

California Fisheries Coalition

Scientific Peer Review Highlights

Reasons for the Scientific Peer Review

The California Fisheries Coalition (CFC) believes the science advice provided in the Marine Life Protection Act (MLPA) master plan framework was deficient in at least four major aspects. In light of those deficiencies, and because the Marine Protection Area (MPA) network proposals developed through the MLPA Initiative process pose potentially damaging socio-economic impacts to central coast fisheries and coastal communities, the CFC has sponsored a peer review of the MLPA science advice. The review was conducted by three respected West Coast fisheries biologists; Dr. Ray Hilborn of the University of Washington, Dr. Carl Walters of the University of British Columbia and Dr. Richard Parrish, who retired this year from the National Marine Fisheries Service. The results of the CFC's peer review will be presented to the California Department Fish and Game at their upcoming hearings on the MLPA.

The CFC's peer review says that the MLPA Science Advisory Team (SAT) guiding the MLPA Initiative failed to consider impacts to the marine environment from sources other than fishing. Examples of other sources include climatic variation, non-point source pollution and coastal development. Therefore, the MLPA Initiative solely relies on new fishing restrictions to meet conservation goals. The advice failed to consider the benefits of existing fishery-management restrictions to the marine environment and assumes that existing fishery protections are nonexistent or ineffective in keeping ecosystems healthy and sustaining species populations. Further, the review shows that the advice virtually ignores that an expansive network of MPAs would have a significant ecological impact from shifting fishing effort and a seriously detrimental impact on Central Coast economies, affecting hundreds of businesses and thousands of individuals.

Conclusions of the Peer Review

The CFC's peer review concludes that the assumptions and guidelines produced by the SAT are flawed and therefore, any MPA network developed using those guidelines would offer only the illusion of additional protection for marine resources. The MLPA science advice failed to meet two central requirements of the Act. First, MPA's and fishery management must be "complementary components" of efforts at marine protection. Second, the "best readily available science" must be used in designing MPAs.

The review further concludes that the three MPA proposals submitted to the DFG provide similar ecosystem and resource protections, but with significantly different costs. Subsequent review reaches the same conclusion regarding the DFGs Package P network proposal. The network alternatives under consideration, with the exception of Proposal 1, cover existing regulations and are therefore redundant to protections already in place. The health of marine ecosystems largely depends on species that are too mobile to be protected by MPAs. These mobile species can only be effectively protected by the fishing rules that have proven their worth in rebuilding and maintaining healthy fish stocks off California's coast.

Key Excerpts from the Peer Review

"Resulting from precautionary 'ecosystem-based' fishery regulations enforced by both State and Federal fishery management agencies in recent years, there is now no evidence that current fishing practices upset the 'natural' biological diversity of the marine ecosystem." (Page 8)

(more)

“The MLPA science advice recommended a collection of quantitative prescriptions about size and spacing of MPAs. It appears to us that those prescriptions were pulled out of the air, based on intuitive reasoning about larval transport and adult movement distances of various organisms.” (Page 9)

“... we found the SAT assumption that the proposed networks would be biologically connected by larval dispersal to be illusory; only a small fraction of larvae leaving one reserve would arrive in another reserve in reserves of this size and spacing. MLPA findings speak to correcting the illusion of protection provided by the existing statewide system of MPAs. Yet the science guidance adopted as ‘best readily available science’ appears to recommend moving from one illusion to another.” (Page 10)

“It appears the SAT implicitly assumed that there will be no fish outside of reserves, i.e. no effective management besides that offered by the reserve network. We believe this assumption is deeply incorrect; the primary determinant of the status of fish stocks and the health of the marine ecosystems will be the catch regulations imposed by State and Federal agencies, particularly in relation to biological diversity and marine ecosystem function, which depend substantially on species too mobile to be protected by reserves. The current pattern of State and Federal closures, gear restrictions, limited entry and catch reductions imposed along the California coast will be far more important than any of the proposed MPA plans.”(Page 10)

“The MLPA declares that MPAs and sound fishery management are ‘complementary components’ of comprehensive efforts to sustain marine habitats and fisheries. The MLPA also requires the use of ‘best readily available science’ in designing and managing MPAs. Our analyses demonstrate that the MLPA science advice fails to meet both requirements.” (Page 12)

Review Excerpts Regarding the Analysis of the MLPA Initiative Science Advice:

“(The MLPA science advice) ...recommended a collection of quantitative prescriptions (about size and spacing of MPAs). It appears to us that those prescriptions were pulled out of the air ... Considering the substantial economic and social costs posed by MPA establishment, relying on such intuitive assessments is not appropriate when the mathematical machinery is readily available to (create) ... models that will give at least some feeling for likely quantitative consequences of various dynamic rate processes acting together. The best readily available science is the use of quantitative models.” (Pages 16-17)

“From the results of our modeling, and indeed almost all other MPA models that have been published, we find very little basis for the specific MPA size and distance criteria the SAT developed. Worse, the modeling results indicate a strong possibility of a ‘win-lose’ outcome for non-consumptive versus consumptive users, due to reduced fishery yields compared to what could be obtained with effective fishery management.” (Page 17)

“...the SAT has greatly overestimated the amount of build up of adults within reserves of the size they recommended. The implications in the SAT advice that these reserves will produce large, nearly unfished population sizes are not supported by any quantitative analysis.” (Page 17)

“Thus the fundamental theory of the SAT, that larval connection between MPA’s is essential to meet the objectives of the MLPA, is flawed both because the SAT’s advice on distance does not provide for real connection, and such connection is unnecessary because there is significant larval production outside of reserves.” (Page 18)

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“A final serious flaw in the SAT advice on this point is that for most species, the MPAs in state waters will protect only a small fraction of the spawning stock biomass. Achievement of the goals of the MLPA will be largely determined by fisheries regulations in federal waters, yet the SAT advice regarding size and spacing of reserves took no account of existing, pending and future fisheries regulation.” (Page 19)

“...for all but the most sedentary species, impacts of the MPAs will be trivial compared to impacts expected from current management measures...Not only do the models predict very modest gains in abundance from having MPAs over the gains likely to be realized through existing and future fishery management, they further predict that such additional gains in abundance will be at the expense of fishers, in the form of reduced yields.” (Page 26)

Review Excerpts Regarding Evaluation of Other Forms of Protection

“When fishery management includes quotas, the use of MPAs will not reduce the volume of fish taken; it will only change the geographical distribution of the take. It does not require a complicated population model to know that the increase in biomass inside of MPAs will be roughly balanced by the decrease in biomass outside.” (Page 35)

“We note that the SAT realized that fishery management would be the primary determinant of the abundance of species outside of the MPA network; however, as they did no modeling of their guidelines and did not consider present fishery management, they failed to realize that for the great majority of species, fishery regulations will have more effect on the populations of species inside of the MPAs than the protection provided by the MPAs.” (Page 36)

“A wide variety of ecosystem models has been developed to evaluate impacts of fisheries on ecosystem function, particularly food web structure and productivity.... [T]hese models generally agree ... predators (birds, mammals) at the top of the food web should be the most sensitive indicators of loss of ecosystem function. The existence of healthy, growing marine mammal populations along the California coast is certainly not indicative of gross loss of ecosystem function due to historical fisheries.” (Page 39)

“In reviewing the major functional groups in the California coastal marine ecosystem ... it is obvious that all of the big contributors are species that are either not fished (i.e. krill and midwater fishes), are relatively mobile and have complex seasonal migration patterns, or are mainly found in deeper waters, and so will be offered little, if any, real protection under any of the MPA proposals. Thus none of the MPA plans contributes very much to the ecosystem function of the region.” (Page 40)

“... it is quite clear that the impact of MPAs is minor relative to the fisheries management actions taken by the PFMC and State. For commercially important species, we find there would be absolutely no benefit to the sustainable harvesting of these species from any proposed MPA network.”(Page 40)

Excerpt on Recommendations

“Recognize that there is little chance that MPAs will contribute significantly to maintenance of marine ecosystem function; the function of these ecosystems is largely determined by highly mobile species that will be totally unaffected by MPAs. Only widespread, effective fisheries management will insure maintenance and restoration of ecosystem function.” (Page 46)

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