



Department of Fish and Game

Meeting Summary September, 2012 Spiny Lobster Fishery Management Plan Informational Meeting - Lobster Advisory Committee

Meeting in Brief

LAC members gathered for an informational meeting supported by presentations from Shoreline Resource Consultants (SRC) and Department of Fish and Game (DFG) staff. The meeting focused on sharing scientific information about the biology, assessment and global management of spiny lobster. In addition, DFG staff reiterated the core concepts and process guiding the Management Strategy Evaluation (MSE) of the fishery. LAC members asked questions and engaged in open discussion with presenters with the aim of facilitating a common understanding of presented topics and concepts.

Next Meeting

December 4, 2012 | 8:00 a.m. – 3 p.m. | DFG office in Los Alamitos (time by Committee request)

Management Overview and Local Case Study of Spiny Lobster Management

Lobster FMP Program Coordinator Kristine Barsky introduced Shoreline Resource Consultants and briefly described the informational nature of the meeting. Dr. Matt Kay—coordinator of the consortium of scientists assisting DFG in development of the spiny lobster FMP—emphasized that the information presented by SRC at this stage represents a thought process and not a decision-making process or recommendation to DFG.

SRC first provided a global overview of lobster fisheries with a focus on management techniques, fishery size and scale, and whether or not a recreational component exists. Shifting from a global to local perspective, a second presentation reviewed recent harvest rate assessment results in the Channel Islands marine protected areas and explored a spawning potential ratio (SPR) based method for integrating MPAs into lobster stock assessments. (SRC presentations available at: <http://www.dfg.ca.gov/marine/lobsterfmp/committee.asp>). DFG marine biologist Dr. Doug Neilson again explained the core concepts and process of Management Strategy Evaluation (MSE). MSE is a major component of the lobster FMP process requiring both LAC member understanding and eventual input of management techniques that undergo evaluation.

Global Management of Lobster

SRC's initial presentation aimed to ensure basic LAC member understanding of lobster management frameworks from around the world, specific tactics used for achieving economically viable and ecologically sustainable fisheries, and tools that may be

appropriate or applicable in California. A review of four management framework elements, applied to various fisheries from around the world, guided the presentation. These main elements included:

- Data collection
- Assessment
- Control rules based on reference points
- Regulation or management controls

Sarah Valencia briefly described a harvest control rule as a prescribed action based on current stock status. As an example, she illustrated the 40/10 rule used for west coast rockfish. This rule prescribes that when the stock is 40% of virgin biomass then harvest proceeds at historic levels. When stock is less than 10% virgin biomass, no harvest is permitted. The 40/10 rule has been in effect for approximately fifteen years for various west coast fisheries in the United States. In general, fishery regulations or controls are biological, effort-based or catch-based. Most successfully managed fisheries have in place a combination of biological and either effort or catch-based controls. Valencia went on to review management frameworks, techniques and levels of success from Western and Southern Australia, New Zealand, Florida and the Caribbean; Baja, Mexico; and Maine. Following the presentation, members raised questions and offered comments on the following topics:

- Spawning potential and retention
- Flexibility of control rules (e.g. use of different reference points and ability to limit or increase harvest)
- Key characteristics of described fisheries (e.g. size, shallow or deep water fishery, prevalence of poaching)
- Applicability of catch per unit effort (CPUE) as a reference point for management
- Impact of new California MPAs on data collection and use
- Cause(s) of recent Maine lobster population increase

Channel Islands Case Study

Dr. Kay presented a harvest rate assessment and spawning potential ratio (SPR) study from the Channel Islands. SPR is simply the ratio of eggs produced by a fished population divided by the number of eggs produced by an un-fished population. Thus, it provides a measure of the reproductive output of a fished population relative to its virgin (un-fished) condition. SPR is a commonly used biological reference point in fisheries management, and it helps managers perceive how different harvest rates are likely to impact the ability of a population to replace itself via reproduction. The Channel Islands study grew from the fishing community's desire to collaborate with UC Santa Barbara scientists to improve understanding of the impact of MPAs on lobster populations in the area. Investigations aimed to assess changes in lobster populations inside MPAs and utilize this data to develop a harvest rate assessment. (Harvest rate is the fraction of the population removed each year from fishing.)

Study results demonstrated approximately four to five times more lobster per trap inside versus outside the MPAs, even when differences in habitat at sites was taken into consideration. Approximately one-third of the legal size lobsters in the study area are being harvested each year. Knowledge of harvest rate and fishing mortality helps determine the status of the fishery and

sustainability of current catch efforts. Modeling a spawning potential ratio (SPR) and yield potential ratio (YPR) provides a biological reference point for management as well as the basis for including MPAs in future stock assessments for spiny lobster. This approach allows for consideration of spawning lobster within MPAs during future stock assessments. In this case, understanding SPR/YPR helped evaluate and determine that the current minimum size limit is big enough to avoid growth overfishing and that a “slot limit” would realize only marginal reproductive benefits for the species. Kay cautioned, however, that SPR is not the only reason to consider a slot limit for the fishery. Following the presentation, members discussed and inquired about the following:

- Impact of slot limits on male and female populations
- Applicability of the SPR / YPR model to the recreational sector
- Use of multiple, cross-checking reference points (e.g. catch per unit effort; total catch of the fishery)

Management Strategy Evaluation (MSE)

MSE, as applied to spiny lobster management, is a methodology that provides two capabilities. First, it models the stock to determine the current state of both the spiny lobster population and the fisheries dependent on it. Second, the MSE uses adaptive feedback to explore management options and assumptions, and provides an assessment of the future health of the population and fisheries based on those assumptions. In order to simplify this concept, DFG marine biologist Doug Neilson used an everyday example of a building’s temperature control system, to maintain a room’s temperature at a level considered ‘comfortable’. Depending on existing conditions (temperature), management can ‘adjust the dial’ to maintain the optimal state of the fishery. MSE will determine the effectiveness of potential management actions that can be applied or rescinded based on whether or not management objectives are being met. The LAC has been supplied with a preliminary set of management objectives based on the Marine Life Management Act. The LAC will provide input on potential management actions being evaluated by the MSE. No decisions are currently being made on any topics integrated into the modeling effort. The LAC will evaluate the results of the modeling effort as it considers advice and recommendations for DFG. Comments and questions related to the MSE presentation centered on the following:

- Applicability of the model to both the commercial and recreational fisheries
- Establishment of potential future scenarios and management options based on each scenario
- Limitations of scientific data based on recent designations of MPAs
- Potential to integrate climate, environmental conditions and uncertainty into the modeling effort
- Timing of LAC contributions to MSE
- Ability to overlay multiple models

Closing Remarks

DFG staff thanked all members for attending a previously unscheduled meeting. Members were encouraged to continue thinking about informational needs for the FMP process.