



# Audubon CALIFORNIA



Dorothy Lowman, Chair  
Pacific Fishery Management Council  
1100 NE Ambassador Place, #101  
Portland, OR 97220

October 21, 2013

Dear Ms. Lowman and Council Members,

On behalf of Audubon California and our more than 150,000 members and supporters, and Shearwater Journeys, we are writing to urge the Council to focus enhanced attention on northern anchovy. We specifically request the Council initiate management for this fishery as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations. This would include conducting a full stock assessment in order to develop an ecosystem-based Optimal Yield (OY) approach for anchovy. Furthermore, because an Annual Catch Limit has not been established for the fishery, the crucial means to prevent overfishing is not in place. Until these basic requirements of MSA are met, we believe commercial fishing on this essential prey species should be discontinued.

### **Importance of anchovy to predators**

Increased Council attention on anchovy is essential to managing the CPS forage assemblage with an ecosystem-based approach. The Council's Fishery Ecosystem Plan notes:

*... the greatest proportion of energy flow in the California Current Ecosystem appears to be through krill, market squid, northern anchovy, Pacific sardine and Pacific herring.*

The undersigned owner of Shearwater Journeys has been leading pelagic trips in Monterey Bay and throughout California since 1976, and notes that in years when anchovies appear in central California (tending to arrive in June or later) they support incredible assemblages of wildlife. For example, 100 or more humpback whales were seen feeding on "a wall of anchovies" in Monterey

Bay in September of this year. Shearwater Journeys and many other regional businesses are supported directly or indirectly by the presence of anchovies and subsequent aggregation of marine wildlife and large fish.

A growing number of predator/prey studies describe the importance of anchovy across seasons and taxa. Anchovy is of extremely high importance to predators due its small size, inshore distributions, and year-round availability. More than 50 predator species in the CCS consume anchovy.<sup>1</sup> The seasonal diet of Chinook salmon in California, for example, can be over 90 percent anchovy in some years.<sup>2</sup> Marine birds use a diversity of prey items across seasons and geographies, however, anchovy, together with juvenile rockfish, can reasonably be described as the most important single prey species for the millions of breeding and visiting seabirds in Mexico through Oregon. Numerous seabirds including brown pelicans, short-tailed, sooty, Buller's, flesh-footed, pink-footed, and black-vented shearwaters,<sup>3</sup> common murres, rhinoceros auklets, Craveri's murrelet, Scripps's murrelet, and California least tern all rely on anchovy for one or more seasons of the year.<sup>4,5,6</sup>

### **Anchovies must be actively managed**

We understand that regulations have not been issued by NMFS to establish a harvest quota or a cutoff for the anchovy fishery in either subpopulation. This is due to the fact that the fishery is assigned to the “Monitored” rather than “Active” Category in the Coastal Pelagic Species Fishery Management Plan (CPS FMP). Yet, this is clearly an active fishery. Since 2001 landings of the combined subpopulations of anchovy have ranged between 2000-20,000 mt/year over the last 15 years.<sup>7</sup> In its Situation Summary for agenda item E.3, NMFS describes an Overfishing Limit (OFL) of 39,000 mt and an Acceptable Biological Catch (ABC) of 9750 mt for the northern subpopulation. The CPS FMP states that:

*Any stock supporting catches approaching the ABC levels should be actively managed unless there is too little information available or other practical problems.*

The CSP FMP also provides a “point of concern framework” which is “the Council’s primary tool (along with setting HGs, ACLs, ACTs, or harvest quotas) for exercising resource stewardship responsibilities.”

*The process is intended to foster continuous and vigilant review of Pacific Coast CPS stocks and fisheries. The process is also to prevent overfishing or any other resource damages. The CPSMT will monitor the fishery throughout the year, and account for any new information on status of each species or species group to determine if a resource conservation or ecological issue exists... The Council may act quickly and directly to address resource conservation or ecological issues. ...A "point-of-concern" occurs when one or more of the following is found or expected (among others):*

- *Any adverse or significant change in the biological characteristics of a species (age composition, size composition, age at maturity, or recruitment) is discovered.*
- *Any adverse or significant change in ecological factors such as the availability of CPS forage for dependent species or in the status of a dependent species is discovered.*

There is evidence both these criteria are being met. First, while there are no recent stock assessments and virtually no information on the status of either subpopulation of northern anchovy, limited data suggest that stocks are depressed. Larval anchovy have been generally

declining in the CalCOFI survey for the past 20 years<sup>8</sup>, and have been nearly absent in these trawl surveys in central California region since 2008<sup>9</sup>. As noted below, adult anchovies have been absent from the diets of breeding brown pelicans in the southern California bight in the last five years. Anecdotally, the undersigned (D. Shearwater) notes that anchovies “disappeared” from central California in 2008 and this year, 2013, is the first year they seem to have “reappeared” (again, in late June) at a scale that can be detected by casual observers focused on wildlife aggregations associated with schools of anchovy. This underscores the critical need for a stock assessment.

Second, there appears to be dramatic change in the availability of CPS forage for dependent species, due to the dearth of anchovies and sardines in recent years. Brown pelicans, for example, are heavily dependent on abundance and/or availability of anchovies during the prebreeding and breeding periods.<sup>10,11</sup> Anchovies comprised 33% -100% of the diets of breeding pelicans in six years of surveys that took place at the U.S. Channel Islands between 1991-2005, including two years where anchovies comprised 100% of the diet.<sup>12</sup> Sardines comprise the rest of the diet of these birds.

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 2012 and a likely nesting failure in 2013, according to preliminary data.<sup>13</sup> 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 these reproductive failures.<sup>14</sup>

Furthermore, National Marine Fisheries Service scientists have recently reported that sardines are in a collapsed condition,<sup>15</sup> and in central California, sardines have been scarce since 2010.<sup>16</sup> Yet, 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.<sup>17</sup>*

Clearly, the U.S. Department of the Interior, acting through the U.S. Fish and Wildlife Service, expects NMFS and the Council to ensure the adequacy of the forage needs of brown pelicans via maintaining stocks of sardine and anchovy.

### **Optimum yield under MSA**

We recommend the Council adopt an Optimum Yield (OY) approach for anchovy that explicitly accounts for its role as prey for a wide suite of other fishery species and wildlife. OY is defined by MSA Section 3(33) which defines “optimum,” with respect to the yield from a fishery, as the amount of fish that “is prescribed on the basis of MSY from the fishery, as reduced by any

relevant social, economic and ecological factors.” In the case of anchovy, “economic and ecological factors” include the foundational importance of anchovy as prey for economically valuable species such as salmon, tuna, whales and seabirds. Data is available to integrate energetic considerations of predators into an OY approach for developing status determination criteria. Peer-reviewed methodologies are available for managing forage fish, especially the Lenfest recommendations which include approaches such as establishing cutoffs when stock levels fall to 20% or 40% of unfished biomass (Bo).<sup>18</sup>

Thank you for your time and attention, and for your work in advancing ecosystem-based fishery management. Our members, supporters and clients are passionate about marine birds and other marine wildlife, and are very interested in precautionary management of forage stocks including anchovy. We look forward to continued engagement on this issue.

Sincerely,



Anna Weinstein  
Seabird and Marine Program Manager

Debra Shearwater  
President, Shearwater Journeys

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<sup>1</sup> Thayer, JA, AI Szoboszlai, WJ Sydeman (In prep) California Current predator diet database.

<sup>2</sup> Thayer, J.A., et al. (In review) Changes in California Chinook salmon diet over the past 50 years: Relevance to the recent population crash. *Mar Ecol Prog Ser.*

<sup>3</sup> Lyday, S. et al. 2013. Shearwaters as ecological indicators: towards predicting fish catch in the California Current. <https://app.box.com/s/o3cf5a2xssm3qvu19r9q/1/1161890651/10450888935/1>

<sup>4</sup> Thayer et al. (i) ibid.

<sup>5</sup> Sydeman, W. et al. 2001. Climate change, reproductive performance and diet composition of marine birds in the southern California Current system, 1969–1997. *Progress in Oceanography* 49: 309–329

<sup>6</sup> Thayer, J. et al. 2008. Forage fish of the Pacific Rim as revealed by diet of a piscivorous seabird: synchrony and relationships with sea surface temperature *Can. J. Fish. Aquat. Sci.* 65: 1610–1622

<sup>7</sup> PFMC. June 2011. Status of the Pacific Coast Coastal Pelagic Species Fishery and Recommended Acceptable Biological Catches; Stock Assessment and Fishery Evaluation 2011. SAFE Tables, Appendix A.

<sup>8</sup> Hsieh, C.H., et al. (2005) A comparison of long term trends and variability in populations of larvae of exploited and unexploited fishes in the Southern California region: a community approach. *Prog Ocean* 67:160–185.

<sup>9</sup> Bjorkstedt, E. et al. 2012. State of the California Current 2011–2012: ecosystems respond to local forcing as La Niña wavers and wanes. CalCOFI Rep., Vol. 53.

<sup>10</sup> Anderson, D. et al. 1980. Brown pelicans as anchovy stock indicators and their relationships to commercial fishing. CalCOFI Rep., Vol. XXI, 1980.

<sup>11</sup> Anderson, D. et al. 1982. Brown pelicans: influence of food supply on reproduction. *OIKOS* 39: 23–31.

<sup>12</sup> Harvey, L. 2013. California Institute of Environmental Studies. California Brown Pelican reproductive decline on the Channel Islands colonies. Unpublished data. March.

<sup>13</sup> Harvey, L. Unpublished data.

<sup>14</sup> Harvey, L. 2013. Ibid.

<sup>15</sup> 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).

<sup>16</sup> Bjorkstedt, E. ibid.

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<sup>17</sup> 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.

<sup>18</sup> Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. 2012. Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.