



Marine Conservation Alliance

promoting sustainable fisheries to feed the world

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Adak Community Development Corporation

Alaska Bering Sea Crabbers

Alaska Longline Co.

Alaska Whitefish Trawlers Association

Alaska Groundfish Data Bank

Alaska Scallop Association

Aleutian Pribilof Island Community Development Association

Akutan, Atka, False Pass, Nelson Lagoon, Nikolski, St. George

Arctic Storm Management Group

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Aleksknagik, Clark's Point, Dillingham, Egegik, Ekuk, Ekwok, King Salmon, Levelock, Manokotak, Naknek, Pilot Point, Port Heiden, Portage Creek, South Naknek, Toqiak, Twin Hills, Ugashik

Central Bering Sea Fishermen's Association

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City of Unalaska

Coastal Villages Region Fund
Chelofnak, Chevak, Eek, Goodnews Bay, Hooper Bay, Kipnuk, Kongiganak, Kwigillingok, Mekoryuk, Napakiak, Napaskiak, Newtok, Nighthute, Oscarville, Platinum, Quinhagak, Scammon Bay, Toksook Bay, Tuntutuliak, Turunak

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Brevig Mission, Diomedea, Eim, Gambell, Golovin, Koyuk, Nome, Saint Michael, Savoonga, Shaktolik, Stebbins, Teller, Unalakleet, Wales, White Mountain

Trident

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Mothership Fleet Cooperative

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Unalaska Co-op

Unisea Fleet Cooperative

FV Arctic Wind, FV Caitlin Ann, FV Dona Marita, FV Pacific Prince

U.S. Seafoods

Waterfront Associates

Western Alaska Fisheries, Inc.

Mr. Eric Olson, Chairman
North Pacific Fishery Management Council
605 West 4th, Suite 306
Anchorage, Alaska 99501

RE: Agenda Item C-2, Initial Review of Bering Sea HAPC skate egg sites.

Dear Mr. Olson,

The Marine Conservation Alliance (MCA) appreciates the opportunity to comment on Agenda Item C-2, Initial Review of Bering Sea HAPC skate egg sites. We appreciate the efforts of Council and NMFS staff in developing the Environmental Assessment (EA) and, in particular, the recent updates to the document that have been included since the last Council meeting. We also would like to recognize the significant contribution that Dr. Gerald Hoff has made in advancing our understanding of skate biology and life history.

While there are some areas of the EA that we believe could be improved and made more factually accurate, we believe the document is now at a state where it can be released to the public. We also believe it would be appropriate for the Council to develop a preliminary preferred alternative (PPA) at this meeting. We have provided our recommendations to this effect in this letter.

1. Summary Recommendations and Rationale

MCA recommends that the Council adopt Alternative 2 as the PPA for this action. This would designate these areas as HAPCs but would not include fishing restrictions.

Available information indicates that these areas are important spawning and rearing grounds for skates which justifies their designation as HAPC. We do not question the fact that these areas are important habitat for skates. Our comments and rationale focus on the narrower issue of whether and to what degree fishing impacts this habitat. In this regard, available information

indicates that the physical habitat features associated with these areas are not the type of habitat that tends to be significantly impacted by fishing gear. For instance, the EA itself characterizes these sites as low relief areas made up of sand, mud, and silt and that temperature and depth may be other important variables. These are the types of characteristics that are not prone to "more than minimal and not temporary" impact from fishing gear, this being the appropriate standard for EFH based on the implementing regulations.

Secondly, the EA and supporting research documents describe one of the main impacts of fishing in these areas as being the mortality of skates which have not yet hatched from their egg casings. This occurs by catching skate eggs, by scattering skate eggs (which then makes them more prone to predation), or similar. At its core, this type of an impact is a population dynamics issue, not a habitat issue. In other words, if fishing in these areas causes skate mortality, the policy questions are “how much skate mortality is okay?” and “what is the current status of skate populations?” These are different policy questions than one associated with habitat where the focus is on the physical features that make these areas attractive spawning sites and the impact that fishing has upon those features.

There are substantial degrees of uncertainty concerning why these areas are important habitat and what impact fishing has upon them. Fishing, by its very definition, has an impact on the natural environment. The draft EA utilizes a construct of the precautionary principle in justifying restrictions by stating that because fishing has an impact of some kind, then restricting fishing in these areas would be beneficial. The EA goes further in stating that the use of the precautionary principle is consistent with accepted standards and is consistent with the goals of the FMP. Use of the precautionary principle is certainly appropriate in some cases, however utilizing the precautionary principle to the degree to which it is utilized to support fishing restrictions in this case effectively voids the need for meaningful rationale and voids the need for considering the weight of evidence. It is incumbent upon the analysis to first draw conclusions based upon the available information and secondly to caveat those conclusions or inferences based upon uncertainties and what may not be known. Drawing conclusions based upon what is not known cannot be considered analysis.

Based upon information currently available in the EA and elsewhere, the evidence suggests that fishing causes minimal amounts of disruption to the habitat in these areas. While there are uncertainties regarding this information, the fact that A) fishing has been occurring in these areas for several decades, B) that fishing gear advancements have resulted in a lower impact on benthic habitat compared to several years ago, C) that skate populations are generally considered to be healthy, and D) other skate egg deposition sites are thought to exist which have not been identified yet would seem to provide comfort in light of these uncertainties.

2. Policy History and Context

Habitat Areas of Particular Concern are a subset of Essential Fish Habitat (EFH). To understand the purpose of this tool it is helpful to review the policy history and context, starting with the Magnuson-Stevens Act. This Act has several references to EFH, but it was not until subsequent regulatory guidelines developed by NMFS which were intended to help the Councils develop EFH measures that the term HAPC became used.

a. MSA EFH Policy

The MSA defines EFH as those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity. FMPs are required to describe and identify EFH, to minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat. The Act also includes rather extensive language describing consultation processes between the Secretary of Commerce and other agencies. For instance:

- The Act calls for the Secretary of Commerce to coordinate with and provide information to other Federal agencies to further the conservation and enhancement of EFH.
- It calls on other Federal agencies to consult with the Secretary of Commerce with respect to any action that may adversely affect any essential fish habitat that has been identified.
- Councils may comment on any activity that may affect the habitat, including essential fish habitat, of a fishery resource under its authority

b. NMFS EFH Regulatory Guidelines

The NMFS regulatory guidelines state that “each FMP must minimize to the extent practicable adverse effects from fishing on EFH, including EFH designated under other Federal FMPs. Councils must act to prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable, if there is evidence that a fishing activity adversely affects EFH in a manner that is more than minimal and not temporary in nature...”

When contemplating the effects of fishing on EFH, and in particular, upon HAPCs, those same regulatory guidelines state “The evaluation should give special attention to adverse effects on habitat areas of particular concern and should identify for possible designation as habitat areas of particular concern any EFH that is particularly vulnerable to fishing activities.”

c. The Application of HAPCs

The manner in which HAPCs have been applied differs across regions. In the North Pacific, HAPCs have been tied to fishing restrictions. Other Councils have used HAPCs differently. In the Pacific region for instance, HAPCs were designated for several different areas, such as sea grass, canopy kelp, and estuaries. These designations were not complimented with fishing restrictions. The logic behind this action was to first identify particularly important areas of EFH as HAPC, but the question regarding whether and to what degree fishing affects those areas was differentiable from that designation. In cases where fishing did not appear to pose a threat to that habitat, HAPC designation still serves as a point of leverage in agency to agency consultations. The figures at the end of the NWR’s ROD are helpful for visualizing the point that HAPC areas are different from areas restricted from fishing: <http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/NEPA-Documents/upload/EFH-ROD.pdf>

d. Following the Policy Guidance

The policy history surrounding EFH, and HAPCs in particular, provide a useful framework for considering whether skate egg sites deserve designation as HAPCs and whether the degree of impact that fishing has on these areas is acceptable. The following main themes and questions arise from EFH policy documents:

- Do these areas deserve designation as HAPCs?
- Does fishing impact these areas to a degree that warrants fishing restrictions?
- How do we monitor the effectiveness of measures put in place to protect these areas?

In considering whether fishing activity impacts areas to an unacceptable degree, the policy documents provide a couple of helpful principles. For instance:

- Is the impact “more than minimal and not temporary”?

v. Is the habitat “particularly vulnerable to fishing”?

Each of these questions contains an important underlying context and that is the point that some impact from fishing is acceptable. Indeed, some impact from fishing is expected. In cases where EFH and HAPC designation comes in to play, the policy guidance indicates that minimal and temporary affects are okay, and that in considering whether fishing restrictions are necessary Councils should consider whether habitats are particularly vulnerable to the effects of fishing gear.

3. Description of the Habitat Type

The EA describes the habitat in these skate egg areas as occurring *over a narrow depth range (from 150m to 375m) 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.* (Skate EA: page 18).

These areas appear to be sought out by skates, at least in part, due to the temperatures that exist at these sites. Temperature appears to play an important role in the development time of the skate embryo and skates may be seeking relatively warmer areas which minimize that development (Skate EA: Figure 54, Figure 61, page 42, page 43).

Habitat features characterizing skate egg sites	<ul style="list-style-type: none"> • Low relief • “Muddy” • “Sandy” • Certain temperatures • Depth of 150m to 375m • Located at heads of canyon features
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Source: Adapted from Skate Egg Sites Environmental Assessment (May 2012 version)

While the habitat can generally be described in this manner (low relief, flat sandy to muddy bottom) the habitat does appear to differ somewhat across these sites, meaning it may be inappropriate to compare one site to another. Page 37 of the EA states that habitat at the Bering 1 site is comprised of different sediment that is more “fluffy” than the more lightly fished sites that are further to the north. What is implied by this comparison is that areas that are fished more heavily experience a change in habitat to a more “silty” and “fluffy” state. This implication simply cannot be made based upon a comparison of one site to another. The benthic habitat differs across the Bering Sea and it is highly likely that the habitat in each of these areas started out differently. Available mapping exercises from other EFH efforts clearly show differing habitat across the Bering Sea, including differences that appear to overlap with skate egg sites.

4. Effect of Fishing on the Physical Habitat Found at Skate Egg Sites

Any fishing gear will affect the benthic habitat of a given location to some degree. The magnitude and duration of the effect depends on several factors, including gear configuration, towing speed, water depth, and the substrate over which the tow occurs. (Auster and Langton, 1999 as found in NRC 2002). The effect of fixed gear at these skate egg sites seems minimal due to its configuration and utilization, so we have focused our comments in this section on trawl gear.

The draft EA relies on various sources of information to describe the effect of fishing gear on benthic habitat. The authors of the EA are commended for including an up to date description of fishing gear that is used in the Bering Sea as this information is directly relevant to understanding the impact that Bering Sea fishing activity will have upon these sites. It is therefore unfortunate that the draft EA does not appear to consider this information when analyzing the impacts of the alternatives, and how these different gear configurations should be viewed in light of the literature that is cited in the draft EA that was apparently used to analyze the alternatives. What is also lacking is the fact that the substrate in these skate egg sites is different from the substrate that is present in many of the studies that were utilized in the draft EA to examine the implications of fishing gear on benthic habitat.

When considering the type of gear used in the Bering Sea and the type of habitat that exists at these skate egg sites, the implication is that much of the literature utilized in the EA to describe the effects of fishing upon habitat is only weakly applicable at best, and may be wholly inapplicable in some cases. For example, the EA now includes information about the requirement for modified trawl sweeps for flatfish trawls and points out that this likely reduces impacts on invertebrates and epifauna commonly found on sand/mud substrates of the Bering Sea. Furthermore, trawl gear has evolved toward increased spacing between bobbins to reduce drag, reduce catches of invertebrates, and increase towing efficiency. This increased spacing reduces the contact of the trawl footrope on the substrate. Put in an aggregate sense, the use of increased bobbin spacing and modified sweeps has resulted in a substantial reduction in the impact of trawl gear upon the muddy and sandy habitat found at these skate egg sites. This is in direct contrast with many pieces of literature used as support in the draft EA which studied the effect of trawls using bottom contact doors in areas of high relief substrate. Without characterizing the implications of this gear and habitat nexus that exists in the Bering Sea and how this differs from other pieces of available literature, the reader is led to an erroneous conclusion regarding the degree of impact that fishing activities have upon these skate egg sites.

To remedy this oversight, the EA can draw upon and actually bring into the analytical process the substantial amount of data on reduced effects on substrates in the reference material which describes this gear evolution and the effects of this gear, including studies done by Dr. Craig Rose at the AFSC, and the rationale used to develop regulations which implemented trawl sweep modifications, among others.

Fortunately, if the information in the EA is used appropriately, conclusions can be drawn regarding the impact of fishing gear upon the habitat in these areas. The EA characterizes skate egg sites as low relief, being in sandy or muddy areas, occurring at a certain depth range, being located at the heads of canyons, and having a certain water temperature. When contemplating the impact that trawling may have to these areas, it would not seem that fishing gear would adversely affect the utility of these areas as habitat for skate eggs, especially since all pollock and most flatfish and cod trawl vessels no longer use bottom contact doors. However, it is not difficult to imagine another type of non-fishing activity that could impact this habitat in a relatively permanent manner.

5. The Biological Effect of Fishing at these Skate Egg Sites

The draft EA provides a significant amount of information on skate life history and, in particular, the life histories of skates while they are present at the proposed HAPC sites. The literature indicates that skates rely on a relatively high survival rate of a small number of offspring, and that skate embryos may develop over the course of three years and are vulnerable during this developmental period. Once hatched, however, juvenile skates move rapidly out of this area, possibly as a survival strategy (see Hoff 2010). This means that the importance of these areas is limited to embryonic development and spawning activity, but it does not serve as preferred habitat for juveniles.

Concern over these skate egg sites was articulated in 2008 in the context of the Alaska skate. Here the authors make note of the fact that the *distribution pattern and accessibility in relatively shallow waters make the species a likely candidate in target fisheries, and its life history characteristics make it susceptible to population decreases* (Matta, 2006; Matta and Gunderson, 2007 as found in Hoff 2008). In other words, the authors were concerned about the possibility of fisheries targeting skates and the fear that skate populations would not hold up well to such fishing pressure. This rationale supported the idea that protecting skates during the embryonic stage was an important hedge against the possibility of a target fishery developing. This was followed with a policy recommendation from the AFSC to invoke HAPC designation and associated fishing restrictions in areas where these skate eggs are found.

While not all skates have been assessed, Bering Sea skate populations are generally considered healthy. In fact, there was an overall increase in skate biomass in the Aleutian Islands and eastern Bering Sea in recent years (Skate EA, page 80). Furthermore, Bering Sea fisheries do not currently target skates. Considering that protection of skates during the embryonic stage should lead to greater survival of skate species, the expected effect of closing these areas to fishing would be an increase in the populations of skate species which are already deemed healthy. This consideration has some validity; however the question that is relevant to this consideration is whether skate mortality needs to be reduced for some reason and/or whether skate populations need to be bolstered. It is important to note that this consideration is a different one from an impact to the physical habitat that makes these sites viable for skate embryo development.

6. Policy Recommendations

The research and policy documents developed by staff at the NMFS and the NPFMC are a significant contribution and have greatly improved our understanding of Bering Sea skates. Several sites have been identified which serve as skate spawning and embryonic development areas and these areas are clearly important if we wish to sustain healthy populations of skates in the Bering Sea.

The recommendations articulated here do not question the fact that these areas do serve as important habitat. These recommendations also do not question the fact that some types of human activities could affect skate habitat and fishing in these areas will indeed have some impact skate populations by inducing mortality on skate embryos, as well as juvenile and adult skates which are present at the same time that fishing gear is present in that area. However, the available information suggests that skate populations have been and are doing reasonably well in

spite of this and available information indicates that fishing will not impact the physical habitat in these areas in a meaningful fashion. It is this latter point that is most important when considering whether and how to invoke EFH protections at these sites.

For those reasons, we believe that HAPC designation is warranted for these areas because they do appear to serve as important habitat for these managed species. However, it does not appear necessary to compliment HAPC designation with fishing restrictions as the available information does not indicate that fishing activity would impact the important features of these habitat areas. HAPC designation should, however, provide leverage in agency to agency consultation in the future if the need arises. Finally, while we have largely remained silent on the issue of monitoring, we believe that monitoring is an important activity in regards to EFH and those areas designated as HAPCs. One sub-option to Alternative 2 would ask the industry to assist in monitoring efforts. While we are not necessarily opposed to helping to monitor these sites, at this time it is difficult to envision how the industry could contribute to monitoring efforts in a meaningful and effective fashion.

7. Specific Recommendations Regarding Changes to EA

In this section we've provided some suggested changes to the Purpose and Need statement and to the description of the intent of Alternative 2. Suggested changes are intended to be consistent with our recommendations and analysis regarding the reasons for EFH protection, the role of these areas in supporting skate species, and the effect that human activities may have on these sites.

The Purpose and Need Statement is included below. Suggested changes are either in CAPS or are in strikethrough font.

HAPCs are geographic sites that fall within the distribution of Essential Fish Habitat 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, areas of skate egg concentration. Candidate HAPCs 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 HAPCs identify sites of egg concentration by skate species (Rajidae) in the eastern Bering Sea. Skates are elasmobranch fish that are long-lived, slow to mature, and produce few young. Skates deposit egg cases in soft substrates on the sea floor in small, distinct sites. A reproducing skate deposits only several egg cases during each reproductive season. Depending on the species, a single egg case can hold from one to four individual skate embryos, and development can take up to three years. Thus, a single egg case site will hold several year classes and species, and eggs growing at different rates.

Distinct skate egg deposition sites have been highlighted by skate stock experts while assessing skate information from research survey and catch locations. The scientists noted repeated findings of distinct sites where egg cases recruit to sampling or fishing gear contacting the sea floor: egg case prongs (or horns) entangle in or cases recruits into the gear. ~~The eggs and embryos are highly susceptible during their lengthy development to disturbance, damage, or destruction from fishing gear that contacts the sea floor. Fishing activities within these sites can also disrupt recently hatched juveniles and reproductive adult skates depositing new eggs in these~~

~~sites. It is therefore important to protect areas of skate egg concentration and limit the loss of skates during its early life stages. THESE SITES ARE DISCRETE AREAS NEAR THE SHELF/SLOPE BREAK THAT SERVE AS IMPORTANT SPAWNING AND EMBRYONIC DEVELOPMENT AREAS FOR SKATE SPECIES. IT IS THEREFORE IMPORTANT TO CONSIDER 1) DESIGNATING THESE SITES AS HAPCs, 2) TO CONSIDER RESTRICTING ACTIVITIES WHICH IMPACT THE HABITAT AT THESE SITES, AND 3) TO MONITOR THE CONTINUED UTILITY OF THESE SITES FOR SKATE SPAWNING AND EMBRYONIC DEVELOPMENT, AND FURTHER STUDY THE RELATIONSHIP BETWEEN THE HABITAT FEATURES OF THESE SITES AND SITE SELECTION FOR SKATE EGG DEPOSITION.~~

Text contained on page 33 of the Draft EA is contained below. We have struck out language that we believed should be modified to be consistent with our overall policy recommendations.

~~Alternative 2 would identify areas of skate egg concentration as HAPCs without any associated conservation or management measures. The Council may select individually, severally, or all of the six areas identified as potential skate egg concentration HAPCs. Under Alternative 2, the Council would not limit fishing activities or prohibit gear types that make contact with the sea floor. Alternative 2 is intended, however, to “discourage fishing in these areas” of skate egg concentration with gear that makes contact with the sea floor. However, under Option a, the Council may request that NMFS monitor HAPCs for any effects of fishing and for industry to support those efforts.~~

8. References:

Barnes, Peter W, James P. Thomas. 2005. Benthic Habitats and the Effects of Fishing. American Fisheries Society Symposium 41

Hoff, Gerald. 2006. Biodiversity as an index of regime shift in the eastern Bering Sea. National Marine Fisheries Service, AFSC. Fish. Bull. 104:226–237

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Lokkeborg, Svein. 2004. Impacts of trawling and scallop dredging on benthic habitats and communities. FAO Fisheries Technical Paper 472. Rome.

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Stevenson, David, Louis Chiarella, Dianne Stephan, Robert Reid, Kurt Wilhelm, John McCarthy, Michal Pentony. 2004. Characterization of the Fishing Practices and Marine Benthic Ecosystems of the Northeast U.S. Shelf, and an Evaluation of the Potential Effects of Fishing on Essential Fish Habitat. National Marine Fisheries Service. Woods Hole.