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Navy Military Training Exercises in the Gulf of Alaska

SUMMARY

The US Navy seeks to continue military training activities called “Northern Edge” in the Gulf of Alaska to “achieve and maintain readiness.” (Source www.goacis.com).

On March 31st, 2016, US Navy representatives speaking at ComFish in Kodiak, AK stated that the Navy had pre-selected training dates for 2017. Their planned dates are May 1 – 12, 2017. Regional communities and fisheries find these dates problematic and feel that training in May pose risks to our commercial and subsistence fisheries. We seek to engage the Navy and support an alternative time of their ‘Northern Edge’ training exercises to take place exclusively between mid-September and March.

Currently, these exercises are planned during the most prolific breeding and migratory periods of the marine supported life in the region (salmon, whales, birds and more). The Gulf of Alaska, which has still not fully recovered from the Exxon Valdez oil spill, is home to Alaska’s most diverse population of Indigenous Peoples who rely on its bounties for sustenance, commercial and traditional hunting and gathering activities. Natives living on the northern coast of the Gulf of Alaska include Eskimo, Eyak, Athabaskan, Koniag, Tlingit and Aleut, and collectively constitute 30 percent of the area's overall population. (Source: Alaska Native Commissions Report <http://www.alaskool.org>).

Background

According to the EIS preferred plans, these "war games" will involve use of high-frequency and mid-frequency sonar (235 dB) for submarine exercises, plus a wide variety of live weapons and explosives deployment - bombs, heavy deck guns, torpedoes, missiles, large carrier strikes (ships blown up & sunk) none of which will ever be recovered. Although military training exercises have been conducted in the GOA intermittently for the last 40 years, those proposed in the current EIS are a massive increase from any conducted before 2011 (e.g. a 6,500% increase in sonobuoys). The use of active sonar was permitted for the first time in 2011.

The Navy has applied for permits to conduct training exercises in the Gulf of Alaska (GOA) for up to 42 days (from April to October) annually for a five-year period, 2016 – 2020. The National Oceanic and Atmospheric Administration (NOAA) is the permitting agency with support from the National Marine Fisheries Service (NMFS). The Navy is required to complete a supplemental EIS (released 7/29/2016).

Significance

The GOA is the pathway and breeding grounds that provides traditional food sources and is the primary sustainable economic engine for Indigenous and non-native communities alike in Alaska. Of all species of fish and marine mammals Indigenous people in the region use for food and cultural traditions, none is more iconic than wild salmon. Wild salmon are at the heart of Alaska’s image the world over. These proposed Navy training exercises pose a large risk to all types of fish and marine mammals that live in or travel through the GOA, including all five species of Pacific Salmon.

The area where they bomb and blast is vital habitat for many species. The water here supports the most sustainable and economically valuable fisheries left in the USA.



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Commercial fishing is the largest private sector employer in Alaska, providing over 63,000 jobs.

Immediate harm to marine life includes death from explosions and sonar and the destruction of essential habitat areas. Long-term risks include exposure to hazardous chemical by-products left from the expended materials (bombs, sunken vessels, etc), and the bioaccumulation of hazardous chemicals that can be assimilated into the food chain. These risks threaten the cultural freedoms and economic livelihoods of Indigenous peoples that depend on these animals today and have for thousands of years. These trainings and the toxic debris they leave behind will cause irrevocable damage to fish, marine mammals, sea birds, their habitats, and the human communities that rely on the ocean for food and sustenance.

The Navy acknowledges the harm and deaths the exercises pose to marine mammals and refers to the thousands of “takes” that are anticipated when these exercises are carried out (over 36,000 takes annually, >182,000 over five years). When it comes to fish, including salmon, it is clear from the EIS that *the extent of the damage and risk are largely unknown*. Much more scientific research is needed to know the effects these trainings have on fish populations. A quote from the EIS Section 3.6 Fish on Explosive Sources states: “...little is known about the very important issues of nonmortality damage in the short and long-term, and nothing is known about effects on behavior of fish.”

The GOA, south of Prince William Sound, is essential habitat and traveling pathways for all of the rich diversity of sea life and mammals. It is unacceptable to host military training exercises in the spring and summer, year after year, during the most prolific breeding and migratory periods for all of the marine supported life in the entire region especially when the Navy has previously identified that both September and October are acceptable months in which ‘Northern Edge’ can be conducted and historically the Navy only trained in the winter months.

Summary Conclusion

The Eyak Preservation Council (EPC) is extremely concerned about these trainings and their potential for negative effects on humans, animals and the environment. EPC believes that these trainings pose a risk to Native and Non-Native Subsistence Foods culture and harvests as well as commercial fisheries. This paper references fish and does not delve into the effects of these trainings on marine mammals.

The trainings will take place in areas that include Essential Fish Habitat. The proposed activities in the TMAA (Temporary Marine Activities Area, map on page 7) have the potential to result in the following impacts:

- Physical disruption of habitat;
- Physical destruction or adverse modification of benthic habitats;
- Alteration of water or sediment quality from expended material or discharge;
- Cumulative impacts.

Please refer to Notes on subsequent pages



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NOTES:

The following are excerpts from the Navy's Environmental Impact Statement and can be read in full at www.goaeis.com.

EIS Section 3.6 Fish:

- The TMAA and vicinity is a highly productive region for various marine fish and shellfish populations and supports some of the most productive fisheries in the United States*
- The TMAA falls within the Alaska Current (AC) and the Alaska Coastal Current (ACC) systems. Both currents flow in a northerly direction off southeastern Alaska and then turn southwestward along the Alaska coast**
- Currently the GOA supports habitats of "endangered" and "threatened" populations of high seas salmon (Chinook, coho, chum, and sockeye salmon, and steelhead)
- The TMAA and vicinity is a highly productive region for various marine fish and shellfish populations and supports some of the most productive fisheries in the United States. It is also an important spawning area for many fishes
- At least 383 species belonging to 84 families of marine and anadromous fishes have been reported from the predominant ecosystems found in the GOA TMAA
- 59 of the 66 managed groundfish species are known to occur in the TMAA
- Five species of Pacific salmon (Chinook, coho, chum, pink, and sockeye salmon) have EFH designated within the TMAA
- Of the five species of Pacific Salmon, Chinook would be the most affected by the Navy's trainings
- The effects [of the trainings] on fish could include direct physical injury, such as potential for death, injury, or failure to (or an increase in the time needed to) reach the next developmental stage.
- Stress to fish populations in warfare areas includes environmental stressors, acoustic effects of underwater sounds to fish, effects of underwater impulsive sounds, explosive ordnance, nonexplosive ordnance, and expended materials.
- Potential stressors to fish and EFH include vessel movements (disturbance and collisions), aircraft overflights (disturbance), explosive ordnance, sonar training (disturbance), weapons firing/nonexplosive ordnance use (disturbance and strikes), and expended materials (ordnance-related materials, targets, sonobuoys, and marine markers).
- Potential effects of explosive charge detonations on fish and EFH include disruption of habitat; exposure to chemical by-products; disturbance, injury, or death from the shock (pressure) wave; acoustic impacts; and indirect effects including those on prey species and other components of the food web.

* These trainings will occur during fishing season. Commercial fishing is the largest private sector employer in the state of Alaska and supports over 63,000 jobs.

** This means that the expended materials left in the water after the trainings will flow towards Alaska's coastline.

In reference to Sonar:

- There have been very few studies on the effects that human-generated sound may have on fish
- The majority of studies often lack appropriate controls, statistical rigor, and/or expert analysis of the results
- Hearing capability data only exists for fewer than 100 of the 29,000 fish species
- Generally, a clear correlation between hearing capability and the environment cannot be asserted or refuted due to limited knowledge of ambient sound levels in marine habitats and a lack of comparative studies
- Based upon currently available data it is not possible to predict specific effects of Navy impulsive sources on fish. At the same time, there are several results that are at least suggestive of potential effects that result in death or damage



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- The literature on vulnerability to injury from exposure to loud sounds is similarly limited, relevant to particular species, and, because of the great diversity of fish, not easily extrapolated

We just don't know:

- The effects of sound on fish are largely unknown
- A number of studies have examined the effects of explosives on fish. However, these studies are often variable, so extrapolation from one study to another, or to other sources, such as those used by the Navy, is not really possible
- Little is known about the very important issues of nonmortality damage in the short- and long-term, and nothing is known about effects on behavior of fish.
- More well-controlled studies are needed on the hearing thresholds for fish species and on temporary and permanent hearing loss associated with exposure to sounds.
- The effects of sound may not only be species specific, but also depend on the mass of the fish (especially where any injuries are being considered) and life history phase (eggs and larvae may be more or less vulnerable to exposure than adult fish).
- No studies have established effects of cumulative exposure of fish to any type of sound or have determined whether subtle and long-term effects on behavior or physiology could have an impact upon survival of fish populations.

Munitions Constituents:

- Petroleum hydrocarbons released during an accident are harmful to fish. Jet fuel is toxic to fish.
- Unburned fuel may be spread over a large area
- Fuel spills and material released from weapons and targets could occur at different locations and at different times.
- Potential impacts from Navy explosives training include degradation of substrate and introduction of toxic chemicals into the water column

EIS Section 3.14 Public Safety:

- Undetonated ordnance on the ocean floor may pose a risk to fishermen, particularly bottom trawlers. If a trawl contacted an undetonated ordnance item, the item could detonate.
- Chaff (aluminum-coated polymer fibers inside of a launching mechanism) will be used during the trainings. Upon deployment, the chaff and small pieces of plastic are expended. The purpose of chaff is to counter avoid aircraft detection by radar by masking the aircraft and to provide false radar returns to defeat radar-guided anti-aircraft defensive systems. Chaff will form a large cloud of fiber that disperses slowly, which could affect public safety.
- Some solid training items expended at sea could migrate to the shoreline where the public could encounter them. Included among these items are targets and sonobuoys.

Hazardous materials from the trainings left in the water include **heavy metals, propellants, and explosives**. Including the following: Cyanide, Chromium, Lead, Tungsten, Nickel, Cadmium, Barium chromate, Chlorides, Phosphorus, Titanium compounds, Lead oxide, Barium chromate, Potassium perchlorate, Lead chromate, Ammonium perchlorate, Potassium perchlorate, Fulminate of mercury, Potassium perchlorate and Lead azide.

The Navy was permitted Alternative 2 (their preferred).



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Table 3.2-18: Numbers and Weights of Expended Training Materials – Alternative 2

| Type of Training Material | Quantity of Training Materials | | | | Increase under | |
|---------------------------|--------------------------------|-------------|-----------------------|-------------|-------------------|--------|
| | Alternative 2 | | No Action Alternative | | Alternative 2 (%) | |
| | Number | Weight (lb) | Number | Weight (lb) | Number | Weight |
| Bombs | 360 | 160,000 | 120 | 54,000 | 200 | 200 |
| Missiles | 66 | 20,300 | 22 | 6,770 | 200 | 200 |
| Targets/Pyrotechnics | 644 | 11,200 | 252 | 3,610 | 160 | 210 |
| Naval gun shells | 26,376 | 27,500 | 10,564 | 10,700 | 150 | 160 |
| Small arms rounds | 11,400 | 420 | 5,000 | 180 | 130 | 130 |
| Sonobuoys | 1,587 | 61,900 | 24 | 936 | 6,500 | 6,500 |
| PUTR | 7 | 2,100 | 0 | 0 | NA | NA |
| SINKEX ¹ | 858 | 70,000 | 0 | 0 | NA | NA |
| Total | 41,298 | 352,000 | 15,982 | 76,200 | 160 | 360 |

It is up to us. Alaska regulations on expended and hazardous materials are not applicable to Navy training in the TMAA because no training activities take place within State waters (up to three nm from shore). Alaska has not developed any state-specific military munitions regulations.

Assuming Navy training under Alternative 2 would remain consistent over periods of five and 20 years, the Navy would expend approximately 880 tons (209 lb per nm² [27.5 kg per km²]) and 3,520 tons (835 lb per nm² [110 kg per km²]) of training material in the TMAA, respectively.

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List of Weapons to be Used in the GOA Trainings

Table 3.2-1: Hazardous Constituents of Expendable Training Materials, by Training Item

| Training Item | | Hazardous Constituent | | | | |
|--------------------------|--|-----------------------|------------|---------|-----------|-------------|
| | | Heavy Metal | Propellant | Battery | Explosive | Pyrotechnic |
| Missiles | AIM-7 Sparrow missile | ✓ | ✓ | ✓ | ✓ | |
| | AIM-9 Sidewinder missile | ✓ | ✓ | ✓ | ✓ | |
| | AIM-120 Advanced Medium-Range Air-to-Air Missile (AMRAAM) | ✓ | ✓ | ✓ | ✓ | |
| | Standard Missile-1 | ✓ | ✓ | ✓ | ✓ | |
| | AGM-65 Maverick | ✓ | ✓ | ✓ | ✓ | |
| | AGM-84 Harpoon | ✓ | ✓ | ✓ | ✓ | |
| | AGM-84K Standoff Land Attack Missile – Expanded Response (SLAM-ER) | ✓ | ✓ | ✓ | ✓ | |
| | AGM-88 High Speed Anti-Radiation Missile (HARM) | | | | | |
| | AGM-114 Hellfire | ✓ | ✓ | ✓ | ✓ | |
| | AGM-119 Penguin | | | | | |
| Bombs | BDU-45 Practice (inert) ² | ✓ | | | ✓ | |
| | MK-82 500-pound (lb) bomb (192.2 Net Explosive Weight [NEW]), HE ³ | ✓ | | | ✓ | |
| | MK-83 1,000-lb bomb (415.8 NEW), HE ³ | ✓ | | | ✓ | |
| | MK-84 2,000-lb bomb (944.7 NEW), HE ³ | ✓ | | | ✓ | |
| Naval Gun Shells | 5"/54-caliber (cal) gun shell (inert) | ✓ | ✓ | | | |
| | 5"/54-cal gun shell (live) | ✓ | ✓ | | ✓ | |
| | 76- millimeter (mm) gun shell (inert) | ✓ | ✓ | | | |
| | 76-mm gun shell (live) | ✓ | ✓ | | ✓ | |
| | 57-mm gun shell | ✓ | ✓ | | ✓ | |
| | 25-mm gun shell | ✓ | | | | |
| | 20-mm gun shell | ✓ | | | | |
| Small Arms Rounds | 0.50-cal machine gun | ✓ | ✓ | | | |
| | 7.62-mm projectile | ✓ | ✓ | | | |
| Targets and Pyrotechnics | BQM-74E unmanned aerial target ³ | ✓ | | ✓ | | |
| | LUU-2B paraflare ¹ | ✓ | | | | ✓ |
| | MK-58 Marine Marker ¹ | ✓ | | | | ✓ |
| | MK-39 Expendable Mobile Anti-Submarine Warfare Training Target (EMATT) | ✓ | | ✓ | | |
| Sonobuoys | SSQ-36 Bathythermograph (BT) | ✓ | | ✓ | | |
| | SSQ-53 Directional Frequency Analysis and Recording (DIFAR) | ✓ | | ✓ | | |
| | SSQ-62 Directional Command Activated Sonobuoy System (DICASS) | ✓ | | ✓ | | |
| | SSQ-77 Vertical Line Array Directional Frequency Analysis and Recording (VLAD) | ✓ | | ✓ | | |
| | SSQ-110A Extended Echo Ranging (EER) | ✓ | | ✓ | ✓ | |
| Torpedoes | MK-48 Advanced Capability (ADCAP) torpedo | ✓ | ✓ | ✓ | ✓ | |
| Chaff | ALE-43 Dispenser (Aluminized glass roll) ⁴ | | | | ✓ | |



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