

Ashy Storm Petrel document comparison

House Mouse Eradication EIS

- Pg 18. EIS states that predation is extensive and may be having population level impacts.

Researchers have discovered that mice on the South Farallon Islands are indirectly responsible for extensive predation of ashy storm-petrels by burrowing owls. Burrowing owls overwinter on the islands because of the ready availability of mice as a dietary item when owls arrive in the fall (Mills 2006, Bradley et al. 2011, Nur et al. 2013). Physical and behavioral similarities between ashy storm-petrels and Leach's storm-petrels, along with recovered carcasses suggest that the less common Leach's storm-petrels may be suffering similar population level impacts (Bradley et al. 2011).

- Pg19. The EIS states 225 petrels/year are preyed upon by burrowing owls. Predation by wintering owls accounts for substantial annual mortality of breeding ashy storm-petrels. Bradley et al. (2011) documented an average of about 225 ashy storm-petrels preyed upon by burrowing owls per year, based on standardized carcass surveys (Bradley et al. 2011). However, these totals underestimated total predation because only easily accessible portions of the islands were surveyed (Bradley et al. 2011). On a monthly basis, owl predation on storm-

The Species Report estimates that only 10% of the SE Farallon Island population will be impacted by burrowing owl predation over the next 40 years (Species Report page 43). The methodology and data used to calculate this predation estimate is described in the August 15 memo to the file.

- Pg 19. EIS states that without the proposed action, the petrel population will decline or stay stable.

storm-petrels are highly correlated. A capture-recapture analysis reveals a strong and significant effect of burrowing owl abundance on annual ashy storm-petrel adult survival (Nur et al. 2013): in years when owls were more abundant, storm-petrel survivorship was reduced. Nur et al. (2013) estimate the change in population trend as a result of anticipated reductions in burrowing owl predation on SEFI, using a population-dynamic model. With no reduction in burrowing owl abundance (assuming recent conditions continue into the future) the ashy storm-petrel population is expected to decline or remain nearly stable, without the possibility of substantial population growth (Nur et al. 2013).

But the ASP Core Team determined that "is no consistent long-term trend in the species' population nesting on SE Farallon Island" (Page 18 of Species Report and August 15 memo to file). Further, that memo states that the data used by Nur et al. (2013) "limits the model's utility for determining the long-term trend for that population, and the current and future status of the species as a whole" (Species Report page 17 and August 15 memo to the file). The Core Team concluded that the Nur et al. study should not be used to determine future trends in ashy storm-petrel populations on the Island or estimate time to extinction.

term effects to species. For this analysis the significance threshold for each species was defined to be a:

- Long-term negative or positive impact in the abundance or distribution of a species at the population level.

For all biological resources analyzed the significance determination was made by asking the following two questions for each alternative:

- Is there a high likelihood that the species' population would incur change that is measurable throughout the species' range?
- Is there a high likelihood that the species' population would incur change that is measurable throughout the Gulf of the Farallones or central California region?

- Pg212. The EIS identifies long-term population declines as an unavoidable impact for the No Action Alt.

Biological Resources

- Birds
 - Long-term impacts to ashy and Leach's storm-petrel populations would continue as a result of ongoing hyperpredation by burrowing owls.

As discussed above, the Core Team concluded that there was no evidence of long-term declines at SE Farallon Island.

- Pg 228-229. EIS states that the proposed action is needed to reduce the magnitude of the "steep decline" in the the Farrallons population.

4.8.7 Summary of Cumulative Impacts Under Alternative A (No Action)

4.8.7.1 Summary of Combined Affects with Alternative A

The impacts that mice are having to the environment of the South Farallones, particularly on the islands' biological resources, would continue under the No Action alternative. As discussed below, these impacts could be additive to the impacts from past, present, and reasonably foreseeable future projects on these resources in the future. The ongoing indirect negative impacts that mice currently have to the storm-petrel populations will result in long term population declines. With no reduction in Burrowing Owl abundance (assuming recent conditions continue into the future) the Farallon ashy storm-petrel population is expected to decline or remain nearly stable, without the possibility of substantial population growth (Nur et al. 2013). Reducing burrowing owl impacts by 50 percent will have strong positive impacts for this population under multiple scenarios examined, from reducing the magnitude of a steep decline to facilitating strong population growth (Nur et al. 2013).

- Pg 21 The EIS states that direct effects from mice are at least a low-level impact

1.2.3 Direct impacts of mice on storm-petrels

The inconspicuous rock-crevice nest sites and nocturnal habits of storm-petrels make it difficult to collect evidence of mouse predation and disturbance on the South Farallones without disrupting and destroying nest sites. However, evidence of direct mouse impacts has been recorded. Ainley et al. (1990c) found a few examples of mouse predation on both Leach's and ashy storm-petrels in studies conducted from 1972 to 1983. They determined that mouse predation was likely contributing to the overall low breeding success rates of petrels on the Farallon Islands (Ainley et al. 1990c). In addition, researchers found mice would chew on decoy eggs made of modeling clay, when they were made available (PRBO, unpublished data). Chicks of storm-petrels and Cassin's auklets (*Ptychoramphus aleuticus*) have been found with toes or feet missing as a result of mouse predation (D. Ainley pers. comm.; P. Pyle pers. comm.). These data, combined with the fact that mice have been documented preying on seabird eggs and chicks on other islands around the world (Cuthbert and Hilton 2004, Wanless et al. 2007, Angel et al. 2008, Jones and Ryan 2010); see Section 4.5.3.2.1), indicates that house mice have at minimum a low level of direct impact on storm-petrels on the South Farallon Islands. Because of the difficulty with monitoring storm-petrels in their small crevice nests, it is possible that house mice are imposing a greater impact on Farallon storm-petrels than has been directly observed.

The ASP Species Report concludes that direct predation by mice is "negligible" (Page 45).

- Pg 130. The EIS states that the population is currently declining at 7.19%/year. While it indicates that number is flawed, it seems to focus on it by not providing other estimates.

If house mice remain on the South Farallon Islands, the best fit model suggests a 7.19 percent annual decline in the ashy storm-petrel population, though the 95 percent confidence interval of this result is a near stable population (Nur et al. 2013). Reducing owl impacts will reduce a steep population decline to a much smaller decline, or under the most optimistic interpretation of the data will allow the population to increase its annual growth rate by nearly five times. The

The ASP Core Team concluded in the August 15, 2013 memo to the file that the 7.19%/yr decline in population was not a reliable estimate of current population trends because that model run was not statistically significant. That model also used a data set limited to 2007 to 2012 and did not look at longer-term trends. Rather, the team concluded that the Nur et al. report should not be used to estimate current population trends for storm-petrels at SE Farallon Island.

- Pg 130 and 128. The EIS seems to indicate that the declines at the Farrallons have implications for species range-wide viability. This is further indicated by the finding of significance which is based on a range-wide, or Farrallons-wide population level decline. data will allow the population to increase its annual growth rate by nearly five times. The negative impact that mice have on ashy storm-petrels could be detrimental to the entire population, since it is already a state and federal Species of Special Concern and a Candidate for listing under the federal ESA. Thus, the significance determination for ashy and Leach's storm-petrels is significant because of negative impacts on storm-petrel populations. For all other seabird species, the significance determination is not significant.

Says "could", not "would" or "will",