



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

MAY 15 2001

Joseph S. Johnson
Attn: SURTASS LFA Sonar OEIS/EIS Program Manager
901 North Stuart Street, Suite 708
Arlington, VA 22203

Re: Final Requests to the Navy Regarding the Operation of SURTASS LFA Sonar in and near the National Marine Sanctuary System

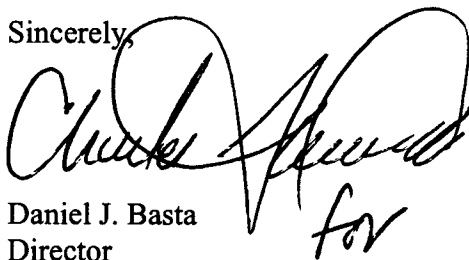
Dear Mr. Johnson:

Please find attached our final list of requests to minimize impacts to Sanctuary resources and qualities associated with the US Navy's deployment of the Surveillance Towed Array Sensor System (SURTASS) Low Frequency Active (LFA) Sonar in or near the National Marine Sanctuary System. These requests are submitted to the Navy pursuant to Section 304(d) of the National Marine Sanctuaries Act (16 U.S.C. 1431 *et seq.*; NMSA).

The Navy should respond to these requests as promptly as possible. If the Navy cannot agree to all of the operational requests indicated in the attached document, the Navy must (pursuant to the NMSA) provide written documentation to NOAA's Office of National Marine Sanctuaries (ONMS) explaining the reasons for that decision within 45 days of this letter. ONMS also requests written indication from the Navy as to which requests can be accommodated.

Thank you in advance for your cooperation with the ONMS on this project. If you should have any questions regarding this matter please contact Helen Golde at (301) 563-1152 (email: helen.golde@noaa.gov), or John Armor at (301) 563-7117 (email: john.armor@noaa.gov).

Sincerely,



Daniel J. Basta
Director
Office of National Marine Sanctuaries

Enclosure

cc:

Donna Wieting, Office of Protected Resources, NMFS
Ken Hollingshead, Office of Protected Resources, NMFS
ONMS Sanctuary managers and superintendents



ALTERNATIVES FOR THE DEPLOYMENT OF SURTASS LFA SONAR TO MINIMIZE IMPACTS TO NATIONAL MARINE SANCTUARY RESOURCES AND QUALITIES

Primary request

These requests are provided pursuant to Section 304(d) of the National Marine Sanctuaries Act (16 U.S.C. 1431 *et seq.*; NMSA). The primary request of the Office of National Marine Sanctuaries (ONMS) with regard to the deployment of SURTASS LFA Sonar continues to be (as indicated in our comments on the DEIS) to conduct operations such that no National Marine Sanctuary in the system is exposed to sounds exceeding the 180 dB level. This request is based primarily on the need to take a precautionary approach to ensure the protection of Sanctuary resources and qualities given that the information on the impacts of this type of sound to Sanctuary resources is limited, and that there is no clear evidence that this activity will not cause harm to such Sanctuary resources and qualities. In addition, National Marine Sanctuaries prescribe to the ecosystem approach to resource management and our request reflects this principle rather than to focus on only a few distinct resources.

In addition to the above, ONMS requests specific considerations be made with regard to the deployment of SURTASS LFA Sonar in or near particular Sanctuaries. Our comments on the DEIS indicated that some Sanctuaries should not be exposed to sounds exceeding 145 dB due to the presence of human divers. While the ONMS is still not certain that the 180 dB and 145 dB maximums will eliminate all threats to Sanctuary resources, they appear to be based on the best available information and may be appropriate to use for consideration in National Marine Sanctuaries. Where possible, ONMS has identified certain portions of the Sanctuary system and certain seasons that may warrant additional modifications to the deployment plan as outlined in the FEIS. These additional, more discrete, recommendations are listed below.

Sanctuary specific requests

1. **Stellwagen Bank National Marine Sanctuary.** *ONMS requests that received levels in Stellwagen Bank National Marine Sanctuary (SBNMS) not exceed 180 dB.* Since SBNMS is completely within the North American East Coast offshore biologically important area it is not expected to be exposed to sounds exceeding 180 dB under the current plan outlined in the FEIS.
2. **USS Monitor National Marine Sanctuary.** *ONMS requests that received levels in the Monitor National Marine Sanctuary not exceed 145 dB.* US Navy and civilian divers conduct salvage and recovery operations on the wreckage of the *USS Monitor* from March through October. For this reason the *Monitor* National Marine Sanctuary should be included as a "known diving area" for this time period each year. In addition, however, it is unclear how intense sounds of this nature could impact the structural integrity of the wreck, which is a National Historical Landmark. This concern was raised in our comments on the DEIS for this project and was not specifically addressed in the FEIS. Therefore, we request that, as a precautionary measure, received levels at the site be reduced to 145 dB. (ONMS is not certain that 145 dB is the appropriate threshold for the protection of submerged cultural resources from intense underwater sound, but will accept this level unless and until additional information indicates this level is too high.)

3. **Gray's Reef National Marine Sanctuary.** *ONMS requests that received levels in Gray's Reef National Marine Sanctuary (GRNMS) not exceed 145 dB from April 1 to November 30.* GRNMS experiences significant diving activity from April 1 to November 30. While GRNMS is within the North American East Coast Offshore Biologically Important Area (OBIA) and will not be exposed to sound levels exceeding 180 dB, it contains diving areas outside the 40-meter isobath that could potentially be exposed to sounds less than 180 dB but greater than 145 dB. Therefore GRNMS should be included as a "known diving area" from April 1 to November 30.
4. **Florida Keys National Marine Sanctuary.** *ONMS requests that received levels in FKNMS not exceed 145 dB from shore to the 100-foot isobath and 180 dB in the area between the 100 and 300-foot depth contours.* Diving occurs in the Florida Keys National Marine Sanctuary (FKNMS) throughout the year from shore out to the 100-foot isobath. This area therefore should be considered a "known diving area" and not be exposed to SURTASS LFA Sonar sounds exceeding 145 dB. This area is already within the general definition of a "known diving area". Much of the remainder of the FKNMS (from the 100-foot to 300-foot isobath) is within twelve nautical miles of emergent land and is therefore already excluded from sounds exceeding 180 dB. The only portion of FKNMS that is both deeper than 100 feet and more than twelve nautical miles from land is a small area west of Key West and east of the Dry Tortugas. The effects of SURTASS LFA Sonar on marine mammals of the FKNMS such as manatees are not fully described in the FEIS. The FEIS implies that manatees are found outside the normal operation of SURTASS LFA Sonar, however, those portions of the FKNMS described above are not specifically excluded from the deployment of SURTASS LFA Sonar and are within the normal range of the West Indian manatee. Since little or no information exists on the potential impacts of this device on manatees, operation of SURTASS LFA Sonar should be conducted in a manner so as to avoid exposing all parts of FKNMS deeper than the 100-foot isobath to sounds exceeding 180 dB throughout the year, including those portions outside the 12 nautical mile limit described above.
5. **Flower Garden Banks National Marine Sanctuary.** *ONMS requests that received levels in the Flower Garden Banks National Marine Sanctuary (FGBNMS) not exceed 145 dB throughout the year.* Diving occurs in the FGBNMS throughout the year. This area should therefore be considered a known diving site despite its distance from shore. The Sanctuary consists of three banks in the Gulf of Mexico located more than 100 nautical miles off the coasts of Louisiana and Texas. It is also a concentration area for sea turtles throughout the year. The frequent diving activity and presence of sea turtles would necessitate the repeated cessation of operations under the current proposal outlined in the FEIS. While diving areas are generally defined in the FEIS as from shore out to the 40-meter depth contour and much of FGBNMS is shallower than 40 meters, it is unclear if this definition would include FGBNMS since it is offshore.
6. **Channel Islands National Marine Sanctuary.** *ONMS requests that received levels in the Channel Islands National Marine Sanctuary (CINMS) not exceed 145 dB throughout the year.* While all of CINMS is within 12 nautical miles of the Channel Islands and will not be exposed to sounds exceeding 180 dB, divers use portions of the Sanctuary throughout the year and could be exposed to sounds less than 180 dB but greater than 145 dB. For this reason, CINMS should be considered a known diving site and not be exposed to sounds exceeding 145 dB at any time of the year.

7. **Monterey Bay National Marine Sanctuary.** *ONMS requests that received levels in Monterey Bay National Marine Sanctuary (MBNMS) not exceed 180 dB throughout the Sanctuary and 145 dB around active marine research projects.* Received levels within MBNMS should not exceed 180 dB as this area has significant concentrations of highly biologically sensitive resources. Specifically, blue whales, fin whales, humpback whales, killer whales, sperm whales, and leatherback sea turtles all feed in offshore areas of the Sanctuary at different times of year. In addition, the three most recent sightings of the Northern Pacific Right Whale south of Alaska have occurred in MBNMS, two of which occurred in the last four years. Any disturbance to this extremely rare whale could significantly adversely affect its continued existence. Right Whales within the MBNMS range throughout the Sanctuary boundaries from October through March as shown in the attached report. More rarely observed but important nonetheless are the numerous species of deepwater beaked whales that are found during summer and fall months in offshore areas. As most of these whales are deep divers and stay underwater for extended periods of time, between 10 and 55 minutes, an observer scanning the sea surface is likely to miss them before the source array is activated. Avoiding MBNMS would likely relieve the Navy from having to constantly shut down and restart operations. Please refer to the attached report that provides additional information underlying this request.

Secondly, the Monterey, California area is recognized nationally and internationally for the extensive marine research activities and organizations that are active in the region. Annually, \$160 million are spent on marine research at twenty-six facilities within the locality. This research is conducted on a year-round basis, but typically more effort is expended during summer months. Intense underwater sound may have undesirable ramifications on these very important studies and projects. Maintaining a zone of 145 dB maximum received sound levels around active research projects will help to minimize any impacts. To effectively do this, however, the Navy will need to know where research that could be affected is taking place. The Sanctuary generally has access to this information and will provide any information about current research projects it has in its possession to the Navy upon request.

Lastly, the Territorial Sea, generally twelve nautical miles from shore, is charted farther offshore seaward of Monterey Bay due to the shape of the bay. ONMS requests that the Navy use the Territorial Sea rather than a line exactly twelve miles from the shoreline of Monterey Bay. This area includes portions of the Monterey canyon and is frequented by many sensitive marine species.

8. **Gulf of the Farallones and Cordell Bank National Marine Sanctuaries.** *ONMS requests that received levels in Cordell Bank National Marine Sanctuary (CBNMS) and the Gulf of the Farallones National Marine Sanctuary (GFNMS) not exceed 180 dB.* Nearly all of the GFNMS is within twelve nautical miles of either the mainland or the Farallon Islands and is therefore already excluded from sounds exceeding 180 dB. A portion of GFNMS and most of the CBNMS, however, are outside this zone but within the range of at least 33 species of marine mammals. CBNMS centers on a shallow bank approximately 20 nautical miles offshore. Similar to the request for MBNMS, restricting received sound levels in this area to 180 dB should greatly reduce the potential for deleterious impacts to species of concern and thus the likelihood of having to constantly shut down and restart the source array due to the presence of marine life.

9. **Olympic Coast National Marine Sanctuary.** *ONMS requests that received levels in Olympic Coast National Marine Sanctuary (OCNMS) not exceed 180 dB in the area from shore to 23 nautical miles offshore in the months of December, January, March, and May of each year.* Gray whales migrate along the West Coast of the North America to take advantage of rich feeding waters in the North Pacific in the summer and warm breeding grounds in Mexico in the winter. The southward migration occurs in the OCNMS from early December through the middle of February, peaking in December and January. The northward migration occurs in OCNMS from late February through June, with peaks in mid-March and mid-May. The typical migration corridor in this region is from shore out to 43 kilometers (23 nautical miles). Due to the high concentrations of migrating whales, the Navy should avoid exposing this area to sounds exceeding 180 dB in December, January, March and May of each year. In addition to the standard coordination request, ONMS strongly requests additional monitoring effort including increases in monitoring personnel, the use of aerial surveys wherever feasible, and the communication with OCNMS staff from December to June of each year to minimize the likelihood of negative impacts on migrating gray whales off the Washington coast. This request was based from information found in the documents referenced below.

Green, G.A., J.J. Brueggeman, R.A. Grotefendt, and C.E. Bowlby. 1995. Offshore distances of gray whales migrating along the Oregon and Washington coasts, 1990. *Northwest Science* 69:223-227.

Shelden, K.E.W., D.J. Rugh, J.L. Laake, J.M. Waite, P.J. Gearin, and T.R. Wahl. 2000. Winter observations of cetaceans off the northern Washington coast. *Northwestern Naturalist* 81:54-59.

10. **Hawaiian Islands Humpback Whale National Marine Sanctuary.** *ONMS requests that received levels in the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS) not exceed 180 dB from December through May of each year.* The Hawaiian Islands experience high densities of marine mammals, including the endangered humpback whale, from December through May. The area of highest density is from shore out to the 100-fathom isobath. While much of this area is within twelve nautical miles of shore, Penguin Bank (off the coast of Molokai) is not. At the request of ONMS, the National Marine Fisheries Service has agreed to add this area as a fourth OBIA in the proposed rule for the incidental take permit for SURTASS LFA Sonar. This area is not, however, listed as an OBIA in the Final EIS. Penguin Bank should not be exposed to sounds exceeding 180 dB from December 1 through May 31 of each year. An approximate center point for Penguin Banks is 157 degrees, 30 minutes west longitude and 21 degrees north latitude. Including this area as a fourth OBIA would satisfy this request.

Coordination with ONMS

To further protect sensitive marine habitats, fragile historical and natural resources, and diving sites within the National Marine Sanctuary System, the Navy should coordinate with the appropriate Sanctuary manager or superintendent prior to deployment of SURTASS LFA Sonar within or near any Sanctuary in the system. This will allow the Sanctuary to communicate known marine mammal observations or concentrations to the Navy to decrease the likelihood of injury to Sanctuary resources. This will also allow Sanctuary staff to communicate known diving operations and sensitive research projects to the Navy to decrease the likelihood of user conflicts in the Sanctuaries. Furthermore, this coordination will greatly enhance the success of the

monitoring scheme proposed by the Navy to minimize impacts to marine mammals, sea turtles, and divers by giving the Navy the added advantage of local and current knowledge of the area and reports of potential conflicts.

The Navy plans, through the Long Term Monitoring Program, to continue monitoring potential effects of the SURTASS LFA Sonar operations on marine resources. This monitoring is essential for providing data to support reporting requirements under the Marine Mammal Protection Act through annual reports to NOAA/NMFS. Copies of these reports will be provided to ONMS and to managers or superintendents of any Sanctuary within or adjacent to SURTASS LFA Sonar operations during the subject year. This report will allow the Sanctuary to analyze the success of the monitoring program as it relates to the Sanctuary system, to recommend improvements to the Navy in the future, and to gain additional knowledge of the potential impacts of SURTASS LFA Sonar to Sanctuary resources.

Additional information

In addition to the thirteen currently designated National Marine Sanctuaries, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve was designated by E.O. 13178, as modified by E.O. 13196 and is managed by NOAA. While ONMS acknowledges that E.O. 13178 exempts military exercises conducted within or in the vicinity of the reserve, please be advised that those actions must be carried out consistent with the requirements of Executive Orders 13089 of June 11, 1998, and 13158 of May 26, 2000.

ADDITIONAL INFORMATION SUPPORTING ONMS REQUEST FOR MONTEREY BAY NATIONAL MARINE SANCTUARY

This additional information details the seasonal distributions of sensitive marine mammals in the Monterey Bay National Marine Sanctuary (MBNMS) and shows that sensitive species are present throughout MBNMS year round.

Deep Diving Whales Range Distribution Charts

The Sanctuary has compiled charts of the range and distribution of some of the deep-diving whale species present within our region. All of these species are either threatened or endangered. These data are summarized below.

Chart 1 – Deep Diving Whales Major Range Distribution. The Blue Whale major adult area is illustrated by green diagonals and is within Sanctuary boundaries from May through December. The Right Whale adult area is depicted by the light orange dots and ranges throughout Sanctuary boundaries from October through March. The Humpback Whale major adult area is illustrated by purple diagonals and is within Sanctuary boundaries from May through October. The Fin Whale major adult area is depicted by blue dots and is within Sanctuary boundaries from April through September. The Sperm Whale major adult area is illustrated by orange verticals and is over Davidson Seamount on a year-round basis.

Chart 2 – Blue Whale Range Distribution. Blue Whales are the largest animal to live on earth and in the past decade its numbers have surged locally. The Monterey Bay National Marine Sanctuary hosts several hundred blue whales annually who come to the region to feed on krill. These animals are highly mobile and it is thought that they move regularly between the Monterey Bay region and other feeding grounds near Cordell Bank and the Channel Islands. Blue Whales within the MBNMS range throughout the Sanctuary boundaries from May to December as depicted by the blue dots. The area in green illustrates the major adult area from May to September.

Chart 3 – Northern Pacific Right Whale Range Distribution. Marine Scientists consider the Northern Pacific Right Whale the most rare mammal in the world. It represents a separate subspecies from the Atlantic Right Whale, which we understand the Navy has elected to avoid on the eastern U.S. seaboard. The three most recent sightings of the Northern Pacific Right Whale south of Alaska have occurred in the Monterey Bay National Marine Sanctuary, two of which occurred in the last four years. The entire region is considered to be within the Right Whales' range. Any disturbance to this extremely rare whale could be disastrous. Right Whales within the MBNMS range throughout the Sanctuary boundaries from October through March as depicted by the orange dots.

Chart 4 – Humpback Whale Range Distribution. Humpback whales are highly acoustic animals known for their "songs". Their songs are long and complex intertwining melodies, which can sometimes last up to twenty minutes long. These songs are repeated

continuously for hours. The Humpbacks in the North American Pacific populations all sing the same song which progressively changes over the years. The bulk of evidence thus far points to the singing whales being males; it is thought that these songs are a function of mating behavior. Any device that has the potential to effect, impede, or alter this behavior should be examined critically. Humpback whales within the MBNMS range throughout the Sanctuary boundaries from May through October. The area depicted in red diagonals is the major adult concentration for feeding and migration from May through October, as well as the recreational viewing area from June through September. The area in blue dots depicts the major adult area for feeding and migration from May through October.

Chart 5 – Fin Whale Range Distribution. Once one of the most abundant of the large whales, the Fin whale was heavily exploited by the whaling industry and its population has been severely depleted. Current figures suggest that a mere 80,000 animals remain worldwide with between fifty and several hundred in the MBNMS. Fin whales within the MBNMS range throughout the Sanctuary boundaries from April through September and commonly feed on krill associated with upwelling at the boundaries of offshore currents. The area depicted by small blue dots illustrates the major adult area whereas the area depicted by the larger blue dots illustrates the general adult area.

Chart 6 – Sperm Whale Range Distribution. The Sperm whale is the deepest diving whale and can swim to depths of 1000 m, and stay submerged for over an hour. At depth there is very little light available and hence these whales have developed a superior echolocation ability, which they use to find their prey. As such, these animals are highly dependent upon sound. It is unlikely that an observer on a ship would be able to accurately interpret this animal's reaction to LFA, or to even see a Sperm whale feeding in the Sanctuary. Sperm whales within the MBNMS range throughout the Sanctuary boundaries on a year round basis. The adult area within Sanctuary boundaries is illustrated by blue dots. The major adult area that should be noted, though it is outside of Sanctuary boundaries, is the area around Davidson Seamount as depicted by the orange lines.

Beaked Whales

The Monterey Bay National Marine Sanctuary has three species of beaked whales that inhabit our waters – the Baird's, Cuvier's and Hubbs beaked whale. Little is known about these cetaceans. They may be rare or merely elusive, but generally they live in deep offshore waters and have escaped live studies.

Studies of dead beaked whales from the March 2000 Bahamas strandings by Kenneth Balcomb indicate that a resonance phenomenon in the whales' cranial airspaces may be responsible for tearing apart the delicate tissue around the ears and brain. Kenneth Balcomb further reiterated that the resonance frequency of airspaces in Cuvier's beaked whales to be about 290 Hz at 500 meters depth, which is precisely the middle frequency of LFA as described in the OEIS/EIS.

Marine Mammal Abundance Information

Table 1 was generated from data compiled by the National Marine Fisheries Service and reports the estimated Pacific populations as well as the estimated California populations for the following species of whales: Blue, Humpback, Fin, Minke, Gray, Northern Right, Sperm, Cuvier's Beaked, Baird's Beaked, and Mesoplodont Beaked. Migrating species are indicated seasonally on the right of the table.

Table 2 is taken from the Final EIS/EIR for the California ATOC project and estimates the marine mammal stock of the following species of whale: Blue Humpback, Fin, Minke, Gray, Sei, Northern Right, Sperm and Beaked for the offshore central California area. This table separates Winter/Spring populations from Summer/Fall populations.









Sea Turtle Abundance Information

Table 3 is taken from the Final EIS/EIR for the California ATOC project and estimates the following sea turtle species: Leatherback, Green, Olive and Loggerhead. The abundance of these species is unknown.



Monterey Bay National Marine Sanctuary

Deep Diving Whales Major Range Distribution

-  Right Whale Adult Area: October-March
-  Fin Whale Major Adult Area: April-September
-  Sperm Whale Major Adult Area: Year Round
-  Humpback Whale Major Adult Area: May-October
-  Blue Whale Major Adult Area: May-December
-  Submerged Submarine Operating Area
-  Monterey Bay National Marine Sanctuary Boundary
-  Territorial Sea

Range distribution based on NOAA's Coastal and Ocean Zones Strategic Assessment: Data Atlas, Marine Mammal Volume, 1988; MBNMS Site Characterization; MBNMS Ecosystem Observation, 1998; Advanced Research Projects Agency, 1995; Calambokidis 1996; Benson and Harvey, 1997; Harvey, 1996; NMFS Stock Assessment, 2000.

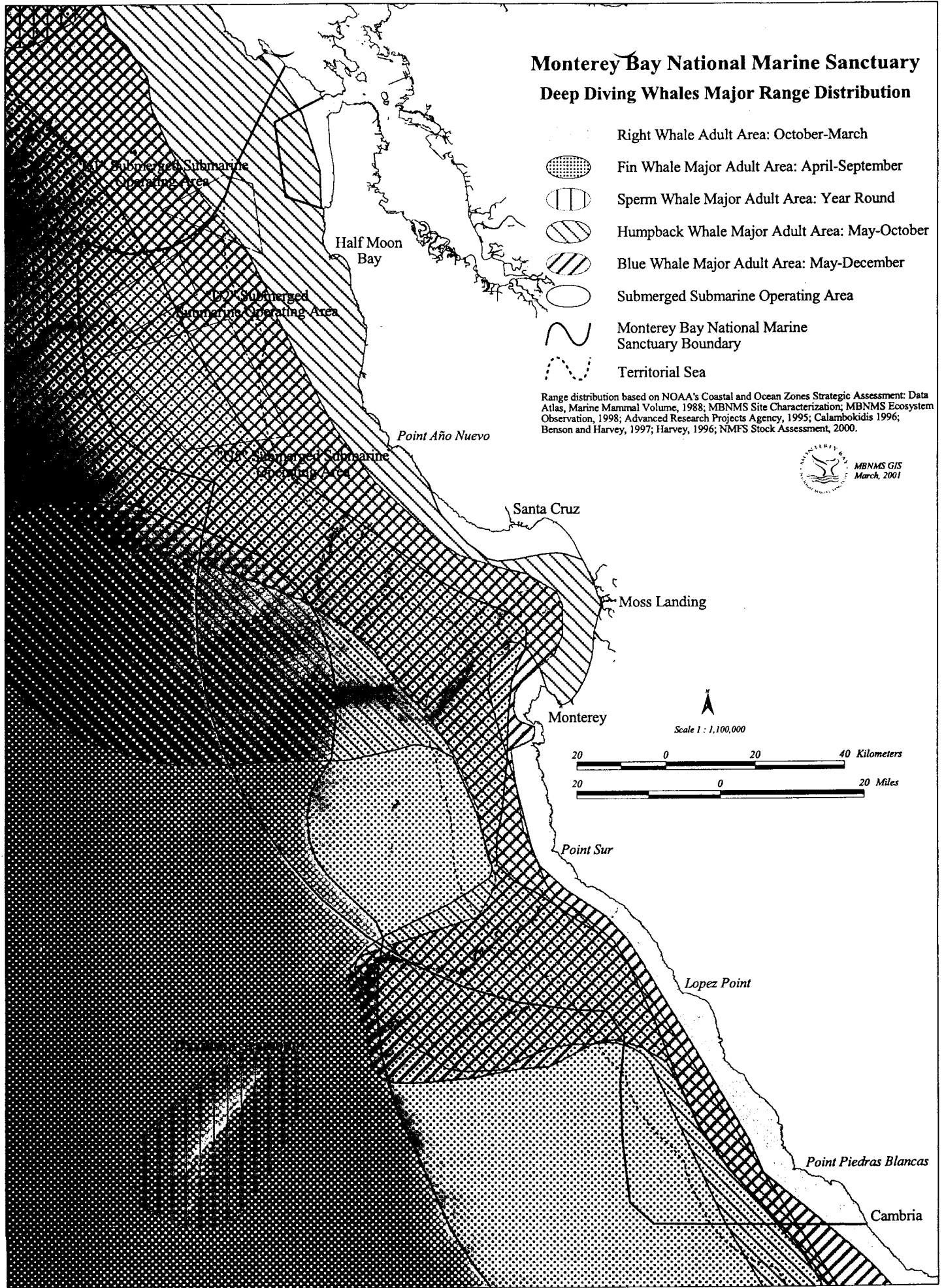





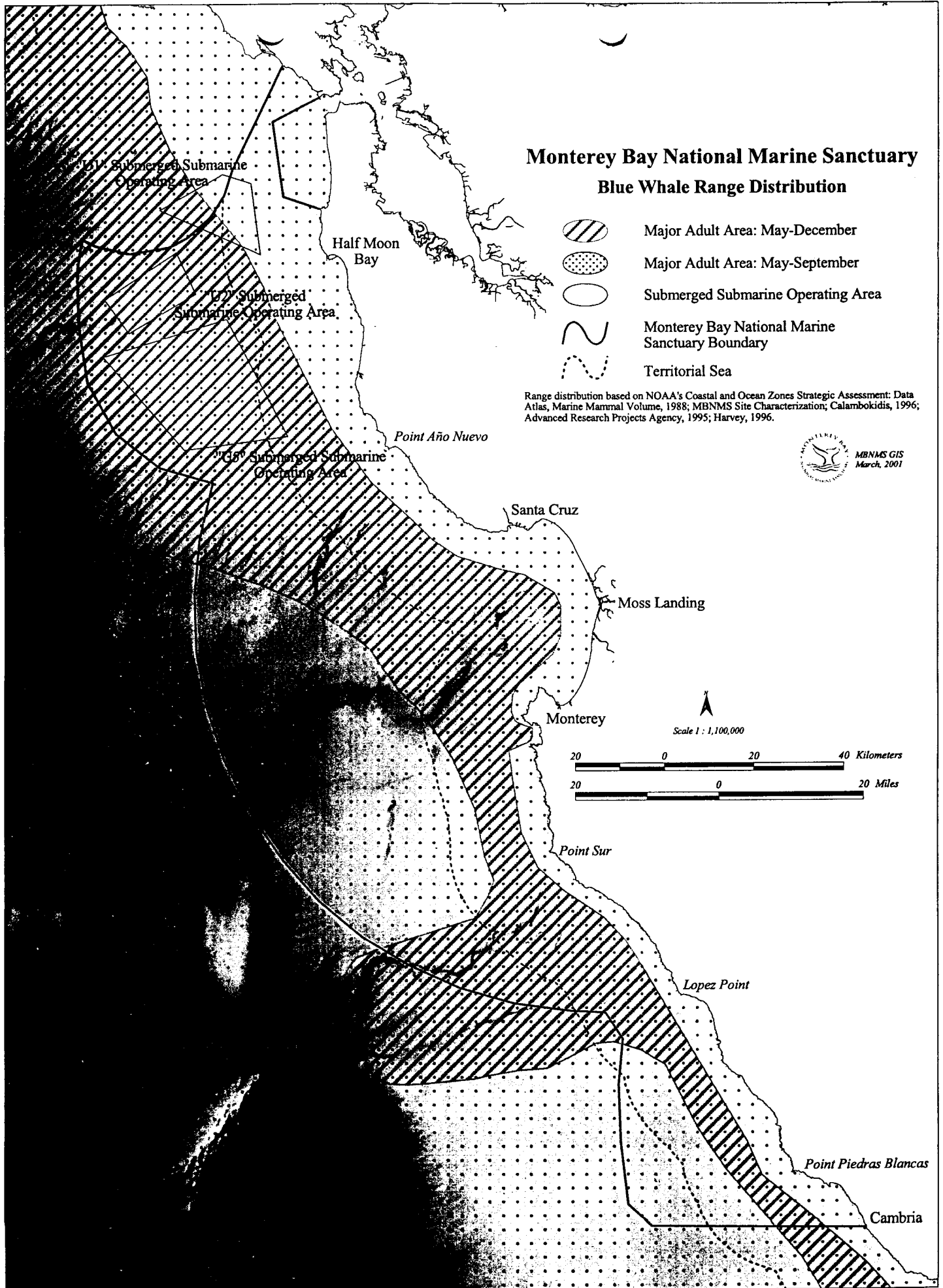


Chart 1

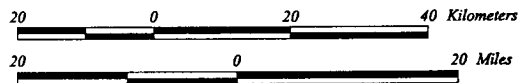
Monterey Bay National Marine Sanctuary Blue Whale Range Distribution

-  Major Adult Area: May-December
-  Major Adult Area: May-September
-  Submerged Submarine Operating Area
-  Monterey Bay National Marine Sanctuary Boundary
-  Territorial Sea

Range distribution based on NOAA's Coastal and Ocean Zones Strategic Assessment: Data Atlas, Marine Mammal Volume, 1988; MBNMS Site Characterization; Calambokidis, 1996; Advanced Research Projects Agency, 1995; Harvey, 1996.







Scale 1 : 1,100,000

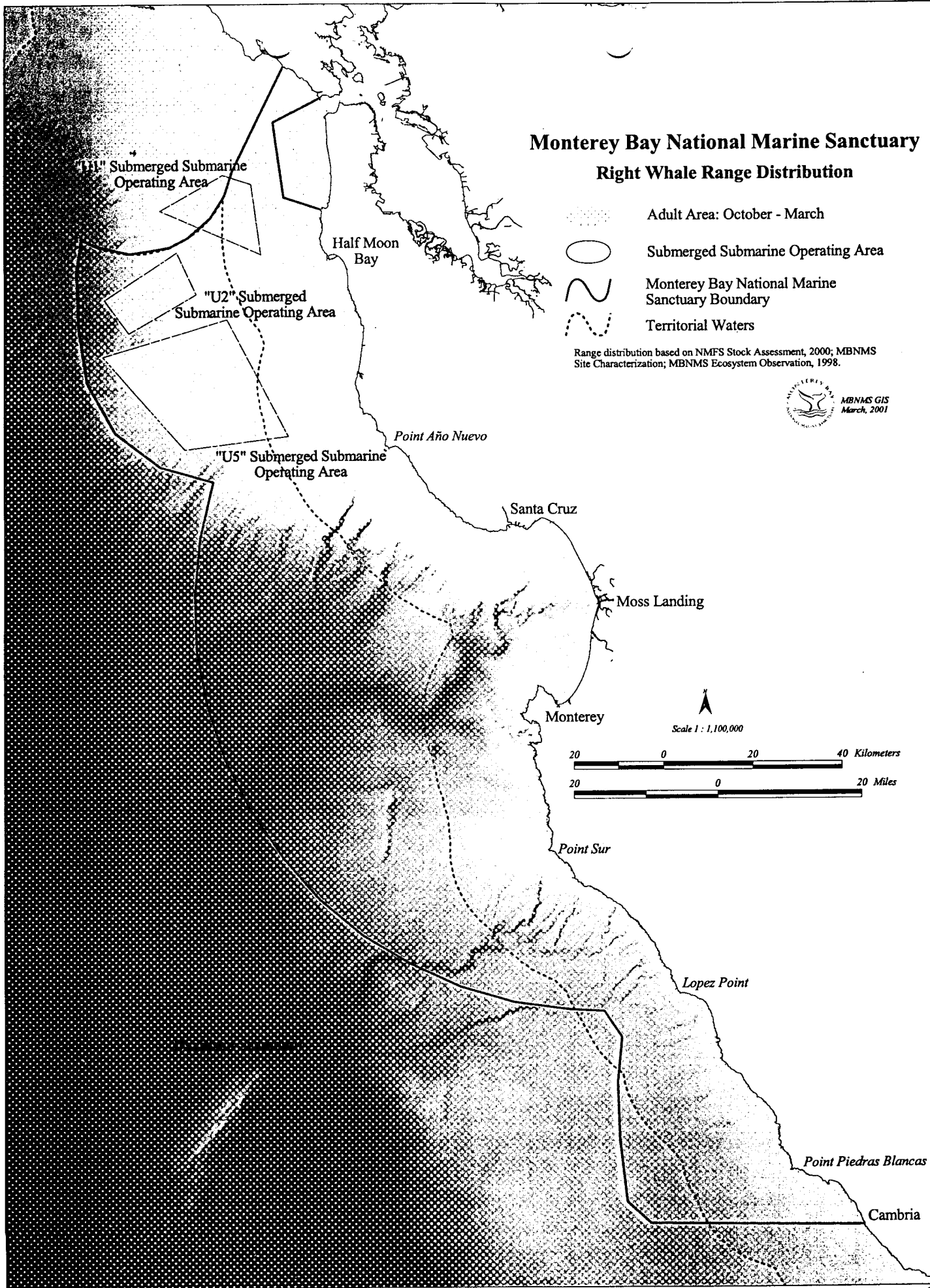


Monterey Bay National Marine Sanctuary

Right Whale Range Distribution

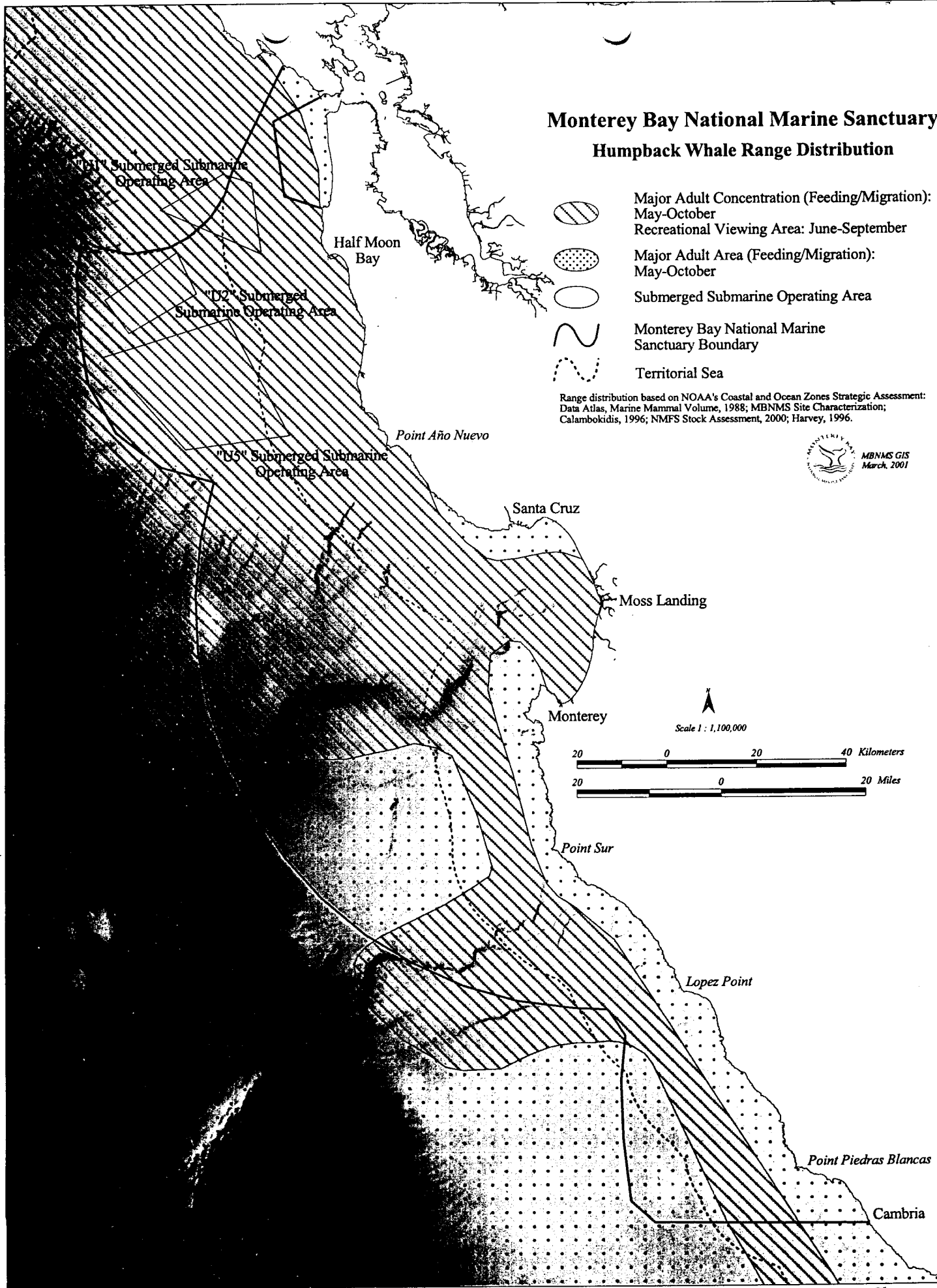
-  Adult Area: October - March
-  Submerged Submarine Operating Area
-  Monterey Bay National Marine Sanctuary Boundary
-  Territorial Waters






Range distribution based on NMFS Stock Assessment, 2000; MBNMS Site Characterization; MBNMS Ecosystem Observation, 1998.



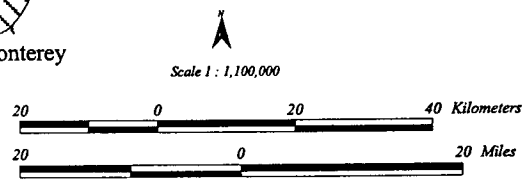
Monterey Bay National Marine Sanctuary

Humpback Whale Range Distribution








-  Major Adult Concentration (Feeding/Migration):
May-October
Recreational Viewing Area: June-September
-  Major Adult Area (Feeding/Migration):
May-October
-  Submerged Submarine Operating Area
-  Monterey Bay National Marine Sanctuary Boundary
-  Territorial Sea

Range distribution based on NOAA's Coastal and Ocean Zones Strategic Assessment: Data Atlas, Marine Mammal Volume, 1988; MBNMS Site Characterization; Calambokidis, 1996; NMFS Stock Assessment, 2000; Harvey, 1996.

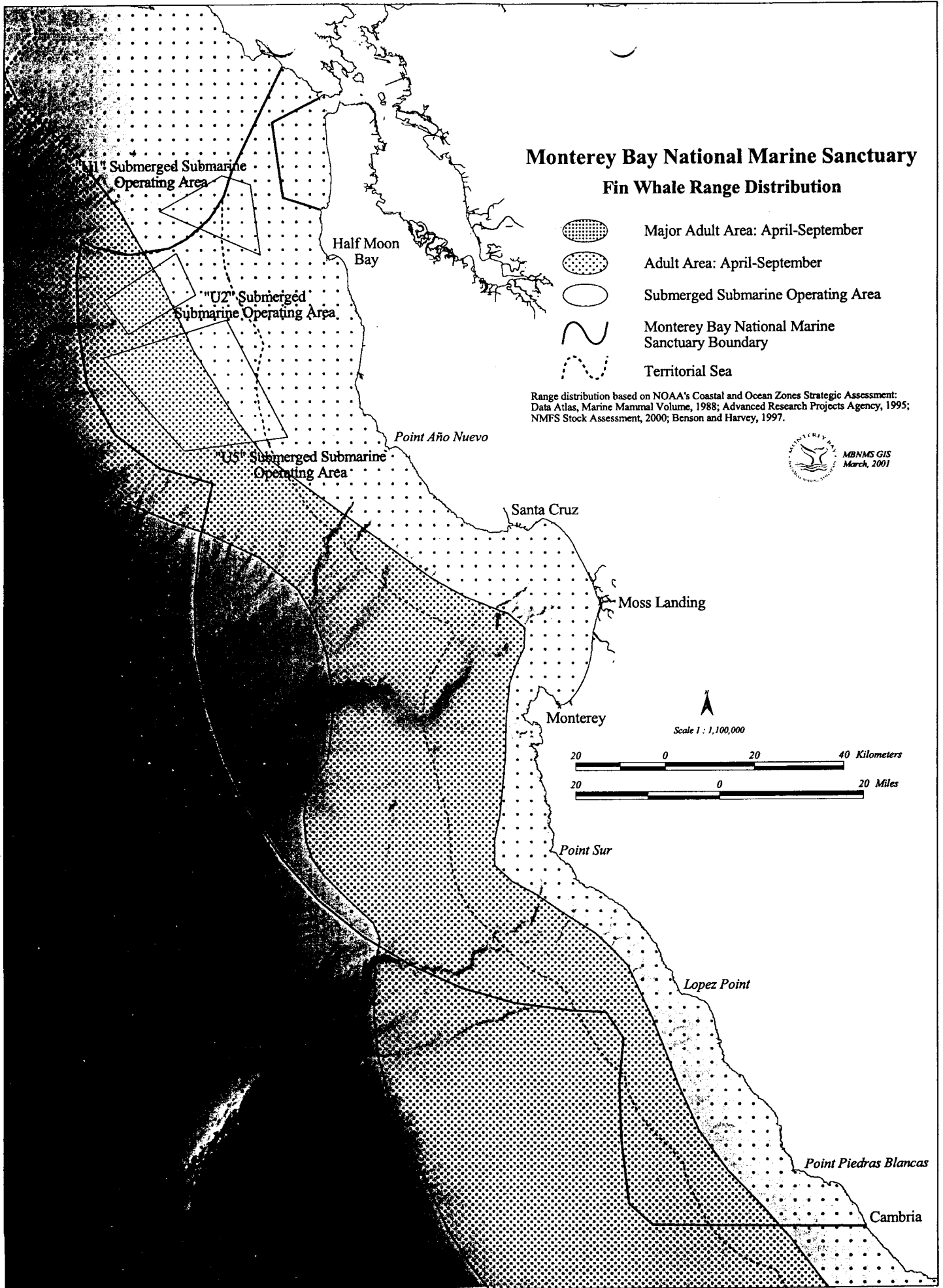


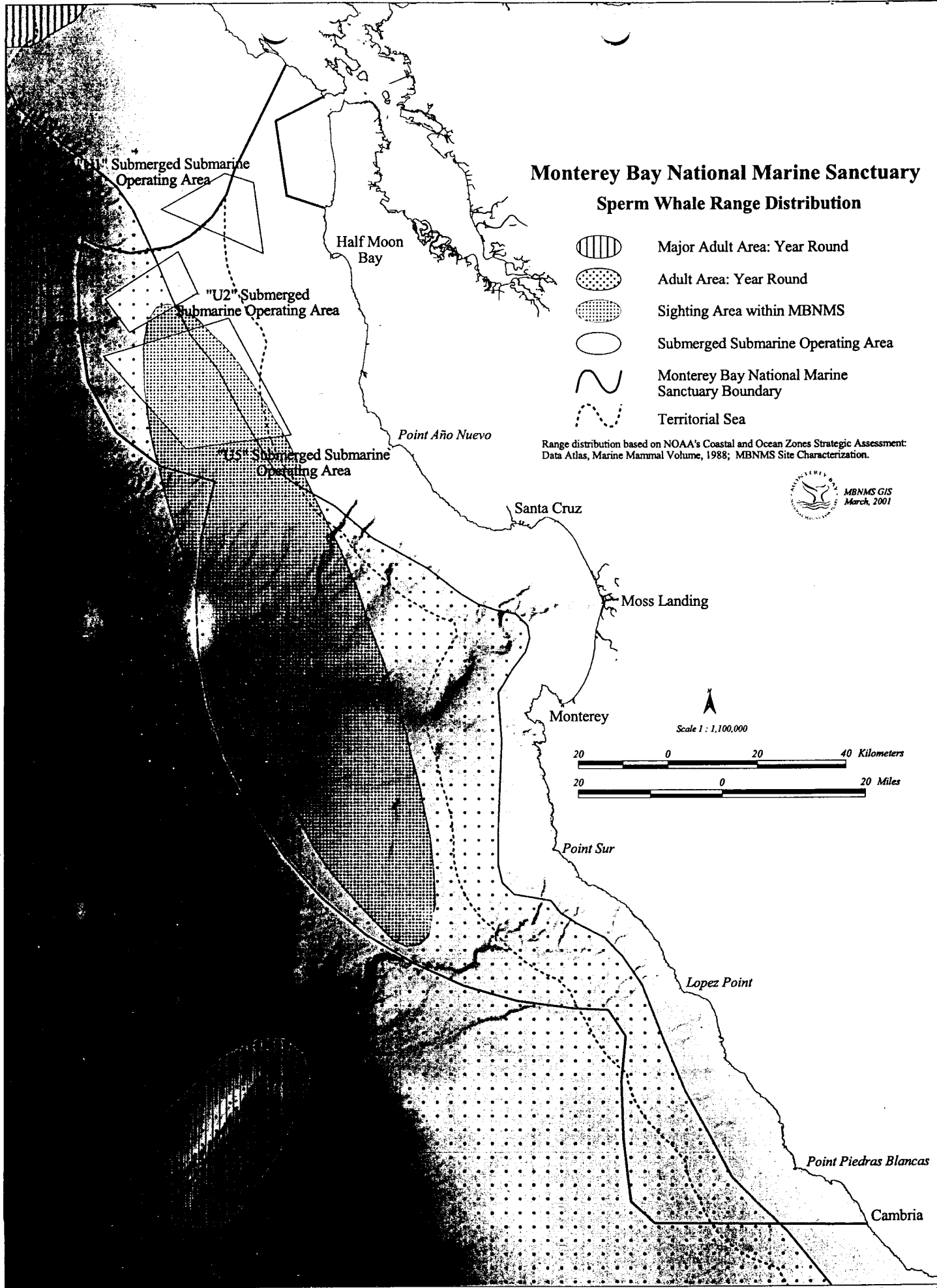
Monterey Bay National Marine Sanctuary

Fin Whale Range Distribution







-  Major Adult Area: April-September
-  Adult Area: April-September
-  Submerged Submarine Operating Area
-  Monterey Bay National Marine Sanctuary Boundary
-  Territorial Sea

Range distribution based on NOAA's Coastal and Ocean Zones Strategic Assessment: Data Atlas, Marine Mammal Volume, 1988; Advanced Research Projects Agency, 1995; NMFS Stock Assessment, 2000; Benson and Harvey, 1997.





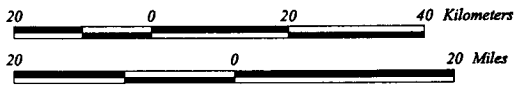
Monterey Bay National Marine Sanctuary
Sperm Whale Range Distribution

-  Major Adult Area: Year Round
-  Adult Area: Year Round
-  Sighting Area within MBNMS
-  Submerged Submarine Operating Area
-  Monterey Bay National Marine Sanctuary Boundary
-  Territorial Sea

Range distribution based on NOAA's Coastal and Ocean Zones Strategic Assessment Data Atlas, Marine Mammal Volume, 1988; MBNMS Site Characterization.



Scale 1 : 1,100,000



Marine Mammal Abundance Information

Table 1

From: Forney et al. 2000, U.S. Pacific Marine Mammal Stock Assessments: 2000.
 NOAA Technical Memorandum NMFS/SWFC 300

Species	Estimated Pacific		CA Estimated		CV*	Winter	Spring	Summer	Fall
	Population	CV	Population*	CV					
Blue Whale	1940	0.15	not calculated			Migrating S	Migrating N	Present	Present
Humpback Whale	905	0.06	319	0.41		Migrating S	Migrating N	Present	Present
Fin Whale	1236	0.2	49	1.0		Lower #'s	Lower #'s	Present	Present
Mink Whale	631	0.45	73	0.62		Present	Present	Present	Present
Gray Whale	26635	0.1	not calculated			Migrating S	Migrating N	Absent	Absent
Northern Right Whale	Unknown		not calculated			Possible	Unknown	Unknown	Unknown
Sperm Whale	1191	0.22	892	0.99		Present	Peak	Peak	Present
Cuvier's Beaked Whale	5870	0.38	not calculated			Possible	Possible	Possible	Possible
Baird's Beaked Whale	379	0.23	not calculated			Lower #'s	Lower #'s	Possible	Possible
Mesoplodont Beaked Whales	4098	0.5	not calculated			Possible	Possible	Possible	Possible

*Forney et al. 1995. (Not corrected for diving whales)
 CV= Coefficient of Variation

Table 2

From: Final EIS/EIR for the California Acoustic Thermometry of Ocean Climate Project, April 1995
 Estimates of the stock of marine mammal species offshore central California

Species	Winter/Spring		Summer/Fall	
	Population	CV	Population	CV
Blue Whale	28	1.03	2198	0.36
Humpback Whale	375	0.36	609	0.41
Fin Whale	78	0.8	913	0.59
Mink Whale	71	0.61	569	1.1
Gray Whale	20869	0.34	not calculated	
Sei Whale	not calculated		61	1.21
Northern Right Whale	16	1.08	not calculated	
Sperm Whale	857(1286)*	1.05	725(1088)*	0.47
Beaked Whales (Cuvier's, Baird's, Mesoplodont)	426(852)*	0.38	1430(2860)*	0.91

* Numbers in () indicate estimates accounting for whales submerged during entire survey evolution
 CV= Coefficient of Variation



Sea Turtle Abundance Information

Table 3

From: Final EIS/EIR for the California Acoustic Thermometry of Ocean Climate Project, April 1995
Estimates of the stock of sea turtle species offshore central California

Species	Abundance	Remarks
Leatherback Sea Turtle	Unknown	Note 13
Green Sea Turtle	Unknown	Note 11,12
Olive Ridley Sea Turtle	Unknown	Note 11
Loggerhead Sea Turtle	Unknown	Note 11

Note 11: NOAA-TM-NMFS-F/SPO-2, Dec 1992 (for eastern tropical Pacific [ETP])

Note 12: "Green turtles are the most commonly observed hard-shelled sea turtle on the western coast of the USA." (NOAA-TM-NMFS-SWFS-186, Sep 1993)

Note 13: Predominant sea turtle in central California coastal area (Eckert, pers. Comm., 1994)

