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SURVEY OF A TRANSLOCATED SEA OTTER POPULATION

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Abstract: The Washington sea otter population is important because it is the only one having the dual distinction of becoming successfully established and being intensively monitored. Fifty-nine sea otters were released off the west coast of the Olympic Peninsula of Washington State during the summers of 1969 and 1970; all had been translocated from Amchitka Island, Alaska. In 1970, 30 otters were released. Surveys to assess the results of this translocation began in 1977. Since we began our current survey method in 1989, the population has grown, despite the oil spills of 1988 and 1991, at an average rate of about 16 % a year. In 1991 a large group broke away from the main population and established itself in Makah Bay about 15 km north of where they were the previous year. Females with pups now occur from Duk Pt to Destruction island.

A total of 59 sea otters (*Enhydra lutris kenyoni*, Wilson *et al.* 1991) was released off the west coast of the Olympic Peninsula of Washington State during the summers of 1969 and 1970 (Jameson *et al.* 1982); all had been translocated from Amchitka Island, Alaska. In 1969 the otters were released, with no time to acclimate or recondition their fur, directly to the open ocean. Sixteen of the 29 sea otters translocated in 1969 were found dead within 2 weeks on beaches near the release site. No doubt some carcasses went undiscovered. In 1970 release procedures were changed, and the 30 otters were allowed to acclimate for several days in floating pens prior to release. All were liberated in excellent condition. Thus, the initial nuclear population in Washington could never have been larger than 43 otters and may have dropped to less than 10 individuals by the early 1970s. No surveys were conducted to assess the success of this translation until 1977 (Jameson *et al.* 1982, 1986, Table 1). All sites within the study area are located off the west coast of Washington's Olympic Peninsula between Destruction Island (47°40.5'N; 124°29.1'W) and Cape Flattery (48°23,5'N; 124°44,1'W). From 1977-1981 surveys were conducted by U.S. Fish and Wildlife Service (FWS) biologists. Since 1985 surveys have been conducted cooperatively by FWS and Washington Department of Wildlife (WDW) biologists.

METHODS

The 1992 survey was conducted from 6 through 8 July. The entire coastline from Pt Grenville (47° 18,8'N; 124°16,6'W) to Cape Flattery was surveyed. Most of the population was surveyed from a fixed-winged aircraft, but three ground stations were occupied (Sand Pt, Cape Alava, and Makah Bay). The survey spanned a three day period. Two complete counts of the sea otter range were made each survey day, conditions permitting; ground counters, with the aid of 50X telescopes and 10x50 binoculars, kept more or less continuous tallies of the sea otters in their respective areas. Both ground and aerial observers recorded otter numbers and locations on field maps for later entry into a computer database. Each replicate total is the sum of aerial plus ground counts. Therefore, two complete counts of the population were made each day, weather conditions permitting.

RESULTS AND DISCUSSION

Conditions in 1992 were generally good. Morning fog hampered the operation somewhat, and on 7 July precluded one survey. Thus, 5 counts of the entire range were completed, 2 on 6 July, 1 on 7 July and 2 on 8 July. The variation among counts was somewhat higher than previous years (CV = 21,3 %), which was due, primarily, to variation among aerial counts. This was not unexpected because conditions were poor for aerial observations during several of the replicates. The highest count was on 7 July when 298 sea otters (268 independents, and 30 pups) was tallied between Pt. Grenville and Cape Flattery.

However, the Makah Bay male group was very difficult to count on 7 July because of rough water and boats disturbing the sea otters. On the previous day 57 were seen in Makah Bay, and on 8 July 60 were observed in the same area. There was no evidence of a shift between Makah Bay and Cape Alava, the nearest other concentration of otters, so I included the high Makah Bay count in the survey total. The total was, therefore, reached by summing the highest daily count for the southern (Destruction Is to La Push) and northern sections (La Push to Pt. of Arches + Makah Bay). The result is 313 sea otters counted off the Washington coast in July 1992 (Table 1). This is an increase of over 13 % from the July 1991 count of 276.

Table 1: Results of surveys of the sea otter population in Washington, 1977-1992.

Year	Number Independents	Pups	Total
1977	15	4	19
1978*	12	0	12
1979	NO SURVEY		
1980	NO SURVEY		
1981	35	1	36
1982	NO SURVEY		
1983	48	4	52
1984	NO SURVEY		
1985	60	5	65
1986	NO SURVEY		
1987	89	5	94
1988	NO SURVEY		
1989	198	10	208
1990	197	15	212
July 1991	259	17	276
Oct 1991	242	20	262
1992	283	30	313

*The 1978 results are probably not indicative of the actual number of sea otters in the population because Inclement weather conditions precluded a thorough survey of the south portion of the range.

In 1988 and again in 1991 the outer coast of the Olympic Peninsula was hit by two spills of bunker fuel oil, both from shipping accidents. The 1988 spill occurred in December; the 1991 spill in late July. Over 1 million litres were spilled in 1988; the 1991 amount was similar.

The sea otter population was relatively unaffected by both spills, although thousands of seabirds died in each. No oiled sea otters were found in 1988, and only one was found in 1991. This animal did, however, die of complications caused by oiling (Nancy J. Thomas, DVM, National Wildlife Health Research Centre, Necropsy Report). In 1991 the spill occurred within two weeks of the completion of our July survey. In addition to the effort directed toward carcass recovery, the FWS and WDW conducted a follow-up survey two months after the spill. Results of that survey were not significantly different from the pre-spill count of 276 (Table 1.). By the time the oil reached the otter range it had degenerated to relatively small patches and most of the volatile compounds had evaporated leaving what is referred to as mousse. Unlike during the Exxon Valdez oil spill, Washington sea otters escaped contact with freshly spilled oil because of its patchy distribution and condition when it reached the sea otter range.

Since we began our current survey method in 1989, the population has grown, despite the oil spills of 1988 and 1991, at an average rate of about 16 % a year. When we began our surveys in 1977 (Jameson *et al.* 1982) the population was distributed between Destruction Island and Cape Alava, a distance of about 60 km. In 1992 the population was distributed between Destruction Island and Makah Bay, a distance of about 80 km. Prior to 1991 the distribution had changed little from what it was in 1977. Until then all the population growth had taken place within the 1977 boundaries. In 1991 a large group broke away from the main population and established itself in Makah Bay about 15 km north of where they were the previous year. The distribution of 1992 was similar to 1991. Females with pups now occur from Duk Pt to Destruction island. The behaviour of, and the lack of pups among, the sea otters in Makah Bay indicates a large group of males. The low pup ratios noted at Destruction Is also suggests the sex ratio there may be skewed toward males. Sand Pt seems to be a site favoured by females with pups. Fourteen pups and 28 independent animals were counted there on 8 July 1992, a ratio of 50:100.

The Washington sea otter population is important because it is the only one having the dual distinction of becoming successfully established and being intensively monitored. Other populations have been successful, but few data are available on their patterns of growth. Others that have been intensively monitored, Oregon and San Nicolas Island, California, have failed, or appear to be heading toward failure (Jameson *et al.* 1982, Rathburn *et al.* 1991). The Washington sea otter population will continue to be monitored and plans are in place to expand the study to include collection of data on female reproductive rates and pup survival. This information, and the population growth data, will provide a basis for comparison with populations that are either stable or growing at rates below what is expected for populations reoccupying historic habitat. The southern sea otter (*E. l. nereis*, Wilson *et.al.* 1991) population in California is one such a population. Since 1982 this population has grown at 5.1 % per year, considerably lower than the Washington population and lower than most sea otter populations for which growth rates are available. Contrasting the reproductive and pup survival rates of the Washington and California populations will hopefully provide insight into why the growth rates are so different, if not tell us what is causing the difference. Once that point is reached, researchers can attempt to uncover the cause or causes of the differences.

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