



## California Spiny Lobster Stock Assessment Synopsis

The California spiny lobster population off southern California appears to be stable from both observed and modeled results, and the fisheries targeting this species can be considered, as of today, sustainable.

The following observations are based on fishing records from calendar year 2000 through 2010. The year 2000 was chosen as the start year because the commercial harvest increased from a low in 1976 to a stable point in 2000 with a relative high level of harvest:

- The commercial fishery has consistently harvested 660,000 lbs (300+ metric tons) each season.
- The catch over time each season has accumulated at the same rate. The highest total landings occur within the first week or two of the season, and 80 percent of the season total is landed before the end of January, usually by the end of December.
- The size structure of the catch has not changed significantly. The majority of harvested lobster are first-year recruits to the fishery. The commercial fishery targets this size lobster while the recreational harvest targets legal-sized up to and including trophy animals, and is constrained to this size probably by availability.
- Catchability, the percent of total seasonal catch caught in each trap pull, has not varied significantly from season to season.
- The number of sub-legal sized (short) lobsters released, as a percent of the total commercial catch, has not changed over the last decade. This statement is true whether considering the entire southern California Bight or individual counties and offshore islands where the take of short lobsters varies geographically. The percentage is independent of the size of total catch. Bight-wide, 70 to 80 percent of the catch is short. Put into perspective, the 480,000 lobster landed in 2009-2010 were approximately 28 percent of the total 1.7 million lobster caught.
- The number of commercial operator permits has been declining and the number of active fishermen has also declined since a small jump in the early 2000s. However, roughly two-thirds of the lobster permits became transferable in 2005, and the cap on the number of transfers was lifted on April 1, 2008. This makes it easier for inactive permits to be purchased by new operators. Given the high cost of the permit, it would be expected that new permit holders would want to fish at maximum effort in order to recoup their costs. Transferability adds uncertainty to predictions of stability within the fishery. In addition, the new MPAs that went into effect during the 2011-2012 season will probably increase fishing effort on the non-MPA fishing grounds as displaced fishermen move to new areas. The magnitude of this increase, and its effects, has yet to be determined.

- Some commercial fishermen have suggested that they are catching less with more effort. The data are mixed on this. CPUE, while currently lower than two or three decades ago, is not too far from the average CPUE over the last decade. The CPUE is also higher in the last few years than earlier in the decade.
- Hoop nets have become popular in the recreational fishery since approximately 2005. By 2007, hoop nets accounted for 80 percent of the fished gear based on a bight-wide recreational creel survey. Over this short period of time, the more efficient conical hoop net was also introduced and is becoming the net design of choice among recreational fishermen. Recent lobster report card results suggest that the recreational take adds an additional 30 to 60 percent to the commercial catch.

Another effort undertaken as part of the spiny lobster stock assessment was to develop or test models and approaches that could provide reference points for the FMP effort. DFG investigated Leslie Depletion Models, equilibrium forms of Fox and Shaeffer surplus production models, and the non-equilibrium surplus production model ASPIC. When none of these models provided usable reference points we turned to a Fisheries Simulation Model (FISMO) suitable for data-poor fisheries. Multiple scenarios were run, and the results indicated a stable lobster biomass. The FISMO assessment along with all the previous work done for the assessment was presented to a technical review panel of modelers in August 2011. The review panel agreed with DFG (see Technical Review Report) that the lobster fishery is currently sustainable.

This means DFG is initiating a Lobster Fishery Management Plan process without having to contend with a resource that is being overfished, which is good news. No immediate management restrictions need to be proposed or implemented. DFG and its stakeholders will have sufficient time in the multi-year FMP process to develop appropriate harvest control rules for the commercial and recreational lobster fisheries.