California Marine Life Protection Act Initiative
Responses to Questions Received at the November 18-19, 2008 South Coast Regional Stakeholder Group Meeting
Revised January 16, 2009

The science questions listed below were received at the November 18-19, 2008 meeting of the MLPA South Coast Regional Stakeholder Group (SCRSG). MLPA staff and the MLPA Master Plan Science Advisory Team (SAT) co-chairs have reviewed the questions and determined that some questions are policy or management-based, while others are science-based or may have both policy and science components.

This document contains responses to all of these questions. I-Team staff will/has provide(d) responses to the policy/management questions, while the SAT will/has provide(d) responses to the science questions. Some questions contain both policy and science responses.

1. Where does California halibut *Paralichthys californicus*, fall on the scale of dispersal distance for both adult and larval stages?

Draft SAT Response: California halibut (*Paralichthys californicus*) are multiple broadcast spawners, typically releasing egg and sperm in shallow water (9-20 m) (Allen 1988, Moser and Watson 1990, Kramer and Sunada 1992). Spawning occurs predominantly in shallow, nearshore waters between February and July from the Baja Peninsula, Mexico to Point Conception, California, although spawning can occur year round (Lavenberg et al. 1986, Moser and Watson 1990). Fertilized eggs generally float in the upper 30 m of the water column shoreward of the 75 m isobath (Lavenberg et al. 1986, Moser and Watson 1990, Moser and Pommeranz 1999), but they have been collected near the sea surface down to depths of 75 m (Barnett et al. 1984). Newly hatched larvae remain in the plankton for a relatively short period of approximately 20-29 days and are distributed across the continental shelf in surface waters prior to onshore transport (Allen 1988, Moser and Pommeranz 1999). Spawning coincides with a weakening of offshore winds in winter-spring and the strengthening of onshore winds, followed by an increase zooplankton production (Petersen et al. 1986, Moser and Watson 1990). The prevailing onshore winds are thought to be one mechanism for transporting halibut larvae shoreward to where high concentrations of zooplankton are known to occur between April and June (Petersen et al. 1986).

California halibut larvae transform into juveniles when they are approximately one month old (~8 mm) and settle to the bottom (Allen 1988, Gadomski and Petersen 1988). Juvenile halibut (10-200 mm) settle in both protected inshore areas (i.e., bays, estuaries, and lagoons) and shallow, exposed open coast areas because they provide an optimal habitat for growth and survival (Allen 1988, Kramer 1991, Valle et al. 1999, Forrester and Swearer 2002, Fodrie and Mendoza 2006, Fodrie and Levin 2008). Not as well understood, however, is the geographically separated distribution and habitat usage by larger juvenile and sub-adult California halibut (1+ year old) migrating from nursery habitats to deeper open coast areas to join adult populations (Allen et al. 1990, Swearer et al. 2003).

A recent study utilizing elemental fingerprinting demonstrated that juvenile halibut (50-250 mm) do not migrate far from their nursery origins (<10 km) along the San Diego coastline (Fodrie and Levin 2008). Domeier and Chun (1995) suggested that the first significant movement of juvenile California halibut occurs when they migrate to open coast waters at a size of at least 200 mm (approximately eight inches). Tagging studies conducted by the California Department of Fish and Game indicate that young (mostly sub-legal sized) California halibut are only moderately mobile and most stay within 2-5 km of their release site for months or years although some move hundreds of km within that same time period (Tupen 1990, Domeier and Chun 1995, Posner and Lavenberg 1999).

Adult California halibut live in open coastal waters and are associated with a variety of habitats, including soft bottom, sand dollar beds, kelp beds, and areas of rocky relief ranging in depths from the surf zone to 183 m (Feder et al. 1974, Eschmeyer et al. 1983), but they are more abundant in waters < 30 m (Kramer and Sunada 1992). Any distinctions between adult and juvenile patterns of movement are still unclear, as few of the halibut in the tagging studies were larger than 500 mm. However, there is information to suggest that larger halibut may be more mobile than small halibut. For example, Domeier and Chun (1995) found that halibut larger than 500 mm (~30% of sample size) tended to travel markedly greater distances (~10's of kilometers) than halibut smaller than 500 mm.

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2. Is the survivorship of larvae within a marine protected area reduced due to increased biomass and therefore increased numbers of predators?

Status: A response to this question is still being developed.

3. How will spacing guidelines be applied between the Channel Islands?

Status: This question is currently under evaluation by the SAT for the southern Channel Islands. Formal guidance on this issue will be provided to the SCRSG as soon as these evaluations are completed.

The California Fish and Game Commission decision to not reopen the northern Channel Island MPAs means that all those MPAs will be included in all MPA proposals and evaluations of those proposals.

California Fish and Game Commission decision summary:

> The California Fish and Game Commission recognizes that there are considerable complexities with reopening the existing northern Channel Islands and Santa Barbara Island marine protected areas (MPAs) to redesign through the Marine Life Protection Act Initiative. There were substantial obstacles overcome during the initial design and establishment of those MPAs.
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> The California Fish and Game Commission also recognizes that the northern Channel Islands and Santa Barbara Island MPAs must be considered and evaluated within the context of the Marine Life Protection Act through the planning process in the MLPA South Coast Study Region.
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> Therefore, the California Fish and Game Commission requests that the MLPA South Coast Regional Stakeholder Group (SCRSG) not consider changes to the boundaries and regulations of the existing northern Channel Islands and Santa Barbara Island MPAs, but that these existing MPAs (using current boundaries, regulations and classifications) be included within, and evaluated as part of, the alternative MPA proposals developed for the MLPA South Coast Study Region."

4. What information on hooking mortality and bycatch is available for catch and release fisheries in the MLPA South Coast Study Region?

Status: A SAT work group has been formed and is currently investigating this question.

5. Shouldn't the level of protection (LOP) for urchin harvest be higher, since this activity helps to maintain kelp forests which are important ecologically? Given that otters are not currently found in the southern California kelp ecosystem, can humans be considered a keystone predator to urchin (purple and red) because

human harvest helps to maintain kelp forest health; and, if so, how would that affect SAT evaluations on urchin harvest including LOP?

Status: The LOP for urchin hand harvest is currently being updated for the SCSR by the SAT LOP workgroup.

6. **Can more clarification be provided on creation of the minimum size guidelines that were created (especially the offshore component, since state waters is three nautical miles, not three statute miles)?**

Status: A response to this question is still being developed.

7. **How much scientific collection happens within the study region and what are the effects on marine ecosystems?**

Staff Response: Information on scientific collection will be available in the regional profile. However, California Department of Fish and Game data on scientific collecting activity is available at the statewide level only, and information on the permits issued specifically for the study region is not available.