

MUSKEGET GRAY SEALS
WINTER AND SPRING, 1992

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SUMMARY

Muskeget was surveyed for gray seal pupping in January and February, 1992. 12 live pups and their mothers were found on the same beach where pupping occurred in 1991. Using photoidentification methods 7 of the females were recognized from previous studies, including 4 which pupped at Muskeget in 1991, and 2 which pupped at Monomoy National Wildlife Refuge in 1991. Three of the females were marked as pups at Sable Island, Nova Scotia, and have now pupped for two consecutive years in southern New England. During the breeding season there was no evidence of human disturbance at Muskeget. Over 500 gray seals were recorded there during the spring pre-molting and molting assembly.

METHODS

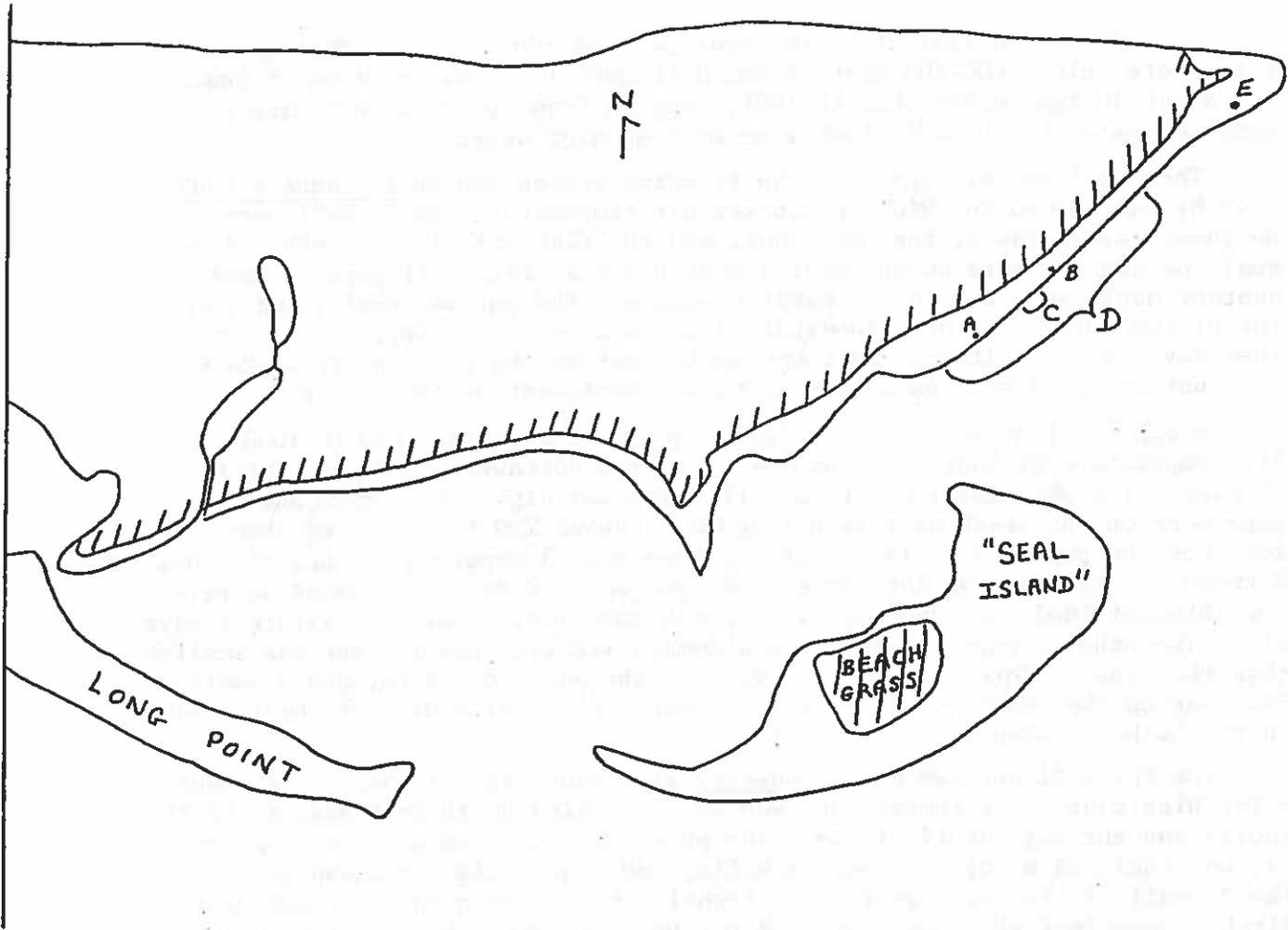
3 aerial surveys in January monitored the early stages of pupping at Muskeget, and were followed by boat visits for surface observations. In April, 1 aerial survey and several days of surface observations censused the spring assembly. All visible females and several males were photographed for identification.

RESULTS

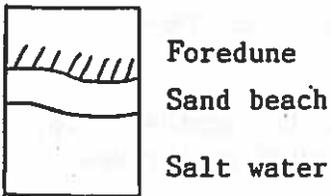
The areas of Muskeget used by seals in 1991 were altered later that year by Hurricane Bob and the October Gale. Hurricane Bob breached the lowest, narrowest part of Long Point on 19 August 1991, cutting off the wide, vegetated tip as an island, named "Seal Island" for the purposes of this report. The October Gale (29-31 October 1991) caused extensive flooding of Muskeget's beaches and low lying interior; as a result many of the beaches became wider, as foredunes were flattened and beachgrass was buried in sand (Figure 1). After the October storm the west end of Seal Island continued to erode and diminish. Traditional seal haulout shoals to the north and northeast of Muskeget were razed in the October storm, but slowly rose and accreted in the following months.

On 18 November 1991 I flew over Muskeget to view the storm's effects and to count seals. Conditions were clear and calm; air temperature was 46-48°F, and the tide was close to ebb. Two shoals awash to the north of Muskeget held 37 and 12 gray seals. The break in Long Point was noted. 200± harbor seals occupied a low shoal off Eel Point, Nantucket. Wasque Shoal, off Chappaquiddick, Martha's Vineyard, was not exposed.

Figure 1.
EAST PART OF MUSKEGET ISLAND, JANUARY 1992.
(Sketch map, not to scale)



KEY



- A. Location of pup on 12 January 1992.
- B. Location of pups on 19 January 1992.
- C. Location of pups on 22 January 1992.
- D. Location of pups on 27 and 30 January 1992.
- E. See reports for 7 and 9 April 1992.

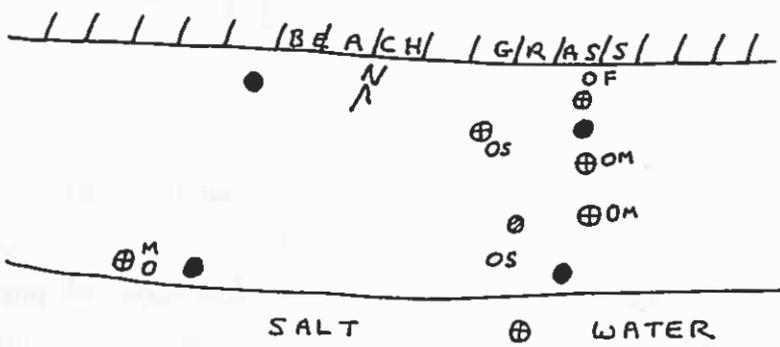
In 1992, as in 1991, the gray seal pupping ground was on Muskeget's east shore, along 600-700 feet of beach (Figure 1). This section of beach was about 20 feet wider than in 1991, ranging from 50 to 70 feet wide at mean low water to 40 to 60 feet wide at mean high water.

The first aerial survey of the breeding season was on 12 January 1992, from Hyannis, 0840 to 0940. Nantucket air temperature was 23-24°F, wind northwest at 12 knots, the sky clear, and the tide was close to ebb. A gray seal cow and pup were on Muskeget's east beach at site A (Figure 1), and another adult seal was in the water opposite. The pup was small, and judging by the moist, yellow, bloodstained appearance of its fur, had been born that day. A subadult gray seal was hauled out on the north shore of Muskeget, but no seals were on shoals north and northeast of the island.

Another flight was taken on 19 January from Hyannis, 0900 to 1000. Air temperature at Nantucket was 15-17°F, wind northwest at 15 gusting to 22 knots, the sky mostly clear, and the tide was high. Four cows and four pups were on the beach at site B (Figure 1) about 220 feet east of where the lone cow and pup were on 12 January. There were 3 separate patches of blood, 2 fresh, on the edge of the shore. One pup was 1-2 days old, based on yellow, bloodstained fur; another, with fresh umbilical stump, was within 2 days old. The other 2 pups did not have abdomens visible, however one was smaller than the other. Three adult seals were in the water opposite, and a small seal was on the beach 200± feet to the west. No other seals were hauled out in the Muskeget area.

The third flight was on 22 January, from Nantucket, 1315-1400, an hour after high tide. Air temperature was 28-29°F; wind north northeast at 12-15 knots, and the sky partly cloudy. The group of seals was at site C (Figure 1), and included 6 pups, 6 cows, 4 bulls, and 1 juvenile, as shown below. The 2 small-girthed pups were only slightly thinner than those of moderate girth, consistent with their birth dates being within 4-5 days of each other.

- KEY
- o pup
 - ⊕ cow
 - bull
 - ⊙ juvenile
- Pup girth:
 S=small M=moderate
 F=fat



Groups of juveniles and males were on Seal Island: 20 on the northern tip; 28 on the easternmost bend; and 2-4 going in and out of the water at the west tip.

Table 1.

Females and pups at Muskeget,
January and February 1992.

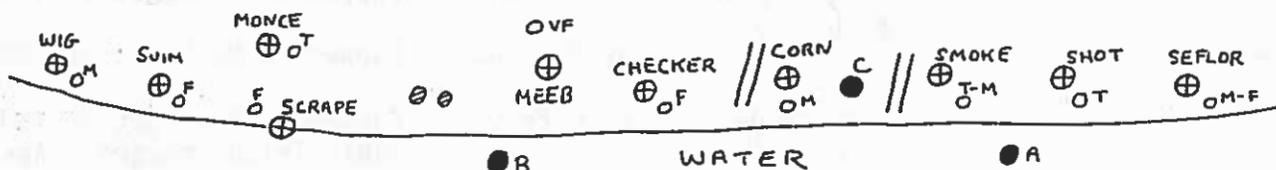
Female*	Pup sex	Approx. birth date	Observed weaning date	Comments
Meeb	U	12 Jan.	by 30 Jan.	Meeb seen at Muskeget spring of 1988 and 1989. She is 6-7 years old in 1992.
Scrape	U	15-16 Jan.	by 30 Jan.	Pupped at Muskeget in 1991.
Checker	M	# 17 Jan.	by 30 Jan.	Pupped at Muskeget in 1991.
Suim	M	18-19 Jan.	by 4 Feb.	Pupped at Muskeget in 1991. Sable Island-tagged. Age 7 in 1992.
Wig	F	19-20 Jan.	by 4 Feb.	
Seflor	M	20 Jan.	by 4 Feb.	
Corn	U	22-23 Jan.	by 4 Feb.	
Smoke	F	22-23 Jan.	by 4 Feb.	
Monce	U	23-24 Jan.	by 17 Feb.	Pupped at Monomoy, 28-29 January 1991.
Shot	M	25-26 Jan.	by 17 Feb.	
Wix	U	28-29 Jan.	by 17 Feb.	Pupped at Muskeget in 1991. Branded S; born Sable Is. in 1978. Previously seen at Muskeget in March 1983, and at Wasque Shoal in May 1986.
Moby	F	29-30 Jan.	by 17 Feb.	Pupped at Monomoy, 25 January 1991. Sable Island-tagged. Age 7 in 1992.

*Females were named for cataloging purposes. They were identified by natural markings.

#Either Scrape or Checker may have pupped on 15-16 January; similarly either Suim or Wig may have pupped on 18-19 January. Except for Meeb on 22 January, females could not be identified from the air, hence the uncertainty in putting female names to birth dates in these cases.

→ Not listed in 91 Report

On 27 January the site was visited by boat, and the breeding beach was observed from Seal Island, 1100 to 1400. the tide was coming; air temperature was 27-28°F, wind conditions were calm to light westerly, and the sky was partly cloudy. About 30 male and juvenile gray seals were on the north point of Seal Island. There were now 10 pups, with mothers, bulls and juveniles along the section of beach marked D in Figure 1, arrayed as shown below. Adult seals have been named for cataloging purposes.



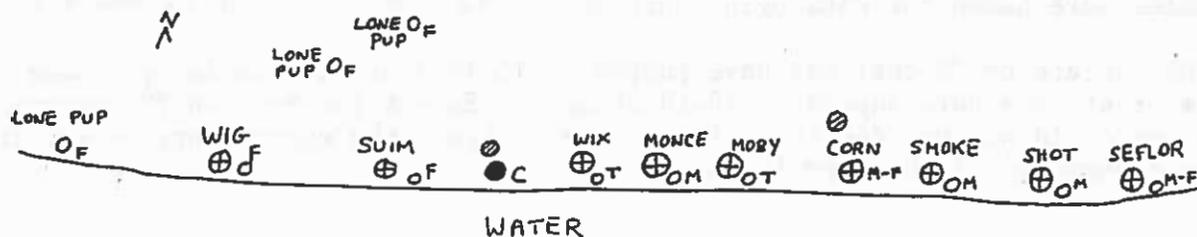
KEY: ○ pup; ⊕ cow; ● bull; ⊖ juvenile female; // space.

Pup condition: T=thin M=medium F=fat VF=very fat

Wig, Suim, Monce, Smoke and Shot were seen nursing their pups. Meeb's pup was noticeably the fattest, while Shot's pup, with a fresh umbilical stump was likely the youngest at 1-2 days old. Scrape spent the entire observation period in the shallows; Shot spent much time swimming. Three bulls, A, who was present here in January 1991; a mottled bull, B, also seen here in 1991; and C, a third large bull, approached some of the cows. Shot and Smoke were approached by bull A; male B approached Scrape and Meeb; and male C approached Wig, Corn and Seflor.

On departure a group of 50± seals were noted on a shoal northeast of Muskeget, and a few were on a smaller shoal east of the first one.

A return visit was made on 30 January, with observations from 1110 to 1430. Tide was ebbing. Air temperature was 39-40°F, the wind southwest at 5-8 knots, and the sky partly to mostly cloudy. About 35 juveniles and bulls occupied the north point of Seal Island, including a very distinctively marked bull "Cal", previously seen at Muskeget in April 1989. On the breeding beach were 12 pups and 9 cows. Two new pups had been born in the previous 3 days, and 3 pups had been weaned and abandoned. Females Meeb, Checker and Scrape were absent. The seals were located along section D of the beach as shown below.

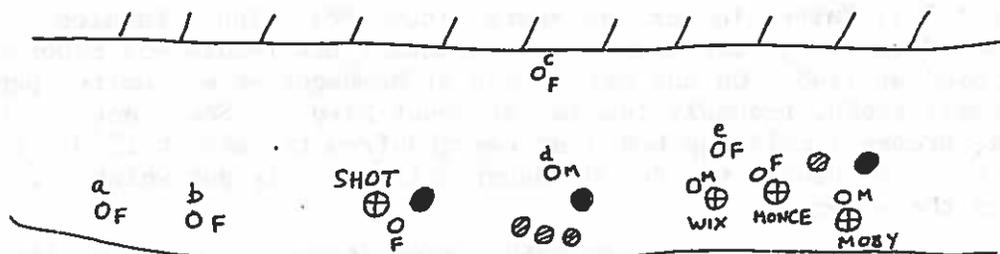


Suim, Wix, Monce, Moby, Corn and Seflor were seen nursing their pups. Moby's pup had a fresh umbilical stump indicating birth within the previous 1-2 days; Wix's pup was equally thin, however the abdomen was not seen. Suim's pup briefly put his face into the shallows.

4 or 5 bulls were present, B and C of 27 January; a smaller gray bull; and 1 or 2 others less readily identified. Male B approached females Corn and Monce; C approached Corn, Smoke and Wig, and Wig did not vigorously rebuff him. The small gray bull approached Shot, and Seflor's pup. Seflor was in the water much of the time consorting with a large bull, and was seen in a possible copulation before going ashore to nurse her pup. One bull approached the westernmost lone pup.

A mature female who was not recognised from previous studies swam along the breeding beach, but was not seen again.

I was at Muskeget again on 4 February, observing from 1130 to 1345. The air temperature was 32-33°F, the wind shifting northwest to southwest from 5 to 10 knots, and the sky was cloudy. Tide was high and starting to ebb. 35 juveniles and bulls, including "Cal", were on the north tip of Seal Island. On the breeding beach the seals were clustered at sites B-C, and were somewhat obscured by one another. There were 9 pups visible, including a molted female, and 4 mothers, Shot, Monce, Wix and Moby.



KEY: ○ pup; ⊕ cow; ● bull; ⊗ juvenile female.

Pup condition: F=fat M=medium a,b,c,d,e are weaned pups.

5 of the pups were weaned and alone. Pup a, a male, was in whitecoat. Pup b, partly molted into a black coat was probably male. Pup c was in whitecoat, as was pup e. Pup d was molted into the light and spotted coat of a female. Monce nursed her pup. Moby's pup briefly put its forequarters into the shallows. The mottled bull B was one of 3 bulls present. Young seals of both sexes played along the edge of the haulout at Seal Island, wrestling and chasing each other in and out of the water.

On 17 February I was at Muskeget from 1245 to 1500. The tide was ebbing, air temperature was 40 to 44°F, wind was southwest at 6-10 knots, and the sky was clear. No adult seals occupied the east beach. Two molting male pups were on the beach west of site C, one higher on the dune than the other. In back of the dunes was a partly molted female pup in a depression she'd worn into the sand through beach grass and poison ivy. On

Seal Island the seals occupied the southwest point, and numbered 60-70, most of them males. 2 "new" adult females were identified and photographed. Seals were on 3 shoals to the northeast of Muskeget. 12 gray seals were on the more westerly of the 3, 2-3 on the middle shoal, and 10 mixed gray and harbor seals on the eastern shoal.

From 20 to 23 February I stayed on the island. On 20 February low tide was at 0617. Daytime temperature was 35-45°F, the wind southwest at 10-12 knots, and the sky was overcast. From 85 to 96 gray seals were counted on the southwest tip of Seal Island, with 2 adult females noted. On the east pupping beach were 2 molting pups, one in an excavated depression at about site B, and another farther northeast. The molting female was still behind the foredune.

On 21 February low tide was at 0708. Air temperature ranged from 34 to 43°F, wind was southwest to west at 10 to 15 knots, and mostly cloudy skies cleared late. At 0830 a Cessna flew over the seals, followed by a small commuter plane from Martha's Vineyard, both below 500 feet. I counted as many as 135 seals on the southwest tip of Seal Island. Several females were spotted, including Meeb, who pupped here in January, and Yo*, a Sable Island-marked seal born in 1972, and seen at Muskeget in various years since 1977. Yo has also been seen at Little Duck Island, Maine and Green Island Seal Ledges in Penobscot Bay, Maine, in various years since 1981. The 2 females photographed on 17 February were present, and another new female was recorded. A Cessna flew over at 1245. On the east beach of Muskeget were a molted pup, silvery with small spots, probably female, at about Site C. Southwest of it a mostly black, probably male pup had just emerged from the sea at 1340. The female molter remained behind the dunes, apparently the only pup which had not yet entered the water.

On 22 February the tide was low at 0759. Water temperature in the lagoon was 38°F. Air temperature ranged from 28 to 41°F; the wind was south southwest at 5-10 knots, and the sky was mostly cloudy. At 0700 the southwest tip of Seal Island had on it only 12 seals, all males. The Martha's Vineyard commuter plane circled at 0920. At 1005 seals were seen on the shoals northeast of Muskeget. 45 grays were on the west shoal, eider ducks were on the middle shoal, and 11 harbor seals were on the east shoal. A molted pup was on the east end of the east beach; later in the day it was disturbed when approached by 2 young bulls. By midday seals were returning to the southwest point of Seal Island. Some distance back from this group a molted pup lay in the beachgrass. The main group grew to about 45. Among them were 2 females seen the previous day, and 9-10 new females. Most of the group were males, among them Cal, and one branded E73, born at Sable Island in 1987.

Low tide on 23 February was at 0852. Air temperature this day ranged from 40 to 50°F; the wind was southwest shifting to northeast at 8-12 knots, and the sky was mostly cloudy. I woke to the sound of seals calling on the northeast shoals. 120 grays were on the southwest point of Seal Island, while 50± others were on the western of the northeast shoals. A pup remained apart in the grass of Seal Island, and another had hauled out on the

* Female H of 1981 report.

north tip of the island, both exhibiting solitary behavior typical of their age. The pup back of the dune on the east beach had moved south and west to just behind the crest of the dune, probably beginning her track to the sea. No females were noted in the large group of gray seals on Seal Island.

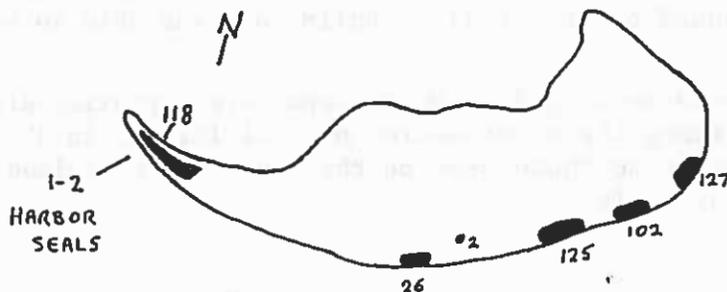
Returning to Nantucket I saw a gray seal pup on the east end of Whale Island, a long spit extending from the south side of Tuckernuck Island. At Nantucket a call to the FAA tower led to the Martha's Vineyard commuter plane operator being advised to stay away from the Muskeget seal haulout.

The seals were unobserved and apparently undisturbed during March. On 7 April from the hill at Eel Pt., Nantucket, I saw a long line of seals along the outside of Seal Island. I landed at Muskeget at 1100. The tide was coming, the air temperature was 43-45°F, the wind light south to south southwest, and the sky mostly cloudy. The count of seals on Seal Island was 353. On the east point of Muskeget (Site E, Figure 1) were a harbor seal, a gray seal pup, and a gray seal yearling. A pup was on the east beach, another was on the northeast end of Seal Island, and 3 more were loosely grouped on the southwest part of Seal Island.

Among the older seals was a 3-4 year old female with a constricting neck collar of twine or wire. 4 other young females were identified. The group contained mostly males, including the one branded E73 mentioned above. A dead whitecoat pup was found on the north tip of Seal Island. The carcass was very thin; apparently male, it was probably stillborn or had died shortly after birth. The carcass was 2-4 weeks old.

Birds seen on Seal Island included a piping plover, 4 brant, and a peregrine falcon. 2 planes were seen, one very low over Muskeget's north shore.

On 9 April I took a census flight of Muskeget, 0910 to 1010. The tide was low, air temperature was 45°F, wind southeast at 15 knots, and the sky mostly clear. Gray seals were on Seal Island as shown below: 499 grays and 1 or 2 harbor seals. Another 4 grays were on the east point of Muskeget (Site E, Figure 1) for a total of 503 gray seals. In addition there were 19 harbor seals on the eastern northeast shoal. Elsewhere at Nantucket 2 gray seals were seen at Great Point. Harbor seals were also noted: 423 on the Eel Pt. shoal and 95 on the harbor jetties, for a total count of 538 harbor seals in the Nantucket area.



I stayed on Muskeget 14 to 16 April. Air temperature ranged from 35 to 47°F each day. On 14 April winds were southwest at 10-14 knots, with clearing skies; low tide was at 1539. No seals were on exposed shoals northeast of Muskeget at midday. 80 gray seals and 1 gray seal pup were on the north end of Seal Island; 87 and 1 pup were on the southwest end of the island; and many others were hidden behind the dunes on the south side of the island. 1 pup was on the east end of Long Point (Figure 1), and 2 pups and 1 female were on a bar in the cut between Long Point and Seal Island.

2 new females were identified among the seals visible on the lagoon side of the island. 4 Sable island-branded bulls were noted, their birth years in parentheses: S2 (1972); S (1978); M770 (1976), and E73 (1987). Late in the day a male pup entangled in green polypropylene trawl net was seen on Seal Island.

On 15 April winds were northeast at 8-10 knots, the sky was clear, and low tide was at 1630. Seals were on the north and southwest parts of Seal Island, with about 100 visible, and many more were on the outside of the island, obscured. Noted were the entangled pup; 4 other pups; the female Meeb, markings indistinct in a tan premolt coat; a Sable-branded female K305 (1989); and branded males B206 (1973), S, M770, and E73. At 1005 something startled the seals on the outside of the island; most went in the water and did not haul out there again that day. At 1255 a scallop boat went clockwise around Muskeget. Two small planes that passed did not appear to bother the seals.

At 1530 seals were on the shoals northeast of Muskeget: 20 grays each on the west and east shoals, while eider ducks occupied the middle shoal. A Sable Island tag, H231, from the 1988 cohort, was found on the east beach. A blackback gull nest with 3 eggs was found in the interior dunes of northeast Muskeget.

On 16 April low tide was at 0502, winds were east at 10-12 knots, and the cloud cover was thickening. On Seal Island 176 seals were visible on the southwest end, and 25 on the north end. 14 were on the east end of Long Point, including Bell, a female who pupped at Muskeget in 1991 (her pup however was dead); and 7 pups in a loose group, showing the transition to more social behavior at this age. 4 adult females, several immature females, and 1 male were newly identified and photographed for their distinctive markings. As in the previous days the relatively few adult females were accosted by bulls on coming ashore. In each case the cow fended off the bull or bulls, and was able to rest on the sand.

Branded male M770 was seen again. On my departure approximately 245 seals were counted along the outer shores of Seal Island, in 3 groups. Adding that number to those seen on the inner shore yielded a total of about 460 gray seals.

Table 2

Sable Island-branded seals at Muskeget, 1992.

Brand	Sex	Year of birth & marking	Sighting dates	Comments
S	F	1978	27, 30 Jan.; 4 Feb.	Pupped here in 1991 and 1992. Previously seen here in March 1983 and at Wasque Shoal in May 1986.*
S2	F	1972	21 Feb.	Seen here or Wasque Shoal March 1977, Dec. 1981, March 1982, March & April 1983, March 1984 & 1985, March 1988. Seen at 2 sites in Maine various years 1981 to 1989.*
E73	M	1987	22 Feb.; 7, 14, 15 April	
S	M	1978	14, 15 April	
S2	M	1972	14 April	
M770	M	1986	14, 15, 16 April	
B206	M	1973	15 April	
K305	F	1989	15 April	

* Identified by natural markings.

DISCUSSION

The 1992 pupping event is important for the number of pups born, and for the lack of human disturbance at the site, giving confidence that observations were of natural behavior. Unlike 1991 when disturbance scattered the breeding seals, in 1992 all pups were born on the same beach. The dead pup found on the north tip of Seal Island on 7 April was probably born in early March, a month after the normal pupping season. Even if the pup had been perfectly healthy its mother probably would have abandoned it since there would not have been the reinforcing social stimulus of other nursing mothers. It is believed that the occasional out of season pups seen are born to first time mothers.

The unusual swimming of whitecoat pups seen in 1991 did not recur in 1992, although 2 pups did put head or forequarters into the shallows once during the observations. The break in Long Point broke the shelter of the lagoon which was conducive to pup swimming in 1991.

Cold temperatures at Nantucket during January and early February helped to keep the breeding seals unmolested. The scallop crop at Madaket was poor, and most boats were in Nantucket Harbor. The few in Madaket were hampered by ice, which filled Madaket Harbor to a greater or lesser extent for about a month beginning about 20 January. Boats that succeeded in leaving the harbor did not range far afield; boatmen from town would not go to Muskeget because of the lack of safe harbor at Madaket. My first trip to Muskeget was from town with a scalloper on a calm day. The next 3 trips involved launching my Boston Whaler from the beach at Eel Pt. on days when the ice was thin enough for passage.

Even after the ice left Madaket, however, Muskeget had no visitors, other than myself and assistant, except possibly those landing by plane at the west end. Planes landing at the west end did not appear to bother the seals at the east end. Of greater concern were planes circling over the herd in late February. The most persistent of these, a commuter operator from Martha's Vineyard, was persuaded to stay away from the area by FAA personnel.

I was off Nantucket and therefore did not cover Muskeget in March, but on my return in early April saw record numbers of seals at Seal Island, suggesting March had passed without disruption. Even during fine days in April when I was on Muskeget no boats landed. The topography of the new Seal Island evidently suited the seals, and the large haulout probably continued well into May. The count of 503 on 9 April is the largest concentration of gray seals ever recorded in the United States.

Muskeget was the only gray seal pupping ground found in southern New England in 1992. No pups were born at Monomoy National Wildlife Refuge. The survey flights of 12 January and 19 January included passes over Monomoy. On 12 January 12 gray seals and several hundred harbor

seals, most all in the water, were on the north half of the east side of South Monomoy. On 19 January there were 4 gray seals and about 200 harbor seals in the water in the same area. Reports from the U.S. Fish and Wildlife Service, and observers from the Cape Cod Museum of Natural History, confirm the lack of pupping at Monomoy in 1992. This contrasts with 9 pups born there in 1990 and 3 in 1991. One of the 1990 Monomoy females (Tern) pupped at Muskeget in 1991, and 2 of the 1991 Monomoy females (Moby and Monce) pupped at Muskeget in 1992. In addition 4 of the cows which pupped at Muskeget in 1991 (Scrape, Checker, Suim and Wix), did so again in 1992 despite disturbances experienced there in 1991. Two of the 1992 Muskeget bulls that could be identified individually were repeaters. Males A and B were at Muskeget in 1991, and male A had also been at Monomoy in 1990. Thus Muskeget's attractiveness to seals has continued, and likely has been enhanced by recent physical changes.

Three females which pupped at Muskeget in 1992, Wix, Suim and Moby, are Sable Island-born: Wix (branded, tag missing) in 1978, Suim (tagged) and Moby (tagged) in 1985. All 3 have now pupped in 3 consecutive years in southern New England. Possibly other females in the Muskeget group are Sable-born; however the flipper tags applied by Canada's Department of Fisheries and Oceans are lost at a high rate (as evidenced by the finding of one on the east beach in April), and they are not permanent marks as brands are. 80% of the 1985 Sable cohort was double tagged, improving chances for tag sightings. Only one tag was visible on Suim and Moby in 1992, although Suim had two in 1991.

The proportion of brands expected in the group of 12 females at Muskeget in January 1992 if all were Sable-born is 10%; the observed proportion is 8%. The proportion of tags expected if all were Sable born is 47%; the observed proportion is 17%. Therefore we may conclude that 36%-80% of the breeding females at Muskeget were born at Sable Island. The above estimates assume a tag loss rate of 50%, a minimum; the actual rate is much higher*, so it may be safe to say 50%-80% of the females at Muskeget are Sable-born.

Sable-marked animals were noted after the breeding season (e.g. Table 2), however it was impossible to check all seals present for marks. As in other years the majority of seals seen at Muskeget in the post-breeding period, and in the pre-molting to molting period beginning in March, were juveniles and adult males. This pattern is also observed at Sable Island. The adult females are believed to be feeding to replenish depleted blubber reserves, and do not return in any numbers until they molt in early May (B. Beck, pers. comm.). The molt appears to occur earlier in southern New England, with some individuals molted by early to mid April. The April brand sightings in Table 2 reflect the high proportion of males, i.e. about 17% females; however more females than males were branded. The corrected figure is 13% females, which conforms to observations throughout the herd at Muskeget in April.

* Canadian studies show a 50% tag loss rate, in the first year alone. Unfortunately tag loss in later years is less well documented, but is considered substantial (B. Beck, Dept. Fisheries & Oceans, Canada, pers. comm.).

CONCLUSION

If Muskeget remains undisturbed in coming winters it should continue to attract gray seals for pupping, particularly given the ever increasing Canadian gray seal stock which supplies many of Muskeget's recruits. The 4 females which pupped at Muskeget in both 1991 and 1992 would be expected to do so again in 1993 or later years. Most Sable Island-born and marked seals return faithfully to breed there, year after year. Those which breed in southern New England are of course the interesting exceptions. There are many aspects of gray seal biology which can be studied in non-intrusive ways at Muskeget, and future opportunities to do so are hoped for!

ACKNOWLEDGMENTS

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