

**California Marine Life Protection Act Initiative**  
**Peer Review of the Scientific Guidelines Found in the MLPA Master Plan Framework**  
*January 2006*

Oregon Sea Grant (OSG) was asked to arrange for the review of the scientific guidelines for size, spacing and habitats found in the MLPA Master Plan Framework. OSG had sole control over the selection of reviewers and Robert Malouf, Ph.D., program director of Oregon Sea Grant, provided support and oversight for the reviews.

The reviewers were asked to review:

1. MLPA Master Plan Science Advisory Team Guidance on MPA Network Design
2. Consideration of Habitats in the Design of MPAs

The reviewers were asked to respond to the following questions:

1. In general, is the document logically organized and factual?
2. Are its recommendations clearly and unambiguously stated?
3. Are there specific statements that you feel are incorrect or misleading?
4. Is there anything of importance that was NOT stated or covered?

The reviewers, in alphabetical order, were:

Peter J. Auster  
University of Connecticut  
National Undersea Research Center and Department of Marine Sciences

Edward D. Houde  
University of Maryland  
Center for Environmental Science

Martin Willison  
Dalhousie University  
School of Resource & Environmental Studies and Department of Biology

The reviewers provided both general and specific comments. Please note that the reviewer number assigned in the general comments section is not in the same order as the alphabetical listing of reviewers. In addition, in the specific comments section, all three reviewers' comments are combined under the individual subject areas.

## **General Comments**

### ***Reviewer 1***

In general terms, the section of the MLPA on pages 37 to 47 is adequate and comprehensive. I have several relatively minor criticisms which I detail below.

### ***Reviewer 2***

General Comments: *(Although requested to review the two components indicated above, I looked over the entire document to gain perspective. You did not request comments on the document as a whole, but I provide some here. If inappropriate, discard them.)*

The document is comprehensive. In its attempt to cover all areas and issues of concern, it is complex and incredibly redundant. Organization of the document often seemed poor (e.g., why give goals and objectives of MPAs in the last few pages, rather than near the beginning?). Table 1 (four pages long) gives the structure of the process for implementing the plan. The bewildering complexity of this process and the number of steps, tasks, and responsible “actors” virtually assure that anyone intent on derailing this plan will have plenty of opportunity to do it. Progress or acceptance can be stopped at dozens of steps by who knows what interest groups. I can’t imagine that the plan can be accepted or implemented successfully as outlined in Table 1. Good luck!

### **Reviewer 3**

- In general, is the document logically organized and factual?

This document is logically organized and factual. The authors have developed an outstanding set of guidelines based on both a regional and global understanding of the MPA literature.

- Are its recommendations clearly and unambiguously stated?

Yes. The explanatory text is very clear and acknowledges the issues of uncertainty in meeting each of the objectives and the need for adaptive management in design considerations. The authors seem to have “bent over backwards” in order to make their points as unambiguous as possible. They have acknowledged the need to balance human uses of the ocean with the objectives of conservation and articulated where the obvious trade-offs will be.

- Are there specific statements that you feel are incorrect or misleading?

The only point that I would suggest needs some clarification is, based on my reading, a general assumption that juvenile nursery habitats predominantly occur in the nearshore region. They certainly do for some species but not for all. Just look at Love et al.’s book on the *Sebastes* where many taxa have juvenile habitats in deep water. This perception may come from better sampling of the nearshore region (small mesh trawl nets, seines, scuba) while offshore habitats have primarily been sampled using large trawls where capture of juveniles is much less efficient. Submersible observations are revealing areas that support juveniles, although comparative estimates of cohort strength inshore versus offshore are unavailable. My point here is to make sure offshore habitats are not given less weight (at least based on the aforementioned assumption) when capturing areas in the network to support juvenile life history stages.

- Is there anything of importance that was NOT stated or covered?

No. This document is very complete and is a testament to reason in meeting multiple objectives of a diverse set of stakeholders.

## Specific Section Comments

### I. Science Advisory Team Guidance on MPA Network Design

Some good general advice, presumably from the SAT, is provided here with respect to MPA design and issues of concern. Most of my comments are minor.

page 37, paragraph 2. Rewrite- -confusing as now expressed.

page 37, paragraph 3, line 1. “these standards” What are the standards to which reference is made?

page 37, bullet #3, line 2. Add “ontogenetic” before “movement.”

page 37, bullet #5, line 1. Add “and connectedness” after “dispersal.”

page 38, bullet #3, line 1. Perhaps add “When appropriate” as opening phrase.

page 38, #1, paragraph 1, line 1. Perhaps add “demersal” before “marine species” or broaden the kinds of habitats being considered here.

page 38 - top bullet

I found this bullet difficult to understand until I had read pages 43-45 because the term “habitat type” is used in an unusual way.

page 38 – “key habitat”

I had some difficulties with the definition of “key habitat”. It is very important that this term be defined with great care because it is central to the entire strategy. I also wish there was another word than “key” to make this distinction. The word is close to “keystone” which has a moderately specific meaning in conservation biology with respect to “keystone species” (but even after thinking about this for some time I couldn’t come up with a better word!).

Perhaps you could reword the sentence defining “key habitat” as follows:

“A key habitat is that type of habitat which provides particular benefits by harboring a distinct set of species or life stages, having special physical characteristics, or being used by humans in ways ... etc. ....”

Would it be a good idea to provide some explicit guidance in this section about types of habitat that should be avoided when considering MPA designation?

page 38, #2, paragraph 1. Add “potentially” before “a large number...”

page 39, at top

Here we find the words “groups of species” and later in the next sentence “species groups”. The first of these have “shared functional characteristics” and the second are “ecologically and

economically dominant”. Some species can, I presume, belong to both groups. To avoid possible confusion, perhaps the second sentence could be rewritten to:

“It is also reasonable to emphasize protection of individual species and groups of species that have special significance because of their dominant role in ecosystems or their economic importance.”

page 39, paragraph 1, lines 8-9. The statement is true, but there are many potential exceptions that range from management of particular exploited resources to protection of threatened/endangered species.

page 39 “Section 3. Uses of marine ...”

There are several small problems in this section:

- (a) “etc.” at end of the first sentence is meaningless. ‘Etcetera’ should only be used if the reader can know what these others actually are. Here it is not possible to know, and so “etc.” should be omitted.
- (b) “alternatives networks” should be “alternative networks”
- (c) “trading off between ..” should be “trading off among ...”
- (d) I think the impacts are “on” rather than “to” user groups, but this may be due to differences in English usage (certainly not an important point!)

page 40, first paragraph

Add “Knowledge of” before “these individual adult neighborhood or ...”

page 40, paragraph 1, line 4. Rather than “real protection” how about “a high degree of protection.”

page 40, paragraph 1, middle of paragraph. Can a reference be provided to support the MPA sizes and dimensions being recommended?

page 40, paragraph 2. Can explicit language that refers to “networks” and “connectivity” be included here?

page 40, general point

Perhaps you could make one intention of this top paragraph clearer by stating something like:

“In an MPA network it is relatively easy to protect non-mobile species, and virtually impossible to protect very wide-ranging species. In light of this, special consideration in MPA network design is paid to species with intermediate mobility.”

page 41, top line. I think the first “and” can be deleted.

page 41, paragraph 2. I was not clear on the intent of this paragraph. Is it arguing for establishing MPAs as 'reference sites?' This justification late in the paragraph is not well connected to the opening sentences. Clarify?

page 41, paragraph 3, line 1. Should "spore" be replaced with "eggs" or "propagules?"

page 41, Section 6, paragraph 3

"... on the order of no more than 50-100 km apart ..."

I find this statement very confusing. How can something be "no more than" a range? Surely, in practice this will mean "no more than 100 km apart". Also, surely there's an interaction between MPA size and separation distance. For smaller MPAs we probably need shorter distances between MPAs because a large MPA tends to act like two or more adjacent MPAs.

page 41, Section 6, paragraph 4

Replace: "there are only a small number of coastal marine species..." with "there are few coastal marine species ..."

page 41, paragraph 4. Distances given here need support of a reference.

page 41

The last sentence on this page seems to make an important point, but I read it several times and I'm still not really sure what exactly is meant by "... the specific patterns for any particular species." I think this means that the specific pattern of larval dispersal in any particular species is not as important for network design as the sum of all the patterns of larval dispersal for all the species of concern.

page 42, Section 7, lines 6-7. A reference to support the recommendation of 5 replicates as ideal is needed.

page 42, Section 8, middle of page

I found the mixing of miles and kilometers for measuring distances to be unnecessary. The use of "nautical miles" may be necessary for cultural reasons, but all other distances can be standardized.

page 42, Section 8, last sentence

I was surprised to read this sentence about possible transit restriction. It would be very unusual to restrict transit throughout an entire MPA. If transit is restricted, this would be limited to a shipping lane, or something similar, and may not increase risk or cost (indeed, the opposite could even be true). I think this sentence should be modified to make it more realistic.

page 42, Section 9 - title

"Portfolio effects" has no meaning for me, and I was no wiser about what it meant after I had read the paragraph.

page 42, Section 9. I think this paragraph can be redrafted to be more effective. Human activity patterns are important to be sure. The example given here seems like a rather non-typical one. A better justification, or perhaps example, could be provided.

page 42, Section 9 - details

"are-based" should be "area-based". Also, what does "around" mean here? Does this mean "in the region of" or "roughly"? In the next sentence "there are a threshold number of" should be "there is ...", but even when this correction is made I could not see why a fishery is intrinsically not feasible. Presumably this relates to catch, cost and profit. Lastly, it's just as likely that a well-designed MPA network would enhance an urchin fishery through spill-over effects as "spell the end" of it. In light of these criticisms, I think this paragraph needs significant editing.

## ***II. Consideration of Habitats in the Design of MPAs***

page 43, paragraph 2. No pelagic habitats are noted here, yet on pages 45-47 there is ample reference to pelagic processes and environments (e.g., upwelling, freshwater plumes). These features and processes may be difficult to isolate as an MPA, but they seemingly should be included in this opening discussion of habitat.

page 44, #4, lines 7-10. Seems out of place here. Should this sentence be moved to page 43, #3?

page 46, "Freshwater Plumes" These features and associated processes/productivity are very important in some systems (e.g., Gulf of Mexico, Mississippi River) but seemingly are of secondary importance off California. Should this be noted? I acknowledge that there may be some local effects and, if one considered the San Francisco estuary outflow to be a "freshwater plume" then this might be worth explicit mention.

pages 45-47. "Upwelling, Freshwater Plumes, Larval Retention Areas" All are important to be sure, but the document should clearly state that it is not recommending isolating such features (some of which are of very large scale) as habitats to be designated as MPAs. MPAs presumably could be designated that included or benefited from presence of such features and processes.

pages 43-46, Consideration of Habitats ....

I found this section to be relatively flawless. If there are boulder or gravel fields off the California coast, these might be mentioned along with "rocky reefs" (see bottom page 43), but they may not be present due to lack of glacial history (unlike the marine areas I'm familiar with).

## ***III. Other Comments***

Figure 5, page 71. Flowchart for Monitoring. This is a not-very- useful and overly complex outline of a monitoring plan. I cannot see how this diagram will help anyone develop a monitoring program.

There is lots of good advice in the MLPA Initiative document. However, I think it will be easy for critics to attack it. A less complex, better organized, and less redundant document might better serve the purpose. But, I suspect that past failures to develop the MPAs network plan in California have led to the increasing complexity of the plan in an attempt to deflect criticism. I hope that this complex draft plan doesn't have the opposite effect.