Marine Conservation Alliance

promoting sustainable fisheries to feed the world

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May 17, 2012

Marta Nammack
Acting Chief, Endangered Species Division
Office of Protected Resources
National Marine Fisheries Service

RE: North Pacific Right Whale Recovery Plan

Dear Mrs. Nammack:

The Marine Conservation Alliance (MCA) appreciates the opportunity to comment on NMFS' intent to prepare a recovery plan for the North Pacific right whale (Eubalaena japonica). MCA represents a broad base of harvesters, processors, and fishing community interests in the North Pacific and Bering Sea whose interest is in promoting and advocating for sustainably managed fisheries. Our comments are intended to provide some insights into the possibility of fishery and North Pacific Right Whale (NPRW) interactions in the Bering Sea and to describe some of the factors that we believe will help inform the agency as you consider measures that will foster recovery of this species.

When it comes to possible threats to NPRW from fishing, the chief factor appears to be the threat of entanglement. This is based upon experiences in the North Atlantic. While ship strikes have also been listed as a potential threat, fishing vessels achieve top speeds of somewhere on the order of 12 knots and move at a maximum of 3 – 5 knots while fishing, making the threat of ship strikes from the fishing industry unlikely. Our comments therefore focus on the possibility that various Bering Sea fisheries have for posing a threat of entanglement.

The risk of entanglement is the nexus of several different factors coming together. NPRW and fishing gear must occupy the same space, at the same time, and that gear must be capable of causing an animal to become entangled. In order to help inform the agency on the possibilities for NPRW entanglement we have focused our comments based on the following questions:

- Which fisheries in the Bering Sea area use tangle netting or fixed gear?
- If fixed gear is being used, is the gear being used a stout sinking line, or a floating line?
- Do those fisheries occur in areas where NPRW are found?

- Do those fisheries occupy that space at the same time as NPRWs are present?
- What is the possibility that derelict gear is left behind and remains when NPRWs are present?

1. Executive Summary

Several fisheries operate in the Bering Sea which could, at first glance, appear to pose an entanglement risk to NPRW. However, when looking at these fisheries closely, the risk appears to be minimal due to lack of common space, use of common space at the same time, use of gear that appears to minimize entanglement risk, and the use of fishery management tools which significantly reduce the possibility of gear loss.

While several fisheries operate in the NPRW Bering Sea Critical Habitat (CH) area, each of those fisheries which utilize fixed gear relies heavily on sinking line rather than a floating poly line. In some cases, floating line is used at the lower segments of fixed gear in order to keep gear from tangling up on the ocean floor. However the majority of the vertical line in these cases is sinking line. This is in contrast to the North Atlantic where floating line at the surface was common prior to regulations mandating the use of sinking line.

Fisheries which operate in Bering Sea CH are active in that area to varying degrees. For instance, the pot cod fishery, the halibut fishery, and the sablefish fishery have a relatively small degree of activity taking place inside Bering Sea CH, while the freezer longline and crab fisheries have higher rates of activity in these areas. However, when looking at whether fisheries and NPRWs are in the CH area at the same time, an even different picture arises. The crab fisheries, for instance, do not appear to fish in the Bering Sea CH area until after NPRWs have left the area for seasonal migrations elsewhere.

The possibility that derelict gear will remain in the Bering Sea CH area after fishing activity has ceased is another risk of entanglement. One dominant factor determining whether derelict gear will remain in CH areas is whether a fishery is operating as a derby or whether it has been rationalized under a catch share system. Under a derby system (aka a “race for fish”) significant amounts of gear are deployed as each vessel attempts to out-compete the others. This gear is set quickly, sometimes carelessly, and often in less than ideal conditions. These factors contribute to gear loss. Under a rationalized (catch share) system, the amount of gear deployed can oftentimes diminish and if it does not, it is often deployed in a different, more careful manner that reduces the amount of gear that can be lost. In the BSAI crab fisheries for instance, 10 to 20 percent of the registered pots were estimated to have been lost prior to rationalization, while after rationalization 1 to 1.4 percent of the pots registered in the Bristol Bay red king crab (BBRKC) fishery were estimated to be lost (NPFMC 2010). The presence or absence of a rationalized fishery can be used as an indicator in to whether relatively high rates of gear loss are occurring. If true, then nearly every fishery that operates in the Bering Sea CH area should be expected to have little in the way of derelict gear since most of them operate under a catch share system.

While threats can be reduced, they clearly cannot be completely eliminated. Records of bowhead, gray, and humpback whales exist which appear to have been entangled in fixed gear from the North Pacific or Bering Sea, and subsistence hunters have noted scarring on bowheads

which may be from fishing gear (though these whales clearly survived the event). However, these observations are very few and far between. For instance, we are aware of two entangled gray whales (which are thought to have survived), one entangled bowhead whale (which apparently died from the entanglement event), and one humpback whale (status unknown) which may have become entangled in Federally managed Bering Sea fishing gear since 2007. These whale species have a population of approximately 20,000, 10,000, and over 6,000 animals respectively; meaning 0.010%, 0.010%, and 0.017% of their respective populations have been knowingly affected via Bering Sea fishing gear entanglement over the last several years (i.e. the rate of entanglement is a fraction of a percentage of each whales' respective population). We believe there are reasons to think the chances of entanglement with a NPRW are even lower (which is explained later). However, if these statistics are any indication of the magnitude of entanglement probability for a given population over this time span, then we might expect one NPRW entanglement event every several hundred years. Such a rate under that time frame would appear to indicate that fishing does not pose a meaningful risk to NPRW future survival.

Table 1 Summary of Bering Sea Fishery Activity in Relation to NPRW CH in the Bering Sea

Fishery	Entanglement or Fixed Gear	Line	Occupy same Space?	Occupy space at same time?	Rationalized
Salmon	Yes	Floating	No	NA	No
Crab	Yes	Mostly sinking	Yes	No	Yes
Halibut	Yes	Sinking	Minimal	Yes	Yes
Sablefish	Yes	Sinking	Minimal	Yes	Yes
Freezer Longline	Yes	Mostly sinking	Yes	Yes	Yes
Trawl	No	NA	Yes	Yes	Yes
Pot Cod	Yes	Mostly sinking	Minimal	Yes	No

Notes: 1) Trawl gear is not considered entanglement gear for whales
2) Freezer longline operations take place inside CH, but not to the same degree as crab. The relatively small number of vertical lines used in this sector is also an important factor to consider.
3) The degree to which fishing operations take place inside CH is an important consideration and is displayed in a subsequent figure

2. North Pacific Right Whales in the Eastern Bering Sea

NPRWs are found in the eastern Bering Sea seasonally, with most of them being found from the spring through fall. Recent studies have indicated the presence of NPRWs in the winter months, but such a presence appears sparse. Where NPRWs travel to after this period is not well understood, but in the Atlantic, right whales travel south to warmer climates during the winter. A recent study funded by the North Pacific Research Board sought to estimate ideal calving habitat for the NPRW, based partly on what is known about Atlantic right whales. This study indicated that ideal NPRW calving habitat may be the Baja Peninsula/Southern California coast, the Northwestern Hawaiian Islands and the southern coast of China and northern coast of

Vietnam (Good et al. 2009). This may provide some indication of where the NPRWs travel to during the winter months.

3. Fisheries and NPRWs in Space and Time

Critical Habitat (CH) has been designated for the NPRW. These CH areas host the greatest observed numbers of NPRWs in recent years. NPRWs have been observed outside these areas, but those observations are rare. Furthermore, observations of NPRWs in the North Pacific are seasonal. Fisheries occur in the CH area, but many of these fisheries are also seasonal and occur at times when NPRW are not believed to be present.

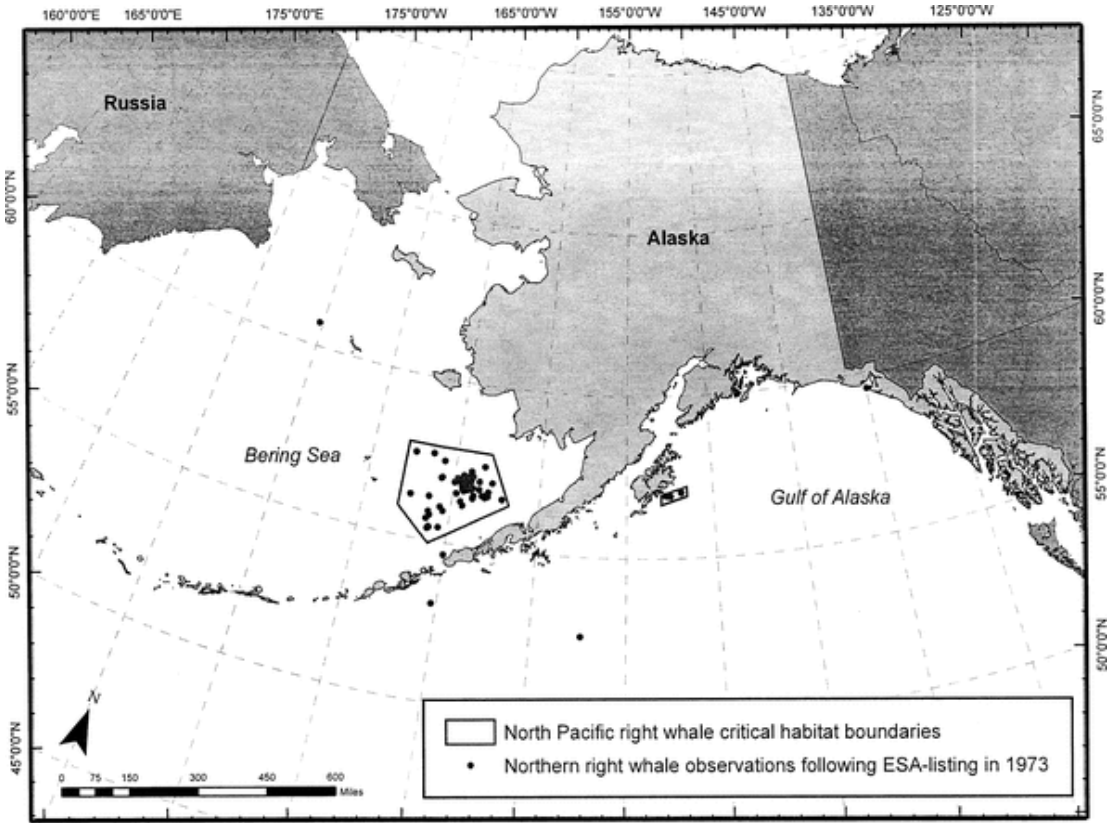

Figure 2 North Pacific Right Whale Critical Habitat (source: Federal Register)

Fisheries actively occur in this CH and have done so for decades. To date there have been no records of NPRW entanglement with fishing gear in the North Pacific and eastern Bering Sea. The question to ask is "why?" and whether factors which have led to no entanglements should be expected to persist in the future.

Types of gear that most frequently entangle North Atlantic right whales include pots and gillnets. Gillnet fisheries in the eastern Bering Sea occur in nearshore waters (state waters) not associated and generally not overlapping with known North Pacific right whale distribution. Pot fisheries occur in offshore waters, but are often prosecuted during seasons when right whales are not known to be present (NOAA. 2006). In addition to timing, the type of gear used in Bering Sea fisheries differs from what has historically been used in the North Atlantic. Pot gear and

longline gear in the North Pacific is primarily deployed using heavy and relatively stiff sinking line that extends from the buoy down toward the pot. These gear differences would appear to reduce risk of entanglement. The types of fisheries that occur here include:

- Bering sea crab
- Pot cod
- Halibut longline
- Sablefish longline
- Freezer longline
- Trawl and Dredge

a. Fisheries and NPRW in Time

The presence of NPRWs and the timing of fisheries in the Bering Sea CH area is one important consideration. As shown below, NPRWs are found throughout the summer and into the early fall. Fisheries in this CH area occur at all times of the year, but much of the effort in CH occurs during the winter months when NPRWs do not appear to be present, or present in significant concentrations. In particular, most of the fixed gear fishery effort occurs in months where NPRWs are generally not found in CH. As shown in the table below, fixed gear effort increases in October and this is due to the start of the important Bristol Bay Red King Crab (BBRKC) fishery. Regulations allow that fishery to begin in mid-October. Effort continues through the winter as fisheries target other crab species and Pacific cod, among others. What is not evident in the figure below is that the amount of crab gear deployed within Bering Sea CH has diminished greatly since the start of the rationalization program in 2005, and therefore the figure below can only be used to describe very basic levels of fishery seasonality.

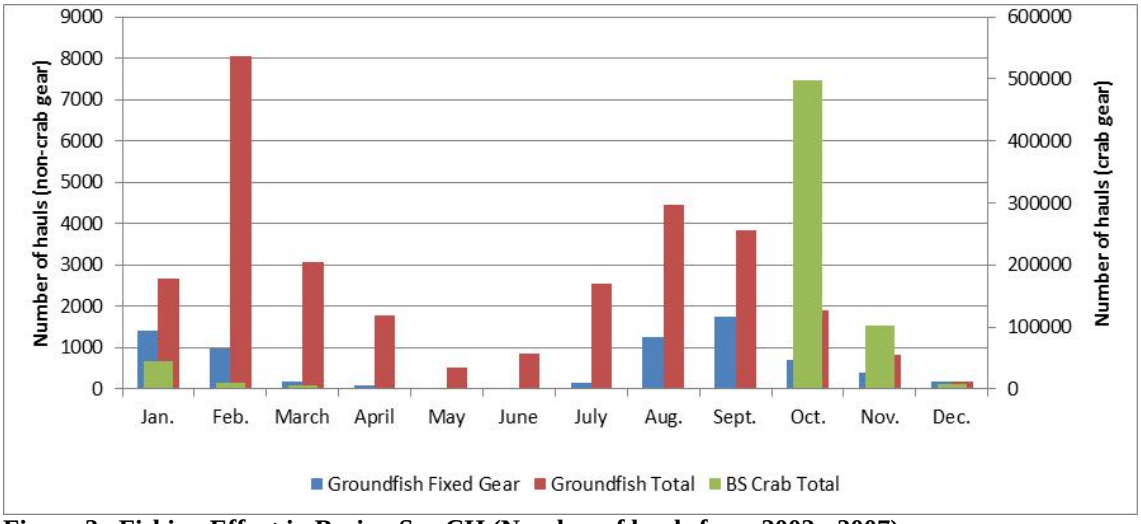

Figure 3. Fishing Effort in Bering Sea CH (Number of hauls from 2002 - 2007)

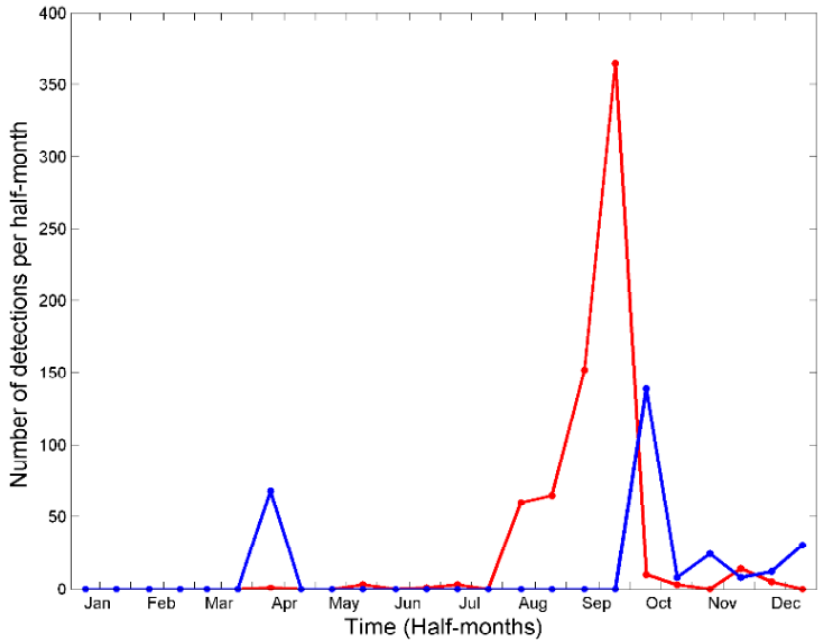

Figure 4 Acoustic Detection of NPRWs in the Bering Sea. Note that red line reflects recordings from a southeastern Bering Sea location. (source: MCAF presentation to the NPFMC. 2010)

b. NPRWs and the Amount of Deployed Fishing Gear

Since the introduction of rationalization to the Bering Sea crab fishery in 2005, the amount of gear deployed in this fishery has diminished significantly. In the important Bristol Bay Red King Crab Fishery (which takes place inside NPRW CH), gear deployment has diminished nearly sixty percent if one compares average gear deployment in the five years before and after implementation of the program.

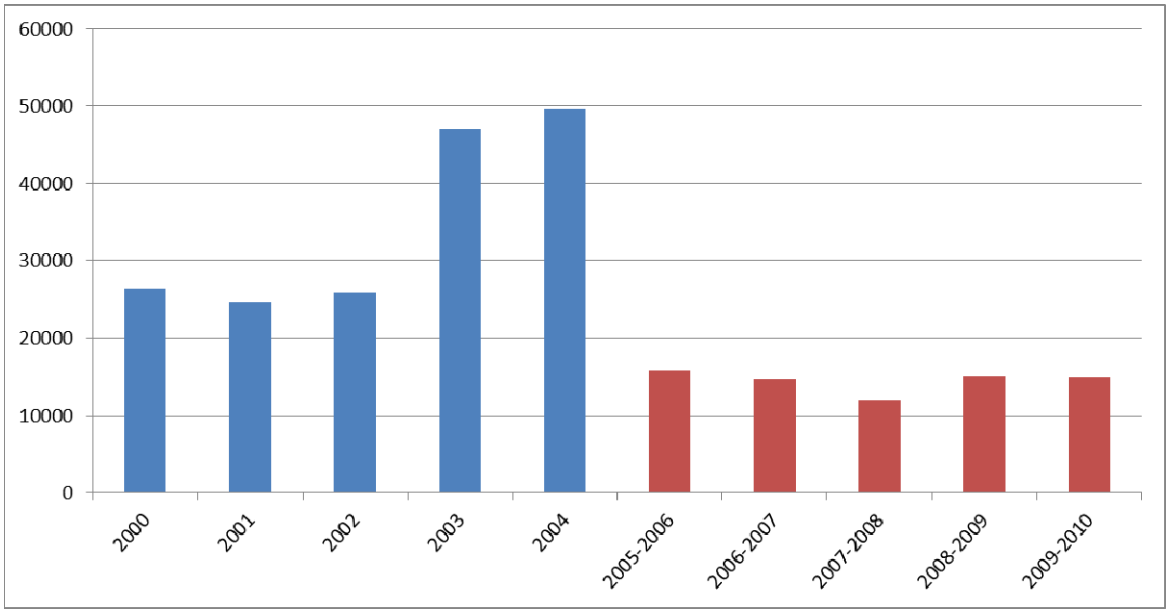

Figure 5 Registered Pots in the BBRKC Fishery (source: NPFMC Crab Rationalization Program 5 Year Review)

The amount of gear deployed by other fisheries in the Bering Sea CH area is relatively minor. For instance, some halibut and sablefish longline fishing occurs along the IPHC Area 4A edge, which borders the NPRW CH area. The under-60-foot-pot-cod fishery fishes to the north of Unimak pass but typically no more than 15 miles from shore, meaning this fishery primarily operates to the south of the CH area. The freezer longline fishery does operate within the CH area, but spends more time on the shelf/slope break. What may be important in the case of longline gear that does operate in the CH area is the relatively small amount of effort that does occur there and the small number of vertical lines used by this gear type. Few vertical lines would seem to reduce chances of encounters.

c. NPRWs and Derelict Gear

Perhaps one question to examine is the degree to which derelict gear remains on the grounds after fisheries have ended and whether that derelict gear may be present at the same time as NPRWs. For instance, in a recent study of Bowhead whales, the authors were able to track animals and found that the Bowheads moved into crab and cod grounds as the Bering Sea ice extended south during the winter. However, Bowheads generally remained in areas of more than 90 percent sea ice cover, which is an area where fixed gear fisheries cannot operate (Citta et al 2011). Since whales were tracked in areas where fisheries cannot be active, the authors postulated that fishing gear interactions are perhaps derelict gear interactions.

In order to examine this issue from the perspective of NPRWs we can look at several factors. The NPFMC 5 year review of the crab rationalization program provides some data regarding gear loss in that fishery. In this review, the authors indicate that an estimated 10 to 20 percent of crab pots were lost each year prior to the rationalization program. In the two years after the rationalization program went in to place, only 1 to 1.4 percent of registered pots in the Bristol Bay red king crab fishery were lost, and only 2 to 6 percent of the pots registered in the *bairdi* and *opilio* fisheries were lost. When combined with the decrease in the total number of pots registered to the BBRKC fishery before and after the implementation of the rationalization program, total gear loss in this fishery may have diminished by a whopping 90 to 97 percent.

While similar statistics are not readily available for other fisheries in the area, the statistics from the Bering Sea crab fishery before and after rationalization illustrate an important trend which is seen in many rationalized fisheries, and that is a reduction in the amount of gear lost at sea. In the Bering Sea, many fisheries have been rationalized over the past several years, including fixed gear fisheries. These include the BSAI crab fisheries, the halibut and sablefish longline fisheries, the freezer longline fishery, and several trawl fisheries such as pollock and flatfish.

4. Types of Bering Sea Fishing Gear and NPRWs

Fisheries of the North Pacific use different gear than fisheries of the North Atlantic, and therefore the knowledge gained from North Atlantic right whales and fishing is not completely applicable to the Bering Sea. In particular, the use of “weak links” which are used widely in the Atlantic would not appear to be practical in the North Pacific due to the size of the gear, the force which must be used to haul gear off the ocean floor, and the presence of ice which can drag gear (and which would likely sever a weak link). Generally speaking, fixed gear in the North Pacific uses stout sinking line to connect fishing gear to a surface buoy. Longline operations (lines which either connect a series of pots or which are used to string hooks) rely heavily on sinking

groundline which is also relatively stout compared to poly line. Here we discuss several different sectors of the fishery and the type of gear used, as well as additional information describing the spatial extent of these fisheries.

a. Freezer Longline Fishery

Most vessels in this fishery are using "swivel gear" 4-strand weighted line in 9mm, 9.5mm and 11.5mm thicknesses. The swivel system adds weight and line is designed to sink as fast as possible. Some vessels use additional weighted line that includes a lead strand manufactured into the line for faster sinking for bird avoidance. In addition, lines are anchored at each end and additional weights are attached along the length of the line to assure line sinks quickly and lies still on the ocean floor.

Lines at each end of the string return to a single buoy at the surface. These "buoy lines" are rigged with sinking line. Floating line at the surface is undesirable as it tends to increase drag. Some vessels may use floating line from the anchor up to as much as the first 25% of the entire buoy line nearest the anchor to avoid line gathering on the bottom and becoming entangled.

In a spatial sense, this fishery is active to the northwest of Unimak pass, which places it within the Bering Sea CH area. Substantial effort also takes place along the shelf/slope break of the Bering Sea.

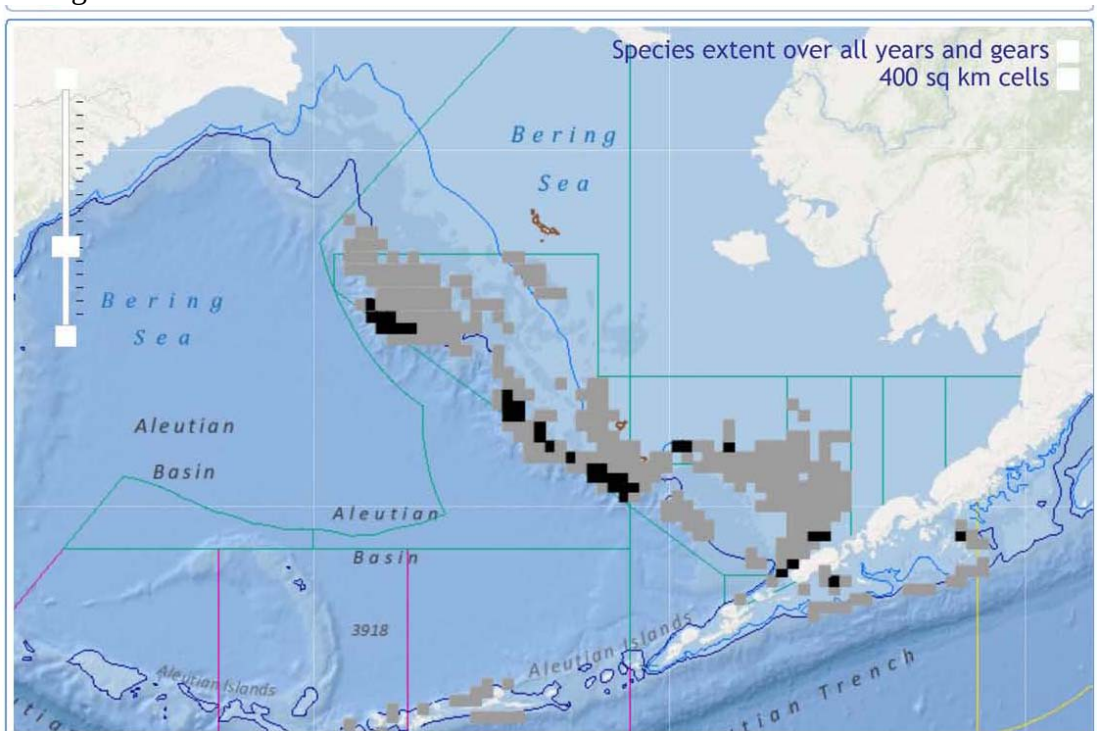

Figure 6. Observed catch of Pacific cod with Longline Gear in 2010 (source: NMFS AFSC data request)

b. Under 60 Foot Halibut, Sablefish, and Cod Fixed Gear Fisheries

The under 60' fixed-gear (both pot and longline) cod fishery for the most part takes place from January through April and from September 1 – October. The fishery takes place to the south of the critical habitat area mostly around Unimak Pass and within 15 miles of shore. There is also a

noteworthy degree of effort in state waters around Adak since the processing plant there was reactivated, however this is a large distance from CH and observations of NPRW.

For the most part, the gear is universal among the under 60' pot cod fishery. The fleet uses mostly 6.5'X6.5'X36" pots matched with 1/2 floating poly and 1/2 sinking nylon buoy line both 3/4" in diameter. The sinking line is at the surface end and is attached to the buoy. The floating line is attached to the pot and floating line is used here to prevent gear from tangling itself at the bottom. The lines are tied together in the center.

A small boat Community Development Quota/Individual Fishing Quota (CDQ/IFQ) fishery occurs around the Pribilof Islands and takes place in Area 4C almost exclusively. 4C is a small rectangular shaped area around St. Paul and St. George which is outside the NPRW CH area (see figure below). The fleet uses 5/16" leaded (sinking) groundline and mostly sinking line for the buoy setups (though some use a 50/50 split of floating and sinking line). The buoy line that is used by the fleet is either 5/16" or 3/8". The range of depths that are fished are from 8 to 45 fathoms.

Larger vessels (up to 60 feet) fish the greater Bering Sea area in halibut regulatory zones 4A and 4D and in the BS region for sablefish. These vessels use 3/8" sinking groundline and 3/8" sinking buoy line for both halibut and sablefish. These vessels will fish as far north as St. Matthew Island, St. Lawrence Island, and along the shelf/slope break in areas 4A and 4D (see figure below).

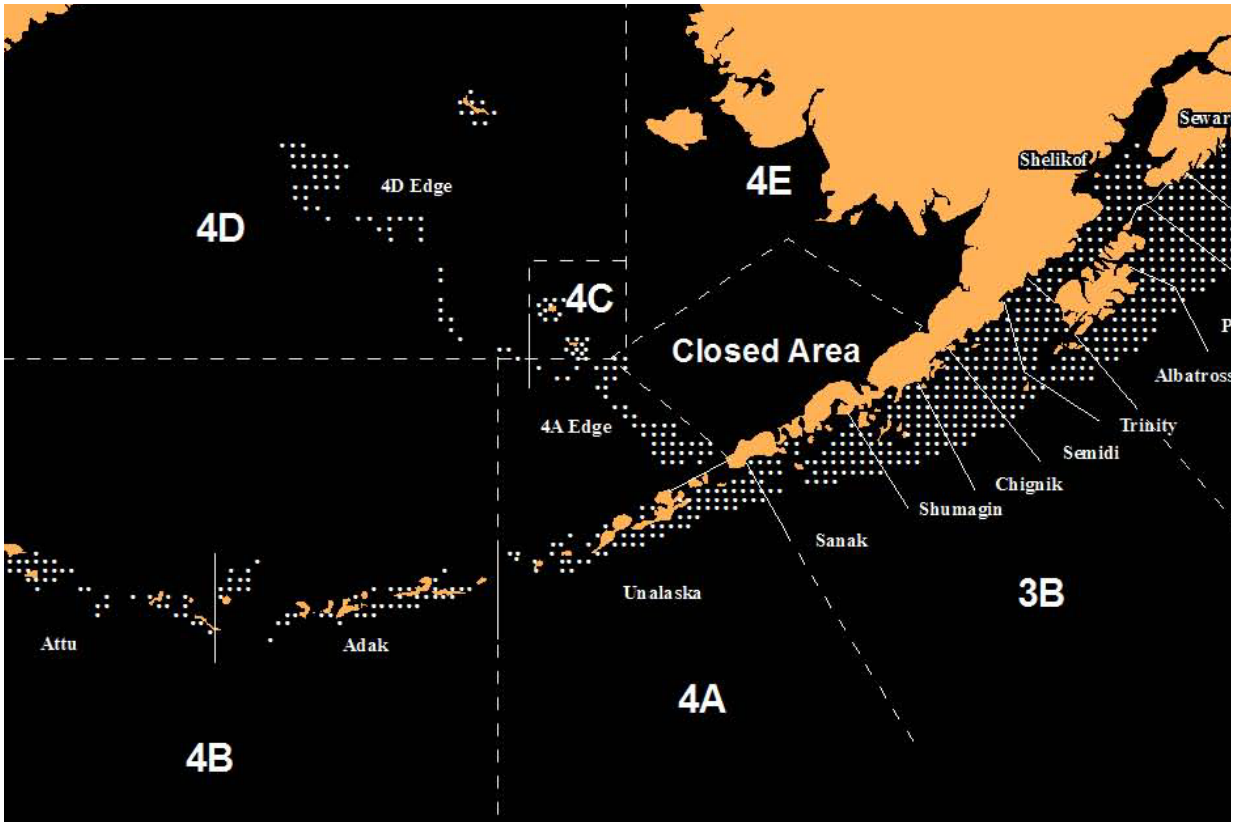

Figure 7 Halibut Management Areas and Set Locations (note each dot represents an IPHC survey location. In the Bering Sea the fleet generally fishes in these same areas) source: IPHC

c. Bering Sea Crab

The BSAI crab fleet uses pot gear to catch crabs. The fisheries for red king crab use pots that typically measure 7 feet by 7 feet by 32" deep and set one pot per line. A typical pot weighs near 1,000 lbs. Pots used in this fishery are constructed with a steel bar frame (1.25" diameter) and covered with tarred nylon mesh netting. The pot is attached with a bridle, generally constructed of one-inch diameter floating polypropylene line. The bridle is attached to floating line, then sinking line, and finally floating buoys at the surface. The lower floating line generally comprises 33 fathoms of 3/4" polypropylene. The upper sinking line generally comprises an additional 33 fathoms of 3/4 nylon for a total line length of 66 fathoms. The length of the floating line is not sufficient to reach the surface. The floating line keeps from fouling on the bottom and the sinking line avoids accidentally fouling in the vessel's propellers. Attached to the sinking line at the surface is a plastic buoy with an auxiliary buoy attached on a trailer line.

Gear lost in this fishery typically occurs when a line is snapped, so lines are no longer at the surface when this gear loss occurs. The estimated annual footprint from all crab gear in the Bering Sea (including red king crab and *opilio*) is approximately 1/2 of a square mile.

5. Bering Sea Fishing Activity and Interactions with Gray, Humpback, and Bowhead Whales

Other whale species that occupy the Bering Sea in addition to the NPRWs are the bowhead whale, the humpback whale, and the gray whale. The population of bowhead whales in the area is thought to exceed 10,000 animals and is growing at a rate of approximately 3.4 percent per year (NOAA, 2007). The minimum population of gray whales in 2010 was approximately 18,000 animals, with an annual rate of population increase of over 3 percent (NOAA 2010). The estimated number of humpback whales in the North Pacific is thought to exceed 6,000 (NOAA 2005). In 2010 a dead bowhead whale was found along the Bering Sea wrapped in pot gear. In 2008 a gray whale was found off California entangled in Bering Sea crab gear, and in 2012 a vessel was reported to have cleared line from a different gray whale. In 2011 an observer reported a humpback tangled in pot gear. The one clear documentation of entanglement with longline gear (as opposed to pot gear) with any whale type in the Bering Sea is with an orca whale. This event occurred in 1988 around Akutan Pass with a vessel fishing with sablefish longline gear. The fact this was an orca is important context as these whales actively seek out longline gear in order to feed on fish brought to the surface by that gear. This places orcas in frequent and close proximity to the fishing gear and increases chances of entanglement. This behavior is not exhibited by NPRWs or other baleen whales, meaning available data on entanglement suggests longline gear poses a minimal risk of entanglement to baleen whale species.

Bowhead whales and gray whales travel to different areas than the NPRWs. Bowhead whales spend summer months in the Chukchi and Beaufort Sea, while apparently most of the eastern Pacific gray whale population travels to the northern Bering sea and Chukchi Sea during the summer (though whales have been observed in the southern Bering Sea, the GOA, southeast Alaska, British Columbia, Washington, and Oregon). This is apparently a much more northerly range than NPRWs. NPRWs have been sighted mostly in the southeastern Bering Sea in recent years, but with one sighting further to the north around St. Matthews Island.

In a recent study of bowhead whales, the authors were able to track animals and found that they occupied areas in the Bering Sea during the winter that were also active crab and cod grounds (areas which are south of the Chukchi Sea). However, they generally remained in areas of more than 90 percent sea ice cover, which is an area where fixed gear fisheries cannot operate (Citta et al 2011). The authors postulated that fishing gear interactions are most likely derelict gear interactions. The reason this derelict gear was present in the first place is not known, but there are different factors at play here than in areas where NPRW are found. For instance, the sea ice itself contributes to causing derelict gear by covering up floating buoys and perhaps dragging them. Bowhead whales that are following the edge of the sea ice could be prone to coming across such gear. In the case of the southeastern Bering Sea where NPRW are found, sea ice is not as present and the NPRWs have moved out of the area prior to any sea ice arriving.

The Eastern Pacific population of gray whales migrates south every winter to Mexico. Whales moving from the northern Bering Sea and Chukchi seas would pass through fishing grounds during this migration. Whales that are migrating late may encounter some active crab fishing gear, and this is apparently what occurred during the entanglement episode from 2008. This gray whale encountered fishing gear from the Bristol Bay red king crab fishery that was set in December (later than the peak migration period of gray whales). This event can be explained at least partially simply by looking at the size of the gray whale population. This population is estimated to be near 20,000 animals. This means that the number of animals migrating during non-peak months may still be noteworthy and therefore the possibility of fishing gear interaction during those shoulder or off-peak months is also noteworthy. The same cannot be said for NPRWs.

Putting these encounters in context is also important. As indicated above, documented interactions between fishing gear and these whales represent fractions of a percentage of the existing population for each of these species, and when considered over the span of several years the rate of known encounters is even lower than this figure. If we apply those same rates to the NPRW population (assume 30 to 50 animals), we would expect one NPRW interaction every several hundred years. This rate of interaction would not appear to meaningfully impact chances of recovery.

The factors causing bowhead and fishing gear interactions do not appear present in the case of NPRWs. The bowhead population remains under the ice, and may be encountering derelict gear. Gear that comes across ice may be drug for distances, eventually creating a rather consistent line gear under the sea ice that a bowhead may encounter. In the eastern Bering Sea where gear loss is minimal and animals depart prior to the arrival of ice, this same dynamic would not be in play and therefore the chances of derelict gear encounters would likely be less. This information suggests that documented rates of encounters between fishing gear and bowheads may be higher than what might be expected between fishing gear and NPRW.

6. Conclusion

Man-induced threats to the North Pacific Right Whale cannot be completely eliminated. At the same time, the threshold for acceptable potential impacts to NPRWs sets the bar very high. In the Atlantic, fishing gear entanglement is one factor that apparently causes harm to right whales.

In the eastern Bering Sea, several fisheries operate in areas where right whales are found. However, when examined for spatial overlap, time overlap, the type of gear used, and amounts of gear lost, the risk appears minimal.

- Freezer longline operations are present in the same areas as NPRWs are found, but the intensity of fishing in these areas is relatively low, the fishery relies heavily on sinking line, and the number of vertical lines used in this gear is low.
- Crab fisheries operate in the Bering Sea CH area; however, the timing of these fisheries does not appear to overlap with the seasonal presence of NPRWs, heavy sinking line is used widely in this gear, and gear loss in this fishery has been documented to be very low.
- Small vessel fixed gear fisheries (halibut and sablefish longline and pot cod) operate near the CH area, but by and large these fisheries occur to the south of Bering Sea CH, or near the western edge of this same CH. These fisheries widely use sinking line and the number of vertical lines in the halibut and sablefish longline fisheries are few.
- Other fisheries, such as trawl and scallop fisheries, do not use gear that is believed to pose a risk of entanglement to the NPRW.
- The risk of ship strikes by fishing vessels appears minimal due to relatively slow cruising speeds (on the order of 12 knots) and slow speeds while fishing (a maximum of 3 to 5 knots).

When examining data on known entanglements of whales in the Bering Sea, we find a handful of worthwhile observations. In the case of longline fisheries, the only documented case of entanglement was with an orca whale; a species which seeks out longline gear to feed off the fish caught by that gear, thereby increasing the possibility that this species will become entangled. This same behavior does not exist for baleen whales like the NPRW. In other cases we do find evidence of entanglement or gear encounters with species like bowhead, humpback, and gray whales. However, the population of these whale species is significantly larger than the NPRW, and when viewed in the context of the total population, the entanglement rate between these whales and gear which may be used in fixed gear fisheries (such as crab and cod pot gear) is extremely low. While this merely reflects the known number of interactions, even if the actual number is two to three times larger than what has actually been observed the rate is still very small in the context of the entire population. If we apply these rates to the case of the NPRW the result indicates we may expect one entanglement-like encounter every several hundred years. We believe that all of this information put together appears to indicate that fishing poses no meaningful risk to the North Pacific right whale.