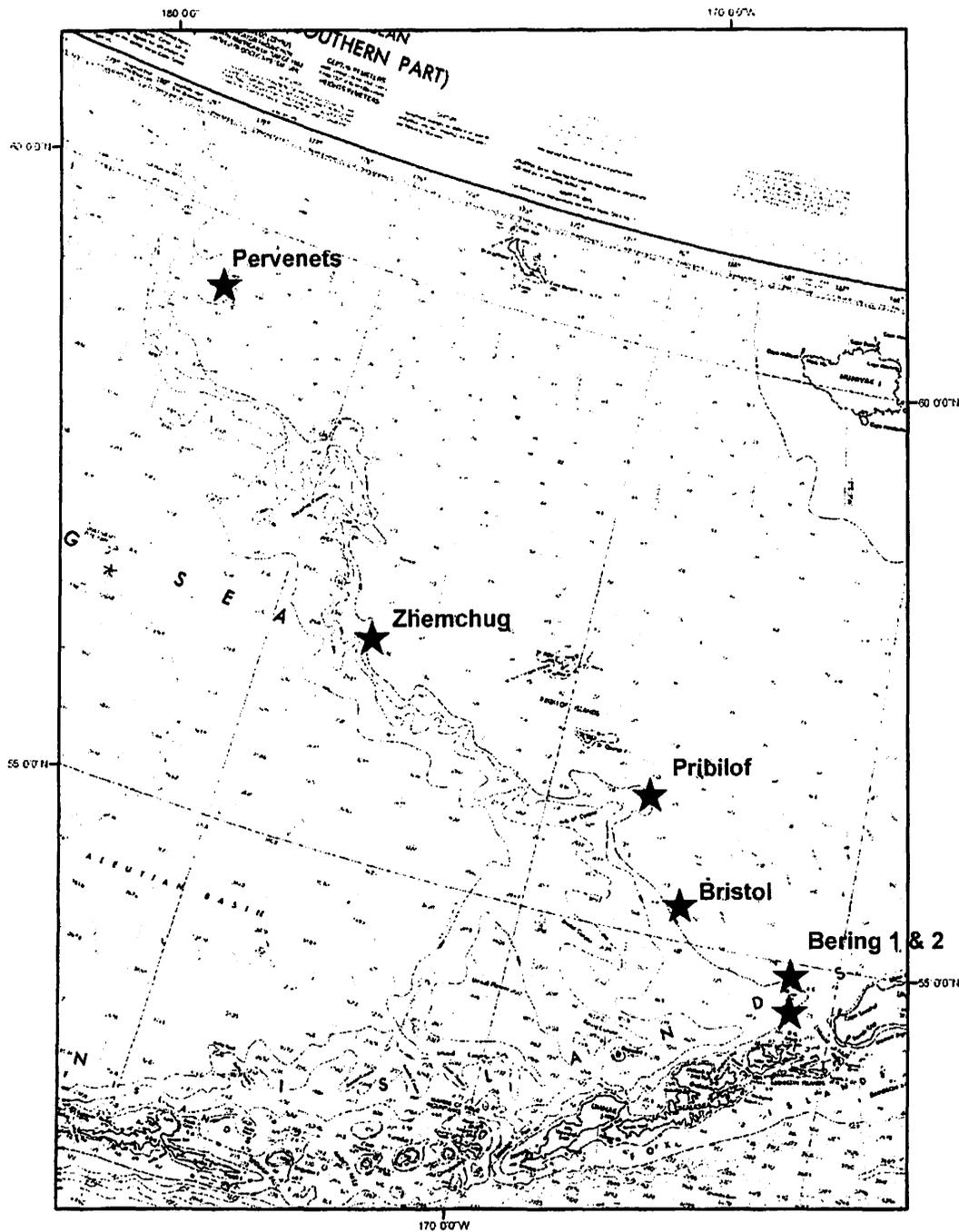


Figure 20. Overview map showing general locations (red stars) of six proposed skate nursery HAPC areas in the eastern Bering Sea.

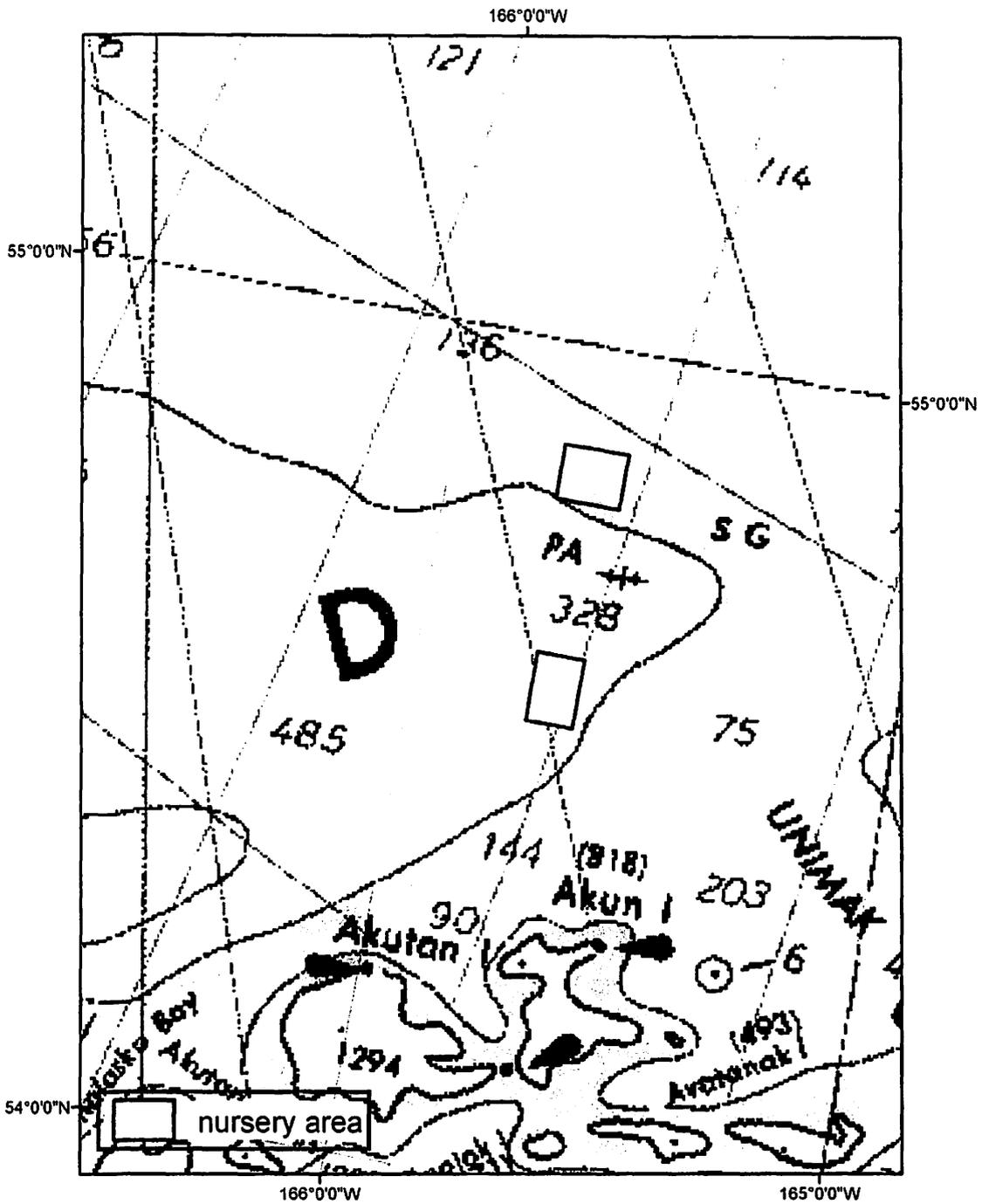


Figure 21. Map detail of proposed HAPC sites “Bering 1” and “Bering 2” in the vicinity of Bering Canyon in the eastern Bering Sea.

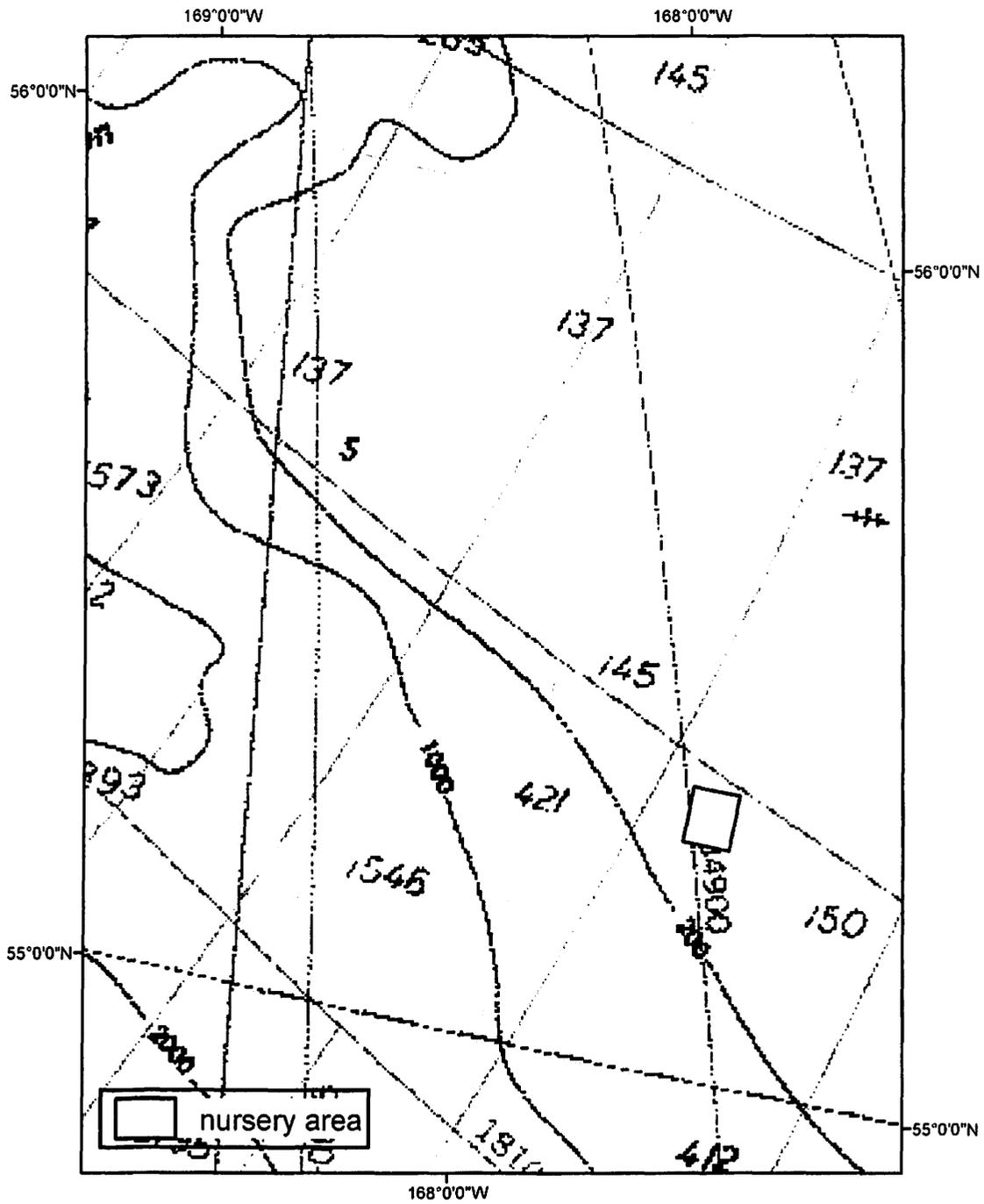


Figure 22. Map detail of proposed HAPC site "Bristol" in the vicinity of Bristol Canyon in the eastern Bering Sea.

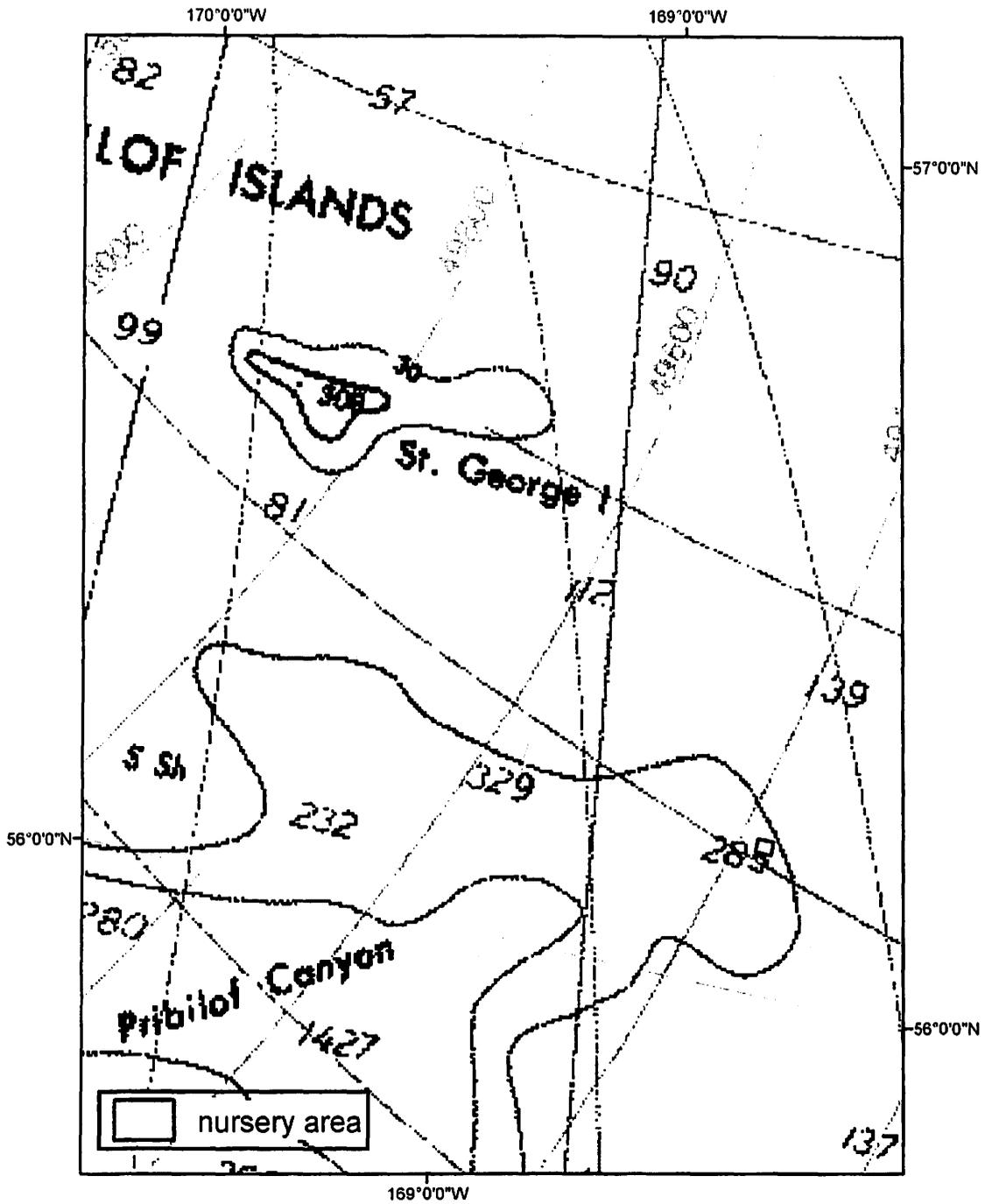


Figure 23. Map detail of proposed HAPC site “Pribilof” in the vicinity of Pribilof Canyon in the eastern Bering Sea.

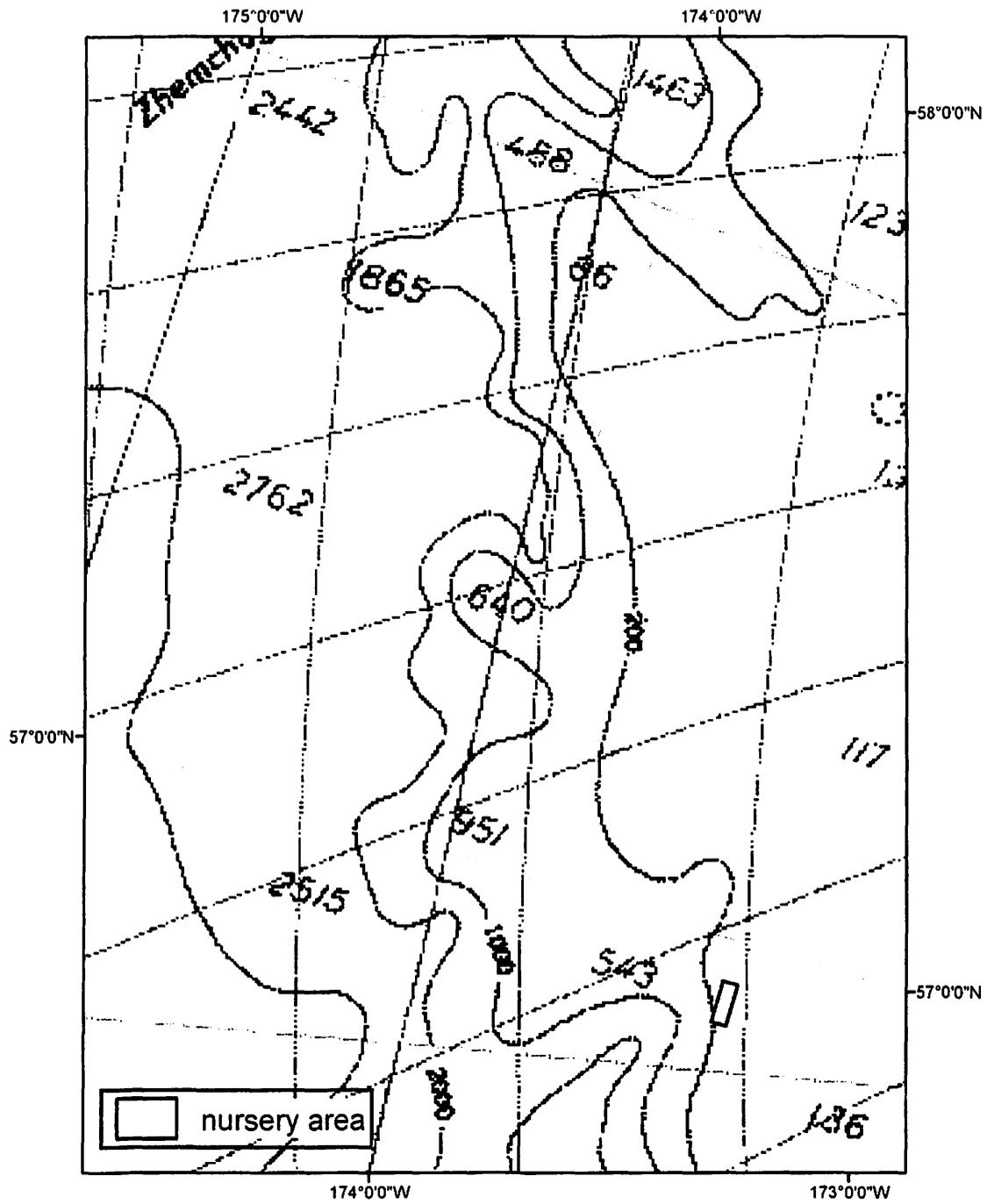


Figure 24. Map detail of proposed HAPC site “Zhemchug” south of Zhemchug Canyon in the eastern Bering Sea.

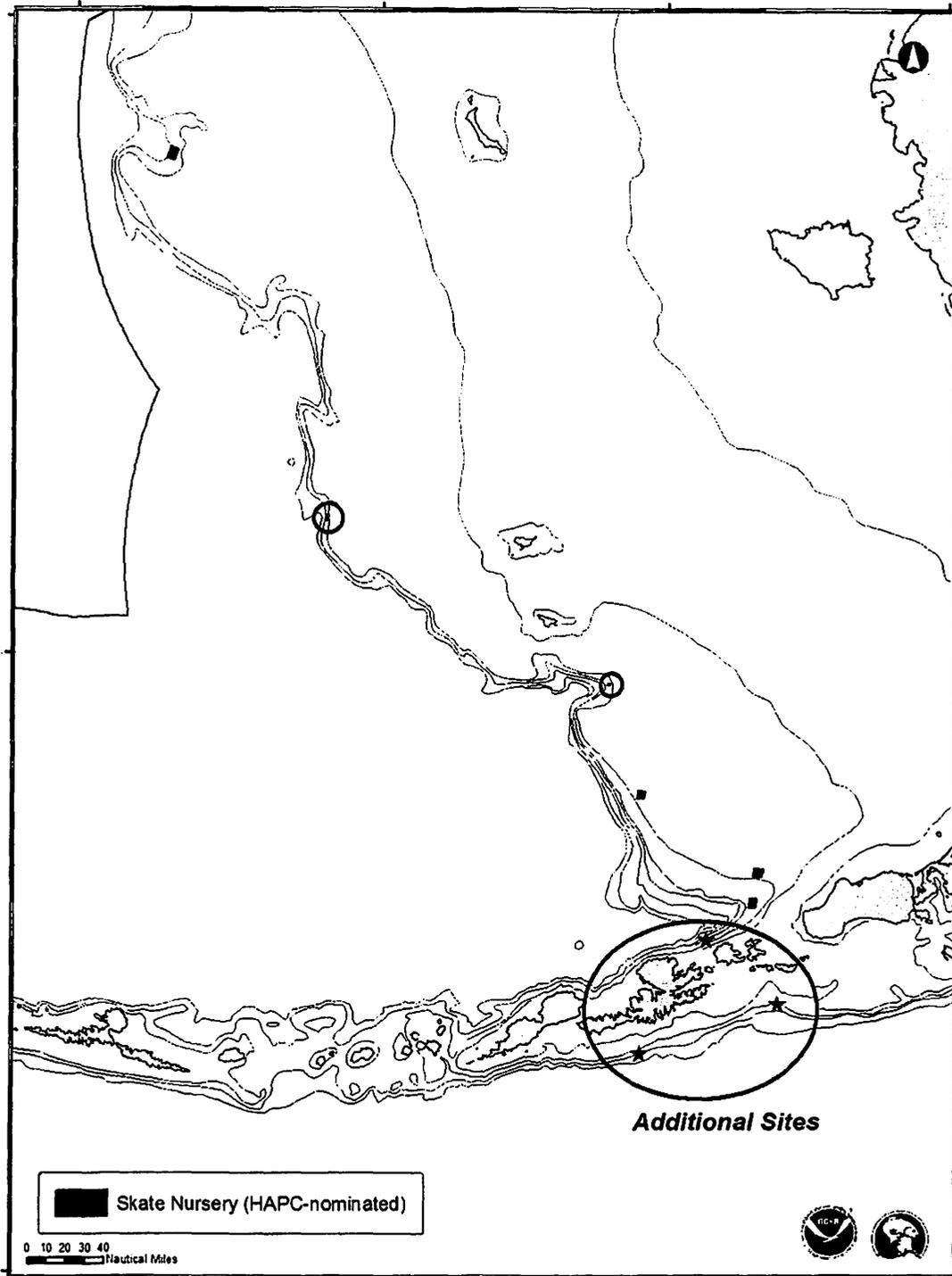


Figure 26. Additional skate nursery locations.

Environmental Assessment for:

Amendment 98 to the Fishery Management Plan for the Groundfish Fishery of the Bering Sea/Aleutian Islands Area

Amendment 90 to the Fishery Management Plan for Groundfish of the Gulf of Alaska

Amendment 40 to the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs

Amendment 15 to the Fishery Management Plan for the Scallop Fishery off Alaska

Amendment 11 to the Fishery Management Plan for the Salmon Fisheries in the Exclusive Economic Zone off the Coast of Alaska

Amendment 1 to the Fishery Management Plan for Fish Resources of the Arctic Management Area

Essential Fish Habitat (EFH) Omnibus Amendments

Initial Review Draft

January 2011

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Note, the appendices have not been mailed out with this initial review draft analysis. They are available online at www.alaskafisheries.noaa.gov/NPFMC, and there will be printed copies of the appendices available for reference at the February 2011 Council meeting.

1 Introduction and Purpose

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) includes provisions concerning the identification and conservation of Essential Fish Habitat (EFH). The Magnuson-Stevens Act defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The National Marine Fisheries Service (NMFS) and regional Fishery Management Councils (Councils) must describe and identify EFH in fishery management plans (FMP), minimize to the extent practicable the adverse effects of fishing on EFH, and identify other actions to encourage the conservation and enhancement of EFH. Federal agencies that authorize, fund, or undertake actions that may adversely affect EFH must consult with NMFS, and NMFS must provide conservation recommendations to federal and state agencies regarding actions that would adversely affect EFH. Councils also have the authority to comment on federal or state agency actions that would adversely affect the habitat, including EFH, of managed species.

Each FMP contains the following EFH components:

1. EFH Descriptions and Identification;
2. Fishing activities that may adversely affect EFH;
3. Non-Magnuson-Stevens Act fishing activities that may adversely affect EFH;
4. Non-Fishing activities that may adversely affect EFH;
5. Cumulative impacts analysis;
6. EFH Conservation and Enhancement Recommendations;
7. Prey species list and any locations;
8. Habitat Areas of Particular Concern (HAPC) identification;
9. Research and Information needs; and
10. Requirement to review EFH every 5 years.

1.1 2010 EFH 5-year review

In 2009-2010, the most recent 5-year EFH review was conducted for the Council, and documented in the Final EFH 5-year Review Summary Report (April 2010). The report reviewed EFH descriptions in five of the Council’s six FMPs (Table 1): the Bering Sea/Aleutian Islands (BSAI) Groundfish FMP, Gulf of Alaska (GOA) Groundfish FMP, BSAI Crab FMP, Scallop FMP, and Salmon FMP. The Council also has a sixth FMP, a new FMP for Fish Resources of the Arctic, that was approved by the Secretary of Commerce in August 2009 (Table 1). As a thorough assessment of EFH was included in the Arctic FMP, it was not addressed in the 5-year review report.

The review evaluated new information on EFH, assessed information gaps and research needs, and identified whether any revisions to EFH are needed or suggested. The EFH 5-year Review Summary Report is incorporated by reference in this analysis.

Table 1 List of Council Fishery Management Plans, and status of EFH review

| Fishery Management Plan | EFH Last Updated | Review Status |
|---|--------------------------------|---|
| Groundfish of the Bering Sea and Aleutian Islands Management Area (BSAI Groundfish) | 2005 | NPFMC review in 2009-10 (including Plan Team) |
| Groundfish of the Gulf of Alaska (GOA Groundfish) | 2005 | NPFMC review in 2009-10 (including Plan Team) |
| Bering Sea/ Aleutian Islands King and Tanner Crabs (BSAI Crab) | 2005 | NPFMC review in 2010 (including Plan Team) |
| Scallop Fishery off Alaska (Scallop) | 2005 | NPFMC review in 2010 (including Plan Team) |
| Salmon Fisheries in the EEZ off the Coast of Alaska (Salmon) | 2005 | NPFMC review in 2010 No salmon plan team, so review was provided by NMFS salmon experts. |
| Fish Resources of the Arctic (Arctic) | FMP implemented in August 2009 | NPFMC review completed in 2009 with adoption of FMP |

Based on the review and the summary report, the Council identified various elements of the EFH descriptions that merit revision. Accordingly, the Council initiated an analysis to address recommendations arising from the 5-year review. The Council's motion from April 2010 is summarized in Table 2, which also pairs each recommendation with the corresponding action included in this analysis.

Table 2 Summary of Council's recommended action resulting from the EFH 5-year review, April 2010

| EFH component | Council FMP | Recommended change | Corresponding action in this analysis |
|--|--------------------|---|---|
| EFH descriptions of individual species | BSAI Groundfish | Initiate amendments for all 24 species or complexes whose habitat is described in the FMP, to revise some aspect of the EFH description, as described in the summary report | Action 1 |
| | GOA Groundfish | Initiate amendments for all 24 species or complexes whose habitat is described in the FMP, to revise some aspect of the EFH description, as described in the summary report | Action 2 |
| | BSAI Crab | Initiate amendments for all 5 species or complexes in the FMP, to revise general EFH and fishery information for each species, as described in the summary report (amendments to revise the evaluation of fishing effects conclusions are not initiated at this time, rather see discussion under evaluation of fishing effects) | Action 3 |
| | Scallop | Initiate amendment for the one species whose habitat is described in the FMP, to revise aspects of the EFH description, as described in the summary report | Action 4 |
| | Salmon | Initiate amendments for all 5 species in the FMP, to revise some aspect of the EFH description, as described in the summary report, except that the recommendation to revise the conclusions of the effects of fishing on Chinook would not be forwarded for analysis | Action 5 |
| Fishing activities that may adversely affect EFH | All Council FMPs | <p>A general re-evaluation of the effects of fishing activities on EFH, including re-running the model, should not be initiated at this time. Recent research results are consistent with the habitat sensitivity and recovery parameters and distributions of habitat types used in the prior analysis of fishing effects for the EFH EIS. Fishing intensity has decreased overall, gear regulations have been designated to reduce habitat damage, and area closures have limited the expansion of effort into areas of concern.</p> <p>For crab species, request a discussion paper to look at how the effects of fishing are considered for crab stocks. The paper should include the Plan Team's comments about considering the pelagic environment and transport mechanisms and their importance for spawning and breeding populations, and should also evaluate existing closures for crab habitat to see if habitat usage by crab species has changed since the mid-1990s when these closures were put into effect. Based on this discussion paper, the Council can then decide whether further analysis of this issue should be incorporated into the overall EFH analysis and amendments.</p> | <p>--</p> <p><i>(separate discussion paper)</i></p> |
| Non-fishing activities that may adversely affect EFH | All Council FMPs | Initiate amendments to update EFH conservation recommendations for 14 of 27 non-fishing activities. | Action 6 |
| HAPC | All FMPs | Initiate amendment to revise the timeline associated with the HAPC process to coincide with the EFH 5-year review. Note, the Council also set skate nurseries as a habitat priority, and initiated a call for proposals for candidate HAPC sites. Any amendments resulting from the call for proposals will be, however, implemented through a separate process. | Action 7 |
| Research and information needs | All FMPs | Initiate amendments to revise research priority objectives in the FMP. The Council's research priority objectives from 2005 have largely been met, however many of the research questions are still valid and remain to be investigated. The Council preliminarily identified new objectives to guide EFH research over the next 5 years. | Action 8 |

1.2 Purpose and Need Statement

The purpose of this analysis is to determine whether and how to amend the Council's FMPs pursuant to Section 303(a)(7) of the Magnuson-Stevens Act, which requires NMFS and the Council to (1) describe and identify EFH for the fishery, (2) minimize to the extent practicable the adverse effects of fishing on EFH, and (3) identify other actions to encourage the conservation and enhancement of EFH. Depending on the preferred alternatives identified in this analysis, one or more of the Council's FMPs could be amended. The analysis contained in this document is based upon the best scientific information available and the guidelines articulated in the Final Rule to implement the EFH provisions of the Magnuson-Stevens Act (see 50 CFR Part 600, Subpart J).

1.3 Draft Problem Statement – Council action required

Although the Council initiated this EFH amendment package in April 2010, based on the 5 year review, the Council did not officially adopt a problem statement. The following draft problem statement has been crafted from material presented in the 5-year review, and the **Council should decide in April 2011 whether to adopt this or other language as their problem statement:**

The EFH Final Rule and each of the Council's FMPs require that a review of EFH components be completed every 5 years. The Final Rule provides guidance that EFH provisions be revised or amended on this timeline, as warranted, based on the best available information. The 5-year review of EFH was completed in April 2010, and synthesized in a Summary Report presented to the Council. Based on the review, the Council has determined that new habitat and life history information is available to revise EFH descriptions and recommendations in the Council FMPs. Additionally, as the EFH review process has proven to be an appropriate vehicle for identifying HAPC priorities, the timing of the EFH review and HAPC identification should be synchronized.

2 Description of Actions and Alternatives

This amendment package includes a series of actions for the various Council FMPs. The EFH 5-year review addressed all of the Council's FMPs except the Arctic FMP, which was only recently adopted. Actions 1-5, below, would amend the description of EFH in each of the 5 FMPs that were addressed in the 5 year review. Action 6 updates the effects of nonfishing activities in Alaska on EFH, and is applicable to all of the Council FMPs. Action 7 synchronizes the HAPC identification timeline with the EFH review, and is also applicable to all of the Council FMPs. Although the Council did not specifically initiate an amendment for the Arctic FMP, **both Actions 6 and 7 apply to the Arctic FMP, and unless direction to the contrary is provided by the Council, staff will assume that these actions should also include an alternative to amend the Arctic FMP.** Under Action 8, the Council will adjust its EFH research objectives in the five Council FMPs that were addressed in the 5 year EFH review report.

More detail on the specific revisions proposed under Alternative 2 in Actions 1-8 are included in the sections that follow relating to the specific actions.

2.1 Action 1 – BSAI Groundfish

Alternative 1 – No Action; status quo

Alternative 2 – Amend the EFH description for all twenty-four groundfish species or complexes

2.2 Action 2 – GOA Groundfish

Alternative 1 – No Action; status quo

Alternative 2 – Amend the EFH description for all twenty-four groundfish species or complexes

2.3 Action 3 – BSAI King and Tanner Crab

Alternative 1 – No Action; status quo

Alternative 2 – Amend the EFH description for all five crab species or complexes

2.4 Action 4 – Alaska Scallops

Alternative 1 – No Action; status quo

Alternative 2 – Amend the EFH description for weathervane scallop

2.5 Action 5 – Alaska Stocks of Pacific Salmon

Alternative 1 – No Action; status quo

Alternative 2 – Amend the EFH description for all five salmon species

2.6 Action 6 – Non-fishing Activities

Alternative 1 – No Action; status quo

Alternative 2 – Amend EFH conservation recommendations for non-fishing activities in all six Council FMPs

2.7 Action 7 – HAPC Timeline

Alternative 1 – No Action; status quo

Alternative 2 – Revise timeline for considering HAPCs from three to five years in all six Council FMPs

2.8 Action 8 – EFH Research Priorities

Alternative 1 – No Action; status quo

Alternative 2 – Revise research objectives for EFH in five Council FMPs