



Audubon CALIFORNIA

June 12, 2013

Mr. Dan Wolford, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, #101
Portland, OR 97220

RE: Agenda item 1.3, Sardine Harvest Parameters

Dear Chairman Wolford,

We are writing to express concern about the status of Pacific sardine (*Sardinops sagax*) in the California Current Ecosystem, and to request the Council seek to evaluate and apply a harvest control rule that adequately protects sardine as a resource for wildlife and people.

Sardine is an essential prey item for piscivorous seabirds including brown pelican, elegant tern, Heerman's gull and the federally threatened marbled murrelet. National Marine Fisheries Service scientists have recently reported that sardines are in a collapsed condition,¹ and in central California, sardines have been scarce since 2010. This is especially worrisome given that anchovies, a primary alternative prey to sardines, have been scarce in trawl surveys in central California since 2008² and have been absent from the diets of breeding Brown Pelicans in southern California in recent years.³

Brown Pelican

Diet studies of breeding brown pelicans at the Channel Islands found that pelicans rely on local (~50km radius) availability of coastal pelagic species, primarily northern anchovy and sardine. Sardines comprised 25%-67% of the diets of breeding pelicans in six years of surveys that took place between 1991-2005.⁴

Brown pelicans were listed as endangered under the U.S. Endangered Species Act in 1970 and were delisted in 2009, in part because pelicans were meeting criteria for reproductive success as defined in the Recovery Plan. However, biologists at Channel Islands National Park, the only U.S. breeding colony for the species, have noted a general decline in reproductive success since 2010, culminating in near-total nesting failure in 2012⁵ and a likely nesting failure in 2013, according to preliminary data.⁶ Biologists have noted that:

...in the absence of contaminant, disease, or disturbance effects, local prey availability during the breeding season is most likely the primary driver of the reproductive failures.⁷

Additionally, unusual adult Brown Pelican mortality events during the non-breeding season on the California and Oregon coasts were observed in 2009-2010 and attributed primarily to starvation.⁸

The Pacific Fisheries Management Council has a statutory responsibility to ensure a forage reserve for brown pelicans. The Federal Register notice of removal of the brown pelican from the Endangered Species List notes that:

*The Coastal Pelagic Species Management Plan (CPSMP) will continue to ensure that adequate forage is available to pelicans if economic conditions change and northern anchovies become more intensively fished. The CPSFMP will also ensure that other forage fishes used by pelicans, such as Pacific sardines and Pacific mackerel, are also managed to preserve adequate forage reserves...food supplies are assured by the CPSFMP.*⁹

Regarding the status of sardines and forage stocks outside of the U.S., the Federal Register further notes that:

...we do not believe that commercial fishing will endanger the brown pelican or its prey throughout the United States, Mexico, and Caribbean portion of its range in the foreseeable future. We do not have information from other countries on commercial fishery impacts to brown pelican prey abundance. However, we have no evidence to suggest that commercial fishing is limiting brown pelican populations.

The California Department of Fish and Wildlife Status Review of the California Brown Pelican found that:

*...long term protection of food supplies has been addressed through the coastal pelagic species fishery management plan, which should ensure that adequate forage reserves are available to pelicans and other species along the Pacific coast. Food supplies in Mexico are not assured in the long term because pelagic fisheries are not managed, although there are not currently any known threats to food supplies.*¹⁰

These statements are contradicted by information on sardine fisheries in the Gulf of California, and on dependent seabirds including elegant terns, brown pelicans and Heermann's gulls, which are finding sardines less available:

*Sardine catches by the fishing fleet in the Gulf of California from 1969 to 1990 increased at an average rate of 53% per year (estimated from data in Cisneros et al. 1991). Data from the Centro Regional de Investigación Pesquera of the Instituto Nacional de Pesca in Guaymas revealed that the Pacific sardine population of the Gulf of California began to show symptoms of overexploitation in the late 1980s: for example, a reduction in average size of individuals in the catches, and a smaller size at first reproduction (see Cisneros et al. 1990). These were the same signs shown by the Pacific sardine population when the northern anchovy began to replace it and before the sardine fishery collapsed in the California Current during the 1940s.*¹¹

Marbled Murrelet

Marbled murrelet is a federally threatened and declining species in California, Oregon and Washington. It nests in remnant coastal old-growth redwood and spruce forests and typically forages within 3 km of the coast. The California central coast population is designated as critically imperiled by the U.S. Fish and Wildlife Service¹² due to its extremely low population size and continued decline. Long-term decline of marbled murrelets in central California is attributable in part to a switch in diet from sardines to lower trophic level prey:

...murrelets switched their diet from sardines to less energetically valuable anchovies following the collapse of the sardine fishery. The increased proportion of low- and midtrophic level organisms currently in the diet of murrelets suggests that fisheries declines may have fundamentally altered seabird prey availability and the trophodynamics of these marine predators and could have contributed to their listing as an endangered species in conjunction with cutting of coastal old-growth forests.¹³

In sum, we are concerned with the ecosystem impacts of what appear to be low availability and presence of sardines and anchovies in California leading to reproductive failure and starvation in seabirds and other marine wildlife, and are looking forward to Council leadership on precautionary management through an appropriate harvest control rule for sardine.

Thank you for the opportunity to comment.

Sincerely,



Anna Weinstein

¹ Zwolinski, J. and D. Demer. 2012. A cold oceanographic regime with high exploitation rates in the northeast Pacific forecasts a collapse of the sardine stock. Proceedings of the National Academy of Sciences (PNAS)109(11).

² Bjorkstedt, E. et al. 2012. State of the California Current 2011-2012: ecosystems respond to local forcing as La Nina wavers and wanes. CalCOFI Rep., Vol. 53.

³ Harvey, L. 2013. California Institute of Environmental Studies. California Brown Pelican reproductive decline on the Channel Islands colonies. Unpublished data. March.

⁴ Ibid.

⁵ Ibid.

⁶ Harvey, L. Unpublished data.

⁷ Harvey, L. 2013. Ibid.

⁸ Nevins, H., Melissa Miller, Laird Henkel, Dave Jessup¹, Nicole Carion, Carol Meteyer, KrystenSchuler, Judy St. Leger, Leslie Woods, Julie Skoglund and Deborah Jaques. 2011. Summary of unusual stranding events affecting Brown Pelican along the US Pacific Coast during two winters, 2008-2009 and 2009-2010.

⁹ Federal Register / Vol. 74, No. 220 / Tuesday, November 17, 2009 / Rules and Regulations
50 CFR 17 Endangered and Threatened Wildlife and Plants; Removal of the Brown Pelican (*Pelecanus occidentalis*) From the Federal List of Endangered and Threatened Wildlife; Final Rule

¹⁰ Burkett, E. et al. 2007. Status Review of California Brown Pelican in California. Department of Fish and Game.

¹¹ Velarde, E. et al. Seabirds as indicators of important fish populations in the Gulf of California.

CalCOFI Rep., Vol. 35, 1994

¹² USFWS 2005. Regional Seabird Conservation Plan, Pacific Region. Migratory Birds and Habitats Program, Pacific Region, Portland, OR.

¹³ Becker, B. and S. Beissinger. 2006. Centennial Decline in the Trophic Level of an Endangered Seabird after Fisheries Decline. Conservation Biology Volume 20, No. 2, 470-479