

# DRAFT ASSESSMENT OF THE ENVIRONMENTAL CONSEQUENCES OF GUIDELINES FOR THE SAFE DETERRENCE OF POLAR BEARS

## Summary

The deterrence provisions of the 1994 amendments to the Marine Mammal Protection Act of 1972, as amended (MMPA) provide an exception to otherwise prohibited acts for the use of measures that may deter a marine mammal from, amongst other things, damaging private property or endangering personal safety [Section 101(a)(4)(A)(ii) and (iii), respectively], so long as such acts of deterrence do not result in the death or serious injury of a marine mammal. The amendments further instruct the Secretary to publish in the *Federal Register* a list of guidelines for use in safely deterring marine mammals. Section 101(a)(4)(B) further directs the Service to recommend specific measures that may be used to nonlethally deter marine mammals, including marine mammals listed as endangered or threatened under the Endangered Species Act of 1973 (ESA). The Service listed the polar bear (*Ursus maritimus*) as a threatened species under the ESA on May 15, 2008 (73 FR 82212) and published a final special rule under Section 4(d) of the ESA for the polar bear on December 16, 2008 (73 FR 76249). At the time of the listing, the Service issued an interim final rule under section 4(d) of the ESA for the polar bear. That interim rule, later finalized at 73 FR 76249, provided that activities authorized or exempted under the MMPA may not be considered as violations under the ESA or its implementing regulations (50 CFR 17.40(q)(2)). Thus, if we issue the guidelines, citizens conducting activities that comply with these guidelines would need no additional authorizations under the ESA, nor would we consider their activities a violation under the take prohibitions of either the MMPA or the ESA. This Environmental Assessment considers the environmental consequences of the proposed guidelines and identified alternatives to the proposed guidelines.

### 1.0 Purpose of the Proposed Action

The MMPA requires the Secretary of the Interior, through the U.S. Fish and Wildlife Service (Service) to publish a list of guidelines for use in safely deterring marine mammals and, for marine mammal species listed as threatened or endangered under the ESA, to recommend specific measures that may be safely used to nonlethally deter these animals. The proposed guidelines set forth provisions that the Service finds are appropriate for safely and nonlethally deterring polar bears from damaging private and public property and endangering the public. Use of these measures will reduce occurrences of bear-human interactions and result in no more than minor, short-term behavioral effects on polar bears.

### 2.0 Need for the Action

The MMPA allows for private citizens to deter marine mammals from damaging fishing gear or catch, damaging private property, and endangering personal safety. However, the use of deterrence measure used may not cause the animal serious injury or death, and the measures may only be directed at marine mammals that are a threat to human activity or land that has been

modified for human use. For example, polar bears may not be deterred from: unmodified property; a rock ledge, a beach, or an undeveloped barrier island where they are resting; where bears are not interacting with human activity except that they may be deterred from damaging personal property. By allowing the deterrence of marine mammals from damaging private property, these provisions may increase the occasions in which people inexperienced with bear behavior may interact with polar bears. It is conceivable that someone, inexperienced with marine mammals, while deterring an animal in an approved manner, might injure an animal. As the public may be unacquainted with what constitutes a serious injury to a marine mammal, the guidelines for deterrence must temper the means that are allowed to be used to deter marine mammals.

An existing regulation, 50 CFR Section 18.22, allows government officials and employees, acting in their official capacity, to harass and even to lethally take a marine mammal, if such harassment or taking is for the health and welfare of the general public or the animal. Additionally, the Service authorizes the nonlethal incidental or intentional take of polar bears through Letters of Authorization (LOAs) issued under Sections 101(a)(5)(A) for incidental take, or 109(h) and 112(c) for intentional take. Using these programs' highly effective protocols for working with and training authorized individuals in bear deterrence, we reduce the possibility of situations where bear and human activity overlap from escalating into a potentially lethal encounter. The Service does not intend the guidelines to replace or supersede those protocols or programs, but rather, consistent with the MMPA, to be guidelines that any citizen may undertake to minimize potential interactions with polar bears. Thus we believe that the guidelines for safe deterrence of polar bears will serve as a benefit to the population.

### 3.0 Public Participation

The Service has considerable experience in mitigating polar bear–human interactions, and the draft guidelines were developed based on internal expertise and experience. Nevertheless, the Service will consult with experts in the field, as well as the general public, as directed by Section 101(a)(4)(B) of the MMPA prior to finalizing these guidelines.

### 4.0 Alternatives Including the Proposed Action

4.1. Alternative 1. The Proposed Action. The proposed action is the development of guidelines for use in safely deterring polar bears in certain situations and as long as the act of deterrence does not result in the serious injury or death of a polar bear. Specifically, the measure will allow a citizen to safely deter a polar bear from damaging private property and from endangering personal safety. The purpose of the guidelines is to provide guidance to the citizenry of actions that will safely deter polar bears in a manner that will minimize bear–human interactions as well as cause no serious injury or mortality to polar bears.

4.2. Alternative 2. No Action. The provisions in the 1994 amendments that instruct the Secretary to establish guidelines for the safe deterrence of marine mammals and to develop a list of prohibited measures are mandated by Congress and approved by the President. Additionally,

and as part of a settlement agreement in the United States District Court – Northern California District, the Service is directed to publish in the *Federal Register*, final guidelines for use in safely deterring polar bears, including specific measures which may be used to nonlethally deter polar bears, by March 31, 2010. Legally, the alternative to take no action is not available.

## 5.0 Affected Environment

A description of the Affected Environment is not required for the purposes of an Ecological Assessment.

## 6.0 Environmental Consequences

6.1. The Proposed Action. The proposed guidelines allow persons living in, working in, or travelling through, areas where polar bears may occur to use certain measures to safely deter bears.

Below we propose two levels of deterrence guidelines (Passive and Preventive) that a citizen may follow in order to nonlethally deter a polar bear. Each type of measure includes a suite of appropriate actions that may be used.

### **Passive Deterrence Measures**

Passive deterrence measures are those that prevent polar bears from gaining access to property or people and do not require the immediate presence of a human to administer them. The proper use of these passive deterrence devices provide for safe human use and do not increase the risk of serious injury or death of a polar bear.

*Rigid fencing.* Rigid fencing and other fixed barriers such as gates and fence skirting can be used around buildings or areas to limit bears from accessing community or industrial sites and buildings. Fencing areas of land 5 acres (2.02 ha) and smaller can be used to limit human–bear interactions. Industry standard chain-link fencing material can be used. Chain-link fencing can be placed around buildings on pilings (10,000 square feet or smaller) as skirting to limit access to the underneath of the buildings.

*Bear exclusion cages.* Bear exclusion cages provide a protective shelter for people in areas frequented by bears. Cages are erected at building entry and exit points to exclude polar bears from the immediate area and allow safe entry and exit for persons while gaining access to or leaving a building should a polar bear be in the vicinity. Additionally, they provide an opportunity for people exiting a building to conduct a visual scan upon exit; such a scan is especially important in areas where buildings are constructed above ground level due to permafrost and bears may be resting underneath. These cages can be used at homes or industrial facilities to passively deter bears. Cages can be used in areas of undetermined bear use and in bear travel corridors (e.g., within 0.5 mile from coastline), to deter bears from facilities. Cages must be no smaller than 4-ft (w) by 4-ft (l) by 8-ft (h). Bars must be no smaller than 1 inch

diameter. Distance between bars must no more than 4 inches on center. The ceiling of the cage must be enclosed.

*Bear-proof garbage containers.* Bear-proof garbage containers exclude bears from accessing garbage and limit polar bears from becoming food conditioned or habituated to people and facilities, which further reduces the potential for bear-human interactions. Commercially designed residential bear-proof containers (32–130 gallons) can be implemented. Containers (2- to 6-cubic yards) can be specifically designed by commercial vendors as bear-proof containers. Larger garbage containers, such as dumpsters or “roll-offs” (20–40 cubic yards), can limit bear-human interactions when the containers have bear-proof lids. Lids must be constructed of heavy steel tubing or be similarly constructed with heavy expanded metal.

### **Preventive Deterrence Measures**

Preventive deterrence measures are those that can dissuade a polar bear from initiating an interaction with property or people and generally require the presence of a human to administer. The proper use of these preventive deterrence devices when employed provide for safe human use and do not increase the risk of serious injury or death of a polar bear.

*Acoustic devices.* Acoustic deterrent devices may be used to create an auditory disturbance causing polar bears to move away from the affected area. The reasonable use of loud noises, e.g., vehicle engines, or an air horn, where such auditory stimuli could startle a bear and disrupt its approach to property or people is authorized. Recent research on responses of captive polar bears to auditory stimuli have shown that polar bears are able to detect sounds down to 125 Hertz (Hz) (Bowles et al. 2008) and high-frequency sounds up to 22.5 kHz (Nachtigall et al. 2007). Polar bears possess acute hearing ability at a wider frequency range than humans (less than 20 kHz), and data indicate that polar bears hear well within the frequency range of 11.2 to 22.5 kHz (Nachtigall et al. 2007). Sounds ('roars') with frequency content between 100 and 600 Hz and broadcast directionally at over 120 dB SPL (sound pressure level) appeared to have the most success at deterring bears (Wooldridge 1978, Wooldridge and Belton 1980). However, there are no data available to indicate minimum received sound levels required to cause damage (e.g., a temporary threshold shift [TTS]) to polar bear hearing. While these upper limits are unknown, the Service believes that the use of sound deterrent devices will not harm polar bears and, therefore, is allowable as long as the sound level of the directed acoustic device used to deter bears has a sound strength of no greater than 150 dB SPL (the upper level that is painful to humans) (American Speech-Language-Hearing Association 2009). Because commercially available air horns fall below this upper limit, we believe their use is reasonable, may be effective in deterring bears, and cause no harm to individual animals.

*Vehicle or boat deterrence.* Patrolling the periphery of a compound or encampment in an enclosed vehicle or similarly patrolling an area in a small boat and deterring, but not chasing, polar bears with engine noise or by blocking their approach without contacting the animal is a preventive deterrence.

## 6.2. The Deterrence of Marine Mammals

The proposed guidelines provide for the deterrence of polar bears, a marine mammal, from endangering personal safety and minimizing injury to the bear. The Service recognizes that, if during an interaction with a polar bear all possible means of deterrence have been attempted and have proven unsuccessful and the threat of danger to a person is real and immediate, a person may harass, injure, or even kill the animal in self-defense or to save the life of another human. The implementation of these guidelines will have no new impact on the environment or polar bear populations. These guidelines are unlikely to increase the opportunities in which humans harass, injure, or kill marine mammals. In past situations where citizens have interacted with a polar bear, persons have responded and will likely continue to respond to abate or to escape the perceived danger in whatever manner necessary, regardless of these, or any, guidelines. Furthermore, the implementation of these guidelines is preventative in nature. They are designed to reduce the chance of a bear-human interaction occurring as opposed to addressing a situation in which a person encounters a bear and must take appropriate action as allowed under Section 101(c) of the MMPA. These guidelines would implement the law and, if made final, protect the person from potential prosecution should the taking of a polar bear occur pursuant to their following one of the measures set out in the guidelines. In most situations, where life is not in danger, the guidelines could be followed by citizens, resulting in fewer injuries to marine mammals than might be expected without this guidance.

Under the proposed guidelines, owners of private property, their employees, bailees, or agents are allowed to take measures to deter polar bears to minimize risks to people and bears as well as to minimize private property damage. The guidelines provide actions that may be used by any individual to deter polar bears. Although the guidelines specifically outline measures that would allow for the safe, nonlethal deterrence of polar bears, in the unlikely event a polar bear is seriously injured or killed as a result of a citizen implementing one of the specified guidelines, that taking would not be a violation under the MMPA.

## 6.3. Assumptions for the Guidelines

Before analyzing the benefits and costs of each measure in the proposed rule, one should examine the assumptions under which they were developed. The standard by which a deterrence measure is deemed safe is whether or not it may be safely carried out by an individual and whether or not it has the potential to cause the serious injury or death of a polar bear when used properly by any individual. To assess this, we analyzed polar bear-human interactions described and reported by the oil and gas industry in conjunction with their LOAs and we examined probable means of deterring polar bears. The documentation of these interactions (approximately 2,079 interactions), during the period from 1993 to 2009, were a requisite for issuing LOAs as discussed above; a large percentage of these interactions were passive. For example, in 2008, seventy-three percent of recorded polar bear sightings consisted of observations of polar bears traveling through or resting near the monitored areas without a perceived reaction to human presence. Twenty seven percent of polar bear sightings involved Level B harassment, where bears were deterred from industrial areas with no injury. Using this database of reported polar bear-human interactions and observations, we also considered

whether a proposed measure potentially compromises human safety, has deleterious effects on the marine environment, or poses enforcement quandaries.

Furthermore, the proposed guidelines are narrow in scope. Polar bears are highly curious and potentially dangerous animals and the guidelines must address the actions of all citizens, regardless of their experience in dealing with polar bears. The guidelines do not assume that a person can assess the activity or temperament of a particular polar bear and therefore provide guidance for activities that may be safely conducted by any citizen and are not likely to result in injuries to polar bears

#### 6.4. Guidelines for Safe Deterrence

The guidelines for safe deterrence were drafted recognizing that no act of deterrence of a polar bear should result in the serious injury or death of the animal. The guidelines should in no way be considered a license to use the described measures in excess or with impunity. Though the authorized deterrence measure may be deemed safe, if the force applied is excessive and potentially injurious, the act of deterrence could be considered as a violation under the MMPA.

#### 6.5. Cumulative Effects

The proposed guidelines cover a category of activities that are largely baseline in nature, i.e., activities that may already be in use. Therefore, we do not anticipate that the continued or refined use of these activities will result in additional effects on polar bears or their habitat. Furthermore, because of the nature of these types of activities, we do not project that there will be any substantial effects on polar bear behavior or habitat use.

#### 6.6. The No Action Alternative

The alternative of taking no action to develop guidelines for the deterrence of marine mammals in specific situations or to regulate such deterrence by issuing guidelines for safe deterrence is not available. Certain deterrence of marine mammals is provided for in the statute, and, therefore, is in effect even without implementation of these proposed guidelines. The statute also mandates that the guidelines, and prohibitions if warranted, be developed and implemented. If the alternative of taking no action were available, persons using deterrence measures on a marine mammal would have no guidance on how to do so without causing serious injury or death to the animal. Without the guidelines, the consequence of uninformed actions to deter marine mammals may result in an increase in the risk of polar bear injuries and mortalities.

The provision which allows private citizens to deter marine mammals from damaging private property or endangering personal safety should have no environmental impact whether or not it is implemented. A person endangered by a marine mammal will respond appropriately to regain his/her safety, regardless of the guidelines and prohibitions. Such has been the case before and after enactment of the MMPA, and as such it is expected to continue. The same is true of the provision which allows private citizens to take marine mammals in self-defense or to save the life of another person from a threat that is real and imminent; it, too, should have no effect on the status quo.

### 7.0 Finding of No Significant Environmental Impact

The proposed guidelines would authorize the deterrence of polar bears by individuals living in, working, traveling through areas where polar bears may occur. The proposed guidelines for safe deterrence provide that such deterrence will not likely result in serious injury or death to polar bears. The environmental consequences are negligible.

Based on this summary of effects, I have determined that the implementation of marine mammal deterrence guidelines to safely deter polar bears will not have significant effect on the human environment. For this reason, no environmental impact statement needs to be prepared.

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(Signed)

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(Date)

## 8.0 LIST OF PREPARERS

The principle contributors to the development of the proposed guidelines and this environmental assessment are: Terry DeBruyn, Craig Perham, and Charles Hamilton.

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