

caused by oil pollution and oil spills, gill nets, and other anthropogenic factors as well as the restoration efforts conducted by the cooperating agencies, environmental organizations, and biologists. In addition, the location of the recolonization sites near San Francisco along scenic Highway 1 provides excellent viewing opportunities for the public and attracts large numbers of visitors each year. Therefore, opportunities for public outreach will be explored at this site.

#### *Schedule*

Spring-summer 1995: Begin preliminary work, including contracting, planning, logistics, and permits. Conduct aerial surveys of seabird colonies in central California in May or June to obtain baseline data, conduct aerial flights of Devil's Slide and San Pedro rocks to obtain aerial photos for mapping purpose, and record breeding common murre vocalizations at the Farallon NWR for use in the recolonization project. Select colonies and study plots to be monitored in the Point Reyes area. Conduct safety training for personnel as required.

Fall and winter 1995-1996: In fall 1995, conduct reconnaissance trips to recolonization sites in preparation for deployment of social attractants. Before December 1995, deploy social attractants and initiate daily observations of recolonization sites. Initiate daily observations of study plots in December 1995. Complete field season in August when common murres generally leave breeding colonies. Observations of study plots will continue from December through August for a minimum of 5 years to 10 years in order to provide necessary information to adequately evaluate the recolonization project. Work at the South Farallon Islands will begin the winter of 1995-1996 and will continue for a minimum of 2 years. Regular progress reports and an annual report will be submitted to the Trustee Council by the persons conducting work with funding from the APEX HOUSTON Trustee Council.

Spring 1996-winter 2004: Continue recolonization and monitoring efforts as necessary to accomplish project goals.

b. Castle and Hurricane Point Rocks Restoration: Restore common murres at Castle and Hurricane Point rocks using social attraction methods (decoys and recorded vocalizations).

*Location:* Castle and Hurricane Point rocks, Monterey County, California.

*Justification:* As described above, the recolonization of historic common murre colonies in central California will contribute to the reversal of the

dramatic reduction of this seabird's historic geographic range. The 1986 APEX HOUSTON spill negatively impacted the breeding colonies that make up the southern half of the central California breeding range (Swartzman and Carter 1991). The Castle and Hurricane Point rocks colonies were severely impacted by the APEX HOUSTON spill based on locations of APEX HOUSTON oil slicks, depleted size of the Monterey colonies and subcolonies after the spill, and locations of recovery of oiled common murres during the spill (Swartzman and Carter 1991, Siskin et. al 1993). Adult common murres are known to attend breeding colonies during winter months at the Southeast Farallon Island in central California (Ainley and Boekelheide 1990, Sydeman 1993). Also, common murres have been observed attending the Castle and Hurricane Point rocks colonies during the winter (Carter, unpubl. data). Castle and Hurricane Point rocks were in the direct path of oil slicks occurring from the APEX HOUSTON spill (Swartzman and Carter 1991). In addition, approximately 1,600 common murres were recovered in Monterey Bay near these 2 colonies. As a result, the APEX HOUSTON spill was responsible for a severe reduction in numbers observed at these two colonies following the spill.

Currently, common murres occur on five rocks and the mainland at Castle Rocks and two rocks at Hurricane Point Rocks. Aerial surveys conducted during the 1994 breeding season indicate that common murre numbers at subcolonies have remained low since the APEX HOUSTON oil spill (Carter and Takekawa, unpubl. data). Each subcolony is comprised of less than a hundred to several hundred common murres, and the breeding status of these subcolonies is unknown (Carter and Takekawa, unpubl. data). Given the low numbers of common murres that occur at these subcolonies, it is possible that breeding success is limited. Due to the small size of the subcolonies and other factors (e.g. gill net fishing in Monterey Bay, El Nino events, future oil spills, and other human disturbances) the colonies at Castle and Hurricane Point rocks continue to be in danger of extirpation. These colonies are particularly important because they are at the current southern end of the range of the central California population as well as the southern extreme of the species' range in the Pacific Ocean. These colonies are in close proximity to each other and constitute the only active common murre colonies south of San Francisco, representing a large portion

of the range of the central California common murre population. Given the current fragile condition of the overall central California common murre population and the lack of recovery over time (Ainley and Boekelheide 1990, Takekawa et. al 1990, Swartzman and Carter 1991, Carter et. al 1992, Ainley et. al 1994), colonies once lost are not likely to be reestablished in the foreseeable future without human assistance. Based on established principles of conservation biology, if the colonies at Castle and Hurricane Point rocks are lost, the resulting reductions in the geographical range, numbers, breeding locations, and productivity of common murres further increase the risk of extinction of the entire central California population.

*Proposed Action:* The common murre colonies at the Castle and Hurricane Point rock complexes will be evaluated to determine the best means of employing social attractants at these locations. A minimum of 2 years would be required to determine appropriate methods. Both of these colonies are composed of several subcolonies on different rocks. Subcolonies will be examined to obtain a comprehensive understanding of colony dynamics in a severely depleted condition. Breeding population levels, reproductive success, attendance patterns, behavioral observations, and nesting locations will be determined at as many subcolonies as possible. Particular attention will be paid to prospecting birds within established subcolonies and at unoccupied rocks. In addition, all unoccupied rocks and potential mainland breeding habitats will be assessed for the use of social attractants to encourage common murre breeding. Habitat will be assessed for suitability to support a common murre subcolony, including such factors as slope, size, protection from human and other disturbance, surf conditions, and predation threats. The unoccupied rocks will be regularly monitored to detect prospecting common murres.

A phased approach to employing social attractants will be used to refine the use of social attractants on the colony. Criteria to be used to determine the use of social attractants include: loss of subcolonies or colonies, below normal reproductive success, lack of colony growth, limited availability of breeding sites in existing subcolonies, high numbers of prospecting common murres in existing subcolonies, presence of prospecting common murres in areas with no breeding, and population status at each colony. The use of social attractants would be employed at sites where it was deemed necessary to