

Boom Exercise Drills at  
Naval Base Ventura County  
Point Mugu

**INCIDENTAL HARASSMENT  
AUTHORIZATION PACKAGE**

DEPARTMENT OF THE NAVY

**Request by Naval Base Ventura County  
Point Mugu, for an Incidental Harassment Authorization  
to Allow for the Incidental Take of Harbor Seals During  
Boom Exercise Drills at Point Mugu, California**

submitted by  
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To

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Long Beach, California

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# TABLE OF CONTENTS

	Page
<b>SUMMARY OF REQUEST.....</b>	<b>3</b>
<b>I. OPERATIONS TO BE CONDUCTED.....</b>	<b>3</b>
<b>Overview of the Activity.....</b>	<b>3</b>
<b>Site Description.....</b>	<b>4</b>
<b>Program Activities Summary .....</b>	<b>5</b>
<b>II. DATES, DURATION AND REGION OF ACTIVITY .....</b>	<b>6</b>
<b>III. SPECIES AND NUMBERS OF MARINE MAMMALS IN AREA.....</b>	<b>6</b>
<b>IV. STATUS, DISTRIBUTION AND SEASONAL DISTRIBUTION OF AFFECTED SPECIES OR STOCKS OF MARINE MAMMALS.....</b>	<b>7</b>
<b>Harbor Seal (<i>Phoca vitulina</i>) .....</b>	<b>7</b>
<b>V. TYPE OF INCIDENTAL TAKE AUTHORIZATION REQUESTED .....</b>	<b>8</b>
<b>VI. NUMBERS OF MARINE MAMMALS THAT MAY BE TAKEN.....</b>	<b>8</b>
<b>VII. ANTICIPATED IMPACT ON SPECIES OR STOCKS.....</b>	<b>10</b>
<b>VIII. ANTICIPATED IMPACT ON SUBSISTENCE.....</b>	<b>11</b>
<b>IX. ANTICIPATED IMPACT ON HABITAT .....</b>	<b>11</b>
<b>X. ANTICIPATED IMPACT OF LOSS OR MODIFICATION OF HABITAT ON MARINE MAMMALS .....</b>	<b>11</b>
<b>XI. MITIGATION MEASURES .....</b>	<b>11</b>
<b>XII. PLAN OF COOPERATION .....</b>	<b>12</b>
<b>XIII. MONITORING AND REPORTING PLAN.....</b>	<b>12</b>
<b>Reports.....</b>	<b>13</b>
<b>Personnel .....</b>	<b>13</b>
<b>XIV. COORDINATING RESEARCH TO REDUCE AND EVALUATE INCIDENTAL TAKE....</b>	<b>13</b>
<b>XV. REFERENCES CITED.....</b>	<b>14</b>
<b>APPENDIX A Natural Resource Personnel at NBVC.....</b>	<b>16</b>
<b>APPENDIX B Acronyms and Abbreviations.....</b>	<b>17</b>

# **Request by Naval Base Ventura County Point Mugu, for Incidental Harassment Authorization to Allow for the Incidental Take of Harbor Seals During Boom Deployment Exercises at Point Mugu, California**

## **Summary of Request**

As part of Naval Base Ventura County (NBVC) Spill Response Program, boom deployment methods in the area contingency plan (US Coast Guard 2007) need to be tested to ensure response plans for spills are effective and can realistically be achieved. This will also provide training to spill responders, giving them the required training to successfully deploy booms in the event of an oil spill. To protect Mugu Lagoon from offshore oil-spills, boom needs to be deployed near the mouth of the estuary to keep off-shore oil from entering into sensitive estuarine habitat. This booming location is used year-round as a haul-out for Pacific harbor seals. This three-day annual training event will likely displace seals from the immediate area, resulting in hauled out seals moving into water when watercraft (zodiacs) are in the water placing or maintaining boom in close proximity to hauled-out seals. As there are additional mudflats to haul-out on away from exercise area, seals will likely move to those sites and use as a haul-out during boom exercise. As a majority of the booming activity will occur during high-tides when zodiacs are able to navigate estuary, very few seals should be displaced, as mudflats would be inundated and most seals would be in the water. Additional protective measures would also be in place to reduce the amount of seals disturbed or and the intensity of the disturbance. It is estimated over the 3 days of the training exercise, an estimate of up to 513 movements of seals from the mudflats into the adjacent waters may be expected. Exercises are planned to occur in September, to avoid young of year being separated from mother. No harbor seal mortalities are expected from the activity. No other marine mammals are expected to be impacted by exercise. Once booming strategies have been successfully deployed, it is likely training will reduce to once every two years.

Due to the potential for disturbance of seals, the Navy has determined that it should request an Incidental Harassment Authorization to ensure that its Boom Exercise program is conducted in full compliance with the Marine Mammal Protection Act (MMPA). NBVC Point Mugu, pursuant to Section 101 (a) (5) (D) of the MMPA, 16 U.S.C. § 1371 (a) (5), requests that it be issued an Incidental Harassment Authorization allowing non-lethal takes of harbor seals on land and in lagoon waters incidental to its planned boom exercise at Point Mugu, California, occurring annually and commencing in September of 2009. The items required to be addressed pursuant to 50 C.F.R. § 216.104, "Submission of Requests", are set forth below. This includes descriptions of the specific activities to be conducted, the types and numbers of pinnipeds present, the anticipated nature and extent of "taking", proposed measures to mitigate the "taking" to the lowest level practicable, and a plan to monitor any effects of the activity on these pinnipeds.

**I. OPERATIONS TO BE CONDUCTED-** A detailed description of the specific activity or class of activities that can be expected to result in incidental taking of marine mammals.

### ***Overview of the Activity***

As part of Naval Base Ventura County (NBVC) Spill Response Program, boom deployment methods in the area contingency plan (US Coast Guard 2008) need to be tested to ensure response plans for spills can realistically be achieved. This will also provide training to spill responders,

giving them the required training to successfully deploy booms in the event of an oil spill. To protect Mugu Lagoon from offshore oil-spills, boom needs to be deployed near the mouth of the estuary to keep off-shore oil from entering into sensitive estuarine habitat. Booms will be attached to zodiac watercraft and boat will cross estuary and anchor boom on the north and south side of the estuary. Due to strong tidal currents, booms will be placed on an angle, rather than perpendicular from the current. Booming strategies were tested in September of 2008, where it became evident that the proposed booming strategy could not be accomplished due to strong currents. A new boom deployment strategy will now be tested, however this changes the location and puts the boom at a regular harbor seal haul-out.

This booming location is used year-round as a haul-out for Pacific harbor seals. This three-day annual training event will likely displace seals from the immediate area, resulting in hauled out seals moving into water when watercraft (zodiacs) are in the water placing or maintaining boom in close proximity to hauled-out seals. As there are additional mudflats to haul-out on away from exercise area, seals will likely move to those sites and use as a haul-out during boom exercise. As a majority of the booming activity will occur during high-tides when zodiacs area able to navigate estuary, very few seals should be displaced, as mudflats would be inundated and most seals would be in the water. Additional protective measures would also be in place to reduce the amount of seals disturbed or and the intensity of the disturbance. It is estimated over the 3 days of the training exercise, up to 513 movements of seals from the mudflats into the adjacent waters may be expected. Exercises are planned to occur in September, to avoid young of year being separated from mother. No harbor seal mortalities are expected from the activity. No other marine mammals are expected to be impacted from exercise.

#### ***Site description***

The activity will occur within Mugu Lagoon, within NBVC Point Mugu. The base consists of 4,490 acres (1,817 hectares [ha]) along the Pacific coast, located approximately 50 miles (80 kilometers [km]) northwest of Los Angeles (Figure 1). Mugu Lagoon is the largest coastal wetland in southern California, with approximately 2200 acres of jurisdictional wetlands. The lagoon is composed of two long arms projecting out from a broader central basin, running parallel to the coast. Site is bounded by the Santa Monica Mountains east, the Oxnard Plains to the north, two duck-hunting clubs to the northwest and Ormond Beach wetlands to the west. The opening to the lagoon migrates and is delineated by a large boulder rip-rap seawall to the west, and a highly dynamic sand spit to the east. Large surf conditions are common and 2 to 4 knot currents should be expected during flood and ebb tides. It has been designated as an area of special significance (ASKS) as the estuary is home to many sensitive species. Federally listed species found in the estuary include the light-footed clapper rail, the western snowy plover, the California least tern, the California brown pelican, and the endangered plant, salt marsh bird's beak. State listed species also include the Belding's savannah sparrow and the peregrine falcon. Mugu Lagoon is also used by thousands of migrating and wintering shorebirds and waterfowl.

Mugu Lagoon was classified as an Environmentally Sensitive Site by the Local Area Committee, which is comprised of the Coast Guard and the Office of Spill Prevention and Response. These provisions are stated in the Area Contingency Plan (4-790-A). Also listed are recommended site strategies to protect resources from oil spills, although recommended and approved, they have not been validated, accomplishable and tested. Naval Base Ventura County is responsible for implementing these strategies as described

in the plan when a threat of an offshore spill is present. This exercise will prove the Area Contingency Plan strategies, as well as recommend more realistic strategies that will provide protection to our wetland and the wildlife that live in it.

### ***Program Activities Summary***

The following task descriptions provide an overview of the activities associated with the program. The purpose of this exercise is to develop response strategies that will provide the best possible protection for the lagoon in the event of an oil spill. SUPSALV will deploy the Salvage Skimmer Systems in Mugu Lagoon at the request of Naval Base Ventura County (NBVC) in order to attempt to validate booming strategies for sensitive site protection at Mugu Lagoon. Strategies are listed in the Area Contingency Plan and NBVC Oil and Hazardous Substance Integrated Contingency Plan. The exercise will be conducted by SUPSALV personnel on an annual basis. Once booming strategies are successfully accomplished, it is likely training will then occur on a biennial basis.

Specific training and exercise goals include:

- Safety
- Equipment mission and inventory overview
- Equipment mobilization, operation, and demobilization
- Command, control, and communications in coordinating a response in the waters of Mugu Lagoon
- Boat handling training in shallow water with currents
- Site support equipment training

The overall objective of the exercise is for all participants is to increase the proficiency of personnel involved in providing oil spill response through the application of hands-on equipment mobilization, deployment, and demobilization. The major objective is to demonstrate that their equipment is adequately maintained for emergency deployments and that the personnel receive training in how to operate the equipment under emergency oil spill response conditions.

**1. Day 1-Equipment staging:** Equipment such as boom and boats staged in area. There is no anticipated disturbance to marine mammals associated with this activity. Equipment includes two zodiac boats, concrete anchors, and approximately 1000ft of boom.

### **2. Day 2-4- Perform exercise:**

Boats launched into water. Tide will likely be high, as difficult to navigate boats in estuary during low or mid-level tides. If harbor seals hauled out in area close enough to boom location that seals would likely be disturbed by placement of boom, boat will slowly move toward seals to have them slowly move into water, rather than spooking seals if boats move quickly towards seals to deploy boom. The determination if seals are close enough to exercise area and need to be moved before exercise will be determined by base biologist who will be monitoring exercise. Once seals move into water, boats will return to shore to hook up boom. One side of boom will be anchored on shore. Boats will then pull boom out into water pulling boom across estuary (Fig 2). Boom will then be anchored on the other side of the estuary. Boats will be used to hold boom against the current until successfully in place and holding with anchors. If boom successful, boats would likely pull back on shore and boom monitored to ensure stable. Boom will be left in place during

the change in the tides to ensure its ability to withstand current and tide changes. If boom anchors break free, boats would have to re-enter water, secure boom, and re-anchor in same location or an alternate location if previous booming location proved to not be attainable.

**3. Day-5-Remove equipment.** Equipment such as boom and boats removed from area. There is no anticipated disturbance to marine mammals associated with this activity.

**II. DATES, DURATION AND REGION OF ACTIVITY-**The date(s) and duration of such activity and the specific geographical region where it will occur.

*Dates*

Exercise will occur annually during the month of September, however training may slide into October or November depending on availability of SUPSALV staff. The first year will be in 2009, but may slide to 2010 due to SUPSALV availability or permit processing constraints. Once boom deployment tested and successfully deployed, training will occur biennially to ensure staff are properly trained and ready to respond to an actual spill event.

*Duration*

Exercise will last four days. Only days two through four have the potential to disturb harbor seals.

*Region of Activity*

Activity to occur within Mugu Lagoon at NBVC Point Mugu, Ventura County, with more details provides in previous site description.

**III. SPECIES AND NUMBERS OF MARINE MAMMALS IN AREA**

Harbor seals (*Phoca vitulina*) are the only marine mammal species that will likely be affected by the activity and are found in the immediate area. The mudflats within Mugu Lagoon are used for resting, molting, and breeding of harbor seals. Numbers of harbor seals hauled out during 2008 ranged from 19 to 446 seals, with a mean of 202 hauled out throughout the year (60 surveys). Number of seals decreases during high tides, as haul-out areas are inundated. During September of 2008, the month when exercises will be done, a range 42 to 284 seals were observed hauled out (mean = 174).

Two other pinniped species are known to occur very infrequently in the general area of the proposed activity: northern elephant seals (*Mirounga angustirostris*) and California sea lions (*Zalophus californianus*). When present, these latter species haul out usually on the coastal beaches, located south of the project area on the ocean side of the barrier beach (Figure 2) and not within the estuary. Occasionally sea lions may enter the estuary, however most sighting have been of suspected injured or sick sea lions.

Isolated incidents of cetacean observations have occurred in the Mugu Lagoon area outside of the area affected by the proposed activity. In March of 2008, a Risso's dolphin (*Grampus griseus*) stranded on Family Beach. In January 2007, a young gray whale (*Eschrichtius robustus*) temporarily was stranded at the mouth of the lagoon. Records include an additional gray whale that beached itself on Family Beach approximately 28 years ago (Figure 2). Around the year 1995, a gray whale was observed moving in and out of the lagoon mouth entrance (T. Keeney, NBVC Point Mugu Environmental Division, personal communication, 2001). Sightings of Dall's porpoise (*Phocoenoides dalli*), bottlenose dolphin (*Tursiops truncatus*), common dolphin (*Delphinus* spp.) could occur in nearby coastal waters, and pilot whale (*Globicephala*

*macrorhynchus*) have been made within 3 nautical miles (NM) (5.6 km) of shore in the vicinity of Point Mugu (Koski et al.1998); however, none of these species would be expected to occur within the estuary or disturbed by this proposed activity.

**IV. STATUS, DISTRIBUTION AND SEASONAL DISTRIBUTION OF AFFECTED SPECIES OR STOCKS OF MARINE MAMMALS-**A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities. No species other than harbor seals will be discussed in regards to status, as it is extremely unlikely to be impacted by proposed activity.

#### **Harbor Seal (*Phoca vitulina*)**

The harbor seal is not listed under the Endangered Species Act (ESA) and the California stock, members of which occur in the Mugu Lagoon, is not considered a strategic stock under the MMPA. Harbor seals are considered abundant throughout most of their range from Baja California to the eastern Aleutian Islands. They are common and widely scattered in coastal waters and along coastlines in California. Over 850 haul-out sites are known for California and approximately 40 percent of known haul-out sites are occupied each year (Hanan 1996). The Southern California Bight (SCB) is near the southern limit of the range of the Pacific harbor seal (*P.v. richardsi*) (Bonnell and Dailey 1993). Harbor seals haul out and breed on all of the southern Channel Islands. They generally favor sandy, cobble, and gravel beaches in this area (Stewart and Yochem 1994). Most information on harbor seals comes from the periods when they are hauled out on land; however, over the period of a year they spend more time in the water than they do on land. Their distribution and movements while at sea are poorly known. The few sightings during aerial and ship-based surveys indicate that harbor seals are primarily found in coastal or nearshore areas. Recent studies using satellite-linked transmitters (deployed on only a few seals) have confirmed their primarily nearshore distribution and their tendency to remain near their haul-out sites (Stewart and Yochem 1994). In California, individual harbor seals remain relatively close to their haul-out sites throughout the year. A small number of seals (primarily juveniles) occasionally move between haul-out sites (Stewart and Yochem 1985). There are seasonal differences in the proportion of time that seals haul out and in the duration of foraging trips. The latter factor probably influences the distance that harbor seals can travel to and from their haul-out sites. There is age and sex segregation at haul-out sites and this may be true while they are at sea as well. Data obtained from radio-tagged seals indicate that most adult harbor seals leave haul-out areas daily even during the periods of peak haul out (Hanan 1996). The best estimate of the California stock of harbor seals is about 34,233 individuals. This is based on the most recent harbor seal counts on shore (NOAA 2007). Harbor seals are difficult to detect during ship-based or aerial surveys because of their inconspicuous behavior when at sea. The California population has increased from the mid-1960s to the late 1990s, although the rate of increase may have slowed since 1990 (Hanan 1996). This indicates either that harbor seal populations may be approaching the carrying capacity of the environment (Hanan 1996) or that harbor seals are being displaced by northern elephant seals (Mortenson and Follis 1997). Populations of northern elephant seals are expanding into areas that were previously occupied solely by harbor seals. Stewart and Yochem (1994) hypothesized that recent counts may not reflect the true population; seals may now be spending more time at sea feeding and/or part of the population has changed its haul-out behavior and is hauling out at night. For harbor seals, southern California has the lowest mean annual population growth rate of the three regions (i.e., southern, central, and northern) within California (1.9 percent, SE = 0.013; Hanan 1996).

Harbor seals haul out regularly along the northern side of the main estuary of Mugu Lagoon, but are found in other areas of the estuary during various times of the year (Figure 3). Seal numbers

have been monitored regularly since 1992. Numbers have increased with an average of 83 seals in 1992 to an average of 231 seals in 2006. Mugu Lagoon is also one of the few mainland pupping sites, with 60 pups born in 2008. Peak counts at Mugu Lagoon over the last ten years have exceeded 500 adults. Harbor seal pupping occurs on the beaches from late February to early April, with nursing of pups extending into May. Harbor seals are found throughout the year using Mugu Lagoon as a haul-out. Counts are available for every month from April 1992 through the present (February 2009), with the exception of 1998, when counts were made only during the period from June through August. The Navy counts probably do not include all of the seals using the site because:

- some individual seals may haul out primarily at night and feed at sea during the day, when most other seals are hauled out (see Stewart and Yochem 1994);
- counts are conducted only once, or occasionally twice, a day and higher numbers may be present at other times; and
- the timing of the molt, and hence the period of peak haul out, is different for different age and sex groups so that some segments of the population may be underrepresented in virtually all counts.

Other studies have suggested that harbor seals spend most of their time foraging during August to February, and that they may spend up to a week away from their haul-out site. It is possible that abundant food resources near the NBVC Point Mugu haul-out site permit harbor seals to spend more time hauled out there than at other sites on the California coast where food may be less abundant (Koski et al. 1998).

The peak number of harbor seals hauled out at NBVC Point Mugu during 2008 was 446 adults (16 June). This represents about 1.3 percent of the entire California population (34,233 in 2007). There is large day-to-day variation in these counts.

## **V. TYPE OF INCIDENTAL TAKE AUTHORIZATION REQUESTED**

The type of incidental taking authorization that is being requested (i.e., takes by harassment only, takes by harassment, injury and/or death), and the method of incidental taking. NBVC Point Mugu requests a Incidental Harassment Authorization pursuant to Section 101 (a) (5) (D) of the MMPA for incidental take by harassment during its planned exercise activities at Point Mugu during boom exercises commencing in September 2009. The operations outlined in Sections I have the potential to take marine mammals by harassment. Watercraft in the water will likely result in movement of seals from haul-out into the adjacent water (“Takes”). The effects will depend on the behavior of the animal at the time of reception of the stimulus, as well as the distance to activity. No take by serious injury and/or death is anticipated. There are not expected to be any “takes” of cetaceans or other pinnipeds due to their rare occurrence in the estuary. Any cetaceans or pinnipeds occurring in the nearshore area off Point Mugu would not be affected by the activities, since the distance from the project site precludes the potential for visual disturbance. The anticipated nature of the “takes” is discussed further in Section VII, “ANTICIPATED IMPACTS...”.

## **VI. NUMBERS OF MARINE MAMMALS THAT MAY BE TAKEN**

By age, sex, and reproductive condition (if possible), the number of marine mammals (by species) that may be taken by each type of taking identified, and the number of times such takings by each type of taking are likely to occur. This section estimates maximum potential take and the likely take during NBVC Point Mugu’s booming exercise, and describes the rationale for these take



estimates. All anticipated takes would be “takes by harassment”, rather than “serious injury or mortality”. The following subsections describe the basis for the take estimates.

### **Disturbance “Take” Criteria**

Seals disturbed from haul-outs within the action area would likely be displaced to alternative haul-out sites within the lagoon further from the booming activities. For purposes of this Application, seals are assumed to be “taken by harassment” if, as a result of activities, behavioral patterns of harbor seals are disrupted. Consistent with National Marine Fisheries Service ([NMFS] 1999), momentary alert or startle reactions by seals on the mudflats with no movement into the water are not considered to be “taking”.

### **Estimating “Takes” by Harassment**

The Navy estimates the number of hauled-out seals within the lagoon using census data obtained during ground-based surveys of the lagoon by staff of the Point Mugu Environmental Division. These data are described in Section III, and provide the most detailed and recent counts of harbor seals (and other marine mammal species) in this area.

### **Harbor Seal**

Most sex and age classes could be found on the mudflats within the lagoon during the booming exercise, although in reduced numbers at certain times due to foraging patterns, tidal state, and adverse weather. Sex and age will not be able to be determined, with exception of possible young of the year still identifiable by their smaller size. Females will not be in reproductive condition due to timing of exercise. The peak number of harbor seals hauled out at NBVC Point Mugu during 2008 was 446 adults in mid June, although there is large day-to-day variation in these counts.

To estimate the likely potential numbers of harbor seals that might be hauled out within the lagoon during the September period of the proposed activity, the Navy calculated using the low counts in September from 2003-2008, as low counts are usually associated with higher tides. The mean number of low counts is 57 seals (Table 1). Take would be expected at the beginning of the exercise as boats are put into water and seals would be slowly moved. Using mean low numbers for the month of September since 2003, 57 seals could be disturbed and move into water. Seals would likely move to a mudflat away from activity. However once boats are finished with deploying boom and boats return to shore, seals may return to mudflats in immediate area. This would result in more movements if boats need to return to the water to check on or adjust boom. This could result in another displacement of seals. It is projected that potentially three reductions of activity that allow seals to move back to the exercise area may happen each day (57 seals x 3 movements x 3 days) which would equal 513 individual movement events. If boom is successful it would likely lead to fewer disturbance events or if boom placement problematic resulting in additional disturbance events. This is also probably on the high side of what is to be expected, as harbor seal counts are not done during high tide events due to low numbers of seals.

The maximum number of displacements are based on the high counts of seals recorded within the estuary during the last five years (2003 to 2008) for the month of September. The mean high count over those years is 267 seals (Table 1). It is then projected that with three potential disturbance events, number of movements could equal as many as 2,403 (267 x 3 x 3). The Navy estimates that far less than that might actually be taken by harassment during each training exercise. The Navy’s proposed monitoring plan (Section XIII) will provide information on the final number disturbed. Any take would be limited to harassment, and the effects on individuals and the population would be negligible.

Table 1. September harbor seal survey results from 2003-2008.

Year	Mean # hauled out	Low Count	High Count
2003	124	36	217
2004	153	11	266
2005	197	88	369
2007	162	107	200
2008	174	42	284
Average	162	57	267

\* no survey data for Sept. 2006

## Summary

**VII. ANTICIPATED IMPACT ON SPECIES OR STOCKS-**The anticipated impact of the activity upon the species or stock of marine mammal.

The boom exercise activities within Mugu Lagoon will introduce boats into the estuary which are not allowed under normal conditions. When boats get too close to seals (~200ft) seals will either enter water for safety or seals further away from water will move closer to water to be able to move quickly into water if needed.

Harbor seals hauled out on shore can be disturbed by passing hikers, recreational vehicles, and small boats. This has been noted in many areas, including the western U.S. and Alaska, eastern Canada, and western Europe (e.g., Bowles and Stewart 1980; Reijnders 1981; Renouf et al. 1981; Allen et al. 1984; Osborn 1985; Brasseur 1993; Suryan 1993; Swift and Morgan 1993). Harbor seals spent more time scanning and less time “sleeping” in areas with human disturbance and occasional hunting (Terhune 1985). In the absence of hunting or active harassment, habituation probably occurs (Awbrey 1980; Bonner 1982; Thompson 1992; Brasseur 1993).

### **Behavioral Reactions of harbor seals to approaching watercraft**

#### **Momentary Alert Reactions**

There should not be startle responses and stampedes, as boats will be visible, and will slowly move toward haul-outs to give seals plenty of time to slowly move towards and enter water for safety.

#### **Habituation**

It is likely seals will move further east down the mudflats or closer towards the mouth of the estuary to avoid the disturbance associated with the boats and booms.

#### **Abandon area**

It is unlikely seals will abandon area. Seals disturbed will likely only be a small portion of the population as most will be out foraging or in the estuarine waters due to the high-tide. Therefore very few would be disturbed and disturbance will be minimal and should not be significant enough to result in seals abandoning area.

#### **Reaction Criterion**

Disturbance will be recorded by base biologists. If boat is approaching seals hauled out on the mudflats and seals move into water, those seals would be recorded as harassed. If seals are half-submerged and not out of the water, which is more likely the case during high-tides, if they swim

away as the boat approaches it will not be considered harassment, however it would be reported, tallied, and submitted in report.

### **Summary and Conclusions**

In summary, effects of the operations are expected to be minimal and short-term. With protective measures in place, the disturbance should be reduced as much as possible.

**VIII. ANTICIPATED IMPACT ON SUBSISTENCE-**The anticipated impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses.

There are no subsistence uses for harbor seals in California waters, and thus no anticipated impacts on subsistence.

**IX. ANTICIPATED IMPACT ON HABITAT-**The anticipated impact of the activity upon the habitat of harbor seal populations, and the likelihood of restoration of the affected habitat.

During the period of the proposed activity, harbor seals may use various haul outs around the margin of the Mugu Lagoon as places to rest and molt. Any young-of-the-year that are present will be weaned and independent individuals. The seals do not feed when hauled out in the lagoon. The seals leave the Mugu Lagoon to feed in the open sea (T. Keeney, NBVC Point Mugu Environmental Division, personal communication, 1998), therefore it is not expected that the boom exercise activities will have any impact on the food or feeding success of these seals. The proposed boom exercise is not expected to cause significant impacts on habitats used by seals in Mugu Lagoon, or on the food sources that these seals utilize.

**X. ANTICIPATED IMPACT OF LOSS OR MODIFICATION OF HABITAT ON MARINE MAMMALS-**The anticipated impact of the loss or modification of the habitat on the marine mammal populations involved.

The Navy anticipates no loss or modification of the habitat used by harbor seal populations that haul out within Mugu Lagoon. Boom placement would not result in any modifications to the habitat. The tidal patterns in the lagoon and structure of the nearby sandy haul-out areas will not be altered by these proposed boom exercise activities.

**XI. MITIGATION MEASURES-** The availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat, and on their availability for subsistence uses, paying particular attention to rookeries, mating grounds, and areas of similar significance.

The Navy will undertake a variety of measures designed to reduce the level of disturbance for seals that might be hauled out near the proposed booming site. All operations will be coordinated with the NBVC Point Mugu Environmental Division.

Mitigation measures include;

1. Exercise will occur in September, outside of the seal pupping season.
2. If seals are hauled out within exercise area before exercise begins, a boat will move slowly towards them to have them move slowly into the water.
3. A boat will remain active in the immediate area during most of the day when occasional boat activity required to reduce chances of seals hauling out in the exercise

area during low exercise activity periods and being subsequently disturbed when activity increases.

4. If boom seems to be holding successfully, boats will refrain from movement to reduce any additional disturbance events.

**XII. PLAN OF COOPERATION-** Where the proposed activity would take place in or near a traditional Arctic subsistence hunting area and/or may affect the availability of a species or stock of marine mammal for Arctic subsistence uses, the applicant must submit either a plan of cooperation or information that identifies what measures have been taken and/or will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses.

As the proposed activity will take place in California waters, Section XII does not apply to this Incidental Harassment Authorization application.

**XIII. MONITORING AND REPORTING PLAN-** The suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species, the level of taking or impacts on populations of marine mammals that are expected to be present while conducting activities and suggested means of minimizing burdens by coordinating such reporting requirements with other schemes already applicable to persons conducting such activity. Monitoring plans should include a description of the survey techniques that would be used to determine the movement and activity of marine mammals near the activity site(s) including migration and other habitat uses, such as feeding.

NBVC Point Mugu's proposed Monitoring Plan for the boom exercise operations under this Incidental Harassment Authorization is described below. NBVC Point Mugu understands that this Monitoring Plan will be subject to review by NMFS, and that refinements may be required. The Navy expects that the activities may cause disturbance reactions by some of the seals on the mudflats, but no seal mortality and no significant long-term effect on the stocks of seals hauled out in the Mugu Lagoon. The Navy will monitor the haul-out areas during the exercise to document and characterize any observed responses. The monitoring will be designed to determine if there are disturbance reactions and determine how many seals are disturbed by boat activity. Every two hours (0700-1600), biologist will count seals hauled out using a spotting scope and identify haul-out locations.

The Navy will establish a land-based monitoring program to assess effects on the harbor seals hauled out in the estuary. This monitoring will occur at the area during the entire period when boats are in the water. The monitoring will be via direct observation. Through this method, seal reactions, as indicated by numbers of seals hauled out and haul-out locations, will be documented during the planned exercise. This monitoring will also provide data required to characterize the extent and nature of "taking". The monitoring work described here has been planned as a self-contained project independent of any other related monitoring projects that may be occurring in the same region. NBVC Point Mugu is prepared to discuss coordination of its monitoring program with any related work that might be done by other groups insofar as this is practical and desirable (see Section XIV, "COORDINATING RESEARCH"). As standard procedure, shore count data will be made available to NMFS staff. NBVC Point Mugu Environmental Division personnel will survey the exercise area prior to activities, and to count the number of seals and identify locations before exercise begins. These marine mammal monitors will also ensure that planned mitigation measures are being conducted. The monitor will make observations as the exercise

activities commence and continue to make observations as activities are underway. Depending on results of these initial observations and subsequent planned activities, the Navy's monitors will decide each day whether monitoring for the entire day is needed. If boom is in place and holding and there is no need for boats to enter water, no monitoring will be done, other than surveys every 2 hours. If boats again are required to enter exercise area, biologist will be called and return immediately to site. The Navy anticipates that monitoring will occur throughout the first morning, and if boom successful, site will be visited once every 2 hours, until it is decided to pull boom.

In addition to recording the planned activities, the marine mammal monitors will record a variety of other information which will include:

1. Date and time,
2. Tide state (the number of hours before or after peak flood tide; exact times for local high tides will be determined by consulting relevant tide tables),
3. Occurrence, or planned occurrence of any other event that might result in behavioral reactions by seals within the lagoon and therefore affect numbers hauled out (such as unusual military aircraft activity or other anthropogenic activities in or around the lagoon).
4. Current state of exercise (ie. Boom being placed, remains in place)
5. Approximate distance of boat from seals when seals react and enter water.

## **Reports**

The Navy will prepare, and submit to NMFS, a brief preliminary report describing the activities, marine mammal monitoring work and results, and such other information as NMFS may require, 90 days after the activities cease. This report would include all monitoring results from each annual exercise event. This report will summarize the results of the activities, summarize seal behavioral observations, and estimate the amount and nature of "take" of seals by harassment or in other ways. It will also provide locations and numbers of seals hauled out away from exercise area. In the unanticipated event that any cases of seal mortality are judged to result from exercise activities, this will be reported to NMFS immediately. It is assumed that this report will be reviewed by NMFS, and that it may need to be revised to take account of comments that have been received.

## **Personnel**

Appendix A provides additional information about the qualifications of the Navy personnel who are expected to be involved.

**XIV. COORDINATING RESEARCH TO REDUCE AND EVALUATE INCIDENTAL TAKE-** Suggested means of learning of, encouraging, and coordinating research opportunities, plans, and activities relating to reducing such incidental taking and evaluating its effects.

As it is well known that hauled-out seals would be disturbed by approaching watercraft, there are no potential research opportunities. What may be of interest is the distance the seals haul out from the exercise activity once acclimated to the activity in the exercise area. This will be included in the report.

## **XV. REFERENCES CITED**

- Allen, S.G., D.G. Ainley, G.W. Page and C.A. Ribic. 1984. The effect of disturbance on harbor seal haul out patterns at Bolinas Lagoon, California. *Fish. Bull.* 82(3):493-500.
- Awbrey, F.T. 1980. Sound spectra on San Miguel Island, 1979-1980. p. 229-246 *In*: J.R. Jehl, Jr., and C.F. Cooper (Eds.), Potential effects of space shuttle sonic booms on the biota and geology of the California Channel Islands: Research reports. Tech. Rep. 80-1. Rep. from Cent. Mar. Stud., San Diego State Univ., and Hubbs/Sea World Res. Inst., San Diego, CA, for U.S. Air Force, Space Div. 246 p.
- Bonnell, M.L., and M.D. Dailey. 1993. Marine mammals. p. 604-681 *in* M.D. Dailey, D.J. Reish, and J.W. Anderson, (Eds.), Ecology of the Southern California Bight. University of California Press, Berkeley, CA. 926 pp.
- Bonner, W.N. 1982. Seals and Man/A Study of Interactions. University of Washington Press, Seattle, WA. 170 p.
- Bowles, A.E., and B.S. Stewart. 1980. Disturbances to the pinnipeds and birds of San Miguel Island, 1979-80. p. 99-137 *In*: J.R. Jehl Jr. and C.F. Cooper (Eds.), Potential effects of space shuttle sonic booms on the biota and geology of the California Channel Islands: research reports. Center for Marine Studies, San Diego State University, and Hubbs/Sea World Research Institute for U.S. Air Force, San Diego, CA.
- Brasseur, S.M.J.M. 1993. Tolerance of harbour seals to human related disturbance sources during haulout. p. 32 *In*: Abstr. 10th Bienn. Conf. Biol. Mar. Mamm., Galveston, TX, Nov. 1993.
- Calkins, D.G. 1979 [publ. 1983]. Marine mammals of Lower Cook Inlet and the potential for impact from outer continental shelf oil and gas exploration, development, and transport. Environ. Assess. Alaskan Cont. Shelf, Final Rep. Princ. Invest., NOAA, Juneau, AK 20:171-263. 650 p. NTIS PB85-201226.
- Hanan, D.A. 1996. Dynamics of abundance and distribution for Pacific harbor seal, *Phoca vitulina richardsi*, on the Coast of California. Ph.D. Thesis, University of California LA. 158 p.
- Keeney, T. 2001. Personal communication via e-mail. NBVC Point Mugu Environmental Division, Point Mugu, CA.
- Koski, W.R., J.W. Lawson, D.H. Thomson, and W.J. Richardson. 1998. Point Mugu Sea Range marine mammal technical report. Rep. from LGL Limited, environmental research associates, King City, ON and Ogden Environmental and Energy Services, Santa Barbara, CA for Naval Air Warfare Center, Weapons Division, Point Mugu, CA and Southwest Division, Naval Facilities Engineering Command, San Diego, CA.
- Mortenson, J., and M. Follis. 1997. Northern elephant seal (*Mirounga angustirostris*) aggression on harbor seal (*Phoca vitulina*) pups. **Mar. Mamm. Sci.** 13:526-530.
- NMFS. 1999. Taking and importing marine mammals; taking marine mammals incidental to rocket launches/Final rule. **Fed. Regist.** 64:9925-9932.
- Osborn, L.S. 1985. Population dynamics, behavior, and the effect of disturbance on haulout patterns of the harbor seal *Phoca vitulina richardsi*/Elkhorn Slough, Monterey Bay, California. B.A. Thesis, Dep. Environ. Stud. & Dep. Biol., Univ. Calif., Santa Cruz. 75 p.
- Reijnders, P.J.H. 1981. Management and conservation of the harbour seal, *Phoca vitulina*, population in the international Wadden Sea area. **Biol. Conserv.** 19(3):213-221.
- Renouf, D., L. Gaborko, G. Galway and R. Finlayson. 1981. The effect of disturbance on the daily movements of harbour seals and grey seals between the sea and their hauling grounds at Miquelon. **Appl. Anim. Ethol.** 7(4):373-379.

Stewart, B.S., and P.K. Yochem. 1985. Aerial surveys of pinniped populations at the Channel Islands National Park and National Marine Sanctuary: 1984-1985. Tech. Rep. 85-179. Hubbs-Sea World Research Institute, San Diego, CA. 33 p.

Stewart, B.S., and P.K. Yochem. 1994. Ecology of harbor seals in the Southern California Bight. p. 123-134 *In*: W.L. Halvorson and G.J. Maender (Eds.), The Fourth California Islands Symposium: Update on the Status of Resources. Santa Barbara Museum of Natural History, Santa Barbara, CA.

Suryan, R.M. 1993. Pupping phenology and disturbance of harbor seals (*Phoca vitulina richardsi*) in the northern San Juan Islands, Washington. p. 104 *In*: Abstr. 10th Bienn. Conf. Biol. Mar. Mamm., Galveston, TX, Nov. 1993. 130 p.

Swift, R. and L. Morgan. 1993. The effect of disturbance on harbor seal haul out in Bolinas Lagoon, California. p. 105 *In*: Abstr. 10th Bienn. Conf. Biol. Mar. Mamm., Galveston, TX, Nov. 1993.

Terhune, J.M. 1985. Scanning behavior of harbor seals on haul-out sites. **J. Mammal.** 66(2):392-395.

Thompson, P.M. 1992. The conservation of marine mammals in Scottish waters. **Proc. R. Soc. Edinburgh, Sect. B** 100:123-140.

## **APPENDIX A**

The monitoring work will be done by qualified personnel from the Naval Base Ventura County Point Mugu Environmental Division. The following are brief statements about the qualifications of the personnel who are expected to be involved.

### **Natural Resources Personnel at Naval Base Ventura County**

**Martin Ruane**, MS- Biology, BS-Wildlife Management, AA-Natural Resource Mgt.

Martin Ruane is an ecologist with extensive knowledge and experience in coastal estuarine salt marsh ecology as well as behavioral observations of wide range of animal species including seabirds, shorebirds, landbirds, and marine mammals. He has been the Natural Resources Program Manager for the Naval Base Ventura County Point Mugu (NBVCPM) for 6 years. Mr. Ruane has developed the current population monitoring and research studies employed at NBVCPM on the special status species, which include the salt marsh bird's-beak (plant), brown pelican, least tern, light-footed clapper rail, snowy plover, Belding's Savannah sparrow, and harbor seals. Mr. Ruane has been responsible for developing and supervising several projects that monitor federal and state endangered species in relation to military activities and potential disturbances, which have included Explosive Ordnance Disposal, air operation's flight carrier landing practices, and air operations air show flight activities.

**Nathan Lang**, BS in Wildlife Management

Nathan Lang has been contracted to work full time for the Natural Resources Department at Naval Base Ventura County Point Mugu since January 2003. His primary responsibilities include managing the six listed bird species on base (brown pelican, light-footed clapper rail, least tern, western snowy plover, Belding's Savannah sparrow, salt marsh bird's-beak). Censusing the harbor seal population on base is also one of his responsibilities. He routinely surveys for numbers of adult and young seals hauled out within the lagoon. Some of the monitoring consists of determining if Navy operations are disturbing adjacent wildlife. The Navy operations that are monitored are drone launches, annual air shows, flight carrier landing practice operations, and Explosive Ordnance Disposal. This monitoring includes censusing of bird and/or marine mammals and observing behavior pre, post, and during operations.



## **APPENDIX B**

### **Acronyms and Abbreviations**

The following list shows the meaning of acronyms and abbreviations used in this report.

dB re 1  $\mu$ Pa decibels in relation to a reference pressure of 1 micropascal

ENSO El Niño Southern Oscillation

ESA Endangered Species Act

ha hectares

m meter (1 m = 1.09 yards or 3.28 feet)

km kilometer (1 km = 3281 ft, 0.62 st.mi., or 0.54 NM)

MMPA Marine Mammal Protection Act

NBVC Naval Base Ventura County

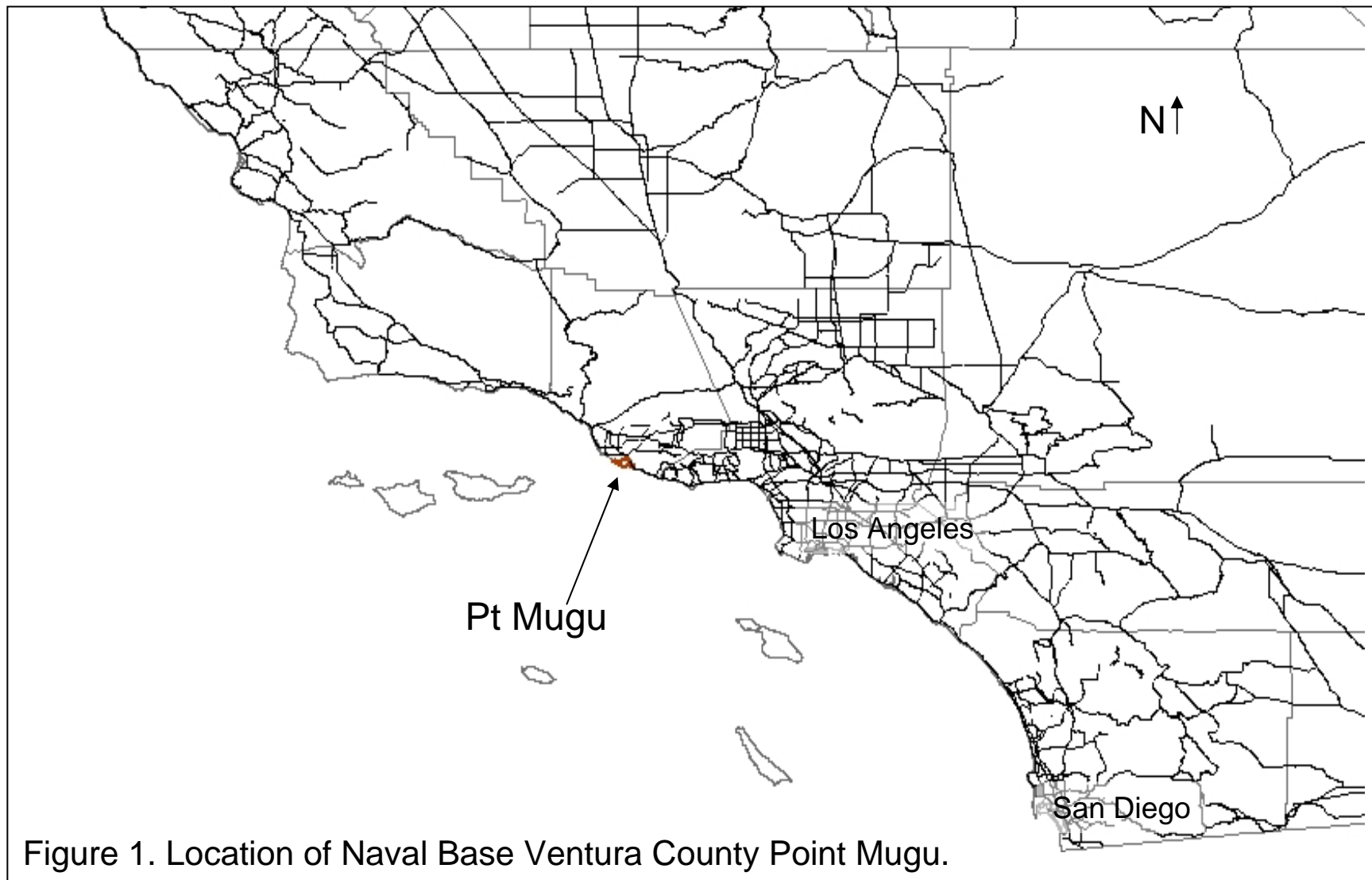
NM nautical mile

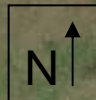
NMFS National Marine Fisheries Service, U.S. Dept of Commerce


SCB Southern California Bight


st.mi. statute or land mile (1 st.mi. = 1.61 km or 0.87 NM)

TTS Temporary Threshold Shift





 Potential Boom Placement

 Exercise Area

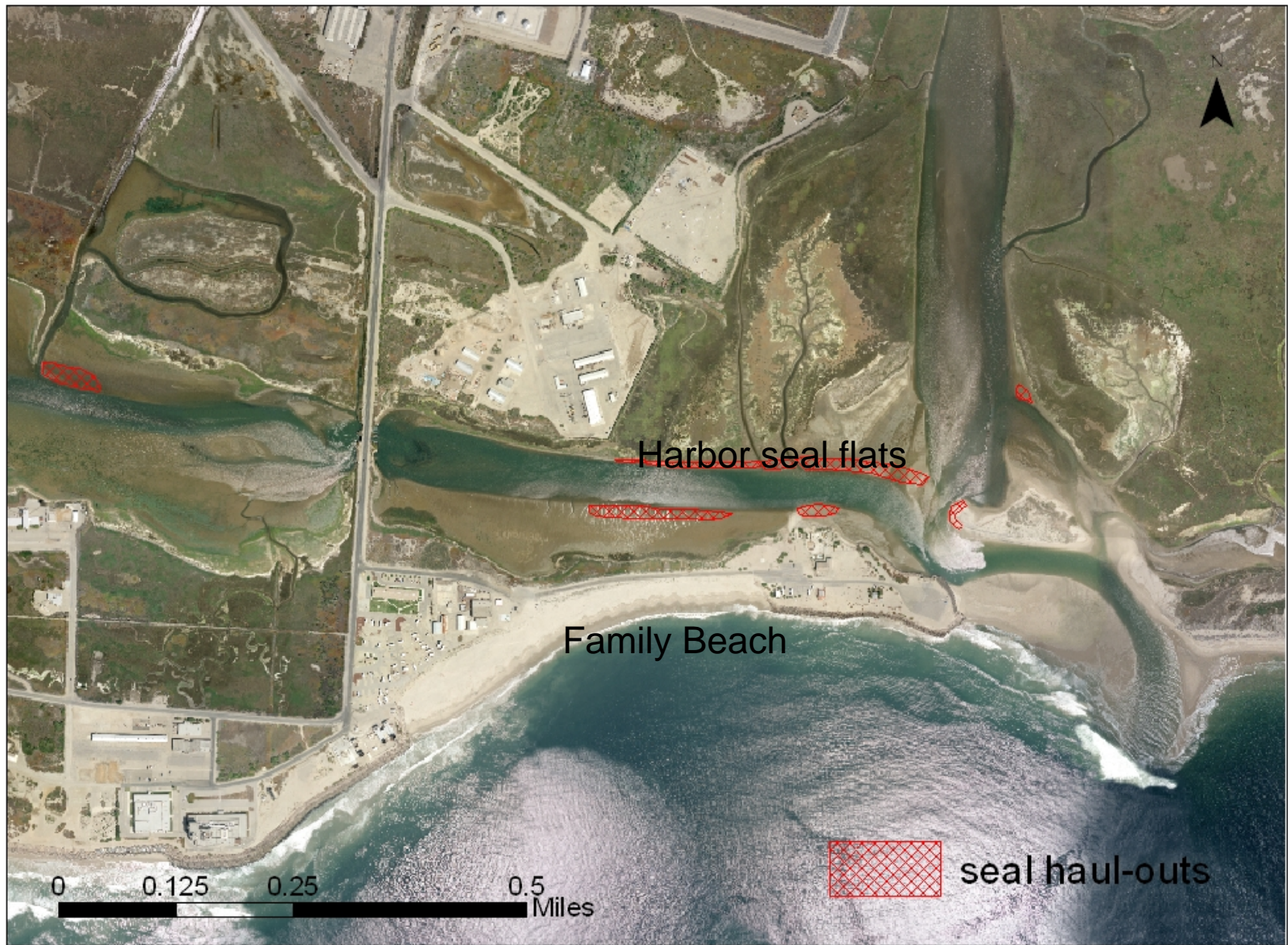


Figure 3. Harbor Seal haul-out locations and Naval Base Ventura County Point Mugu