

Appendix C: Meeting Minutes and Key Outcomes Memos (September 2006 – September 2009)

San Miguel Island Abalone Fishery Advisory Group

Draft MINUTES September 29, 2006

1.0 Introductions

On September 29, 2006 Chair Chris Voss called to order a meeting of the SMI Abalone Fishery Advisory Group (AAG) at 12:10 p.m. in Santa Barbara, CA. He was joined by AAG members Daniel Geiger, Bill Bernard, Jim Marshall, Chris Knight, Gary Davis, James Hrabak, Jessie Altstatt, and Chris Mobley.

Also in attendance were California Fish & Game Commissioner Richard Rogers, Department of Fish and Game Deputy Director Sonke Mastrup, Marine Region Nearshore Ecosystem Coordinator John Ugoretz, and Marine Region Supervising Biologist Pat Coulston.

AAG members not in attendance: Chip Bissell, John Butler, Paul Dayton, and Ian Taniguchi.

2.0 Introductory Remarks with Goals & Objectives

Mr. Mastrup and Rogers expressed their excitement about the public private partnership process and the opportunity to discuss a potential abalone fishery. They emphasized that this Group can begin processes to:

- Engage all stake holders in a collaborative effort to develop science that supports a one of a kind opportunity for the State of California
- Develop a model fishery
- Look at fisheries management from the ground up and start from scratch
- Look at changes in fishery science and management to build an adaptable fishery
- Conduct biologic assessment, evaluate baseline data, and gather additional data to establish and maintain a sustainable fishery

The members were encouraged to bring their creativity, experience, expertise, and knowledge in the preparation of alternatives that will be presented to the Commission, so they can consider a fishery that is designed correctly and then monitored and enforced properly.

3.0 Approve August 14, 2006 Minutes

The word Maximum was changed to Minimum in the first sentence of the third paragraph on Page 3. With the change noted and after a motion by Geiger and a second by Bernard the minutes of August 14, 2006 were unanimously approved.

3.1 Mission Statement

Ugoretz read the Mission Statement of the 2006/07 California Department of Fish and Game Abalone Advisory Group.

Ugoretz noted that the Group's fully developed recommendations will also be used in the regulatory process. Rogers noted that the Commission is intensely interested in this process because the future demands this type of fully integrated fishery management with all the stakeholders participating.

3.2 Proposed Ground Rules

Ugoretz displayed and read the Proposed Ground Rules. Participants offered their comments and a lengthy discussion took place. Rogers asked each member to be familiar with "Communication outside the AAG" section. He stressed how important it is to develop comments to the press within the group process.

It was suggested that future meetings have teleconference abilities. However, Mastrup strongly encouraged members to attend, especially since binding votes and decisions will only be made by members who are present. Mobley asked that votes be agendaized and the group could decide to revote if too many members are absent. Mastrup agreed but noted that progress cannot be hindered by the absence of members.

Ugoretz will incorporate suggested changes from today's meeting into the Ground Rules document and forward the material to the entire Group for their comments (document forwarded Sept. 29). The material will be revised accordingly and a final version will be ratified at the beginning of the next meeting.

Ugoretz suggested that a neutral facilitator be hired by the Department to keep the tone of meetings on track, move forward to achieve goals, provide process support, and guarantee a successful outcome. Participants offered their comments and it was agreed that the Department will begin the contract process to hire a facilitator.

4.0 Rapid Snapshot Survey

4.1 Data Collection Video

A sampling of the video footage shot during the survey by Liquid Blue Media (Jody Pesapane) was viewed.

Ugoretz noted that abalone at SMI seemed to inhabit long ledges with drift algae where rubble and boulders were present. It was also noted the most of the abalone were generally in less than 30 feet of water with some of the highest densities in sharp long cracks.

4.2 Review of Data Collection Method (Protocols)

Marshall reported that he, Bergen, Karpov, and Taniguchi developed the protocols over the course of five (5) meetings where a majority of the discussion focused on the collection of the algal cover data. The protocols were scientifically reviewed and vetted, and then refined during the training process. Mastrup added that the protocols were well designed, uncomplicated, and provided a practical platform by which to conduct random stratification in a natural marine environment. The result was an unbiased data set of pre-selected random transects. Ugoretz displayed a sample data sheet and described how the data was collected under water.

4.3 Presentation of Preliminary Data

Coulston reported that the snapshot survey took place from August 27 to 31 and the data sheets are still being input into the database. He described the primary (safety, density, distribution, and size frequency) and secondary (other species, habitat associations, health, and collaborations) survey objectives. He described the survey protocol development background and talked about how the trip unfolded.

Coulston listed the basic cruise statistics:

- 57 divers, 2 data handlers, and vessel crews
- 10 vessels
- Nightly strategy sessions and daily mobilization meetings

Coulston reported that an Access database is being used to record the data. He added that 95% of the station and abalone data, and 90% of physical habitat data have been entered. The error checking is just beginning and the algal data still needs to be entered. Ugoretz reported that the algal data was collected by a specific group of experienced divers.

Coulston listed the basic emergency population survey effort statistics:

- Over 300 stations were surveyed
- Over 5,000 abalone were counted
- Over 4,000 abalone were measured
- 60 abalone were retained for health examination
- All targeted zones/grids were successfully sampled

Coulston shared some preliminary data:

- Approximately 64% of the abalone measured exceeded the current recreational size limit of 7"
- Approximately 40% of the abalone measured exceeded the current commercial size limit of 7 $\frac{3}{4}$ "

Coulston also displayed an emergent population length frequency distribution chart, and maps of zones surveyed. He noted that very few abalone were counted in the Northwest Zone and the largest populations seemed to be at Tyler Bight and Crooks.

Coulston listed the next steps as:

- Complete data entry
- Check/edit database
- Produce data summary report
- Produce cruise report
- Distribute reports by October 23
- Conduct data analysis workshop

5.0 November Technical Workshop

5.1 Date, Time, Location

The workshop dates were set as follows:

Friday, December 1, 2006. Invited guest speakers will make evening presentations in a public forum

Saturday, December 2, 2006. The entire day will be dedicated to detailed data analysis in a “roundtable” forum

Staff suggested that the December workshop concentrate on analyzing the data and framing questions that need to be answered. The primary focus will be to look at historical abalone studies and current data, extent and status of population at SMI.

5.2 Agenda Topics

Staff and participants offered several suggestions for workshop agenda topics:

- Population status (historical) and extent (current)
- Assumptions, error bars, biases, and risks
- How data can support and develop management alternatives
- How data can estimate abundance to create population and harvest models
- Fishery management based on periodically updated data
- What key pieces are missing in the data and what other factors need to be considered (i.e., recruitment)

5.3 Guest Speakers

Presenters on Friday, December 1 will include:

<u>Name</u>	<u>Topic</u>
John Ugoretz	AAG Process
Paul Dayton	History of California Abalone Fishery
Jeremy Prince	Biology/management/stock assessment

Other scientists should be encouraged to attend.

6.0 Discussion of Priorities and Expectations

Participants developed a list of fears, problems to avoid, and concerns. This list is intended to drive future meeting agendas in developing different management plan alternatives for presentation to the Commission (see also “fears” PowerPoint, sent 9/29).

- Poaching
- Sustainability
- Sea otters
- Environmental changes
- Breakdown of this process
- Expectations may not be met
- Ability to close an opened fishery
- Missing the July 2007 deadline
- Concern over status of red abalone populations in entire range
- Political outcomes that may affect the process
- Regulatory flexibility with regards to TAC and other numbers
- Commercial versus recreational allocation
- Long term population monitoring
- Perpetuating errors of the past and ignoring an ecosystem based approach
- Losing an opportunity to create a new management model
- Recreational Abalone Advisory Committee (RAAC) interaction with AAG

7.0 Future Meeting Topics

Future potential meeting topics or workshops might include:

- New fishery management techniques
- Expert speaker on MLMA
- Fishery Management Plan for abalone (if applicable)
- Impact of MLPAs
- Joint meeting of RAAC and AAG

8.0 Next Steps

1. Department staff will work to set up a File Transfer Protocol (FTP) site where individuals can download information related to this process. This site would include primary reference material such as the ARMP and other recommended reading. Ugoretz noted that the public would have access to the published data and private material for the AAG could be password protected if necessary. Ugoretz and Mastrup agreed that sharing material, information, and results is appropriate and part of this open process.
2. Geiger will send out bulletins in “ab map” to keep that scientific contingency informed.

3. Members will review the “Ground Rules” and provide comments to Ugoretz.
4. Members will review the data during the month of November 2006 and schedule a one-hour conference call meeting to answer questions on the data, if necessary
5. Members will transmit their date preferences for the next five (5) meeting to Chair Voss via e-e-mail
6. Members will review the “Contact List” and provide additions and corrections to Bonnette

The meeting was adjourned at 3:17 p.m.

Minutes By: Alicia Bonnette

San Miguel Island Abalone Fishery Advisory Group

MINUTES December 1, 2006

On December 1, 2006 a workshop session of the SMI Abalone Fishery Advisory Group (AAG) began at 6:15 p.m. at the Donald Bren School in Santa Barbara, CA. AAG Members Daniel Geiger, Bill Bernard, Jim Marshall, Jessie Altstatt, John Butler, Chip Bissel, and Chris Mobley were joined by California Department of Fish and Game staff Deputy Director Sonke Mastrup, Marine Region Nearshore Ecosystem Coordinator John Ugoretz, Marine Region Supervising Biologist Pat Coulston, and Senior Biologist Specialist Kristine Barsky.

Guest Presenters included Jeremy Prince and Chris Dewees.

AAG Members not in attendance: Chris Knight, Paul Dayton, Gary Davis, and James Hrabak.

1.0 Welcome and Review of Agenda

Members and the public were welcomed. The agenda and workshop formats for December 2 were reviewed. It was reported that Senior Rodriguez was unable to attend and is expected to be present at a future AAG meeting.

2.0 Abalone Fishery Advisory Group Process

John Ugoretz, Marine Habitat Conservation Program Manager, California Department of Fish and Game, reported that the AAG was formed as a result of the ARMP that was adopted in December 2005 along with Alternative 8, which allowed for consideration of a limited red abalone fishery at SMI prior to full recovery. The role of the AAG is to provide recommendations to the Department and develop a reasonable range of alternative and recommendations to manage a small-scale fishery and achieve the goals of the ARMP. Mr. Ugoretz commented that the Members were appointed by the Commission and they are volunteers. The AAG charge is to provide recommendation in four (4) areas:

- Total allowable catch
- Allocation alternatives
- Alternative regulations to achieve the TAC and allocation
- Potential management, enforcement, and monitoring techniques

3.0 California Abalone Life History, Population Status, and Fishery History

Kristine Barsky, Invertebrate Specialist, California Department of Fish and Game, provided a history of the California abalone fishery that included:

- Origin
- Habitat
- Current and past harvest areas for commercial and recreational fisheries
- Current recreational permit process and annual take limits
- A historical review of the commercial fishery from 1853 to 1997
- Population status

Ms. Barsky stated the factors that contributed to the management failure of the commercial fishery:

- Reliance of size limits
- Reliance on catch-per-unit-of-effort (CPUE) data
- Increasing product value and demand
- An inability to address sea otters, pollution, disease, and El Nino events
- Poaching

4.0 San Miguel Island “Snapshot” Survey – Review of Survey and Data

Patrick Coulston, Resource Assessment Program Manager, California Department of Fish and Game, provided a brief overview of the five day August 2006 Snapshot Survey process that included 57 divers, 2 handlers, 10 vessels and crews, and lots of weather. He displayed a map of the kelp coverage and the stations that were randomly surveyed in three (3) zones. He noted that two (2) divers at each station sampled a 2-meter wide swath along a 30 x 4 meter transect line. Abalone data was recorded at 5-meter intervals, habitat data was recorded at 10-meter intervals, and algal data was also collected.

Mr. Coulston reported that the habitat data has not been fully analyzed and listed a few preliminary results:

- Densities were different in each zone (Northeast zone was not surveyed)
- Southwest zone had the highest density
- The average was 1200 to 1300 abalone per hectare
- Based on an average of about 4,000 abalone measured, a good portion were above the recreational and commercial size limits
- The reserve had somewhat lower densities
- Abalone in the Northwest zone were generally smaller
- 60 abalone were collected for health evaluation (reproductive and disease). There was no evidence of the withering foot syndrome bacteria and reproductive capacity appeared normal

Mr. Coulston stated that the next steps are:

- Algal data analysis
- Population estimates
- Basic habitat data analysis
- Population/harvest modeling
- Detailed data analysis

5.0 Potential Management Options and Comments on Data

Dr. Jeremy Prince provided his fishing, research, Australian research experience, and educational background. His presentation included:

- The problems associated with sustaining abalone populations
- The tyranny of scale
- How to read abalone shells

- Australian micro-management assessment processes
- Analysis of the California fishery
- Comments on the snapshot survey data
- Ballpark stock assessment
- Management option

Dr. Prince congratulated the Department and the CAA on the data collection process and indicated his high level of confidence in the snapshot survey results. In a review of the data he believes there is an emergent population of approximately 1,000,000 abalone and feels that 100,000 animals could potentially be harvested annually. He noted that the maximum level of a sustainable fishery is where harvest does not exceed mortality.

Dr. Prince displayed a list of potential management components:

- Develop a new management approach plan for a revolutionary process
- Develop some form of property rights (limited entry, TURF, etc.)
- Determine an explicit TAC
- Link rights to responsibility (i.e., funding and data collection)
- Match size limits and catch limits to particular areas
- Determine explicit resource allocation for recreational fishery
- Determine explicit catch control for recreational fishery
- Establish the same size limit for sport and commercial sectors
- Separate commercial and recreational areas
- Base size limits on biological controls and maintaining sustainable breeding stocks
- Outplanting is not cost effective or beneficial and can transmit disease

Dr. Chris Dewees introduced himself and talked about his role in applied marine research, outreach, and education. He believes the AAG's challenge will be to reach agreement and/or compromise on how to manage a fishery. The first step in this process is to design the fishery using a vision from the community who will manage it.

Dr. Dewees provided a list of potential management components:

- Limited entry or access privileges
- Dedicated access privileges which provide exclusivity and slows down the "race to fish"
- Spatial allocation (i.e., TURF)
- Individual allocation (portion of the TAC)
- Dedicated access privileges encourage a responsibility to manage the resource

Dr. Dewees summarized the issues as: a) allocation and who receives it, b) factors that determine allocation, c) aggregation limit, d) how is research conducted and paid for, e) allocation between groups, and e) how to integrate the recreational sector into a limited access fishery. He suggested settling how to handle the commercial and recreational shared fishery concepts first and discuss and agree on allocations in advance. Dewees also suggested considering a short-term experimental fishery on a non-permanent basis for a year or two and then make adjustments before a permanent fishery is established.

6.0 Panel Discussion and Public Questions

A question and answer period began at 8:20 p.m. and the meeting was adjourned at 9:00 p.m.

San Miguel Island Abalone Fishery Advisory Group

MINUTES December 2, 2006

On December 2, 2006 a meeting of the SMI Abalone Fishery Advisory Group (AAG) was called to order by Chair Chris Voss at 8:12 a.m. at the Donald Bren School in Santa Barbara, CA. He was joined by AAG members Daniel Geiger, Bill Bernard, Jim Marshall, Jessie Altstatt, Chip Bissel, Chris Mobley, John Butler, and Russ Galipeau for Gary Davis.

Also in attendance were Deputy Director Sonke Mastrup, Marine Region Habitat Conservation Program Manager John Ugoretz, and Marine Region Resource Assessment Program Manager Pat Coulston.

AAG members not in attendance: Chris Knight, Paul Dayton, and James Hrabak.

1.0 Approve September 29, 2006 Minutes

With a motion by Mr. Geiger and a second by Ms. Altstatt the September 29, 2006 minutes were unanimously approved.

2.0 Final Review and Ratification of AAG Process Ground rules

Mr. Ugoretz distributed a list of outstanding questions. Two questions were directly related to the ground rules.

2.1 Mr. Bissell expressed his concern that the revised language narrowed the scope of topics that could be considered and discussed. Mr. Mastrup stated that the ground rules are intended to provide focus. He and Mr. Ugoretz agreed that the ground rules do not change the charge of the Group or eliminate potential discussion topics.

2.2 Mr. Bissell expressed his concern that some provisions stifle discussion of important issues and may preclude adequate consideration for input. Mr. Ugoretz read the "Communications" section on page 2 that pertained to Mr. Bissell's concern. He noted that the intent is to involve the entire group, so everyone can both hear and understand any idea or conservation.

Mr. Bissell saw no method to initiate interim discussions on important issues and topics prior to scheduled meeting. He also asked how a Member would request a conference call meeting? Mr. Ugoretz agreed and will add a sentence to the ground rules that allows AAG Members to request a conference call on special issues. He noted that a special meeting could also be scheduled if a majority of the members felt it was necessary to do so. Mr. Ugoretz reminded Members that it should not be assumed that e-mail is a discussion of the Group.

With a motion by Mr. Bernard and a second by Mr. Geiger the ground rules were unanimously approved.

3.0 Discuss Issues Raised by AAG Members Prior to Meeting

The additional outstanding questions were addressed:

3.1 Mr. Bissell asked what a sustainable fishery looks like and whether or not any contemplated abalone fishery must be deemed sustainable by the Group? It was noted that a sustainable fishery allows for a species to exist over time at an appropriate level, and is economically sustainable. Mr. Mastrup stated that the MLMA sets the framework for fishery management and any fished species in California must comply with that document. He added that the ARMP is a branch of that umbrella document and is in essence an FMP. Mr. Ugoretz noted that full recovery is still the target but the Commission has asked that a fishery be considered prior to full recovery. Mr. Bissell asked if the MLMA requires biological reference points? Mr. Mastrup answered yes, it expects a fishery to be managed from a biological viewpoint using the best science available. Mr. Ugoretz will provide a list of the MLMA sections that pertain to fishery management plans.

3.2 Mr. Bissell asked if data obtained on harvest numbers and locations from industry logbooks is reliable and accurate? Mr. Ugoretz answered that were required landing receipts in the abalone industry but no logbook requirements. He stated that landing receipt data from other fisheries has been ground-truthed and there were no huge outliers in past research. Landing receipts can show where catch was occurring on an island-to-island basis.

3.3 Mr. Bissell asked if independent experts in sustainable fisheries can attend future AAG meetings? Mr. Ugoretz stated that recommendations for speakers are gladly accepted.

3.4 Mr. Bissell asked why there was no media coverage of the August Snapshot Survey and why materials provided to the press afterwards were not provided to AAG Members? Mr. Ugoretz responded that a media day at SMI was scheduled. The LA Times and Associated Press had intended to attend to document the survey process firsthand, but both cancelled at the last minute. The on-shore portion of the media day did occur and two (2) Department staffers (Patrick Foy and Carrie Wilson) met with media representatives on the Santa Barbara harbor dock. Those in attendance received a verbal report on the survey process and were provided with footage and still shots.

Mr. Bissell noted that AAG members did not receive the same materials provided to the press and he was unable to respond to questions from his constituency. His concern is that the public received more information than AAG members. Mr. Mastrup apologized if that was the perception, however; there was no official Department media outline. He will provide interested parties with the e-mail addresses for Mr. Foy and Ms. Wilson who can provide future details. Mr. Mastrup agreed with Mr. Bissell that official communication should be shared and they will be in the future. Mr. Ugoretz noted that the Cruise Report is on the FTP site.

4.0 Review Agenda and Outcomes from Friday Evening

Mr. Ugoretz will format the questions from the December 1 presentations and forward those to AAG Members.

5.0 Other Business

5.1 Proposed AAG meeting dates for 2007 were discussed and set as proposed. Members will receive confirmation of each date one month in advance. Members were encouraged to ask for topics to be added to draft meeting agendas. Upcoming AAG meetings were scheduled for: January 12, February 24, April 6, and May 19 with Santa Barbara locations to be announced

5.2 Mr. Mastrup gave a brief update on the recent OPC meeting. He noted that as a result of Proposition 84 the OPC has 90 million dollars that will most likely be invested in marine research. He suggested that this group consider research issues and data needs that the OPC can fund. Mr. Mastrup reported that Mr. Ugoretz gave a presentation on innovative fisheries management and used this process as an example and how the department is engaging in a stakeholder process prior to opening a fishery.

The Members adjourned at 9:11 a.m. to the first of two (2) concurrent working groups.

6.0 Breakout Session Report #1

All the participants reconvened at approximately 10:45 a.m. and received reports from the two working group leaders (Dr. Dewees and Dr. Prince).

Dr. Dewees reported that his group contained a mix of commercial fisherman and conservation scientists. Their ideas on how to use the data included

- a) Fill the gaps on the science side (habitat mapping, small scale recruitment, etc.)
- b) Create a surplus production model that indicates who can do what with what gear and how much can be conservatively taken from a fishery
- c) Determine allocation issues (i.e., use historical data, market driven auction of harvest privileges driven)
- d) Establish zonal management with spatial separation of commercial and recreational fisheries (both can not exist in the same place)
- e) Support for same size limit for both commercial and sport
- f) Consider idea of pulse fishing or test fishery
- g) Address enforcement needs and address poaching issues

Dr. Prince reported that his group made more issue statements rather than suggesting ideas on how to use the data. Those statements were:

- a) Data is useful but needs to be supported (time series, relative abundance, recruitment)
- b) Size and abundance data is useful
- c) Biomass estimates that provide confidence are needed
- d) Use data to balance the access levels
- e) Relate the snapshot back to previous surveys
- f) Commercial versus recreational allocation

- g) Support for area allocation with feedback used to develop management approaches for each sector
- h) Remember that we are in a changing world and people must be motivated to do the right thing
- i) Reminder that there is precedence in California to access resources by different sectors
- j) Data needs to be in historical context
- k) Harvesters should continue collecting data with more extensive coverage even though it might be less reliable (will help in modeling)
- l) Usefulness of monitoring recruitment (ARMS)
- m) Develop other modeling perimeters
- n) Determine what triggers would be necessary to gauge the impact of disease
- o) Usefulness of applying several models that are cross referenced and look at comparative output

An open discussion among all the participants ensued regarding the three (3) data usage and needs:

1. Support and help to develop management alternatives
2. Determine resource allocation between commercial and recreational fisheries
3. Estimate abundance to create population and harvest models to develop quota and catch restrictions

Discussion regarding the first two concurrent working groups ended at 11:55 a.m. The participants moved to the second of two (2) concurrent working groups at approximately 12:15 p.m.

7.0 Breakout Session Report #2

All the participants reconvened at approximately 2:15 p.m. and received reports from the two working group leaders (Dr. Dewees and Dr. Prince).

Dr. Prince recapped the comments from his group on factors beyond catch that impact management decisions:

- a) Enforceability and practicality of enforceability & cost effectiveness of enforceability (same for management regimes)
- b) Regime shift and environmental durability
- c) Multiple species cascade effects
- d) Spatial durability
- e) MPAs
- f) Long term target for resources and how they are obtained
- g) Disease
- h) Poaching
- i) Pollution
- j) Competition with sea otters
- k) Sea urchins
- l) Availability of animals for potential translocation

- m) Data and management uncertainty
- n) Variability of recruitment levels
- o) Depth restrictions
- p) Short term closures
- q) Rolling closures
- r) Behavior effects of fisherman (i.e. bar cuts, high grading, etc.)
- s) Need to preserve aggregation structure and importance of aggregation structure
- t) Size limits and where that links to TAC
- u) Timeliness of data
- v) Desirability not being too specific within a management regime
- w) Need to be adaptive

Dr. Prince recapped the comments from his group regarding ongoing monitoring needs to ensure TAC or other measures are met:

- a) Monitoring of catch = tamper proof tags with bar code, GPS related to each tag, allows for tracking of animals on several levels and serve a variety of needs
- b) Monitoring of population = fishery independent data giving size and density structure, divers use spare time to tag undersize animals, cost effectiveness, fishing mortality and natural mortality. Tagging is effective in realizing the differences of fish and natural mortality. Need for recruitment data (ARMS) and invasive surveys,
- c) Fishery dependent data = need long time series that covers catch per distance and is less expensive to collect. It might be less accurate but augments the independent data that is taken less frequently.

Dr. Prince reported that everyone agreed that surveys should be conducted annually for the first five (5) years to gauge how reliable and variable they are and to develop confidence in the process. Then move to a five (5) or ten (10) year survey process and/or use an environmental event that calls for an emergency survey while continuing to use fishery dependent data.

Dr. Dewees reported on his group's comments on factors beyond catch that impact management decisions:

- a) Enforcement and need for specialized enforcement. This includes an analysis of cost versus benefits. It was agreed that effective and adaptive enforcement will be the key to this fishery.
- b) Protection of abalone cluster. This includes implementing a code of conduct where only a percentage of animals are taken from each cluster in the commercial fishery. Also separation of the commercial and recreational fisheries so that each can be evaluated independently.
- c) MPAs should serve as control areas for policy decisions and these populations should not be included in the TAC.
- d) A breath hold fishery that provides a deep-water refuge for abalone.
- e) The effectiveness and disease concerns of translocation
- f) Disease factors that affect management decisions and how disease is monitored

His group noted that social issues include: a) dependence on fishing and historical participation for allocation of privileges for commercial and recreational sectors, and b) Expertise of harvesters, required training and/or certification programs for commercial and recreational sectors.

Dr. Dewees recapped the comments from his group regarding ongoing monitoring needs to ensure TAC or other measures are met:

- a) Monitor temperature to address issues that arise from elevated temperatures with thresholds that would dictate adjustments accordingly
- b) Realistic monitoring surveys look at efficiencies and result
- c) Harvester participation in on-going data collection
- d) Increasing number of ARMS and recruitment studies
- e) Monitor disease levels over time

8.0 Workshop Synopsis

Mr. Ugoretz presented the next steps:

1. Create a scientific panel to develop TAC ranges that include a historical data analysis, a snapshot data analysis, and an analysis of the patchiness of the snapshot data using the 5-meter increments.
2. Develop annual survey process for the next five (5) years and determine future survey frequency (regardless of fishery). Seek OPC and other outside funding for these surveys.
3. Determine other types of surveys needed. For example: a) tagging study for growth and movement, b) invasive surveys to ground truth size ranges, c) temperature stress study on SMI abalone, d) recruitment monitoring using ARMs and invasive surveys, and e) genetic studies and analysis.
4. AAG to continue discussions of items in their charge and consider other management issues beyond human take and what the long term goal for the SMI abalone resource.

The workshop was adjourned at 3:05 p.m.

Minutes By: Alicia Bonnette

San Miguel Island Abalone Fishery Advisory Group

DRAFT MINUTES January 12, 2007

On January 12, 2007 a meeting of the SMI Abalone Fishery Advisory Group (AAG) was called to order by Chair Chris Voss at 9:12 a.m. in the Marine Center Classroom at the Santa Barbara Harbor in Santa Barbara, CA. He was joined by AAG members Daniel Geiger, Bill Bernard, Jim Marshall, Jessie Altstatt, Chip Bissell, Chris Mobley, John Butler, and Russell Galipeau for Gary Davis.

Also in attendance were Senior Biologist Specialist Ian Taniguchi, Marine Region Supervising Biologist Pat Coulston, Lt. Jorge Gross, and Scott McCreary with Concur, Inc.

AAG members not in attendance: Chris Knight, Paul Dayton, and James Hrabak.

1.0 Introductions and Approval of December Minutes

With a motion by Mobley and a second by Bernard the December 1 and 2, 2006 minutes were unanimously approved with a change to the first set of bullet points in section 4.0 of the December 1 minutes, and a change to 6.0 b) of the December 2 minutes.

Voss reminded the Group of their charge to provide the Fish and Game Commission recommendations on: a) a TAC for SMI red abalone, b) alternatives for allocation between recreational and commercial take, c) alternative regulations to achieve the TAC and allocation, d) potential management, enforcement, and monitoring techniques, and e) possible individual quota and catch entitlement mechanisms.

Geiger thinks that the group should consider all the broad concepts before developing a TAC. Mobley added that a TAC must be developed within the recovery context. Marshall noted that the ARMP requires recovery and the overriding concern is that recovery isn't compromised through fishing efforts. However, the exact meaning of "recovery" needs to be established. Bissell stated that the ARMP defines recovery criterion. Marshall agreed that there is a definition, but there is latitude within that language. Voss commented that there are concepts and ideas that can be explored in the absence of an actual TAC. Mobley agreed and added that all the groups' ideas should be explored with an open mind and in a parallel path. Voss reminded the group that they are expected to make recommendations and suggest alternatives, and the Commission will make the final decisions.

2.0 December Workshop Review

There were comments among the group that a tremendous amount of scientific information was presented at the December 2006 workshop and that different conclusions could be reached depending on the specific assumption chosen.

Coulston and Taniguchi talked about the parallel approaches and analysis needs the Department will focus their efforts on. Bernard encouraged the Department to maintain sequence logic in those processes which was echoed by some members of the group.

Coulston reviewed the “Next Steps” developed from the December workshop:

- 1) Create Scientific Panel on TAC
 - Include historical data analysis
 - Analyze patchiness of snapshot data using 5m increments
- 2) Long Term “Snapshot” Annual Surveys
 - 5 years in a row to start
 - Determine survey frequency afterwards
 - Regardless of a fishery
 - Seek Ocean Protection Council and other outside funding
- 3) Other Surveys Needed
 - Genetics
 - Tagging study for growth and movement
 - Invasive surveys to ground truth size ranges
 - Temperature stress study on San Miguel abalone
 - Increased recruitment monitoring (ARMs and Invasive surveys)
- 4) AAG to Continue Discussions
 - Other Issues to consider in management (beyond human take)
 - What is the “long-term goal” for the resource?
 - Continue discussions of items in charge

3.0 Snapshot Survey Results

Coulston reported that the Department is entering the survey algal data into the database. Department personnel are performing the following data analysis:

- 1) Stein will look at the habitat data and prepare a basic summary on the association in habitat types and densities to develop an idea of how to truly estimate population size
- 2) Taniguchi will consider management zones, including where reserves might be
- 3) Kashiwada will use different methods to estimate number of abalone that are present at SMI
- 4) Rogers-Bennett will consider broad TAC estimation and recruitment questions in relationship to fishery management issues and size limits
- 5) Tillman will provide future economic analysis and is an expert in rationalizing fisheries

- 6) Moore will conduct an analysis of historical water temperatures and how fluctuations in temp might affect the bacteria that causes withering foot syndrome and related management options

Mobley asked if the Department will support the AAG alternatives or will they develop their own independent opinions outside the AAG process to recommend to the Commission? Coulston noted that the Department hopes that the AAG will help them focus on a range of alternatives that make sense and can be supported. The Department might present the affects of each recommended alternative to the Commission. He added that if the AAG process isn't effective the Department will need to make their own recommendations.

Mobley asked for a flow chart that shows the entire AAG process. The members need to be aware of procedural requirements so they can work within that context. Mobley noted that the health of this process depends on full disclosure so that no one feels betrayed at the end, especially if a political rather than scientific based decision is reached. Voss agreed that the group needs guidelines, in advance, on what concepts can be considered, what is legal, and what is acceptable/tolerable to the State.

Bissell asked if the Commission is bound by the MLMA? Taniguchi answered yes, however the ARMP and the legislation that mandated its creation governs this fishery consideration process. The ARMP was developed using the MLMA fishery management plan development framework. Voss added that all of the alternatives suggested by the group should be consistent with the MLMA.

Bissell asked if the group is making recommendations to manage a fishery or stock? Taniguchi thinks the AAG should do both. Taniguchi distributed the "Guide to California's Marine Life Management Act". Mobley noted that the process this group is undertaking is within the framework of the MLMA on pages 80 to 88.

4.0 TAC Workshop

An "Abalone Population Modeling Workshop" will be scheduled in early March 2007. Taniguchi suggested that Paul Crone and Laura Rogers-Bennett attend. He encouraged AAG members to suggest additional names. Members did offer some names of potential panel participants to check into. It is anticipated that the panel will provide recommendations to the AAG at their meeting on Saturday, February 24.

Suggested workshop products:

- 1) Determine what information is needed to establish a TAC
- 2) In conjunction with each suggested TAC range of numbers develop a range of probabilities (probability of risk analysis) which would provide confidence limits
- 3) What is Total Allowable Catch? Is that divided among participants? Is it directly related to productivity of population?
- 4) How much is allocated to illegal catch? Do the animals taken illegally and in the reserve come off the top?
- 5) Does the TAC include the abalone within the reserves since they are protected and will provide recruitment?

- 6) Develop a better understanding of pre-emergent population (invasive survey for example)
- 7) Develop a better understanding of time samples based on knowledge of entire population
- 8) Does the MVP include only healthy abalone or healthy animals plus those with withering syndrome?
- 9) How important are larger animals to total population recruitment? If they have survived past withering foot events they may carry a resistant gene and are valuable
- 10) Determine if there are other methods of harvest not based on size and explore other management scenarios that are not based on size
- 11) How is a TAC managed with a number that changes over time (case studies and development of them)
- 12) Evaluate area management versus specimen/individual management (i.e. TURF)
- 13) Evaluate value of restricted areas for commercial and recreational fisheries
- 14) What is a typical model approach for abalone?
- 15) Gain an understanding of user groups, allocation, and how that affects success. The number is not as important as the allocation among the users (the "who gets what" argument).
- 16) TAC number scenarios that can be applied to different management models

5.0 Additional Information Needs

Taniguchi reported that another stratified random survey; using the same methodology as in August 2006 will be conducted in 2007. A subcommittee including Voss, Bissell, and Taniguchi will be formed and a survey coordination meeting will be scheduled. Some of the 2007 survey components would include:

- 1) A slightly smaller scale than August 2006 survey
- 2) Identify and survey areas not covered in August 2006
- 3) Collaborative effort with different stations assigned to commercial, volunteer, and Department dive teams.
- 4) Survey some of the same sites as in August 2006 to make time series data comparisons or establish static sites that can provide survey stations for the future
- 5) Look at bottom relief analysis as it relates to population and focus survey efforts in appropriate habitat areas determined by Stein's analysis and refine effort to understand what habitat exists
- 6) Collect multibeam habitat information
- 7) Determine how to reduce survey effort for 2008
- 8) Timed swims for areas without abalone to eliminate habitat without populations
- 9) Invite and train members of the recreational community interested in participating and possibly have commercial and recreational teams work together

Taniguchi reported that the Department is meeting the week of January 15 to explore other data needs (genetics, growth, etc.). Suggested additional data needs were:

- 1) Genetics studies to determine if there are localized populations and what the stock structure is

- 2) Assessment of available habitat maps, what future methodologies are available to close gaps, and what resolutions are available
- 3) Temperature studies and recordings to develop a three dimensional temperature field and comparisons between existing studies
- 4) How much recruitment occurs from different areas. Geiger suggested taking a macro satellite analysis to identify signatures and then do multi year comparisons
- 5) Bernard suggested looking at Tamales Bay abalone and how they are impacted by their environment
- 6) Larval settlement collector

6.0 AAG Timeline

Coulston reported that the Department is already at least three (3) months behind the existing timeline. Voss asked that Ugoretz revise the timeline, to reflect reality, and present that new information to the Commission for approval at their February 2007 meeting. Mobley suggested showing items moving along in parallel tracks and how those correspond to the current timeline. Also indicate which benchmarks have been accomplished to indicate the progress to date.

The Group broke for lunch at 12:02 p.m. and readjourned at 12:58 p.m.

When the Group readjourned Geiger presented a “back of the envelope” population model based on some assumptions and zero take (with disease as the greatest variable). The model, with noted limitations, suggested a lengthy time period to reach certain population levels. Based on this coarse model, he suggested that the group should discuss long term goals for the population, and thresholds for allowing a fishery. Dr. Geiger’s comments and suggestions warrant further discussion by the group. He will e-mail a more detailed version to the AAG members.

7.0 Preliminary Discussion of Alternative Management Strategies

7.A Basics of Fisheries Management

Taniguchi reported that the Department’s Marine Mission Statement is “To protect, maintain, enhance, and restore California’s marine ecosystems for their ecological values and their use and enjoyment by the public”. He noted that the Department manages fisheries with a set of management tools that include: a) gear restrictions, b) size limits, c) catch limits, d) closed areas, e) restricted access, f) personal gear, g) vessel permits, and h) fees. These management measures are based on two types of information: a) fishery dependent data (what is being landed and where fishing effort is), and b) fishery independent data (separate from fishery that is based on life history of species).

7.B MLMA components of a Fisheries Management Plan (FMP)

Taniguchi presented the components of an FMP according to the MLMA:

- 1) Description of fishery which includes: a) species of fish and their location, their natural history and population dynamics, and effects of ocean conditions, b)

habitat of the fish and threats to the habitat, c) role of the target species in the ecosystem and the fishery's effect on that role, d) the fleet, fishing effort, and landings by commercial and recreational fishermen, e) economic and social factors in the fishery, and f) past conservation and management measurements in the fishery.

- 2) Fishery science and essential fishery information which includes: a) past and current monitoring of the fishery, b) essential fishery information for the fishery, c) time and resources needed to fill gaps in this information, and d) the steps the Department is taking to monitor a fishery and to obtain essential fishery information.
- 3) Basic fishery conservation measures which include: a) preventing over fishing, b) rebuilding depressed stocks, c) ensuring conservation, and d) promoting habitat protection and restoration. Management and conservation are identified as: a) limitation on area, time, amount of catch, species, type or amount of gear, b) restricted access, c) review and adjustment of catch quotas, and d) personal gear, or vessel permits and fees.
- 4) Habitat provisions recognize the importance for maintaining healthy habitats for the productivity and diversity of marine ecosystems and viable commercial and recreational fisheries.
- 5) Bycatch and discard must be identified and described. Information on the amount and type of bycatch would include: a) legality of the bycatch, b) threat posed to the bycatch species, c) impact on fisheries that target the bycatch species, and d) impact on the ecosystem. The goal is to reduce the impact of bycatch and discards as a matter of standard management of fishing activities and make positive efforts to limit bycatch to "acceptable types and amounts". Possible ways to reduce bycatch in the fishery (i.e. injured shorts) would also need to be identified.
- 6) Overfishing and rebuilding. An FMP would include criteria for determining when a fishery is overfished. If properly set these criteria will provide a way of identifying unsustainable trends in a fishery before drastic cutbacks in fishing have become inescapable. It would also include measures to rebuild the fishery and end overfishing.
- 7) Amending and modifying FMPs. The MLMA requires that FMPs establish a procedure for regular review and amendment, if that is appropriate. To allow for greater flexibility, an FMP can specify kinds of regulations that may be changed without amending the FMP itself.

7.C Existing Fishery Management Strategies

Taniguchi described the five (5) following existing fishery management strategies:

- 1) Northern California Red Abalone Fishery (Recreational)

Access = open

Catch Reporting = report card required

Season = 7 months (closed in July)

Closed Areas = yes, reserves & area closures

Size Limit = 7 inches

Gear = no scuba, with minimum size of abalone iron and fixed gauge

Catch Limits = crude TAC based on effort information (fishery dependent & independent surveys and data)

Altstatt asked what percentage of the Northern California report cards are returned? Taniguchi responded that the return rate is approximately 20% to 30%. Coulston noted that the Department is putting in place a new system that will allow them to track this information and deny a license to anyone who does not return their report card.

Taniguchi noted that 35,000 to 40,000 abalone stamps are sold each year and enforcement is difficult.

2) California Spiny Lobster Fishery (Recreational and Commercial)

Access (recreational) = open

Access (commercial) = restricted with non-transferable and transferable permits and a limit on how many are transferred each year

Catch Reporting (commercial) = log books and commercial landings

Catch Reporting (recreational) = none

Season = 5.5 months with a ½ week head start for recreational sector

Closed Areas = yes, MPA's & restricted areas

Size Limit = 3¼ " carapace for both sectors

Gear (recreational) = fixed gauge and only by hand

Gear (commercial) = fixed gauge and only by traps

Catch Limits (recreational) = 7 lobster limit

Catch Limits (commercial) = none

3) California Pacific Herring Fishery (Commercial)

Access = restricted with transferable permits and permits in SF Bay split into 3 platoons

Catch Reporting = landing receipts

Season = varies by area (December to March)

Closed Areas = yes, restricted to 4 bays

Size Limit = no, but limited by gill net gear mesh size

Gear = minimum weight on nets, net mesh size

Catch Limits = quota based on annual fishery independent survey to determine quota for following year

4) Alaska Pacific Halibut Fishery (Commercial)

Access = restricted and tied to IFQ's

Catch Reporting = log books and debit cards for landings

Season = 8 months

Closed areas = yes

Size = 32" minimum

Gear = hook and line only

Catch Limits = IFQ

TAC is set based on an annual assessment of all the zones. Then the IFQs are split and can be bought and sold within limits.

5) Mexican Pink and Green Abalone Fishery (Commercial)

Access = Restricted by Territorial User Rights Fishery (TURF)

Catch Reporting = yes

Season = yes

Closed areas = yes

Size Limits = minimum size by species and region

Gear = restrictions to control effort

Catch Limits = quotas by species and area

Taniguchi provide some background information on the Mexican abalone fishery. He noted that in 1996/97 INP studies showed that most abalone stocks along the Baja California peninsula were unhealthy, with a decreasing biomass trend. Stock assessments were quantified to determine their current status and the productivity of the resource, and are to evaluate the consequences of alternative management actions. Then a recovery management strategy was implemented with two general objectives. The first was to stop the decreasing trend in the population biomass. The second was to increase the population size towards the biomass at maximum surplus production defined as a target reference point.

The first objective, to stop the decreasing population biomass, was met by using a logistic model that developed three (3) optional quota alternatives for the cooperatives that would increase biomass. Use of these alternatives resulted in an increased biomass between 1997 and 2000.

The second objective, to increase biomass, was met by finding a target reference point in the mid term. Mexico chose a 13% quota growth rate and the biomass increased again between 2000 and 2004.

It was noted that the best-managed recreational sport is White Sea bass.

7.D Preliminary Alternatives

Mobley suggested that one long term model would be for individuals to have access to 3 or 4 different fisheries and then make rational decisions on what species are fished based on abundance and economics. Taniguchi noted that this would require a great deal of legislation. Voss noted that this type of model could create a very contentious situation. Voss believes that if a fishery is rationale and well-organized fishermen can commit more to it and make a living with an ITQ that allows fishermen to work harder. If fishermen invest they become more responsible and accountable. Bissell and Bernard commented that this was not the case in the past and questioned if it would occur in the future. Mobley asked if that is a reason to lobby for more transferability as a long-term strategy? Since the price of a permit is also affected by the health of the fishery and if fishermen take care of their resource there is more value in the sale or transferability of that permit.

Bissell stated that unless there is strong evidence of a strong recovery there is no support for a fishery at SMI from his constituents. Mobley reminded him that we are looking at models "if" there was a fishery in the future. Bissell pointed out that making

predictions for the future, without having adequate data from last year's survey as well as a TAC, was "putting the cart before the horse".

Voss asked if there is support from this group for regional and/or spatial separation? It was noted that there is no straight answer and different scenarios would need to be considered. Can the Commission use their discretion for whether or not there is regional preference? Taniguchi stated that the ARMP language is intentionally very permissive and there is still a great deal of discussion that needs to take place about developing a TAC and how that is allocated.

The Department was asked to provide the language that dictates whether or not a recreational and/or commercial fishery must exist in order to provide the legal parameters the group is operating under.

Altstatt began a discussion on the necessity of effective enforcement for both fisheries. She asked at what point does the State put aside money for enforcement? Where does it come from? Is there legislation required? How can a better return on abalone cards in Northern California be achieved?

A lengthy question and answer period ensued on poaching and enforcement issues. Lt. Gross expressed his opinions and observations based on his experience. The two major comments to the group included his past experience and interaction with the commercial fishery and their poor record on reporting poachers (this comment made in reference to earlier comments on ITQs and the fostering of responsibility and accountability that may come about with the sense of resource ownership). The second major comment was his concerns of the lack of enforcement resources and staff to adequately patrol a remote area such as SMI now and in the future if a fishery were to occur. This topic will merit further discussion by the AAG as management alternatives are created.

Lt. Gross suggested some law enforcement aides for a potential SMI abalone fishery:

- Since the bulk of activity will be dockside VMS (Vessel Monitoring System) would help for monitoring at SMI
- Since this is an expensive start-up for a small fishery tagging is a good idea but transferability of tags is not
- A new fishery with lots of bells and whistles will be tough to enforce unless staffing is increased
- Limit the landing port to Santa Barbara
- Develop a card swipe system that enforcement could also access
- Earmark funds for enforcement and keep the promise to spend it there
- Commercial divers must be more diligent in notifying the Department about poaching
- Determine what are severe violations are and how the convicted divers quota would be divided among the other participants

A comment was made that these enforcement aides would not resolve the poaching problem.

Mobley stated that the group would need to consider how to prevent people from poaching in Northern California and bringing that abalone to Santa Barbara. Voss noted that the commercial sector plan suggests a phone in system that has loads checked as they arrive dockside in conjunction with a tagging system that would help identify poached animals.

Bernard noted that the recreational breath hold fishery in Northern California has kept that fishery sustainable. Recreational divers don't necessarily know about abalone regulations they just care that the abalone will be available for them in their 10 to 30 foot depth range. He doesn't believe that issuing tags to the recreational side will prevent poaching in Northern California. Bernard believes that recreational divers only look at their sport and enjoyment time and they are not aware of data. Any system in place needs to be kept simple.

Bissell noted that a TURF situation could create an ability to identify poachers but it can also close areas to recreational individuals who are not fishing (photographers, spear fisherman, etc.). It was noted that TURF creates an economical incentive for that person to protect and preserve an area but it could result in conflicts on the water.

It was agreed that areas cannot be cordoned off and that regulations should be uniform for the entire recreational community.

It was also agreed that the public needs to be educated on several levels, and consumers would need to be educated about what is a legal or poached abalone so they can ask the right questions in a restaurant. Bissell stated that the penalties for poaching should be more extreme (i.e., loss of vessel, loss of all future fishing privileges, permits revoked, etc.).

8.0 Preliminary Discussion of Allocation Issues

Some preliminary allocation alternatives were suggested:

- Commercial participants would share equally in the allocation. Individual gardens would be identified for harvest with that percentage of what can be harvested in each garden.
- Historical commercial and recreational catch data used to determine a percentage applied to future allocation
- Historical party boat harvest data as part of the recreational allocation discussion
- Assigning a portion of the TAC for conservation purposes (brood stock) to satisfy non consumptive users
- Eco-tourist industry alternatives
- Combined commercial and recreational sectors
- Look at Northern California to determine a practical TAC and then set an annual limit based on what the resource can sustain and what can be reasonably consumed
- Data collection is important and it needs to be documented

- Build in cut abalone mortality and poaching into TAC
- Real time catch data
- Elevate the thinking on both sides and start introducing concepts that will need to be embraced in the future in order to take responsibility for the resource and protect the resource
- Debate on implicit rights of historic fisheries (The ARMP and DFG Code 5522(e) state that priority shall be given to those permit holders in the 1996/97 permit year)
- Acquiring multiple permits and leasing them to other fishermen versus diving your own permit
- Acquiring a permit and not fishing to set aside TAC for non-harvest versus active harvesting

These different alternatives were broadly discussed and discussion will continue.

9.0 Replacement of Resigned AAG Member

Coulston reported that Hrabak has resigned and there are two options in replacing him. One would be to go back to original list of nominees and pick another person. Second would be to go back to the Commission for direction. The AAG members suggested going back to the original list of nominees but noted that the decision is ultimately up to Director Broddrick.

10.0 Wrap Up and Next Steps

10.A Facilitation Contract Progress and Discussion

Coulston reported that facilitation for this process is being reconsidered. Mobley stated that there are potential shortcomings that a neutral facilitator can assist with. In order for this to be a model process, that sets future fishery processes, there needs to be a facilitator. Voss agreed that having a facilitator would provide more direction and assistance with this process. Marshall added that a facilitator would not let the group back away from the upcoming difficult decisions and hard.

10.B Next Meeting

Saturday, February 24, 2007

9:00 to 4:00 pm

Santa Barbara Harbor – Waterfront Center Conference Room

It was suggested that a “Public Comment” section be added to the end of future AAG agendas.

The meeting was adjourned at 4:23 p.m.

Draft Minutes By: Alicia Bonnette

Revisions by: Ian Taniguchi, CDFG, 03/07/2007 referring to revisions proposed by AAG members

Key Outcomes Memorandum

Date: March 14, 2007

To: Members, California Abalone Fishery Advisory Group (AAG)

From: Scott McCreary and Eric Poncelet, CONCUR, Inc., and Rob Williams, RESOLVE

Re: Key Outcomes Memorandum – February 24, 2007 AAG Meeting

cc: California Department of Fish and Game Staff

Executive Summary

On February 24, 2007, the California Abalone Fishery Advisory Group (AAG) participated in a meeting in Santa Barbara, CA. The primary objectives for the meeting were to:

- 1) Introduce the members and review the roles of the facilitation team
- 2) Present latest analytical results from San Miguel Island (SMI) 2006 survey
- 3) Initiate AAG discussions on the development of possible allocation alternatives
- 4) Discuss key management considerations
- 5) Outline next steps in the work program

Key outcomes from the meeting are as follows:

- Introduced facilitation team to AAG; outlined facilitation team roles
- Outlined plans to shift from meeting minutes format to Key Outcomes Memo
- Received a briefing on results of SMI 2006 survey
- Updated the project schedule, and provided clarity on AAG charge
- Began discussion of initial options for allocation of a potential abalone fishery; initiated four work groups to continue this work prior to next AAG meeting
- Outlined some key preparation steps to organize a scientific panel and review committee to develop advice on a Total Allowable Catch (TAC)

Key next steps are as follows:

- DFG to revise core AAG documents (AAG roster, project timeline, summary of AAG charge) based on AAG member comments
- Facilitation team to prepare draft work plan and outline for final report
- Facilitation team to schedule and conduct confidential stakeholder interviews
- Work group activities:
 - Allocation work groups to continue work developing/refining allocation alternatives
 - Terms of Reference (TOR) work group to develop Terms of Reference for expert panel on TAC
- Other key next steps are outlined Section III below.

I. Meeting Participants

AAG members participating in the meeting included: Chris Voss (Chair), Chip Bissell, Gary Davis, Chris Mobley, Jim Marshall, and Jessie Altstatt.

Professional staff from the California Department of Fish and Game (DFG) included: John Ugoretz, Pat Coulston, Ian Taniguchi, and Lt. Jorge Gross.

The facilitation team included Scott McCreary and Eric Poncelet from CONCUR, Inc. and Rob Williams from RESOLVE.

Alicia Bonnette served as note taker. The facilitation team referred to the notes as one source of information in preparing this KOM.

Several members from the California Abalone Association (CAA) were present as members of the public.

II. Key Outcomes

A. Roster and membership

John Ugoretz updated the AAG roster. He distributed the revised document to AAG members on February 27, 2007.

AAG members discussed whether to replace resigned AAG member Jim Hrabak. AAG members generally agreed that there was no imminent need to replace him at this time, given that he has not been a regular participant in AAG meetings. AAG members also noted that the decision to replace individual members should take into account the representation of individual constituencies. AAG members agreed to consider replacement of any other AAG resignations on an individual basis.

B. Introduction of facilitation team and review of facilitation team roles

1. Facilitation Team

John Ugoretz announced that DFG is finalizing a contract with a facilitation team. The team consists of:

- Scott McCreary, Principal, CONCUR, Inc. – Lead facilitator
- Eric Poncelet, Associate, CONCUR, Inc. – Co-facilitator
- Rob Williams, Senior Facilitator, RESOLVE – Co-facilitator

Scott will team with either Eric or Rob to prepare for and facilitate the AAG meetings. All three will team in project strategic planning.

2. Key facilitation team roles

a. Prepare agendas and coordinate preparation of other meeting materials

The facilitation team will take the lead in planning, coordinating preparation, and distributing all meeting materials.

b. Convene and facilitate meetings and synthesize key results

In close coordination with the Chair, the facilitation team will convene meetings, guide discussions, manage the queue of speakers, and synthesize key results.

c. Prepare Key Outcomes Memoranda (in lieu of “meeting minutes”)

The facilitation team outlined a plan to shift from using a “meeting minutes” format to a Key Outcomes Memorandum (KOM) format. Key elements of KOMs include:

- KOMs will focus primarily on capturing key decisions or agreements reached, highlighting key discussion points, and outlining key next steps to move the process forward toward accomplishing the AAG’s charge.
- KOMs are not intended to serve as a historical transcript of each comment made at a meeting. Rather, the major purpose of the KOM is to help keep the AAG on task and to clarify steps in the process.
- The facilitation team will strive to transmit draft KOM’s for review by the AAG within one workweek of the meeting. AAG members will be provided with a relatively brief review window (typically 3-4 working days) to propose specific edits to improve the clarity or accuracy of the document. AAG members are asked to be sparing and selective in these comments. The facilitation team will then incorporate appropriate revisions and distribute final KOMs to the AAG.

d. Conduct confidential stakeholder interviews

The facilitation team will conduct confidential interviews with all members of the AAG over the next few weeks. The interviews will be structured to elicit information on the interests at stake, the issues to be resolved, possible areas of agreement and disagreement, and advice toward completing the AAG process in a timely manner. The facilitation team will present the results from the interviews in a concise memorandum at the April 2007 AAG meeting.

e. Prepare work plan for completing AAG process

The facilitation team will prepare a draft work plan based on the stakeholder interviews that outlines the sequence, flow, and objectives of future AAG meetings.

C. Review and revision of meeting minutes from 1/12/07 AAG meeting

AAG members discussed and proposed editorial revisions to the 1/12/07 AAG meeting minutes. AAG members were invited to transmit their proposed revisions in writing to DFG staff by COB 3/2/07, with an emphasis on clarifying the summary of meeting discussion. DFG staff will then finalize the minutes and distribute the final version to the AAG.

D. Review and discussion of core AAG planning documents

1. AAG charge

AAG members briefly discussed an overview document summarizing the AAG's role, charge and mission. There was general agreement that this document could serve as part of the introductory text to the AAG's final report. Key discussion points include:

- DFG staff clarified that the AAG is not primarily responsible for determining a Total Allowable Catch (TAC). Rather, the role of the AAG is to review the advice of an expert panel of experts on this topic.
- AAG members recommended adding new text on "Outcomes" that describes the intended AAG product.
- Several AAG members pointed out that the charge does not specify whether the AAG should be considering fishery management alternatives in the absence of stock and abundance data or whether the alternatives should be based on current data. The facilitation team noted that this may involve the creation of "conditional proposals" that would be linked to specific stock/abundance conditions.
- DFG staff clarified that their hope is to use the alternatives suggested by the AAG in their own recommendation to the Fish and Game Commission. DFG staff will inform the AAG if AAG proposals being discussed do not meet DFG's own criteria.
- The current intent of DFG staff is to submit the full text of the AAG's final report as an appendix to its own recommended alternative to the Fish and Game Commission.

DFG staff will revise the document to incorporate the comments made.

2. AAG timeline

John Ugoretz reported that the updated AAG project timeline was presented to the Fish and Game Commission at their Feb. 1-2, 2007 meeting and was received without comment. John acknowledged that this timeline is a "living document"; it is still provisional and subject to revision. AAG members discussed and commented on the timeline and possible implications for the flow of their work. Key comments on the document include:

- The version sent to AAG members (January 29, 2007, rev. 3) is missing two key steps: convene TAC scientific workshop (new step 9), and conduct second SMI snapshot survey (new step 12).

- The results of the second snapshot survey could affect the determination of TAC and fishery management alternatives.
- The final step regarding possible re-opening of a fishery should be recast, as the present text could be viewed as predetermining a specific outcome. This should be clarified as being conditional. Possible text might read: If deemed feasible and approved by the Fish and Game Commission, fishery opens.
- DFG staff clarified that the role of the AAG would shift following its development of fishery management alternatives for DFG and the Fish and Game Commission. At that point, DFG may request that AAG members assist in the CEQA scoping process, although this would not entail formal AAG meetings.

DFG revised the timeline to incorporate the comments received and distributed it to the AAG on February 27, 2007. The facilitation team will agendaize a scan of the timeline at the next meeting.

3. Outline for AAG final report

The facilitation team will prepare a draft outline of the AAG's final report for discussion at the next AAG meeting. This outline will serve as the basis for producing a single document containing the AAG's recommendations on fishery management alternatives.

E. Presentation and discussion of SMI Survey Data Analysis Results

Ian Taniguchi presented recent results from DFG's ongoing analysis of the SMI summer 2006 survey. Ian presented on the following topics: 1) habitat analysis and data, 2) stock estimates, 3) management zones, 4) size limits and recruitment, and 5) other data analyses. AAG members asked clarifying questions and made several comments that can inform refinement of the presentation of these findings. Key comments included:

- It will be beneficial to explicitly state the working assumptions underlying the analysis, and to be a bit more precise in the use of key terms and nomenclature.
- A potential next step to the habitat survey would be to create a more detailed habitat map that, for example, identifies different types of reef.
- The assumed relation between kelp canopy and presence of abalone needs to be more clearly explained and/or caveated. It was pointed out that total kelp canopy is not directly representative and likely overestimates total abalone habitat. Additionally, within the areas that are truly abalone habitat, densities are likely higher than in the entire kelp canopy range.
- It would be helpful to express the stock estimates arrayed by depth in terms of percentages rather than numbers of abalone.

F. Discussion of initial concepts for TAC allocation

One of the key charges of the AAG is to develop options for allocation of TAC. The Chair and facilitation team stressed that the February 24 discussion was the first in what will be an iterative series of discussions. With this context in mind, AAG members initiated their

deliberations on alternative allocations of a TAC for a possible SMI abalone fishery. DFG staff confirmed that California law does not establish a preference for either commercial or recreational fishing, either in general or with specific regard to abalone.

1. Summary of initial concepts presented

Two initial allocation concepts were presented by AAG members:

- a. **Option 1: presented by Chris Voss and Jim Marshall.** Chris/Jim's initial concept was informed by consultations with the CAA membership. They proposed a harvest allocation of 90% commercial and 10% recreational—an allocation informed by historical SMI catch data.

Chris and Jim also proposed several management considerations:

- There could be merit in creating a spatial separation between commercial and recreational fisheries. (This concept was revisited through the discussion)
- Fishery management and enforcement would be accomplished in part by using a tagging system with tags sold according to quotas.
- Within the commercial fishery, quotas would be evenly divided among participants
- In the first year, participation in the fishery would be drawn from divers who held permits in 1997. For subsequent years, participation would be opened to others (in a manner to be determined).
- The fishery would be adaptively managed, with yearly assessments.

- b. **Option 2: presented by Chip Bissell.** Chip's initial concept was informed by consultations with his constituents in the recreational abalone fishery. It was predicated on achieving full recovery of southern CA abalone stocks before opening SMI to abalone fishing. This concept was formulated as a 4-step process:

- 1) Until baseline historical abundance levels for SMI are achieved, allocate 100% of TAC to rebuilding SMI stocks. This step would involve proactive actions for restoration.
- 2) Once historical levels have been achieved for SMI, allocate 100% of TAC toward recovery in other parts of southern CA.
- 3) Once historical levels have been achieved for southern CA, allocate 100% of TAC to recreational fishing—free diving (breath hold) only, similar to North Coast recreational abalone fishery. This would ensure involvement of the greatest number of individuals in the fishery.
- 4) If this recreational fishery can be sustained, then an allocation between recreational and commercial fishing would be established (allocation percentages to be determined).

The AAG members acknowledged some similarities between Chip's presentation and some of the ideas expressed in Bill Bernard's email on the topic of allocation. The AAG agreed that Bill's concepts should be addressed in greater detail when Bill is available to discuss them.

2. Initial AAG discussion of allocation concepts

AAG members asked clarifying questions regarding the allocation concepts introduced and offered comments to inform future revision and refinement of these initial concepts:

- The two initial concepts presented may be viewed as conceptual “bookends” for the possible range of allocation approaches.
- Additional guidance from DFG or the Fish and Game Commission is needed to clarify the extent to which any proposed fishery needs to be focused beyond SMI.
- The “uses” of TAC could be viewed as extending beyond commercial and recreational fishing. Other possible uses might include:
 - Restoration and restocking, including translocating for restocking other islands or southern CA areas
 - Use by indigenous tribes with tribal rights
 - Gathering for scientific research purposes
- The management regimes associated with the allocation concepts need further definition and refinement.
- Poaching remains a threat that will have to be addressed in any fishery management alternative.
- Spatial separation of user groups may not be needed if temporal separation is created or identical size and take limit requirements are placed on both recreational and commercial fishing.
- Spatial or temporal separation of user groups would allow for scientific comparison between different management approaches.
- Spatial separation of user groups may provide a stewardship incentive to different user groups.
- AAG members requested that DFG provide data on the approximate number of recreational divers who have participated historically in the SMI fishery.

3. Next steps in the preparation of alternative allocation options

The initial presenters of allocation concepts agreed to review and revise their initial concepts based on the comments presented. The facilitation team recommended that the original authors work with other AAG members, including members from different interests and perspectives, to create the next revision.

Some AAG members offered to develop new allocation concepts for the next AAG meeting:

- Chris Mobley offered to outline a market-based allocation concept oriented toward maximizing the utility of each abalone consumed. Under this system, a certain number of abalone tags, based on TAC, would be put up for auction. The tags would sell to the highest bidders, which could include commercial harvesters, recreational harvesters, or even conservationists who wanted to buy the tag in order to reduce the total harvest of abalone.

- Jessie Altstatt offered to outline an allocation concept that would take into account other possible uses of TAC (e.g., collection for research).

G. Discussion of management considerations

AAG members discussed key management considerations that will need to be addressed over the course of developing allocation and fishery management alternatives for SMI. These included: fishery science and essential fishery information, basic fishery conservation, and overfishing and rebuilding.

Key comments and clarifications made by AAG members and DFG staff include:

- An analysis of essential fishery information should include a discussion of why SMI did not experience the same decline in abalone as other southern CA locations.
- Collaborative enforcement initiatives (e.g., where DFG works with volunteer or community groups) can be considered as an option.
- The role of marine protected areas at SMI needs better definition.
- It would be helpful to know the minimum size (e.g., in terms of pounds landed) of an economically viable commercial fishery at SMI.
- DFG staff clarified that the current charge from the Fish and Game Commission is to focus on alternatives for a potential SMI red abalone fishery. DFG staff acknowledged as well that the Commission, in determining whether to open a fishery, will also consider contributions of SMI red abalone to abalone recovery in other areas.

H. Scientific panel on TAC – Work group to develop panel “Terms of Reference”

1. Scientific panel to address determination of TAC

Due to scheduling challenges, DFG staff has not yet been able to convene an expert workshop to address TAC. Accordingly, DFG staff recommended pursuing an alternative two-step process to accomplish the task of scientific advising on developing a TAC:

- 1) A small core group of experts--including Ian Taniguchi (DFG staff), John Butler (AAG), Laura Rogers Bennett (DFG staff), and Paul Crone (NMFS)--will work together by teleconference to develop a first-cut calculation of TAC.
- 2) The draft TAC calculation will be sent out for review and comment by a broader group of experts (6 or so). AAG members were encouraged to recommend potential reviewers to DFG staff. The core group will then revise their initial TAC calculation accordingly.

AAG members expressed general support for this approach.

2. Workgroup to establish “Terms of Reference” to guide panel

The facilitation team recommended that the TAC discussion could benefit from a thoughtful effort to outline a “Terms of Reference” (TOR) for the intended scientific

review panel. This would engage the AAG in framing the work of the panel and make the review process more directly accountable to the AAG.

Key elements of the Terms of Reference could include:

- Representation of core panel and review group.
- Charge to the core panel and review group.
- Disciplinary areas of expertise required
- Any additional sideboards to guide panel and review group action.

The AAG agreed to establish a work group to guide the convening of a science panel on TAC. The following AAG members and DFG staff volunteered to participate in the work group: Jim Marshall, Jessie Altstatt, Ian Taniguchi. AAG members present also recommended that Daniel Geiger and John Butler also participate in the work group.

I. Public comment

Various members of the public were called upon during the meeting to speak or ask questions. No public comment was offered during the scheduled comment period.

III. Summary of Next Steps

Responsible Party	Action	Due Date
Meeting Outcomes		
Facilitation team	Prepare and distribute draft KOM to AAG by COB 3/5/07. We will request that AAG members provide any proposed edits to the facilitation team at eric@concurinc.net by COB 3/8/07. The facilitation team will then incorporate the revisions as appropriate and distribute the revised version as final.	Completed 3/6/07
AAG DFG	<ul style="list-style-type: none"> • Transmit proposed edits on the January 12 meeting minutes to DFG staff. • Incorporate the revisions to 1/12/07 minutes as appropriate and distribute the revised version to the AAG by email as final. 	Completed 3/7/07
Preparation, revision, and distribution of project documents		
DFG	Distribute key presentation materials from 2/24/07 meeting to AAG: <ul style="list-style-type: none"> • PowerPoint presentation (pdf) of SMI Survey Data Analysis • Historical catch data (pdf) from Appendix D of ARMP 	Completed 2/27/07 and 3/2/07
DFG	Revise core AAG documents based on AAG member comments <ul style="list-style-type: none"> • AAG roster (completed 2/27/07) • Project timeline (completed 2/27/07) • Summary of AAG charge 	In advance of next AAG meeting
Facilitation team	Prepare additional draft planning documents: <ul style="list-style-type: none"> • Draft workplan for future AAG meetings (agenda topics and sequence) • Preliminary outline for report 	By next AAG meeting

Stakeholder interviews		
Facilitation team	Facilitation team to schedule and conduct confidential interviews with AAG members, and to present a summary of findings at the AAG's next meeting	Next few weeks
Work group activities		
Allocation work groups	Develop and refine allocation concepts (in writing with rationales included) that propose TAC allocations. Work group leads include: Chris Voss (Option 1), Chip Bissell (Option 2), Chris Mobley (Option 3), and Jessie Altstatt (Option 4). AAG members interested in participating in one or more of these work groups to contact the work group leads.	In advance of next AAG meeting
Terms of Reference work group	<ul style="list-style-type: none"> • Contact AAG members Daniel Geiger and John Butler to request their participation in the work group. Initial work group members include Jim Marshall, Jessie Altstatt, and Ian Taniguchi. • Work with facilitation team to begin drafting a Terms of Reference for the expert panel on TAC 	By mid/late March

Upcoming AAG meetings

The next AAG meeting is scheduled for Friday, April 6, 2007. The following meeting is provisionally scheduled for Friday, May 18, 2007, although the facilitation team requested that the AAG be flexible until there is further clarity regarding the project work plan. All meetings are currently planned for Santa Barbara unless otherwise noted.

Key Outcomes Memorandum

Date: April 23, 2007

To: Members, California Abalone Fishery Advisory Group (AAG)

From: Scott McCreary and Eric Poncelet, CONCUR, Inc., and Rob Williams, RESOLVE

Re: Key Outcomes Memorandum – April 6, 2007 AAG Meeting

cc: California Department of Fish and Game Staff

Executive Summary

On April 6, 2007, the California Abalone Fishery Advisory Group (AAG) participated in a meeting in Santa Barbara, CA. The primary objectives for the meeting were to:

- 1) Advance progress on key elements of the AAG's charge: TAC and allocation concepts
- 2) Present and discuss results of the facilitation team's Stakeholder Assessment
- 3) Present and discuss additional results of the SMI 2006 survey data analysis
- 4) Provide updates on AAG membership
- 5) Outline and refine next steps in the AAG work program

Key outcomes from the meeting are as follows:

- Facilitation team members presented the results of their Stakeholder Assessment. AAG members considered possible implications for the ongoing work of the AAG.
- DFG staff and the facilitation team described recent progress in the TAC development process. A Terms of Reference document was crafted to guide the process. The Expert Panel also convened its first meeting via teleconference on April 4, 2007. The Expert Panel recommended recruiting a lead modeler to the Expert Panel. They also estimated that the process for developing a TAC could realistically take a year to accomplish. This timeline could be shortened depending on the availability of the modeler to work on the project.
- DFG staff presented recent analyses of algal and other data from the 2006 SMI survey. DFG staff outlined the anticipated design and dates for the 2007 SMI survey, noting that the 2007 survey would follow the same methodology as the 2006 survey.
- AAG members discussed additions and revisions to four proposed allocation options. AAG members were asked to refine and expand their options based on the discussions.
- AAG members discussed recent changes to membership, including the resignation of Chip Bissell. DFG and AAG members outlined a process to replace Chip and Chris Knight.
- AAG members discussed and revised a draft outline for the AAG Final Report.

Key next steps are outlined in Section III below.

I. Meeting Participants

AAG members participating in the meeting included: Jessie Altstatt, Bill Bernard, Gary Davis, Daniel Geiger, Chris Mobley, Jim Marshall, and Chris Voss.

Professional staff from the California Department of Fish and Game (DFG) included: John Ugoretz, Ian Taniguchi, Derek Stein, and Kai Lampson.

Alicia Bonnette served as note taker. The facilitation team referred to her notes as one source of information in preparing this KOM.

The facilitation team included Scott McCreary and Eric Poncelet from CONCUR, Inc.

Several members of the public attended the meeting, including members of the California Abalone Association (CAA).

II. Key Outcomes

A. AAG membership and roles

1. Changes to AAG membership

John Ugoretz announced that Chip Bissell (consumptive recreational diver representative) had submitted his resignation from the AAG earlier in the week. Chip Bissell requested that the allocation concept he outlined at the February 24, 2007 AAG meeting not be carried forward in his name. John Ugoretz invited AAG members to incorporate Chip Bissell's ideas into their own allocation concepts.

John Ugoretz described DFG's intention to replace both Chip Bissell and Chris Knight (non-consumptive recreational representative) on the AAG. AAG members strongly supported this step. John requested that AAG members provide him with recommended candidates in the consumptive recreational diver and non-consumptive recreational categories. DFG staff will then contact potential new candidates along with original nominees who were considered previously to determine their willingness to participate. Once willing candidates are identified, DFG staff will present their names to the Fish and Game Commission for approval. If approved, DFG staff will recommend these individuals to the Director of DFG for appointment. DFG staff indicated their desire to present candidate names to the Fish and Game Commission at the Commission's April 12-13, 2007 meeting.

Once appointments are made, the facilitation team, DFG staff, and AAG members will work to help bring the new appointees quickly up to speed.

2. Revised role of AAG Chair

AAG members discussed altering the role of the AAG Chair. AAG members agreed that with the addition of the facilitation team, the AAG chair would no longer be primarily responsible for chairing individual AAG meetings. His main role will be to represent the AAG in front of the Fish and Game Commission.

Consistent with the ground rules, other AAG members are also welcome to speak and present in front of the Fish and Game Commission, either as representatives of the AAG or as representatives of their individual stakeholder constituencies.

3. AAG administrative support role

DFG staff confirmed that Alicia Bonnette will continue in her role as administrative support to the AAG under her current contract with DFG. Alicia's ongoing role will include taking notes to support to preparation by the facilitation team of meeting Key Outcomes Memoranda. Alicia will also be available to assist AAG members with document preparation.

B. AAG Stakeholder Assessment

Scott McCreary and Eric Poncelet distributed copies of the facilitation team's "Stakeholder Assessment Memorandum." The Assessment was based on interviews conducted by the facilitation team with the nine active members of the AAG. Topics discussed included stakeholder interests; key issues and challenges; emerging areas of agreement and disagreement; views on the AAG process to date; process suggestions; and keys to success. The facilitation team approached the Assessment as a "mid-course review" and will use the Assessment findings to inform their ongoing preparations to facilitate the AAG process.

1. Overarching findings and implications for the AAG process

An overarching finding from the Stakeholder Assessment was that AAG members are taking the initiative seriously, are willing to work together toward achieving the AAG's charge, and want to use their time effectively. The Assessment also found AAG members to support DFG's decision to bring professional facilitators into the project and the facilitation team's recent efforts to add clarity and focus to the AAG's work process and products.

The facilitation team described several implications for the future of the AAG process, including:

- The shift to the Key Outcomes Memorandum was viewed as positive.
- There is strong support for a scientifically rigorous and transparent process to establish a total allowable catch (TAC), and a feeling that this process should be conducted in a rigorous, defensible fashion and should not be rushed.
- The AAG process would benefit from more clear and timely dissemination and

presentation of data to the AAG, and for more opportunities for AAG members to ask clarifying questions.

- Strategic sequencing and linkage of work products is critical. Determining a TAC is on the critical path. Also important is developing work products in an iterative fashion such that the TAC is informed by the anticipated 2007 summer survey, and that allocation and management options are informed by the TAC framework before they are finalized.
- AAG members appreciate DFG efforts to support the collaborative AAG process, yet they still have concerns about staff capacity, suggesting that more staff may need to be mobilized in areas such as data analysis and modeling to fully complete the charge of the AAG.

2. Other key findings

The facilitation team found that AAG members have several key interests in common. This included an interest in long-term sustainable recovery of abalone populations in their historic ranges in the state, and sustainable commercial and recreational fisheries. These and other findings on the AAG process to date—including key challenges facing the AAG, and process recommendations for overcoming these challenges—are described in greater detail in the Assessment Memorandum.

C. Report on Development of a Total Allowable Catch (TAC)

Ian Taniguchi reported on the progress of the TAC development process. Key accomplishments since the February AAG meeting include:

1. Preparation of a Terms of Reference (TOR) for TAC development

DFG staff worked with the facilitation team and an AAG work group (consisting of Jim Marshall, Daniel Geiger, Chris Mobley, and Jessie Altstatt) to prepare a Terms of Reference (TOR) document to guide the TAC development process.

a. Key steps in the TAC development process

The TOR outlined a TAC development process consisting of several broad and iterative phases:

- 1) An Expert Panel will take the lead in developing a TAC. The Expert Panel will first prepare a “framework” describing the method by which a TAC will be developed. The Expert Panel will then develop a model(s) for determining a TAC.
- 2) A Review Committee will provide external peer review of the Expert Panel’s framework and TAC determination efforts.
- 3) The Expert Panel will incorporate Review Committee advice in its development of a TAC.
- 4) The Expert Panel will present its revised TAC to the AAG for review and guidance.

- 5) Building on input from the Review Committee and the AAG, the Expert Panel will recommend a TAC to the Fish and Game Commission.

b. AAG comments on the Terms of Reference and TAC development process

AAG members discussed and commented on the TOR and the TAC development process. They made several recommendations to further refine and enhance the transparency of the process. These included:

- AAG review of Expert Panel efforts should be iterative and take place throughout the TAC development process.
- AAG members should be able to attend Expert Panel meetings as observers. Ian agreed to propose this to the Expert Panel.
- The Review Committee should review the AAG's final recommendation on a TAC.
- As a guiding principle, the Expert Panel and Review Committee should seek to balance: 1) the need to model for the long term (i.e., to account for multiple generations and foreseeable but unpredictable events like El Niño) with 2) the decrease in certainty that comes from modeling a decade or more into the future.
- The term "framework" needs to be better defined.
- The TOR needs to clearly describe the timeframe for which the TAC will apply (e.g., 1 year, 10 years).
- The TOR should clarify how the final TAC will be presented to the Fish and Game Commission.
- It would be helpful if the Expert Panel could conduct a "rough cut" TAC analysis in the short term. In this analysis, the Expert Panel would apply the most appropriate readily-available model to the data available and produce a "ballpark" TAC. This would assist the AAG as it continues its discussions of allocation, possible regulatory measures, and management approaches.
- In determining a TAC, the Expert Panel and Review Committee should consider optimum/minimum densities of the abalone beds.

DFG staff will revise the TOR to incorporate the AAG's comments.

2. Expert Panel convened to begin developing a TAC

Ian Taniguchi reported that the Expert Group met for the first time via teleconference on April 4, 2007. The purpose of the meeting was to review the TOR and begin outlining a framework for developing a TAC. Expert Group members included: John Butler (NMFS, AAG), Paul Crone (NMFS), Laura Rogers-Bennett (DFG), Daniel Geiger (AAG), and Ian Taniguchi (DFG).

Key outcomes from the April 4, 2007 Expert Panel teleconference include:

- As a key element of its "framework," Expert Panel members outlined a three-step process for developing a TAC. The steps include: 1) coalesce data, 2) select and build models, and 3) run model simulations to determine a TAC.

- A population modeler able to take the lead in developing the TAC model(s) needs to be added to the Expert Panel.
- The estimated timeline for developing a TAC is considerably longer than first estimated in the March 14, 2007 version of the TOR. The Expert Panel estimated about 2 months to complete the data coalescing phase and possibly another 10-12 months to build and run the model(s) to determine a TAC. Panel members noted that this timeline will be influenced by DFG's ability to bring a lead modeler on board in a timely fashion and whether the lead modeler is able to work full time or part time on the project.

Ian Taniguchi requested that AAG members propose other relevant data sets for inclusion in the TAC.

D. Presentation and discussion of 2006 San Miguel Island (SMI) Survey Results

1. Results of 2006 SMI survey

Ian Taniguchi presented the results of recent data analyses from the 2006 San Miguel Island (SMI) survey. Ian presented on the following topics: abalone aggregations, algal data, size frequency of kelp, correlations between abalone count and kelp, and updated stock estimates.

AAG members made several comments and requests regarding the presentation, including:

- AAG members requested that DFG staff identify key systematic biases involved in the determination of stock estimates. AAG members acknowledged that these biases might lead to decreased or increased stock estimates.
- AAG members asked if historic estimates of abalone populations exist for SMI. Ian responded that DFG has conducted density surveys on smaller scales in the southwest and southeast portions of the island.
- AAG members urged care in the use and application of key statistical concepts. One member asked that DFG staff clarify whether the confidence intervals reported on the stock estimates used "standard error" or "standard deviation."
- AAG members requested that, in future presentations of stock estimates, mortality be shown as a percentage of both total population and the different size classes.
- AAG members discussed the implications of the patchiness of abalone distribution and the implications for the 2006 survey results. AAG members considered some of the pros and cons of attempting to predict abundance for larger for smaller spatial areas. Some members suggested that the 2007 survey focus on densities as well as numbers.

2. Preparations for 2007 SMI survey

Ian Taniguchi described key elements for the anticipated 2007 SMI survey. He noted that the 2007 survey will be patterned after the 2006 survey but will not be as large an effort. It will employ the same method as the 2006 survey, assuming kelp cover as a surrogate for abalone, but it will include a new set of stations.

The 2007 survey will be conducted over the course of three cruises as follows:

- July 30 – August 2
- September 11-14
- September 25-28

Classroom refreshers and field training will be conducted in May/June.

AAG members recommended that DFG staff consult with the Expert Panel regarding the survey design to confirm the types of data that are important to the determination of a TAC.

E. Discussion of TAC allocation options

1. Summary of allocation options presented

AAG members made brief presentations of four allocation options that were developed or refined since the February 24, 2007 AAG meeting. These options were developed by individuals or work groups in consultation with broader stakeholder constituencies.

- Option 1:** Chris Voss presented an update to Option 1. While it still assumed a 90%-10% split between commercial and recreational fishers, it also proposed an equal distribution among historical commercial users. Chris clarified that the 10% allocated to recreational fishers was significantly higher than the historical take by recreational fishers on SMI.

AAG members offered several comments, including:

- Recreational fishers will likely resist the 90%-10% split given prevailing views among recreational fishers that commercial fishers bore significant responsibility for the decline of the fishery. Improved justification is needed for why one user group should have a higher allocation than over another user group in a new fishery.
 - Profits may be very small for a small abalone fishery at SMI. This may impede revenue neutral management of the fishery and the ability for commercial fishers to make a living. Additional funds may need to be sought through other sources, such as through grants and loans.
- Option 2:** Bill Bernard presented a new allocation Option 2. He noted that Section 6.3.1 of the ARMP guided the development of his option. His option proposed a 50%-50% allocation between recreational and commercial fishers. It also called for a new minimum legal size limit of 8 to 8 ¼ inches. Bill Bernard's option diverged from an earlier version of Option 2 outlined by Chip Bissell. It contained fewer preconditions prior to opening a fishery at SMI, and it included a different split among recreational and commercial fishers. Chip Bissell's original option proposed a 100% recreational fishery, were a fishery to be reopened.

AAG members offered several comments, including:

- A narrow slot limit of 8-8.25” may be difficult to enforce.
- It may be difficult to have a narrow slot limit with breathhold diving.
- The idea of no “dual permits,” while intended to address poaching, may be overly restrictive.
- Deeper water (i.e., below typical breathhold depths) may become a refuge for abalone during El Niño events.

- c. **Option 3:** Chris Mobley (on behalf of a work group that also included Daniel Geiger and Chris Voss) presented a market-based allocation approach that built on the concepts he outlined at the February AAG meeting. The option considered two main scenarios: 1) total free market and 2) two tag bidding markets (one for approved commercial, and one for non-commercial).

AAG members offered several comments, including:

- An abalone fishery driven by total free market has potential negative social implications for commercial fishermen. Commercial fishermen may be forced to bid against one another. It is also possible that they will be outbid by recreational fishers who treat the fishery as a “trophy” fishery.
- This option should take into account existing abalone farms.

- d. **Option 4:** Jessie Altstatt presented some initial allocation ideas based on consultations with members of her non-consumptive recreational constituency. These constituency members expressed an interest in the recovery of abalone throughout California. Jessie proposed an allocation option founded on a 3-5 year rebuilding period. During this period, abalone would be taken at SMI for relocation in other areas or for scientific study. Ex-Commercial fishers would be hired to assist in relocating the abalone.

AAG members offered a few comments, including:

- Commercial fishermen would be interested to participate in recovery efforts.

2. Next steps in developing allocation options

John Ugoretz and the facilitation team requested that AAG members:

- Continue refining their allocation options per the AAG’s discussion.
- Look for ways to incorporate the useful features of other allocation options into their own, where feasible and appropriate.
- Further specify potential regulations and key management approaches, such as enforcement and monitoring. AAG members were invited to address any questions they might have on regulatory approaches to DFG staff.

AAG members asked DFG staff to present guidance on enforcement approaches at the next AAG meeting.

F. DFG Policy Guidance

DFG staff presented two memoranda containing policy guidance for the AAG.

1. Policy guidance on individual transferable quotas

John Ugoretz presented a DFG memorandum detailing DFG's position on individual transferable quotas (ITQs). John stated that DFG can allow ITQs but with some caveats. In particular, DFG cannot support an ITQ system that confers a property right to a person.

2. Coordinating with the CEQA process

AAG members requested that DFG staff specify how the AAG process will be contribute to and coordinate with the CEQA process. DFG staff committed to prepare a memorandum describing the anticipated CEQA process in greater detail.

G. Draft Outline of AAG Final Product

AAG members discussed and commented on the preliminary draft outline for the AAG's Final Report. The facilitation team noted that key sections of the report will derive from present and future AAG deliberations on allocation, regulation, and management options. Interested AAG members will be given the opportunity to work on draft sections of the text. The facilitation team will serve as the secretariat for the document.

Key comments to the draft outline included the following:

- Solid material for much of the background topics in sections II and III already exists. For example, the Abalone Recovery and Management Plan might be a useful source.
- Incorporate the application of the TAC framework to compute a TAC.
- Include a new Section VI on Implementation Recommendations.
- Include a new appendix to contain DFG policy guidance memoranda.

H. Public comment

A few members of the public offered comment during the scheduled public comment period. Key comments included:

- Consider whether it would be feasible to focus the 2007 survey on high-density patches. Ian Taniguchi responded that, to be consistent with the 2006 survey, the survey would again be random.
- DFG should establish a set policy for dealing with Withering Foot Syndrome.
- A small TAC would be advantageous to all stakeholders.

III. Summary of Next Steps

Responsible Party	Action	Due Date
AAG membership		
DFG staff	• Transmit draft list of nominees to AAG	Completed April 6
AAG	• Recommend candidate names for the categories of 1) consumptive recreational diver, and 2) non-consumptive recreational	Completed April 10
DFG	• Contact recommended candidates to determining willingness to participate • Present candidate names to F&G Commission for approval	April 20 May 3-4
TAC development process		
AAG	Suggest additional data sets and transmit to DFG staff	Completed April 13
DFG and Facilitators	Revise Terms of Reference per AAG comments	April 16
DFG staff	Prepare and convene next Expert Panel teleconference	April 18
DFG staff	Initiate efforts to bring a modeler onto the Expert Panel	ASAP
Data analyses from 2006 survey		
DFG staff	Revise survey results per AAG comments; prepare remaining analyses; and prepare final report containing all data analyses	By June
Allocation options		
Work groups	Refine allocation options; consider incorporating ideas from other options; begin incorporating regulatory alternatives; further define management components (e.g., enforcement, monitoring)	By June AAG meeting
Policy guidance		
DFG staff	Prepare policy guidance memoranda on the following topics: 1) enforcement considerations; 2) coordination with CEQA process	By end of April
AAG Final Report		
Facilitation team and DFG staff	Revise draft outline of AAG Final Report per AAG comments; add detail to the outline; begin building text for background sections (e.g., Chapter II)	By June AAG meeting

Upcoming AAG meetings

June 15 and June 22 were identified as candidate dates for the next AAG meeting.

The facilitation team and DFG propose June 22, 2007 as the next date and will confirm the date with the AAG in the coming days.

Key Outcomes Memorandum

Date: July 9, 2007

To: Members, California Abalone Fishery Advisory Group (AAG)

From: Scott McCreary and Eric Poncelet, CONCUR, Inc., and Rob Williams, RESOLVE

Re: Key Outcomes Memorandum – June 22, 2007 AAG Meeting

cc: California Department of Fish and Game Staff

Executive Summary

On June 22, 2007, the San Miguel Island (SMI) Abalone Fishery Advisory Group (AAG) participated in a meeting in Santa Barbara, CA.

Key outcomes from the meeting are as follows:

- **Received briefing on the status of the process to develop a total allowable catch (TAC) for red abalone at SMI.** The facilitation team outlined the process by which a point-person modeler is being recruited to the technical panel. The facilitation team requested comments on the draft request for qualifications document by June 28, 2007.
- **Reviewed and discussed final results from 2006 SMI survey data analysis.** Department of Fish and Game (DFG) staff presented the final results of the 2006 SMI survey and summarized the implications for the AAG process.
- **Discussed preparations for 2007 SMI Summer Survey.** DFG staff described current preparations for the anticipated 2007 SMI summer survey and listed the dates of the cruises. DFG staff encouraged all participants to take the training classes being offered this summer.
- **Discussed revised allocation and management options.** Work group leads presented revisions to their respective allocation and management options. AAG members offered comments and suggestions for revising these options and agreed to further develop them by the September 6, 2007 AAG meeting. DFG staff reiterated the Department's interest in receiving multiple options from the AAG. The Department is interested in receiving both a "menu" of possible options for allocating, regulating, and managing a prospective abalone fishery at SMI as well as recommendations for linked allocation, regulatory, and management measures.
- **Received Update on AAG Membership.** DFG staff announced that Greg Sanders has been nominated to replace Chris Knight (non-consumptive recreational interests). The Commission is expected to act on the appointment at its July meeting. Greg Sanders attended the June 22, 2007 AAG meeting and introduced himself to the group.

Key next steps, including the objectives for the next AAG meeting, are outlined in Section III below. The next AAG meeting will take place on Thursday, September 6, 2007 in Santa Barbara.

Prepared by CONCUR, Inc. and RESOLVE (July 9, 2007)

This Key Outcomes Memorandum summarizes the results of the June 22, 2007 AAG meeting. It focuses on key issues discussed, decisions made, and next steps identified. It is not intended to be a transcript of all meeting activities.

I. Meeting Participants

AAG members participating in the meeting included: Jessie Altstatt, Bill Bernard, John Butler, Gary Davis, Daniel Geiger, Chris Mobley, Jim Marshall, and John Woodcock (alternate for Chris Voss). Greg Sanders, a proposed replacement for Chris Knight, participated as well.

Professional staff from the California Department of Fish and Game included: John Ugoretz, Pat Coulston, Ian Taniguchi, George Gross, Derek Stein, and Kai Lampson.

Alicia Bonnette served as note taker. The facilitation team referred to her notes as one source of information in preparing this KOM.

The facilitation team included Scott McCreary and Eric Poncelet from CONCUR, Inc.

Several members of the public attended the meeting, including members of the California Abalone Association (CAA).

II. Key Outcomes

A. Received Briefing on the Status of the TAC Development Process

The facilitation team presented recent revisions to the terms of reference (TOR) for the technical panel and review committee. The facilitation team also provided the following update on the status of the TAC development process:

- The facilitation team has worked out arrangements to hire a point-person modeler for the TAC development process. This individual will serve as a member of the technical panel.
- DFG will augment CONCUR contract to cover a \$25,000 stipend for the modeler.
- The funding will come from the Abalone Resources Restoration and Enhancement Account. The Commercial Abalone Advisory Committee has approved this expenditure of Abalone Resources Restoration and Enhancement Account funds.
- The facilitation team has developed a draft Request for Qualifications (RFQ) for the point-person modeler and is requesting comment from technical panel and AAG TOR work group members. Comments are due by COB June 28, 2007.
- The facilitation team aims to post and disseminate the RFQ by July 2, 2007. AAG and technical panel members have identified several potential candidate modelers as well as others who will help disseminate the RFQ.

B. Reviewed and Discussed Final Results from 2006 SMI Survey Data Analysis

DFG staff presented the final results from the 2006 SMI survey and highlighted key implications for the AAG. DFG staff presented new findings on the topics of small management areas and power analyses.

AAG members offered comments on the Draft Final Report. Key comments included:

- The statement on page 2 that “abalone densities (with standard errors) seem to be around minimum viable population (2,000 abalone per ha.)” does not appear to be

substantiated by the survey results. AAG members suggested revising this statement to emphasize instead the patchy nature of abalone density. DFG staff acknowledged their reluctance to identify a specific density based on one survey and agreed to consider revising the text.

- AAG members asked DFG staff to determine the derivation of the benchmark of the 2,000 abalone per hectare minimum viable population (MVP) listed in the ARMP, including both the original source and the logic and details of the calculation.
- It would be helpful to determine the rate at which abalone would likely die of withering foot syndrome.
- The current power analysis indicates that insufficient data exists to adequately manage red abalone stocks at SMI. DFG staff noted that the power analysis would continue to improve with each subsequent survey.
- Define the term “highly infected”.
- Incorporate a more fine-grained approach to determining abalone habitat into the 2007 summer survey.
- It may be helpful to compare the abalone distribution patterns from the survey with random (predictable) spatial patterns.
- It is important to consider the stability of abalone densities at SMI in this and future studies. Some AAG members’ anecdotal reports suggest relatively stable densities over the past 30 years.
- DFG staff clarified that the survey was focused on “emergent abalone” and, as such, did not focus on cryptic abalone commonly found in fissures. This is consistent with the approach to MVP established in the Abalone Recovery and Management Plan (ARMP), which is also focused on emergent abalone.

DFG staff requested that AAG members submit any final comments of the draft report to Ian Taniguchi by COB July 6, 2007. The Department will consider these comments and incorporate them if appropriate in the Final 2006 report. Any changes will be reported to the AAG at their next meeting. In addition, the 2007 results will be combined with the 2006 data and a more complete review of the status of abalone will be prepared.

C. Discussed Preparations for 2007 SMI Summer Survey

DFG staff announced that three cruises have been scheduled for the 2007 SMI summer survey. They will take place on the following dates:

July 31 – August 3, 2007
September 11-14, 2007
September 25-28, 2007

Participants in the 2007 survey are also requested to participate in the survey protocol training. Two opportunities for training have been established: July 11-12, 2007 or August 16-17, 2007. Please contact Ian Taniguchi at ITaniguchi@dfg.ca.gov for more information.

The 2007 survey will be structured similar to the 2006 survey. It will include approximately the same amount of sampling for the three zones at randomly selected stations. The goal is to survey approximately 400 transects. The 2007 survey will also include “nearest neighbor” research to help provide additional data on abalone aggregation.

DFG staff intends to finalize the survey protocols by July 11, 2007.

D. Discussed Revised Allocation and Management Options

AAG members presented and offered comments on the revised allocation and management options. Each allocation option work group highlighted recent changes to the options as well as elements of the options that had been informed by other work groups.

DFG staff reiterated the Department's interest in receiving multiple options from the AAG. In particular, the Department is interested in receiving 1) a "menu" of possible options for allocating, regulating, and managing a prospective abalone fishery at SMI; and 2) recommendations for linked allocation, regulatory, and management measures.

1. Key comments on allocation and management options

a. Option 1 (Jim Marshall, lead)

- Include additional information on the marginal returns necessary to make an abalone fishery economically viable.
- Include a description of how discrete harvest zones would be managed.
- Address how abalone aggregations would be protected within a competitive fishery.
- Consider and incorporate ways to incentivize stewardship.

b. Option 2 (Bill Bernard, lead)

- Include additional detail on how the recreational and commercial fisheries would interrelate. Is the intent to spatially separate recreational and commercial in distinct zones? If so, how would these be determined?
- Address a potential problem associated with slot limits—i.e., the risk of mortalities on both sides of the slot size (i.e., throw-backs).
- Confirm the intent and derivation of the MVP identified in this option (1,000). The ARMP identifies an MVP of 2,000 abalone/ha.

c. Option 3 (Chris Mobley, lead)

Chris Mobley described some lessons learned from other fisheries that had adopted a "market-based" approach (e.g., Washington geoduck). In particular, it has been helpful to partition recreational and commercial markets so that recreational and commercial fishers do not bid against one another. Market-based approaches have also required significant amounts of enforcement to be effective. AAG comments on option 3 included:

- A limited free market makes more sense than a full free market.
- The participants in any auction need to be better defined.
- The concepts in option 3 could be incorporated into the other options.

d. Option 4 (Jessie Altstatt, lead)

- DFG staff confirmed that this option is consistent with the recovery tasks in the ARMP, as it involves relocating abalone to other islands.

- This option should be further informed by the successes and failures of past relocation efforts. A literature search would be helpful here.
- This option is not mutually exclusive from the other options and could be a component of other options.
- This option allows for testing potential harvest strategies with less risk. There may be benefits to conducting experimental research along these lines. This could take place prior to determination of a TAC.
- Include additional information on possible management structures (e.g., who can participate, scale of relocation, role of management zones, how to select sites for relocation, monetary compensation, timing of harvest/relocation).

2. Next steps in refining allocation and management options

AAG members agreed to continue refining options 1, 2, and 4. Chris Mobley suggested, and other AAG members agreed that option 3, the market-based approach, is probably not a stand-alone option but rather a source of ideas to be incorporated into the other options.

AAG members identified the following next steps to refine the existing options:

- Work groups should strive to follow more closely the standard formatting established by the facilitation team and to present information in standard ways to allow for easier comparison across options.
- Work groups should identify common ground across all of the options.
- DFG should provide guidance on enforcement feasibility for different management approaches. DFG should present this guidance at the next AAG meeting.
- DFG staff should help clarify the origins of the 2,000 abalone/ha MVP established in the ARMP.

3. Nature of the discourse; reminder to treat proponents of options with respect

During the discussion on allocation options (and during the presentation of the 2007 survey results), some of the comments from members of the public crossed the line of respectful discourse. The facilitation team reminded all of the participants in attendance of the AAG's adopted ground rule requiring the avoidance of personal attacks.

The facilitation team and DFG staff will work with the AAG and members of the public to ensure that AAG meetings remain a safe and productive space for dialogue and the exchange of ideas. This will include continued enforcement of the AAG's adopted ground rules.

E. Received Update on AAG Membership

The facilitation team and DFG staff reported on progress to appoint new members to the AAG:

- Greg Sanders has been nominated to replace Chris Knight (non-consumptive recreational interests). DFG staff recommended his appointment to the Fish and Game Commission at the Commission's June meeting. The Commission is expected

to act on the appointment at its July meeting. Greg Sanders attended the June 22, 2007 AAG meeting and introduced himself to the group.

- DFG staff has contacted potential replacements for Chip Bissell (consumptive recreational interests), but no replacement has been found. DFG staff will seek to appoint a replacement by the next AAG meeting.

F. Received DFG Policy Guidance

In response to a query from AAG members, DFG staff clarified that the AAG process is not making an assumption as to whether red abalone at San Miguel Island can be sustainably managed independent of red abalone in surrounding habitats. Rather, the determination of whether the population can sustain harvest without impeding recovery at other locations would occur as part of a formal fishery consideration process by the Fish and Game Commission.

G. Received Public Comment

Members of the public offered comments at various points throughout the meeting, including during the designated public comment period. Key comments included:

- With respect to the survey methods described by DFG staff, a member of the public noted that cryptic abalone clusters are typically located in fissures and are harder to find. Flashlights are needed.
- Another member of the public commented that the proposed allocation options should learn from successful management practices in the existing north coast recreational abalone fishery (e.g., breathhold requirement).
- With respect to prospective market-based methods, a member of the public suggested that there should be a minimum experience requirement for individuals to participate in the auctioning of a quota.
- Another member of the public noted that the charge to the AAG does not include abalone restoration at SMI.

III. Summary of Next Steps

Responsible Party	Action	Due Date
AAG membership		
DFG staff	Request Fish and Game Commission approval for appointment of Greg Sanders	July 12
DFG staff	Solicit nominations for AAG recreational consumptive slot, and make recommendation to Fish and Game Commission	July 12 or Aug 13 mtg
TAC development process		
AAG TOR work group	Provide comments on draft RFQ for point-person modeler	By June 28
DFG and Facilitators	Revise RFQ for point-person modeler per AAG and technical panel comments; post and disseminate RFQ to list of candidates	By July 2
DFG and Facilitators	Receive statements of qualifications	By July 22
DFG, Facilitators, AAG TOR work group	Convene conference call to select finalists and schedule interviews	July 24 or 25

DFG and Facilitators	Interview finalists	Week of Aug 6
DFG and Facilitators	Select vendor of modeling services	Week of Aug 13
Final Report from 2006 SMI survey		
AAG	Transmit comments on the draft final 2006 SMI survey report to Ian Taniguchi	By July 6
DFG staff	Revise the 2006 SMI survey report.	By July 31
Preparations for 2007 SMI summer survey		
DFG staff	Establish survey protocols for the 2007 SMI survey	By July 11
DFG staff	Conduct training sessions for survey participants	July 11-12; Aug 16-17
Allocation and management options		
Allocation option work groups	Refine allocation and management options per discussions at 6/22 AAG meeting; work to standardize formatting and content	By August 24
Policy guidance		
DFG staff	Prepare policy guidance memoranda on the following topics: 1) enforcement considerations; 2) coordination with CEQA process	By end of July

Schedule and Objectives of Next AAG meeting

The next AAG meeting is scheduled for Thursday, September 6, 2007 in Santa Barbara. Please update your planners accordingly.

Key objectives for the next meeting include:

- Continue refinement of allocation and management options
 - Develop text to respond to each element of the guidance
 - Discuss common elements
 - Present DFG enforcement guidance
 - Review what allocation strategies and management mechanisms have worked for other fisheries
- Report on the status of the TAC development process
- Provide update on the status of the 2007 summer survey (first cruise)
- Provide update on AAG membership

Draft Key Outcomes Memorandum

Date: Friday, October 5, 2007

To: Members, California Abalone Fishery Advisory Group (AAG)

From: Scott McCreary and Eric Poncelet, CONCUR, Inc., and Rob Williams, RESOLVE

Re: Key Outcomes Memorandum – September 6, 2007 AAG Meeting

cc: California Department of Fish and Game Staff

Executive Summary

On September 6, 2007, the San Miguel Island (SMI) Abalone Fishery Advisory Group (AAG) participated in a meeting in Santa Barbara, CA.

Key outcomes from the meeting were as follows:

- **Received Update on AAG Membership.** Department of Fish and Game (DFG) staff announced that Terry Maas has been nominated to fill the open seat for the consumptive recreational interests. The Commission is expected to act on the appointment at its October meeting.
- **Confirmed status of lead modeler/analyst and TAC development.** The facilitation team confirmed that Dr. Yan Jiao was unanimously selected by the selection committee through a robust competitive process. She has accepted the position and will team with her advanced graduate assistant Robert Leaf to complete the assignment. The contract will be formally executed when DFG augments the CONCUR contract. A face-to-face meeting with Dr. Jiao, the Technical Panel and interested AAG members is tentatively scheduled for Friday, October 12 at the Southwest Fisheries Science Center in La Jolla, CA.
- **Update on establishment of TAC Review Committee.** The facilitation team outlined a memo describing criteria, responsibilities and steps to establish a Review Committee that functions in an advisory capacity to the AAG. Initial nominations were made but the AAG agreed to discuss steps and timelines in further detail at the October meeting.
- **Reviewed and discussed update on San Miguel Island (SMI) survey results.** DFG staff presented the final results of the 2006 SMI survey, presented initial data from the July 31 – August 3 survey cruise, provided dates and encouraged participation in upcoming cruises, and outlined a timeframe for reporting and analyzing data.
- **Clarified derivation of 2000 abalone/ha Minimum Viable Population (MVP) level.** DFG staff presented a policy memo describing how the 2,000 abalone/ha MVP was based on the best available science at that time. AAG members engaged in a discussion to provide further clarity.

- **Discussed revised work group alternatives and Matrix.** The facilitation team provided an overview of the Work Group Alternative Matrix created to meet the Department's interest in receiving a "menu" of multiple, comparable options from the AAG as clarified at the June 22 meeting. The AAG discussed modifications to the Matrix and work group leads presented revisions to their respective alternatives. The discussion was conducted with the collaborative participation of the DFG enforcement staff who presented a memo outlining initial responses to AAG questions about enforcement issues. Work group leads agreed to continue to revise their alternatives in the Matrix document format for the next AAG meeting.

Key next steps, including the objectives for the next AAG meeting, as outlined in Section III below. The next AAG meeting will take place in the afternoon of Thursday, October 11, 2007 at the Southwest Fisheries Science Center in La Jolla, California with a Technical Panel meeting to follow on the morning of Friday, October 12 in the same location.

Meeting Participants

AAG members participating in the meeting included: Jessie Altstatt, Gary Davis, Daniel Geiger, Jim Marshall, Chris Mobley, Greg Sanders, and Chris Voss. AAG members not in attendance: Bill Bernard, John Butler, and Paul Dayton.

Professional staff from the California Department of Fish and Game included: Ian Taniguchi, Derek Stein, Tom Barnes, Tony Warrington, and Brian Naslund.

Alicia Bonnette served as note taker. The facilitation team referred to her notes as one source of information in preparing this KOM.

The facilitation team included Scott McCreary from CONCUR, Inc. and Rob Williams from RESOLVE.

One member of the public from the California Abalone Association (CAA) attended.

I. Key Outcomes

A. AAG Membership

The facilitation team and DFG staff reported on progress to appoint new members to the AAG:

- Greg Sanders was confirmed as the replacement for Chris Knight (non-consumptive recreational interests) by the Fish and Game Commission at their July meeting and was in attendance.
- Terry Maas was recommended to replace Henry “Chip” Bissell (consumptive recreational interests) and nominated by the Department. His confirmation is expected at the October Fish and Game Commission meeting and Terry has been in contact with Bill Bernard to work on the development of the work group alternative #2.

B. Lead Modeler/Analyst Hiring and TAC Development Process

The recruitment of a lead modeler/analyst to assist with the development of a methodology for determining the total allowable catch (TAC) for SMI red abalone was put on the critical path at the 6/22 AAG meeting. The facilitation team provided an overview of the *Draft Memo – Modeler Selection Process v3* document that was included in the meeting packet. The highlights from the selection process were that the all individuals suggested as potential candidates or resources to identify candidates were contacted and the finalized Request for Qualifications was posted at a variety of job posting websites. Four qualified modeling candidates were identified. On their July 24 call the selection team choose two top candidates for interview, using the selection criteria they had previously established. Both candidates were interviewed via telephone on August 16 and the selection team unanimously agreed to offer the position to Dr. Yan Jiao, Assistant Professor on Fisheries Population Dynamics at Virginia Tech and her graduate assistant Robert Leaf due to their qualifications, experience, and relevant work on abalone.

The position was offered and Dr. Jiao accepted. The facilitation team worked with the selected candidates to meet the requirements of the Virginia Tech Office of Sponsored Programs and to cap overhead expenditures at 25%. Use of the Abalone Resources Restoration and Enhancement Account funds was approved by the Commercial Abalone Advisory Committee to cover the \$25,000 stipend and \$5,000 for associated administrative and facilitation efforts. CONCUR will formally execute the contract once the Department augments the CONCUR contract. Current indications are that these steps will occur in the next few weeks.

The facilitation team is also working to confirm the date of the next AAG meeting and a face-to-face meeting of the Technical Panel (TP) with the lead modeler/analyst and interested AAG members. The likely dates are Thursday, October 11 and Friday, October 12.

The AAG also discussed communication protocols and agreed that it would be most transparent and efficient if questions and comments from AAG members to the TP and lead

modeler/analyst were made and compiled through the facilitation team. In this way the facilitation team can disseminate key questions to the entire group via email. The facilitation team will strive to schedule joint meetings with the AAG and TP to improve the communications link.

C. TAC Review Committee

The facilitation team noted that the establishment of a Review Committee (RC) was the next step following the hiring of a Lead Modeler/Analyst. The AAG clarified that the Review Committee was to be an independent peer-review body that functioned in an advisory capacity to the AAG and reviewed the work of the AAG Technical Panel. The Terms of Reference (TOR) document outlines the roles and responsibilities of the RC.

The AAG reviewed the *Draft Memo – Review Committee Formation – v1* document that was included in the 9/6 meeting packet. The document outlined the following steps and set a target deadline for the establishment of a RC by December 31, 2007:

1. Department staff and the AAG work group will meet to establish the general composition of the review committee.
2. Department staff and the AAG work group will identify potential candidates for the review committee.
3. Department staff and the AAG work group will discuss potential candidates and agree on the selection of a review committee.

AAG members initially suggested the following candidates for the RC: Ray Hilborn, Jeremy Prince, Anna Parma, and Loo Botsford. As detailed above, the Department will take the next step of working with the AAG small group members (from the Lead Modeler/Analyst selection committee) to identify potential RC members and establish an RC with approximately 3-4 members.

D. San Miguel Island (SMI) Survey

The draft 2006 SMI Survey Report was presented at the 6/22 AAG meeting and suggestions for revisions were made at that time.

1. 2006 SMI Survey Report: The Department presented the final document and noted the following changes that had been incorporated:
 - Revised finding on abalone density (Page 2) to relate to MVP
 - Changed formatting on reporting statistical analysis information (Page 3 & 14)
 - Revised tables on abalone clustering (starting on Page 16)
 - Added a conclusion.

AAG discussion related to this report addressed (a) sand and cobble substrate and (b) counting of cryptic abalone.

- A. *Sand and Cobble*: It was expressed that sand and cobble was not suitable abalone habitat and could bias the abalone density numbers. DFG clarified

that the 2006 Report was intended as a cursory baseline analysis and the data (including the decision to exclude sand and cobble) could be further defined by the Technical Panel.

- B. *Cryptic Abalone*: DFG staff clarified that the survey was focused on “emergent abalone” and, as such, did not focus on cryptic abalone (not seen with the naked eye in ambient light conditions) and abalone that were “seen” during the survey should have been counted on the data sheets. This is consistent with the approach to MVP established in the Abalone Recovery and Management Plan (ARMP), which is also focused on emergent abalone. DFG indicated that this should be made clear for the remaining surveys and clarified that the 2,000 abalone/ha MVP number does not include cryptic abalone.
2. Update on 2007 SMI Survey Data: The Department presented a one-page summary of survey results from the July 31 – August 3, 2007 cruise. The 2007 survey was structured similar to the 2006 survey and included approximately the same amount of sampling for the three zones at randomly selected stations. The cruise completed 64 transects at 34 stations. The overall goal is to survey approximately 400 transects and include “nearest neighbor” research to help provide additional data on abalone aggregations. AAG members noted that future data reports should include the year of the survey to avoid potential confusion.
 3. Remaining 2007 SMI Survey Cruise Dates: The remaining two cruise dates for the 2007 survey are September 11-14 and September 25-28, 2007 for individuals who were trained during the July 11-12 and/or August 16-17 trainings. Please contact Ian Taniguchi at ITaniguchi@dfg.ca.gov for more information.
 4. Schedule for 2007 Survey Data Analysis: The Department reported that the 2007 data will be processed in the same manner as the 2006 survey with data input by late fall and analysis by winter. The goal is to ultimately publish a report or white paper (abstract distributed) with the 2006 and 2007 data combined.

E. Minimum Viable Population (MVP) – DFG Policy Memo

In response to questions raised at the 6/22 AAG meeting the Department presented a policy memo that clarified the derivation of the 2,000 abalone / ha MVP number referenced in the ARMP. The number was determined based on the best available science at the time the ARMP was written, the information underwent Department analysis, was vetted by peer review, and subsequently approved by the Commission. AAG discussion clarified that the number was considered a minimum to prevent population collapse and though there were a variety of site specific risk factors considered differently in the various papers referenced (e.g. poaching, El Nino climate affects, sea otters, etc.) the number was considered a minimum population threshold. Despite some differences the SMI survey sampling methodology was generally similar to papers referenced in the policy memo using a randomized transect method. The purpose of using this similar methodology was to enable comparison between studies and the methodology was similar in Northern and Southern California for this reason. It was also noted that the ARMP was intended to be a framework plan and a living document used in an adaptive management context.

F. Work Group Alternatives and Comparative Matrix

The facilitation team provided an overview of the *Workgroup Alternative Matrix - v4* document that was included in the 9/6 AAG meeting packet. The facilitation team noted that the Matrix was designed in response to the suggestion at the 6/22 AAG meeting that a tool be developed to better facilitate comparison of the options and standardization of information being presented. The Matrix was developed as a working document to capture developing AAG recommendations and create a menu of allocation options with supporting enforcement and management guidelines. To that end, the facilitation team developed the Matrix categories from the initial March 15, 2007 guidance memo.

The most substantive change to the categories was the streamlining and separation of the following categories: 5. Allocation; 6. Regulations; 7. Management; 8. Enforcement; and 9. Monitoring. Each of the work group alternatives presented at the 6/22 AAG meeting were incorporated by the facilitation team into the Matrix. The Matrix was then shared with the work group leads for further development and to ensure the incorporation was correct. During the course of further development, in advance of the 9/6 AAG meeting, the facilitation team heard additional suggestions regarding the Matrix, incorporated some changes, and included additional suggestions made by AAG members at the end of the document. The intent is to create one working document for the development of alternatives and utilize this format as long as it continues to be effective for the group. The development of a Matrix also conforms with the Department's goal of developing a range of possible alternatives to be developed through CEQA.

1. Global Revisions Recommended in the Matrix: The following global changes to the Workgroup Alternative Matrix document were suggested by AAG members. It should be noted that while these changes will be incorporated into the next version of the Matrix by the facilitation team, additional changes may be suggested as members continue to work with and develop this living document:
 - *Renumber Alternatives*: It was noted that market-based approach for the allocation of a TAC, previously Alternative #3 with Chris Mobley as the lead author, could be applicable to any of the other three alternatives. As such further development of this alternative would be postponed and/or incorporated into the development of the remaining three alternatives which were renumbered as follows:
 - A. Alternative 1 (Voss – work group lead)
 - B. Alternative 2 (Bernard – work group lead)
 - C. Alternative 3 (Altstatt – work group lead)
 - *Include New Category*: AAG members suggested the inclusion of an economic category that will be included as “Economic Considerations (costs and benefits)”
 - *Create a Separate Allocation Document*: The idea of developing a separate document to capture the allocation component of the Matrix, one of the four charges of the AAG, was discussed but no decision was reached.

2. Enforcement Considerations: At the request of the AAG members during the 6/22 meeting, DFG enforcement staff developed a *Policy Memo - Enforcement - 08-29-07* document that was included in the 9/6 AAG meeting packet. The AAG and the Department engaged in a robust informative discussion of each of the eight issues identified. AAG work group leads were encouraged to make refinements based on the

discussion and the notes captured below in the key comments pertaining to each alternative. DFG enforcement staff requested to be added to the AAG mailing list so they could remain apprised of issues under consideration and continue to serve as a resource. Enforcement staff encouraged AAG members to contact them with further questions and to work with them as they continue to refine their allocation alternatives.

3. Key Comments for Further Work Group Alternative Development: AAG members discussed each of the renamed Work Group Alternatives and key comments and questions are captured below. Since Bill Bernard and Terry Maas were unable to attend the meeting the facilitation team provided input on their behalf, provided an overview of Alternative #2, and presented a memo drafted by Bill Bernard commenting on a number of the meeting agenda items.

A. Alternative 1 (Voss – work group lead)

- Identify applicable elements from the California sea urchin fishery
- Identify applicable elements from New Zealand (including lessons learned)
- Include language that requires quota to be harvested by permit holder (no leased permits and no absentee owners)
- Clarify targeting of solo animals or aggregations
- Determine if there is a cap to transferability?
- Further develop how to evaluate success or failure (Management)
- Further develop how to respond to changing environmental and socio-economic conditions
- Further develop how to review the fishery management system's effectiveness in achieving sustainability and involving people in a fair and reasonable manner
- Further develop ways to incentivize stewardship - how to provide input from fishery participants to propose methods to prevent or reduce excess efforts
- Further describe patch/garden fisheries
- Define a season taking into consideration biological and other factors
- Design a draft pilot collaborative translocation project (Marshall and Altstatt)

B. Alternative 2 (Bernard – work group lead)

- Provide further clarification regarding a “free dive” fishery
- Clarify how quotas are split between and trophy and sport sectors and describe how the total TAC is divided among both
- Clarify adjusting quota concept in light of power analysis data (expected imprecision in estimates)
- Consider including a TURF concept with the proposed site specific management regime with an adjusting quota
- Clarify basis of the 10% incremental adjustments
- Under “key working assumptions” - select either hectare or acre
- Under “key working assumptions” - clarify the rationale for reducing the number from 2,000 to 1,000 in light of MVP policy memo discussion
- Under “allocation” – clarify the (a) mechanism for calculating unused quota, (b) transfer of unused quota, and (c) if unharvested quota would become part of the preservation resource

- Under “management” - define a season taking into consideration biological and other factors
 - Revisit mid season bag limit changes
- C. Alternative 3 (Altstatt – work group lead) – Note: this alternative was characterized as a prudent and precautionary approach, which is more preservation than conservation and provides the ability (a) to test and refine the TAC, (b) rebuild populations, and (c) provide some economic opportunity with limited risk to the abalone population while encouraging recovery over a three-year period of time and also allowing for additional data collection.
- Clarify target areas for the transplanted abalone and triggers to distinguish phase I and phase II
 - Clarify site selection and animal placement (consider poaching concerns)
 - Expand “adopt an abalone” funding source
 - Clarify ability of recreational divers to participate in translocation
 - Clarify translocation vs. aqua culture facility idea
 - Address enforcement concerns with translocation efforts
4. Next Steps in Work Group Alternative Development: AAG members agreed to continue to develop work group alternatives. The facilitation team will revise the matrix based on some of the global issues discussed and transmit to work group leads for further development and discussion at the October AAG meeting.

II. Summary of Next Steps

Task/Responsible Party	Action	Due Date
AAG membership		
DFG staff	Request Fish and Game Commission approval for appointment of Terry Moss	At Oct. mtg.
TAC development process		
DFG and Facilitation Team	Schedule October AAG and TP meeting in San Diego/La Jolla	Complete
DFG	Transfer funds to augment CONCUR contract	ASAP
Concur and Lead Modeler	Execute contract for Lead Modeler/Analyst position	ASAP following fund transfer
Technical Panel	Conduct face-to-face meeting with Lead Modeler/Analyst	By mid Oct
DFG	Coordinate with AAG small group members (Altstatt, Geiger, Marshall, Voss) to identify Review Committee members	By mid Oct.
DFG and Facilitation Team	Extend RC invitations and confirm 3-4 member RC	By Nov. 12
2007 SMI survey		
DFG staff	Input 2007 SMI Survey data	By mid Oct.
DFG staff	Analyze and develop initial draft report on 2007 SMI Survey data	By Dec. 17
DFG staff	Publish comparative white paper integrating 2006 and 2007 data	By Feb 2008
Allocation and management options		
Allocation option work groups	Refine allocation and management options per discussions at 9/6 AAG meeting	By Oct 1
Policy guidance		
DFG staff	Prepare policy guidance memoranda regarding coordination with CEQA process	By Oct 1

Schedule and Objectives of Next AAG meeting

The next AAG meeting was tentatively scheduled in conjunction with a face-to-face Technical Panel meeting at the Southwest Fisheries Science Center in La Jolla, California as follows:

- Thursday, October 11; 2:00pm – 6:00pm, AAG members + Lead Modeler (TP members as available)
- Friday, October 12; 8:00am – 12:00pm, Technical Panel + Lead Modeler (AAG members as available)

The lead modeler/analyst can no longer attend the meeting during this timeframe so the facilitation team is working to reschedule the meeting and the most likely dates are Thursday, November 29 and Friday, November 30. Key objectives for the rescheduled meeting(s) will be further developed and currently include:

AAG Meeting (with TP members)

- Continue refinement/ discussion of work group alternatives
- Update on 2007 survey work
- Potential Marine Subcommittee engagement (if any)
- Discussion of guidance to Technical Panel

Technical Panel (with AAG members)

- Review and clarification of Terms of Reference document (TP charge)
- Discussion of Review Committee formation
- Discuss sampling protocols relating to TAC development
- Launch modeling concepts
- Develop timeline for TP report to AAG in initial modeling findings

Draft Key Outcomes Memorandum

Date: Monday, February 4, 2008

To: Members, California Abalone Fishery Advisory Group (AAG) and AAG Technical Panel (TP)

From: Scott McCreary, CONCUR, Inc., and Rob Williams, RESOLVE

Re: Key Outcomes Memorandum – November 29, 2007 AAG Meeting

cc: California Department of Fish and Game Staff (CDFG)

Executive Summary

On November 29, 2007, the San Miguel Island (SMI) Abalone Fishery Advisory Group (AAG) and the AAG Technical Panel (TP) participated in a meeting at the Southwest Science Fisheries Center in La Jolla, California.

Key outcomes from the meeting were as follows:

- **Received update on AAG Membership** – Terry Maas, consumptive recreational interests, and Russell E. Galipeau, Jr., Superintendent for the Channel Islands Recreational Park (replacing Gary Davis who retired) were in attendance and formally welcomed as members of the AAG.
- **Discussed revised work group alternatives and Matrix.** The AAG and technical panel discussed the continuing development of three alternatives described in the *Work Group Alternative Matrix*. Highlights included clarification of the recreation alternative due to the collaboration between Terry Maas and Bill Bernard, and a description of the cooperative concept in the commercial alternative. This meeting was the first opportunity for the AAG and TP to be in the same room since the initial meetings; the collaboration between groups helped inform further alternative development scheduled for discussion at the next AAG meeting (likely late March 2008) in conjunction with the presentation of initial TAC modeling results.
- **Relevant information presented** – Kristen Gruenthal, a recent PhD graduate from the Scripps Institution of Oceanography, presented new information related to genetic diversity in red abalone with management implications for SMI. Tom Barnes, CDFG, provided an overview of the Pacific Fishery Management Council's stock assessment process utilized for management of the Pacific sardine to help inform the process being developed by the AAG. Chris Voss, California Abalone Association (CAA) presented a short video that described the nature and collaborative atmosphere of the first Snap Shot Survey Event at SMI in 2006.
- **Discussed San Miguel Island (SMI) surveys** – Ian Taniguchi informed the group that 2007 SMI survey data should be entered by late December. The group discussed the value of these surveys to the work of the AAG and the management strategies in the Abalone Recovery Management Plan (ARMP) and agreed to develop a memo for presentation to the Fish and Game Commission stressing their importance and requesting continued support.

- **Kick-Off of TAC development process** – Dr. Yan Jiao, Assistant Professor of Fisheries Population Dynamics at Virginia Polytechnic Institute and State University, attended as the lead modeler/analyst. Dr. Jiao gave a presentation describing four families of models that could be utilized for an operational model to help develop a total allowable catch (TAC) of red abalone. This meeting served as the kick-off for the TAC development process and the discussion helped inform a TAC development work plan.
- **Update on TAC data sets** – The group discussed a *Data Set Descriptive Matrix* that described data sets (including name, timeframe, geographic area, included fields, and status) for potential use in the development of a TAC. Ian Taniguchi (CDFG) has provided the first nine described data sets and related information on the matrix and the group discussed suggested additions and modifications that will be captured in version 4 of the document. A conference call will be scheduled for late January 2008 to discuss progress mobilizing and utilizing data sets.
- **Update on establishment of TAC Review Committee.** The facilitation team outlined a memo describing criteria, responsibilities and steps to establish a Review Committee that functions in an advisory capacity to the AAG. Initial nominations were made but the AAG agreed to discuss next steps and timelines in further detail following a data mobilization and update call in late January or early February.

Key next steps, including the objectives for the next AAG meeting, are outlined in Section III below. A TP conference call (AAG welcome) will be scheduled for late January to discuss data mobilization and utilization. The next AAG/TP meeting will be scheduled for Spring 2008, likely late March, to discuss an initial presentation of modeling results.

Meeting Participants

AAG members participating in the meeting included: Bill Bernard, John Butler, Russell Galipeau, Terry Maas, Jim Marshall, and Chris Voss. AAG members not in attendance: Jessie Altstatt, Paul Dayton, Daniel Geiger, Chris Mobley, and Greg Sanders.

Technical Panel members present included: John Butler (also AAG), Paul Crone, Yan Jiao, and Laura Rogers-Bennett.

Fish & Game personnel in attendance included: Tom Barnes and Ian Taniguchi

Scripps participants: Ron Burton, Kristen Gruenthal, and Cynthia Button
Public participants: Peter Halmay, Volker Hoehne, and Paul Weakland.

Alicia Bonnette served as note taker. The facilitation team referred to her notes as one source of information in preparing this KOM.

The facilitation team included Scott McCreary from CONCUR, Inc. and Rob Williams from RESOLVE.

- Additional enforcement considerations with CDFG, Channel Islands enforcement rangers, and the Coast Guard potentially in conjunction with the attention being paid to the restricted access policy
 - Conservation component of alternative
 - Ways to improve knowledge and develop a stewardship ethic among recreational interests
3. Alternative 3 – Conservation: The most recent version of the alternative was distributed and the highlights were summarized. The alternative proposes a non-consumptive fishery as a final precautionary test phase, as part of the TAC development, before moving into a consumptive phase. During this stage red abalone would be transplanted to areas of historic high density habitat and it was estimated that this phase would last approximately 3-5 years. It was clarified that this alternative could be considered part of the TAC or a separate step and that further iterations could more specifically describe what to do with translocated stock.

During general discussion of all three it was clarified that the alternatives would feed into a CEQA process that would inherently include a no-allocation alternative. The Department would include the allocations as developed by the AAG, potentially develop an additional alternative, and make a recommendation to the Commission. The group was reminded that Chris Mobley had introduced ideas about ways to include market forces and these ideas could be further developed and included in each of the alternatives. Additionally it was suggested that further ideas for ways to address poaching should be developed since it has been a worldwide problem that can destroy any management strategy regardless of the activity level of the fishery participants.

C. Presentation of Relevant Information

Since this was the first meeting of the AAG and TP at the Southwest Science Fisheries Center there was time allocated on the agenda for the presentation of information related to the AAG effort, especially from the Scripps community.

1. Genetic Studies: Dr. Kristen Gruenthal, a recent PhD graduate from the Scripps Institution of Oceanography, presented information from her dissertation related to genetic diversity in red abalone. Her work focused on measuring gene flow for connectivity using samples from nine populations spread throughout 1300 kilometers of California coastline. Three methods of evaluating genetic connectivity were used during the study, Mitochondrial cytochrome oxidase subunit one (COI) sequence, nuclear microsatellites, and amplified fragment length polymorphisms (AFLPs). Some of her findings included:
- COI, nuclear microsatellites, and previous research did not find significant genetic differences
 - the AFLP technique offered a reliable and efficient method for scoring neutral genetic variation at many loci
 - The AFLP method (used in 5 locations) did reveal restricted gene flow in red abalone
 - This restricted gene flow finding suggests low spatial connectivity across a broad range
 - There was no regional divergence with pooled populations
 - There were significant differences among populations
 - Populations on a whole are genetically statistically distinct to themselves

- There is local retention of larvae
- There is potential for long distance dispersal
- Continued research is needed to further examine the spatial scale and temporal stability of genetic subdivision in this species

Dr Gruenthal clarified that this technique could be applied to most any spatial scale, including the adjacent Channel Islands with a sufficient sample (approximately 30 animals). Dr. Gruenthal suggested that she would like to conduct a temporal study to determine if larvae are genetically similar and whether or not recruits come from the same spot every time. Additionally, it was reported that CDFG enforcement has funded a three-year genetics study using microsatellite markers that is just getting underway and samples are being acquired to add to the existing tissue sample library. It was suggested that microsatellite and ALFP marker studies could be conducted simultaneously as a significant underpinning of a management approach, though fruitful TP work would also focus on stock exploitation, modeling and further investigation of the relationship between parent and offspring.

2. Overview of Modeling Used in Other Fisheries: Tom Barnes, CDFG, provided an overview of the Pacific Fishery Management Council's (PFMC) stock assessment process utilized for management of the Pacific Sardine to help inform the process being developed by the AAG. He noted there are many different kinds of stock assessment processes, from counting fish to assessment surveys. The stock assessment process uses a computer model to simultaneously find the best statistical fit to all available information on a fishery and is part of the process utilized by PFMC to sustainably manage a fishery. The PFMC formal process is not directly applicable for the work of the AAG but can be compared to the structure that includes the following players:
 - Technical Panel
 - Review Committee
 - AAG
 - CDFG CEQA development and recommendation
 - CA Fish and Game Commission – Marine Resources Subcommittee
 - CA Fish and Game Commission

Mr. Barnes suggested the following similarities and differences between the AAG process and PFMC process:

- Modeling Environment
 - Different review and adoption process
 - Different types of input data (model selection and configuration needs to match available data)
 - Unclear SMI stock definition or boundaries (results of genetic work can help clarify)
 - Different output needs
- Management Environment:
 - Different lines of authority (National Marine Fisheries Service - Fish & Game Commission)
 - No previously adopted "harvest control rule" for SMI
 - Sustainable fishery standard will need to be developed as a part of the SMI assessment work
 - Consideration of over fished definition and possible rebuilding requirements

- Different guiding legislation (Magnuson-Stevens Fishery Conservation and Management Act – Marine Life Management Act)
3. Snapshot Survey Video: Chris Voss, Commercial Abalone Association (CAA) presented a short video that described the nature and collaborative atmosphere of the first Snap Shot Survey Event at SMI in 2006. The video helped inform the ensuing TAC development discussion.

D. SMI Survey Update

Ian Taniguchi, CDFG, informed the group that 2007 SMI survey data should be entered by late December. The group stressed the relevance of this data and importance of timely transmission to Yan Jiao to inform the modeling work. During this discussion of the value of these surveys to the work of the AAG and the management strategies in the Abalone Recovery Management Plan (ARMP), the AAG agreed to develop a memo for presentation to the Fish and Game Commission stressing their importance and requesting continued support and funding. Voss, Bernard, and Maas agreed to send an initial draft to the facilitation team for distribution to the entire AAG to ensure concurrence in advance of the December 6 Commission meeting.

E. Public Comment

Members of the public offered comments at various points throughout the meeting, including during the designated public comment period. Key comments included the following:

Comments Related to Emerging Options

- Various diving clubs have different preferences with respect to emerging management options:
 - California Council of Divers is opposed to any commercial abalone diving in California
 - San Diego Freedivers could support alternatives 2 or 3 but their biggest concern is poaching.
 - San Diego Council of Divers feels the abalone punch card should be discontinued if harvest was resumed as it would indicate the resource was no longer in trouble and CDFG did not need additional funding for studies
- The entire abalone population should be considered viable before the consideration of a regional harvest
- Commercial harvest of abalone could result in increased recreational poaching that would be difficult to control by that user group
- Social capital should be built into a fishery so fishermen become part of the community based management approach which also involves recreational and conservation interests
- Alternatives should embed conflict resolution and decision making processes
- Recognize that past management and developing alternatives do not adequately address problems from poaching, mainland pollution, and pharmacological and oil company activities

Comments Related to TAC Development

- A TAC should look at smaller aggregations
- Habitat should be mapped first then aggregations should be counted in those habitats
- More effort should be invested in model development for use in San Diego

Comments Related to Movement/Translocation

- Adopted plans should not provide financial incentives for moving abalone
- Larval dispersal and recruitment is still a big question
- Caution should be exercised regarding regional movement of stock
- Evidence of poor recruitment may be the result of surveying in outplanted locations

Other Comments/Considerations

- Ethical considerations should play a role in establishing harvest rules
- Expansion of sea otter range and corresponding predation of abalone needs to be addressed
- Attend to impacts of captive breeding on the genetic reservoir
- The AAG and/or the F&G Commission needs to move more quickly and efficiently to establish an abalone fishery south of San Francisco

The ground rules for the AAG, adopted at the December 2, 2006 meeting, specify that AAG members, including interested members of the public must, engage in respectful discourse. Fundamentally, this includes avoidance of personal attacks or stereotyping. While discussing differences of opinion is encouraged, it is important that AAG meetings are a safe and productive space for dialogue and the exchange of ideas. For this reason personal attacks are not allowed in the AAG meetings. This ground rule was reiterated in the June 22, 2007 AAG KOM. One member of the public, Mr. Weakland, has repeatedly breached the adopted ground rules. At the November 29, 2007 meeting he was asked to leave and was escorted out for this continued violation of adopted groundrules.

F. TAC Development

Dr. Yan Jiao, Assistant Professor of Fisheries Population Dynamics at Virginia Polytechnic Institute and State University, attended as the AAG/TP meeting as the lead modeler/analyst. Dr. Jiao gave a presentation describing four families of models that could be utilized for an operational model to help develop a total allowable catch (TAC) of red abalone. This meeting served as the kick-off for the TAC development process and the discussion helped inform the continued development of a TAC work plan. Dr. Jiao's presentation included the following:

1. Available Data

- 2006 and 2007 survey data
- Fecundity survey
- Growth
- Mortality
- Length frequency data
- Stock recruitment sketch
- Historical catch and relative abundance surveys

2. Possible Models

- M1: Geo-statistics of the population abundance estimate. This model would be based on the abundance survey data and using GIS or MATLAB mapping.
- M2: Reconstruct the history of moratorium of SMI red abalone. This model would be based on size structured length frequency data, size structured population abundance estimates from M1, historical relative abundance indices, and life history data. A subset of this model is M2A which uses all the catch, relative abundance indices, and length frequency data.
- M3: State-space production model.
- M4: Per-recruitment model.

3. Risk Assessment under different fishing (management) strategies

- Risk is defined as the “probability of the population size smaller than the current population size under different TAC strategies”
- Operational model selected operational
- Synthesis of the results from different modeling analyses

4. Potential management strategies

- Size limit and fishing limit with TAC
- Size limit from M4 analysis
- Fishing limit from the M2 and M3 analysis

5. Supplementary

- Hierarchical growth model, if time available

AAG and TP members agreed that this presentation of potential models was comprehensive. Potential data sets were discussed (see below) and the group determined that the likely next steps were to hold a conference call in late January or early February to discuss the mobilization of the data sets and to determine what inputs should go into the model. Following that call the group would determine additional next steps and when to engage the Review Committee, but it was likely that an in-person AAG and TP meeting would be scheduled for Spring to discuss initial results of the modeling effort in Santa Barbara or San Diego.

G. TAC Data Sets

The facilitation team provided an overview to the draft *Data Set Descriptive Matrix – v3* meeting document. The purpose of this matrix was to help identify and organize the available data for potential use in the TAC modeling effort, to describe the data (timeframe, geographic area, included fields), to keep track of the status of the data (identified, available, or transmitted to lead modeler/analyst), and to ensure that participants refer to the same data sets through a naming and numbering protocol (first column in the matrix). The group agreed to continue to follow the protocol of providing data to the facilitation team for inclusion in the matrix and transmission to the lead modeler/analyst with a copy to all AAG and TP members.

Based on the group discussion the facilitation team will update the data set matrix to distinguish between A. Data Sets and B. Supporting Information and add the following information:

- All blocks of data for the DFG historical Commercial red abalone landings (#8 on Data Matrix) (Taniguchi to provide)
- Female red abalone fecundity data from 2007 (Rogers-Bennett to provide)
- Northern California tag recapture studies (Rogers-Bennett to provide)
- Growth, mortality and reproduction data from #7 Tegner biology paper (Rogers-Bennett to provide)
- Hobday and Tegner paper to be transmitted added as additional supporting information (Taniguchi to provide)
- Aquaculture facility growth rates, with temperatures with mean size at age (Voss to provide)
- Volunteer log books from commercial divers in former fishery (Taniguchi to provide)

It was agreed that the information provided represented a significant step forward but continued work was necessary on this critical task of data mobilization.

H. Review Committee Establishment

The group discussed and supported the idea of a Review Committee (RC) comprised of eminent international experts. The objectives for the RC would be as follows:

- Conduct an objective scientific review of draft methodology for TAC determination.
- Provide comments and suggestions to strengthen the logic, rigor, and internal consistency of the draft methodology.
- Propose methods to filling data gaps and identification of any additional gaps.
- As appropriate, propose alternative approaches for determining the TAC.
- Conduct an objective review of the final proposed methodology for TAC determination as recommended by the AAG.

The facilitation team will continue to finalize the Process Schedule and work with AAG members to solicit additional potential RC members and recruitment efforts will begin in early 2008. Potential members will not be contacted until the likely date of a reviewable product is clarified. It was also suggested that review committees often work best if they can work directly with the modeler.

Current candidates suggested for the RC include Louis Botsford, Ray Hilborn, Anna Parma, and Jeremy Prince.

II. Summary of Next Steps

Task/Responsible Party	Action	Due Date
Data Mobilization		
All	Provide data sets to facilitation team for distribution to Lead Modeler/Analyst with a cc to AAG and TP	ASAP
DFG and Facilitation team	Revise Data Set Descriptive Matrix v3 based on 11/29/07 discussion and transmit to AAG and TP	By mid Jan
TAC development process		
DFG and Facilitation team	Schedule late January “Data Mobilization” conference call for AAG/TP and Lead Modeler/Analyst	By mid Jan
DFG and Facilitation team	Coordinate with AAG small group members (Altstatt, Geiger, Marshall, Voss) to identify Review Committee members	By mid Jan
Modeler, DFG and Facilitation team	Transmit PowerPoint materials for “Data Mobilization” conference call	In advance of call
AAG/TP/Modeler	Hold “Data Mobilization” conference call	Late Jan / Early Feb.
DFG and Facilitation team	Further Develop TAC Development Process Schedule based on conversation during late January conference call	Feb
DFG and Facilitation team	Schedule In-Person AAG/TP/Modeler meeting to discuss initial modeling results to be held in Santa Barbara or San Diego in the Spring	Feb
DFG and Facilitation team	Extend RC invitations and confirm 3-4 member RC once	Develop timeframe based on Jan/Feb call
2007 SMI survey		
DFG staff	Input 2007 SMI Survey data	By early Jan
DFG staff	Analyze and develop initial draft report on 2007 SMI Survey data	By late Jan
DFG staff	Comparative paper integrating 2006 and 2007 data	By Mar 2008
Allocation and management options		
Allocation option work groups	Refine allocation and management options per discussions at 11/29/07 AAG/TP meeting and late January data mobilization conference call	In advance of Spring meeting
Policy guidance		
DFG staff	Prepare policy guidance memoranda regarding coordination with CEQA process	In advance of Spring meeting

Schedule and Objectives of Next Meetings

The AAG and TP discussed the scheduling of two meetings to further advance the development of the TAC:

- Data Set Mobilization Conference Call for the Lead Modeler/Analyst, TP and AAG as available – A half-day call to be scheduled in late January
 - Objectives:
 - Discuss the mobilization of the data sets
 - Discuss the modeler's initial thoughts on working with the data provided (i.e. what goes into the model)
 - Discuss an initial draft methodology
 - Determine next steps in the Process Schedule
 - Determine when and how to involve the Review Committee
- AAG-TP Meeting – A full day in-person meeting to be held in Santa Barbara or San Diego in Spring (likely March or April)
 - Objective: To review and discuss initial modeling results and determine next steps in TAC development

Draft Key Outcomes Memorandum

Date: Wednesday, December 10, 2008

To: Members, California Abalone Fishery Advisory Group (AAG) and AAG Technical Panel (TP)

From: Ian Taniguchi, CDFG, Scott McCreary and Rebecca Tuden, CONCUR, Inc.

Re: Key Outcomes Memorandum – December 10, 2008 AAG Teleconference Meeting

cc: California Department of Fish and Game Staff (CDFG)

Executive Summary

On December 10, 2008, the San Miguel Island (SMI) Abalone Fishery Advisory Group (AAG) and the AAG Technical Panel (TP) participated in a teleconference meeting to restart the AAG process after a lengthy interval. This was the first AAG meeting held in 2008 because the focus of the process was on the Technical Panel and their work on the Total Allowable Catch (TAC) development. The majority of the modeling work is almost complete and this teleconference served as the initial meeting to bring both the AAG and the Technical Panel back together to strategize completion of the charge for recommending options to the California Fish and Game Commission on a TAC for abalone on San Miguel Island (SMI)

Key outcomes from the meeting were as follows:

- **Received update on Technical Panel work progress and development of models** – Ian Taniguchi with the help of Technical Panel members provided an overview on the Technical Panel's progress and development of the models. A handout with a table describing the models, the data inputs, and outputs was used as a basis for explaining the work done so far. The three models being used are: 1) M1 – Survey population abundance estimation; 2) M2A – Statistical catch-at-age/size model; 3) M4 – Per-recruit models yield per recruit/egg per recruit (EPR). Almost all of the analysis on the models has been done. Dr. Yan Jiao, the modeler selected by the AAG, is now focused on developing a risk assessment of the multi-model approach. Taniguchi and Technical Panel members are now reviewing Jiao's draft modeling report. The modeling report should be finalized and available to the AAG in mid January even though it is highly technical and may be difficult for AAG members to understand. The AAG agreed that it was preferable to distribute the finalized report as soon as it was completed and that a summary of the report generated by Taniguchi and the Technical Panel be distributed as soon as possible following the report availability (approximately a few weeks). The purpose of the summary is to provide the AAG with an easy to read version of the modeling report.
- **Received update on development of a Total Allowable Catch (TAC).** – Ian Taniguchi presented an outline of development and completion of the TAC process. Once the modeling work is done by Jiao, the rest of the Technical Panel will use that information to build a management frame work around the model that would give guidance to the AAG on developing an appropriate TAC. The management framework includes an appropriate range

of fishery take with upper and lower bounds for setting a potential TAC and the context of its impact to the overall population of SMI. The management framework will include advice on setting biological reference points (such as disease outbreaks, El Niño events) that may be considered to adjust a base TAC. A timeline for completion of the TAC development process was discussed. The models and the corresponding management framework are expected by the end of January 2009 in preparation for the Review Committee process in February 2009.

- **Received update on San Miguel Island (SMI) surveys** – Ian Taniguchi gave an update on the SMI survey work. Ian presented a draft of the 2007 survey report and outlined some of the highlights of the report. The report is still in draft form and needs to go through additional Department of Fish and Game (DFG) internal review. The AAG is now free to review the draft report and provide comments to Taniguchi by January 1, 2009. Taniguchi also provided a brief summary of the 2008 survey. It was also reported that a long term monitoring tagging study at SMI has begun. This study is a collaborative effort between the California Abalone Advisory (CAA) and the DFG. The purpose of the study is to monitor abalone movement on a localized level to better understand aggregation or patch dynamics through time in relation to Allee Effects. This type of data will be useful for informing management in the future.
- **Discussed development of the Review Committee** – The AAG discussed the next step in the TAC development process, the formation of the Review Committee. The Terms of Reference were briefly reviewed. The AAG discussed that it was not desirable to have competing reviews of the modeling report and that there should be a clear separation between the work of the Technical Panel and the Review Committee. The AAG also agreed upon a 1-2 day limit for the Review Committee meeting, limiting the Review Committee to three members, and that it would be preferable to begin recruitment of the reviewers as soon as possible with convening of the Review Committee by February 2009. CDFG also discussed funding limitations including reduction in the CONCUR, Inc. facilitation budget. The AAG members acknowledged that, given the budget constraints, it was acceptable for CDFG to lead and guide the Review Committee process. To help conduct the review, the CAA was successful in obtaining a grant from the sustainable Fisheries Fund (SFF) for \$11,800. Other potential sources of funding were identified including a suggestion to consult the Recreational Abalone Advisory Committee (RAAC) for additional funds. Finally a suggestion was made to reconvene the AAG TOR workgroup to help further develop the Review Committee process. It was also discussed that Jiao has one more meeting available in her current contract. Deliverables after the Review Committee would include, a completed modeling report, Technical Panel summary, and recommendations/comments from the Review Committee. DFG would then take the lead in integrating these products to create a range of TAC alternatives for consideration by the AAG.
- **Discussed time line to complete AAG process** – The AAG discussed the timeline for completing the process. Ian Taniguchi and the facilitation team reiterated that the current fiscal constraints of the state are a key limiting factor determining the length and the number of AAG meetings left to finish the process. It was agreed that three face-to-face meetings with the AAG should be sufficient to integrate the TAC framework into the overall options for recommendations. It was suggested that one of those meetings would be between the modeler, Technical Panel and AAG. A time line for completion of the entire process was developed based on the meeting discussions.

Key next steps are outlined in Section III below.

Meeting Participants

AAG members participating in the meeting included: Bill Bernard, John Butler, Russell Galipeau for Dan Richards, Terry Maas, Jim Marshall, Chris Voss, Jessie Altstatt, and Greg Sanders. AAG members not in attendance: Paul Dayton, Daniel Geiger, and Chris Mobley.

Technical Panel members present included: John Butler (also AAG), Paul Crone, and Laura Rogers-Bennett.

Fish & Game personnel in attendance included: Tom Barnes, Ian Taniguchi, and John Ugoretz

Public participants: Dr. Jeremy Prince

Alicia Bonnette served as note taker. The facilitation team referred to her notes as one source of information in preparing this KOM.

The facilitation team included Scott McCreary and Rebecca Tuden from CONCUR, Inc.

I. Key Outcomes

A. Received update on Technical Panel work progress and development of models

An overview on the progress on the development of the models was given by Ian Taniguchi with the help of Technical Panel members. A handout with a table describing the models, the data inputs, and outputs was used as a basis for explaining the work done so far. The three models being used are: 1) M1 – Survey population abundance estimation; 2) M2A – Statistical catch-at-age/size model; 3) M4 – Per-recruit models yield per recruit/egg per recruit (EPR). Model output analysis is almost complete and Yan is now focused on developing a risk assessment of the multi-model approach. Ian and Technical Panel members are now working on editing Yan's draft modeling report. A finished modeling report should be available to the AAG in mid January.

In its current form, the modeling report itself is highly technical and may be difficult to read. The Department and the Technical Panel plan on writing a brief, easy to read and understand summary of the report. There was some discussion of the summary being added to the beginning of the modeling report before it is distributed to the AAG. However, Technical Panel members felt that the preparation of the summary will occur following the report availability (approximately a few weeks) due to other work load constraints.

B. Received update on development of a Total Allowable Catch (TAC)

Ian Taniguchi presented an outline of development and completion of the TAC process. The next step in the TAC development process, once the modeling work is done by Jiao, is for the rest of the Technical Panel to begin building a management framework based on the models. The management framework would provide guidance to the AAG on developing TAC alternatives. The management framework includes an appropriate range of fishery take with upper and lower bounds for setting a potential TAC and the context of its impact to the overall population of SMI. The management framework will include advice on setting biological reference points (such as disease outbreaks, El Nino events, etc.) that may be considered to adjust a base TAC.

A timeline for completion of the TAC development process was discussed. A best case scenario is to have the models and the corresponding management framework ready by the end of January.

C. Received update on San Miguel Island (SMI) surveys

Ian Taniguchi gave an update on the SMI survey work. The 2007 survey draft report was presented to the AAG and some highlights of the report were outlined. The report basically follows the same format as the 2006 report. Nearest neighbor study results from 2007 conducted by a Scripps Institute of Oceanography graduate student, and the comparison between the 2007 and 2006 surveys are also included in the report. The report is still in draft

form and needs to go through additional DFG internal review, but the AAG can now review the report and provide comments to Ian by January 1, 2009.

Taniguchi also provided a brief summary of the 2008 survey. All data for the 2008 survey is now entered into the computer database and a handout of general descriptive statistics was provided to the AAG. Overall, 175 survey stations were sampled on the south part of SMI incorporating 42,000 Sq. m. of area surveyed with 6,465 abalone counted (5,571 measured). More survey stations were completed on the south side of the island this year compared to last year. The difference in sampling is probably attributed to good weather conditions and everyone having experience in doing the survey for the third year in a row.

Besides the comprehensive surveys it was also reported that a long term tagging study at SMI has begun. This study is a collaborative effort between the CAA and the DFG. So far two 5 m x 5 m tagging sites have been set up on the south part of the island, one in Tyler Bight and the other within the Judith Rock reserve. Abalone were tagged in the Tyler Bight site but animals still need to be tagged in the reserve site. Future trips to SMI will focus on tagging animals in the reserve site and possibly setting up a third site on the Northwest side of the island near Castle Rock. The purpose of the study is to monitor movement on a localized level to better understand aggregation or patch dynamics over time. This type of data will be useful for informing management in the future.

D. Discussed development of the Review Committee

The AAG discussed formation of the Review Committee and Taniguchi provided the background for the discussion by briefly reviewing the Terms of Reference and relating the limitations on conducting this review under the current fiscal constraints of the state. Part of these constraints include scaling back the Concur Inc. contract which now excludes their leading the Review Committee process. The coordination of the review process will now be conducted by DFG. AAG members were amenable to this change and further discussion on the development of the Review Committee ensued. The following discussion points on the Review Committee were touched upon:

- The list of potential Review Committee candidates was presented and additional names were added (Dr. Doug Butterworth, Univ. of Cape Town; Dr. Ed Weber NOAA SWFSC)
- The target number of reviewers on the committee was set at three
- A correspondence should go out to the candidate reviewers soon to ask if they are interested and are available during the anticipated time frame of the review
 - A revised TOR should be sent out to them as well
- External funding from the Sustainable Fisheries Fund was identified and is available (approximately \$11, 800 available through CAA)
 - This funding will go towards funding stipends for invited reviewers
 - Other sources of funding were identified (ie. RAAC, CAAC, NOAA)
- The format of the review was discussed based on the limited funds to conduct the process (options for a brief two day meeting, teleconference use, or written review)
- A time frame of conducting the review sometime in February was settled upon
 - Technical Panel members stressed that having the review in February works for their schedules but having it later would severely impact their ability to participate fully

- A suggestion was made to reconvene the AAG TOR workgroup to help with development of the Review Committee
 - A meeting of the workgroup will happen in the near future

E. Discussed time line to complete AAG process

The group discussed the timeline for completing the AAG process. Taniguchi and the facilitation team reiterated that the current fiscal constraints of the state are a key limiting factor for the length and the number of AAG meetings left to finish the process. It is estimated that three face-to-face meetings is the minimum that needs to occur to integrate the TAC framework into the overall options for recommendations. AAG members agreed that this number of meetings was sufficient to accomplish their charges. Other discussion points on this subject were as follows:

- The group delved into some of the fishery aspects of integrating the TAC work into the fishery options and what types of discussions need to occur during the deliberation process of the three remaining meetings
- A brief discussion of the last step of synthesizing the final report from the deliberations was touched upon
- A draft time line for completion of the entire process was formulated based on the meeting discussions
 - Modeling report from Jiao and the Technical Panel to the AAG by mid January
 - Summary of the modeling report from the Technical Panel to the AAG by the end of January
 - Technical Panel development of management frame work done by the end of January
 - Review Committee receives models and TAC framework and conducts review in February
 - The AAG will deliberate over a two to three month period at three face-to-face meetings to coalesce TAC with their management options and finalize their recommendations (March – May)
 - Synthesis of the recommendations into a final AAG report will occur in June/July

II. Summary of Next Steps

Task/Responsible Party	Action	Due Date
TAC development process		
DFG and Technical Panel	Edit and finalize modeling report	Mid Jan 2009
DFG and Technical Panel	Transmit modeling report to the full AAG	By end of Jan.
Technical Panel	Develop management framework for TAC	By end of Jan
DFG and Technical Panel	Transmit summary of modeling report to the full AAG	By early February
Review Committee Process		
DFG	Initiate contact with candidate reviewers to determine interest and availability	December 2008
DFG and AAG TOR work group	Reconvene and revise TOR and further develop review process	December
DFG	Conduct review	Feb
2007 SMI Survey Report		
All	Provide comments on draft report	By end of Dec
AAG deliberations on completion of management options		
All	Integrate TAC into management options and finalize options and recommendations (3 face-to-face meetings)	May
TARGET DATE FOR Final AAG Recommendations Report		
DFG and facilitation team	Synthesize AAG recommendations into a final report	June/July

DRAFT Key Outcomes Memorandum

Date: April 28, 2009
To: Members, California Abalone Fishery Advisory Group (AAG) and AAG Technical Panel (TP)
From: Scott McCreary and Rebecca Tuden, CONCUR, Inc.
Re: Key Outcomes Memorandum – April 17, 2009 AAG Meeting
cc: California Department of Fish and Game Staff (CDFG)

Executive Summary

On April 17, 2009, the San Miguel Island (SMI) Abalone Fishery Advisory Group (AAG) and the AAG Technical Panel (TP) participated in a meeting at the California Department of Fish and Game (CDFG) offices in Los Alamitos, California.

Key outcomes from the meeting were as follows:

- **Received update on Status of Technical Work** – Dr. Laura Rogers-Bennett presented the AAG with an overview of the modeling effort to date and a thorough description of the models used and their implications for defining useful Biological Reference Points (BRPs). She also presented the key factors used by the Technical Panel in creating a Total Allowable Catch (TAC) Framework.
- **Received update on Peer Review of Technical Work** – Mr. Ian Taniguchi presented highlights of the peer review conducted in La Jolla in Feb. 2009.
- **Received the TAC Framework** - AAG members raised questions about the modeling results and discussed the implications of different variables for defining a BRP.
- **Discussed Implications of Relevant information for Management Options** – AAG members, in building on the modeling results, generated a description of possible BRPs to use for developing a TAC and the associated management actions and harvest control rules. This list (summarized below) will be used by the AAG members to further refine and update the management options.
- **Discussed Additional Refinements to Model and Process** – The Technical Panel recommended that using the model to conduct further risk analysis (using Monte Carlo simulations) will be helpful in moving the AAG closer to defining a TAC. Risk analyses can be used to evaluate a range of TAC options and their associated population risks. Questions were raised about the best option for additional modeling work and whether it was preferable to continue to use Dr. Jiao, given her expertise and work to date, or another entity. It was agreed that a subcommittee of AAG

members will prepare a draft Request for Proposal (RFP) for review and consideration at the next AAG meeting.

Key next steps, including the objectives for the next AAG meeting, are outlined in Section III below. The intent is to schedule the next AAG meeting for June to discuss further development of the matrix of alternatives and provide direction for modifying the TAC and updating the modeling information.

Meeting Participants

AAG members participating in the meeting included: Bill Bernard, Daniel Geiger, Terry Maas, Jim Marshall, Chris Voss, Dan Richards and Jessie Altstatt.

Technical Panel members present included: Laura Rogers-Bennett.

Fish & Game personnel in attendance included: Christy Juhasz, Captain Roland Takayama, Tom Barnes and Ian Taniguchi.

Public participants: Sara Valencia and Cynthia Button.

Alicia Bonnette served as note taker. The facilitation team referred to her notes as one source of information in preparing this KOM.

The facilitation team included Scott McCreary and Rebecca Tuden from CONCUR, Inc.

Key Outcomes

A. Welcome

Scott McCreary opened the meeting and noted that this was the first face-to-face AAG meeting in 18 months. The key objectives of the meeting are to hear scientific presentations on the modeling results and proposed TAC framework; consider and discuss the policy implications of the scientific information; and discuss the timeline for completion of the AAG's task of recommending management alternatives to the California Fish and Game Commission.

B. Status of Technical Work

Laura Rogers-Bennett presented an overview of the classic fisheries model as it applies to San Miguel Island (SMI) abalone fisheries. This presentation is the same as was given to the Review Committee (RC) in La Jolla on February 17 and 18, entitled "Presentation on Improving Stock Assessment of California Red Abalone at Santa Miguel Island". The presentation summarized the work done by Dr. Yan Jiao in conjunction with Technical Panel (TP).

The four models used included: hierarchical growth, per-recruitment model, catch-at-age model and geostatistical model. She also provided an overview of the data sets used for each of the models and a description of the sensitivity analysis that tested the relationship of the variables to each model. A key purpose of the modeling effort was to identify which Biological Reference Points (BRPs) are most applicable to abalone at SMI.

The results of Dr. Jiao's work indicated that some data sets and models were more effective at providing BRPs while others were less predictive (e.g. highly variable and weak relationships).

Ian Taniguchi summarized the recommendations provided by the Review Committee in their report entitled "Evaluation of the Red Abalone Stock Assessment." Key points made by the Review Committee are included in the report, which was distributed as part of the meeting materials. The Review Committee's analysis of the modeling work identified some key areas that could benefit from improvement. In addition, the RC made specific recommendations (going beyond their designated charge) on ideas for implementing an experimental fishery at SMI.

B. Discussion of the TAC Framework

Dr. Rogers-Bennett presented the Technical Panel's framework for developing a Total Allowable Catch (TAC) for SMI. In developing a TAC framework, the Technical Panel relied on a variety of sources including: multiple models, quantitative and qualitative data, dive surveys and recommended a risk analysis (consisting of different scenarios run under a Monte Carlo simulation) be conducted to evaluate the TAC options being proposed in the AAG process. The ultimate goal of a TAC is to produce a sustainable population and fishery if possible.

Dr. Rogers-Bennett emphasized that the quantitative analysis can inform the TAC framework but the AAG ultimately makes the decision on recommending the TAC as well as other management control rules. In particular, the models, the TAC and the triggers/indicators, and the resultant management actions based on those triggers will form the basis of management for red abalone.

The Technical Panel agreed that a risk analysis would help inform the TAC decisions in relation to potential risks to the population. Specifically, a risk analysis: a) makes it possible to evaluate a number of different recommendations regarding different TAC levels and size limits using Monte Carlo simulation, b) uses a modified catch at age model and historic levels of catch and recruitment as well as size frequency distribution data and a number of different stock recruitment models, and c) allows for short and long term population projections.

The AAG members discussed a number of issues and raised questions on the following topics:

- Number of transects and power analysis: The current number of transects would only detect an effect size of a 30% change in density. With efficiency in sampling (such as stratifying by depth) and increased number of years of survey data, the power analysis may be more sensitive and able to detect smaller changes in density. This will have to be explored further.
- Risk analysis options: Tom Barnes indicated that a suite of different TAC options using different size limits for the abalone would provide a range of possibilities. Rogers-Bennett suggested that AAG members should first agree on a finite range of the most important TAC and size limits to run.
- Aggregation and Spawning: Recruitment is dependent on nearest neighbor difference and Allee effects within the population. Barnes emphasized that significant recruitment to the abalone population and thus the fishery is sporadic and a long-term model is needed to accurately estimate population recruitment.
- Replacement Densities: Voss noted that the growth in the population in SW quadrant is not reflected in the model. The legal size of catch could also be modified to influence this factor.
- Disease Effects: In discussing the effect that temperature has on abalone mortality, concerns were raised about the experiment and data used to estimate the effects. It was agreed that a status report to the AAG on this temperature experiment would be useful.
- Genetic Structure: Preliminary results have shown that the SMI population is 98% self-recruiting population and that SMI is currently considered a separate, healthier stock than the other islands. CDFG noted that if SMI is isolated from other stocks, it is managed differently than if it is a source for other populations.
- Revised Population Estimate: There was discussion about the area under the canopy and sandy patches and how that abundance was estimated. Following the TP and RC advice, the amount of area surveyed was reduced to the boulder/reef areas and this reduction in area results in a lower abundance estimate for the population at SMI.

D. Public Comment

There was a question about the status of the 2008 SMI Survey Data and whether those data could be incorporated into the modeling information. Ian responded that the 2008 data can be incorporated and the CDFG is planning to complete a comprehensive report on the three years of SMI surveys for release in Fall 2010.

Sarah Valencia introduced the concept of a decision tree model that has been used as an adaptive management tool in other fisheries. The basic approach is to establish desired ratios of new recruits-size limit and older/bigger fish in fished areas compared with unfished areas and manage the fishery to ensure the desired ratio is maintained. It was suggested by some AAG members that this method would be a preferable management tool rather than basing the fishery on TAC from catch-at-age models.

E. Implications of TAC Framework/Review Committee's Report for Management Options

The following **BRPs** were suggested by AAG members:

1. Size structure
2. Replacement (recruitment into the fishery)
3. Density
4. Temperature (as surrogate for disease)
5. Kelp canopy (related to food production)
6. Gonad index OR egg production (relative to unfished areas)
7. Aggregation characteristics

The following **management factors** were suggested:

1. Minimum size
2. Suspension of harvest (zero TAC)
3. Range of fishing mortality (fishing rate)
4. Spatial area harvested
5. Harvest size (capture abundance of sub legal on harvest log)
6. Fishery independent monitoring

The following **harvest control rule** was suggested:

1. Above or below a certain water temperature

The following **other considerations** were suggested:

1. Otters
2. Recovery of the species throughout southern California

There was also a discussion about the meaning of an "experimental fishery" and whether the AAG members had agreed to endorse this approach. Since "experimental fishery" has a specific definition in the California Code, it was agreed to use "test fishery" as the terminology. A few AAG members were not willing to support a test fishery until the modeling data was shown to accurately predict the fishery. It was noted that the AAG's charge is to provide a range of options to the Fish and Game Commission and there is no need for all AAG members to support one TAC.

In further discussing the test fishery, AAG members agreed that initially there would be a more rigorous evaluation process in the test fishery that could be tapered back to the power analysis suggesting there is enough power to detect changes at a fine enough scale as well as confidence in biological reference points and harvest control rules.

F. Process Coordination and Discussion of Timeline

The AAG members discussed the current status of the model created by Dr. Jiao and possible scenarios for upgrading the model and using it to conduct risk analysis

simulations. Dr. Jiao is willing to do the work in the summer of 2009 and has estimated approximately \$25,000 as an estimate for the work. AAG members suggested that other modelers might be explored due to geographic proximity, less expense, and other considerations.

AAG members discussed issues to consider in picking a modeler to do the extra work including: capability; transparency; local access; and accountability (ability to meet timelines and deadlines). It is unlikely that Dr. Jiao's modeling can be transferred over to another entity for improvement and may involve some transaction costs. Development of the risk analysis should be constructed so that it is readily transferable.

After some discussion, the AAG agreed to form a subcommittee to discuss the option of drafting a Request for Proposal (RFP) for running additional modeling work in a desired time frame which could then be let out for a competitive bidding process. Tasks to be included in the RFP include: incorporating the recommended changes to the model as identified by the Review Committee (and recommended by the Technical Panel) and conducting a risk analysis on different TAC scenarios.

G. Next Steps

It was agreed that the next AAG meeting will be sometime in the June timeframe. Items for discussion include deciding on next steps for the additional modeling results; fleshing out the Management Options; and possible presentations on abalone experiments and stock relationships of the SMI abalone population. Specific actions include:

- CDFG will request a status report to the AAG from Dr. Jim Moore on the temperature experiment on abalone and a presentation from Dr. Jeff Rodzen on the stock relationship between SMI and Santa Cruz and Santa Rosa Islands.
- AAG members that are interested in contributing to the Request for Proposal (RFP) for additional modeling work should contact CONCUR staff.
- AAG members will incorporate technical data (as is) and conceptual BRPs and management factors into the next iteration of the respective Management Options for discussion at the next AAG meeting.
- CAA (Jim Marshall) will send the summary of the recent Marine Resources Committee to CONCUR for distribution to the AAG.

DRAFT Key Outcomes Memorandum

Date: June 22, 2009

To: Members, California Abalone Fishery Advisory Group (AAG) and AAG Technical Panel (TP)

From: Scott McCreary and Rebecca Tuden, CONCUR, Inc.

Re: Key Outcomes Memorandum – June 8, 2009 AAG Meeting

cc: California Department of Fish and Game Staff (CDFG)

Executive Summary

On June 8, 2009, the San Miguel Island (SMI) Abalone Fishery Advisory Group (AAG) participated in a meeting at the Upstairs Harbor Classroom in Santa Barbara, California.

Key outcomes for the AAG from the meeting were as follows:

- **Received update on funding and contract process for supplemental modeling work:** CDFG identified \$50k of funding, a portion of which can potentially be used to fund additional modeling work. The constraints they identified for using those funds include: (1) the need to encumber the funds before the next fiscal year (July 1) and; (2) the need to receive approval to initiate a new contract. AAG members discussed the proposed scope of work and agreed to move forward on the contracting effort. Concerns regarding the clarification of the thresholds for the risk analysis will be discussed in a near-term AAG subcommittee meeting.
- **Received two presentations on Red Abalone research from Fish and Game staff on:** Red Abalone Genetics Project (Forensic Lab) and Temperature Effects on Red Abalone Health and Survival (Bodega Bay Lab). The objective of the genetics research is to develop DNA-based genetic markers to discriminate between northern and southern abalone populations as well as between species. These markers can help assist with identifying areas of illegal activity and help illustrate recruitment rates for different populations. The objective of the temperature research is to help predict how a severe El Nino event would impact red abalone at SMI and help determine how withering syndrome affects abalone health even in cooler temperatures.
- **Discussed Updated Management Options –** AAG members provided descriptions of the proposed management options including the respective allocations and Total Allowable Catch (TAC) for each of the Commercial, Recreational and Recovery alternatives. The commercial fishing option included a presentation explaining the multiple elements of its precautionary approach, described the cooperative management and monitoring framework and explained its use of a decision tree

model using “bootstrap modeling” to identify the target stock for respective harvest each year. The recreational option included a request for further modeling to clarify if demonstration fishing is acceptable and a discussion of the allocation between commercial and recreational fishermen, as fishing is available. The recovery option focused on the idea for using an “experimental harvest” and relocation to build stock to promote recovery of the abalone while testing the Total Allowable Catch harvest.

- **Completion of the Management Options and AAG Presentation to the Fish and Game Commission (Commission):** AAG members discussed considerations for a proposed timeline for finalizing their management options and presenting the AAG recommendations to the Commission. The timeline discussion raised questions about the supplemental modeling work and whether it would be funded and/or completed in a timely fashion. Each of the AAG members weighed in on the preferred approach and, after a robust discussion, the members agreed for the management options to be finalized and presented to the Commission in January 2010.

Key next steps are outlined in Section III below. The intent is to work on achieving contract approval for the supplemental modeling work and fully flesh out each of the potential options by the next AAG meeting. It was suggested that the next AAG meeting to focus on the alternatives would be scheduled the week of August 10th.

Meeting Participants

AAG members participating in the meeting included: Daniel Geiger, Greg Sanders, Dan Richards, Terry Maas, Jim Marshall, Chris Voss, Dan Richards, John Butler, Sean Hastings and Jessie Altstatt.

Technical Panel members present included: John Butler.

Department of Fish & Game (DFG) staff present included: Kai Lampson, Derek Stein, John Ugoretz, Tom Barnes, Ian Taniguchi, Kristine Barsky, Jeff Rodzen, and Jim Moore.

Public participants: Sara Valencia, Cynthia Button, Craig Shuman, Tal Ben-Horin, John Woodcock, Gaylord Parkinson, Michael Harrington, Craig Brooker, John Pollinger, and Ken Jones.

Alicia Bonnette served as note taker. The facilitation team referred to her notes as one source of information in preparing this KOM.

The facilitation team included Scott McCreary and Rebecca Tuden from CONCUR, Inc.

Key Outcomes

A. Welcome

Scott McCreary opened the meeting and noted the key objectives of the meeting include: refine the objectives for the modeling scope of work, review budget and timeline for AAG effort, receive updates on management options, and discuss next steps for completing the AAG's task of recommending management options to the California Fish and Game Commission (Commission).

B. Status of Scope of Work for Additional Modeling Effort

Ian Taniguchi reported that \$50,000 in additional funding had been identified and may be earmarked for performing the additional modeling, risk analysis, and facilitation of the AAG process. He also discussed the contract limitations including that the funds had to be encumbered before the end of the fiscal year and there were significant hurdles in initiating a new contract this late in the fiscal year. The decision of the Regional Manager, Marija Vojkovich, to direct this end-of-year fiscal savings towards the SMI process demonstrates the importance that the Marine Region bestows on continuing and completing this process. CDFG committed to making every reasonable effort to make use of the additional funds including using other entities and foundations as vehicles for mobilizing and encumbering needed resources.

It was noted that finalizing the modeling work and seeing it through to completion implied the benefits of using the skills and expertise of the previously-recruited modeler, Dr. Yan Jiao. This obviates the need to issue an RFP for competitive bids. To increase the accessibility of the model for future fisheries management efforts, the scope includes a task to transfer the modeling program and make it usable by and understandable to other entities.

Some AAG members questioned how density estimates, included as a task in the scope of work, would be used to inform the decision-making process and whether including a minimum viable population threshold was needed. This issue was referred to the AAG subcommittee for further discussion with possible input by the Review Committee. The current scope of work is projected to take six (6) months from contract initiation and includes: a) updating the data; b) conducting a risk assessment using a longer time frame; c) a draft and final report; and d) a package of user instructions so that the model is transferable to others. It was also noted that Dr. Jiao would be able to complete the draft report within 3 months of contract initiation.

C. Presentations on Abalone Research

Jeff Rodzen (CDFG), John Pollinger (UCLA) and Ken Jones (Genetic Information Services) gave a presentation describing the current research to develop a genetic marker for abalone. Their research has identified genetic markers for abalone and also noted there is not a significant genetic differentiation between the SMI, Santa Rosa and Farallon islands populations. However, the population genetic structure of San Miguel animals is quite unique from the other islands which may suggest that there is some differentiation among populations. Further study is needed to determine if this differentiation does exist. The intended output of their research is to: 1) develop species-specific diagnostic makers to help identify location of samples, and 2) classify and design simpler, cheaper marker panel tests.

Jim Moore (CDFG, Bodega Marine Lab) gave a presentation on the relationship between abalone disease and temperature and withering syndrome (WS-RLP). He noted that all species of California abalone are susceptible to RLP but their levels of disease expression vary. In particular, ambient temperature seems to affect expression of the disease, especially in farmed abalone. The purpose of the study was to determine how WS might impact red abalone health and survival at SMI during a severe El Niño event as well as during colder water regimes at the island. This was studied through a controlled experiment that involved placing abalone in tanks and noting their response to selected El Niño temperatures and La Niña and cooler water regimes.

The experiment's conclusions were: 1) an El Niño thermal regime at SMI would likely cause increased morbidity and mortality, 2) WS likely affects abalone health even in La Niña periods, and 3) WS expression is not a single-temperature threshold response. Moore expects to complete the statistical analysis and finish the final report for publication in the next few months.

D. Public Comment

Kristen Bor and Josh Uecker from the Bren School introduced their thesis project with the CAA which seeks to develop a fishing cooperative design that is environmentally and economically sustainable. Bor reported that they will begin research this summer on the success and failures of other cooperatives and produce some preliminary results this fall. Bor encouraged AAG members to contact the student group at abalone@bren.ucsb.edu.

Cynthia Button commented on the use of the minimum viable population (MVP) size or other abundance threshold for the risk analysis suggested by the review panel. She explained that the model is used to run many simulations of population abundance trends through time given certain fishing level and size limit parameters. The arbitrarily set minimum threshold is used to see how often or how many times the projected populations dropped below the prescribed threshold for a particular fishing level and size limit model simulation. The average number of years before the threshold level is met or the number of times that the simulated population reaches the threshold within a given

number of years is used to assess the relative risk of different management strategies. The results will help to inform the group in recommending a TAC and size limit for the fishery based on the levels of risk the group is comfortable with.

AAG member Voss responded that he did not see the usefulness of the MVP and that given the charge of the AAG, it is up to the AAG members to determine what threshold they want to propose in their respective options.

E. Current Thinking on Draft Management Options

AAG members Chris Voss, Jim Marshall assisted by UCSB grad student Sara Valencia gave a presentation explaining the commercial fishermen's current thinking on management options.

They explained that the option included built in approaches that provided a precautionary approach to harvesting such as conservative estimate of population size, proposed 1% harvest of abalone larger than 208 mm in SW zone, and adaptive management practices.

Valencia described the bootstrap model and decision tree methodology for maintaining a given ratio of recruits, older adults and prime adults. She emphasized the role for the fishermen as major participants in monitoring and management, enforcement and as co-managers of the resource. Much of the regulation and co-responsibilities necessary to implement this management option will be described in an MOU between the fisheries cooperative and CDFG.

Terry Maas described the recreational fishers management option. Maas stated that the current thinking on the recreational preference is for "no take" due to concerns that the SMI population seems to be below the ARMP minimum viable population even after 10 years of no fishing. If a demonstration fishery were to proceed, the recreational sector would want to participate as partners on a 50% basis with options to reallocate the share between commercial and recreational fishermen if the rights to fish are not being used. Maas indicated that a likely trigger for participation in a demonstration fishery would be evidence of a robust population that is on the rise.

Jessie Allstatt described a "precautionary" management option with the goal of recovery of the abalone population consistent with the AAMP. This first phase would test the TAC, using removal, relocation, and harvest strategies (i.e. micro blocks) to see if the resource could withstand harvest while rebuilding populations in other areas. It would also provide detailed data collection and engage the fisherman. Allstatt noted that the next steps and challenges would be: 1) funding, 2) developing a process for choosing enhancement site locations, 3) larval recruitment, 4) harvest details, 5) DNA analysis, 6) identifying participants, and 7) pre-treatment of recipient translocation sites.

Dan Geiger suggested that a "no harvest" option should be more fully developed including the logic and rationale of such an option, a discussion of the risk analysis and its implications for considering a potential harvest.

It was generally agreed that the current matrix format is difficult to navigate. For this reason, AAG members and the facilitation team agreed that options should be presented in a more concise narrative format, with a summary section, and a section that helps understand how each alternative was built.

F. Process and Timeline for Presenting AAG Recommendations to the Commission

The previously published version of a start to finish timeline for the AAG project was distributed. This timeline, which rested on a series of optimistic assumptions, showed the AAG recommendations completed by June 2007.

While Some AAG members expressed frustration with the lengthy process, others noted the various factors that led to the current status of the project. AAG members raised concerns that allowing an undo interval for additional modeling work would cause further delay in the process. CDFG stressed the importance of basing their TAC on a completed, peer-reviewed model that addresses questions of long-term sustainability. Considering the large amount of time and effort that has already been devoted to Dr. Yan Jiao's model, the most efficient and direct way to accomplish this is to complete the work that she has begun. CDFG agreed that it was open to considering other peer-reviewed models or analyses could also help inform the decision process.

Recognizing the divergent views in play, the facilitation team asked for a roundtable statement of preferences for: 1) conducting further modeling, and/or 2) setting a deadline and moving forward with Commission presentation (with or without the modeling results). In the discussion the following points were noted:

- Each of the management options can be fully developed with or without a TAC
- Commission likely to prefer a management option with a TAC based on scientific data and modeling
- Impossible to address all the uncertainties
- If different data sets or models are used, AAG members will indicate which information is used in their management option and the objective rationale for why that model is preferred.

After a discussion of potential timelines, the AAG agreed to plan for a presentation to the Commission in January of 2010. While this timeline should provide ample time to complete the additional modeling work, it was agreed the presentation would occur with or without supplemental modeling results.

The draft timeline includes the following milestones:

1. June 10: Conference call on Scope of Work
2. July 6: Conference call to discuss revised Alternative format
 - Facilitation team to provide new format outline
 - Refine Alternatives according to new outline and distribute prior to call

3. Week of Aug 10: Next AAG meeting with final Alternatives shared well in advance
4. November 2009: Draft Commission report completed by Concur
5. December 2009: Material submitted to Commission
6. January 2010: AAG presentation to Commission

Chris Voss noted that the CAA has requested time at the upcoming Commission meeting to discuss the process for certifying fisheries.

G. Next Steps

The next in-person AAG meeting will be in mid-August. Items for discussion include more detailed summaries on the management options.

Specific follow-up actions include:

- CDFG will work toward initiating a contract for supplemental information and refinement of Dr. Yan Jiao's model.
- CONCUR will convene an AAG subcommittee which will work toward finalizing the tasks and language for the modeling scope of work.
- The next full AAG meeting was suggested for sometime during the week of August 10.
- Specific proposals for a management option should be fully described and fleshed out for discussion at the August AAG meeting. A mid-course progress review (by teleconference) was suggested for early July. CONCUR will assist with scheduling the call.
- CONCUR will assist with recommending a new format for summarizing the management options.

Key Outcomes Memorandum

Date: September 23, 2009

To: Members, California Abalone Fishery Advisory Group (AAG)

From: Ian Taniguchi, CDFG, Los Alamitos, CA.

Re: Key Outcomes Memorandum (KOM) – Sept. 23, 2009 AAG Teleconference

cc: CONCUR Inc. staff

Executive Summary

On Sept. 23, 2009, the San Miguel Island (SMI) Abalone Fishery Advisory Group (AAG) participated in a teleconference meeting via the California Department of Fish and Game (CDFG) conference phone line.

Key outcomes from the meeting were as follows:

- **Received update on supplemental modeling and AAG Process:** CDFG updated the group on the progress of revising the survey protocols based on the Review Committee's advice. CDFG also provided an update on the progress of funding the supplemental modeling work. Previous efforts to encumber the identified \$50k budget fund late last fiscal year did not materialize. Subsequent state budget constraints hampered efforts to move forward with finding other avenues of funding and contracting. CDFG continues to search for funding for the supplemental modeling and the remaining AAG process.
- **Received update on near final alternatives:** AAG members provided descriptions of the proposed management options including the respective allocations and Total Allowable catch (TAC) for each of the four alternatives. The AAG also heard a presentation from Ms. Alison Cross of the World Wildlife Fund (WWF) on the Marine Stewardship Council (MSC) certification process and the CAA's pre-assessment process
- **Discussed timeline for presenting AAG recommendations to the Commission:** The AAG further discussed the presentation of their recommendations to the Commission. The AAG members agreed to present recommendations to the Commission at the February 2010 meeting (based on progress made to date). To prepare for this meeting, workgroup authors were requested to submit their final alternatives to CDFG and CONCUR by October 1, 2009.

Key next steps, are outlined in Section II below. The intent is to work on developing the AAG report for submission to the Commission in February 2010.

Meeting Participants

AAG members participating in the meeting included: Daniel Geiger, Greg Sanders, Dan Richards, Terry Maas, Bill Bernard, Jim Marshall, Chris Voss, Dan Richards, John Butler, Sean Hastings and Jessie Altstatt.

CONCUR Inc. staff: Gia Brazil

CDFG staff present included: Ian Taniguchi, Tom Barnes

Public participants: Sara Valencia, Alison Cross

Alicia Bonnette served as note taker. Her notes were referred to as one source of information in preparing this KOM.

The facilitation team, Scott McCreary and Rebecca Tuden from CONCUR, Inc. were not participants in the teleconference due to scheduling conflicts

I. KEY OUTCOMES

A. Welcome

Ian Taniguchi opened the meeting and acknowledged everyone participating in the call.

B. Status of Supplemental Modeling and AAG process

Taniguchi reported that the Department has been working with the California Abalone Association (CAA) and Sarah Valencia, Bren School Grad student, on developing a revised survey protocol for detecting impacts to the population if a fishery existed. A draft of the revised survey protocol was sent out to the group as background material prior to the meeting. Taniguchi described the process that has occurred to date. The intent in revising the protocol is to improve the power analysis, as advised by the Review Committee. The past three years of survey data were used to inform the protocol revisions and focus on reducing the cost and size of the survey effort while hopefully increasing power to detect change in the abalone population. The draft protocol targets survey effort at identified high density areas in the SW and SE zones as well as the Judith Rock Reserve on San Miguel Island (SMI). The protocol is patterned after similar survey protocols used in Australia and other countries. The major difference between the old and new protocols is the use of systematically placed survey stations in a smaller grid scale rather than random stations on a larger grid scale. The new survey also focuses on detecting impacts of a fishery on a smaller spatial scale as opposed to determining population estimates on a larger spatial scale of the island.

Several AAG members expressed concern that the protocol would not yield the benefit of improving the statistical power and that the value of the past three years of survey data could be lost. It was noted that the past surveys took significant effort and resources to conduct and that future surveys could not continue at that level. Thus the decision was made by those involved in the revision to seek an alternative method for detecting population changes with reduced effort and resources. The 2009 survey is being done with less effort on a smaller scale and is predominantly funded by CAA. Also the switch to this new type of survey helps address the AAG Review Committee's recommendation to look at altering the survey design to better detect change. Taniguchi also mentioned that the draft protocol was sent to two members of the Review Committee (RC), Ed Weber and Steve Schroeter, for their input and guidance and that the AAG will be kept apprised of the progress on the survey protocol revision. A concern was expressed by some members that the new protocol would represent a new survey time series, and consequently the survey results from the preceding three years could not be included in any new analyses. It was suggested that the trade-offs between proceeding with the new methodology be investigated so that the advantages of the new protocol could be compared to other possible alternatives that would allow the preceding survey data to be included in the ongoing survey work.

CDFG staff updated the group on the progress to fund the supplemental modeling. CDFG continues to explore ways to fund the supplemental modeling but no prospects have been identified at this time. Jim Marshall stated the Commercial Abalone Advisory Committee prefers that the CAAC account funds not be spent on additional modeling. Chris Voss suggested that the AAG disregard Jiao's current work product entirely, because it is not complete. Daniel Geiger disagreed and stated that it does show a short-term trend (one year) and an analysis of the current data. Barnes noted that the modeling report, RC comments, and the Technical Panel (TP) report are all public documents and will be included with the final AAG report to CDFG and the Commission.

C. Update on near final alternatives

Taniguchi explained the new matrix format for the alternatives that was developed by CONCUR Inc. staff in coordination with the alternative workgroup members. The new matrix is intended to be a concise narrative format, more appropriate for presenting information to the CDFG and the Commission. Through the summer, workgroup members put their respective alternative information into the new format and made further improvements. Each workgroup leader provided a brief status report on their alternative.

Alternative 1 (Commercial)

Voss reported that the CAA continues to strengthen its alternative and is working on background material to more fully explain the CAA's position. These steps include: 1) revising the survey protocols, 2) working with California Center for Cooperative Development (CCCD) to create the future cooperative's legal structure, 3) refining internal Operational Guidelines to meet all of the responsibilities of shared management, 4) conducting a MSC pre-assessment with the World Wildlife Fund to determine the rigor of this alternative and provide an objective evaluation from an independent body, and 5) working with the Bren School on the economic viability and sustainability of a future fishery.

It was suggested and agreed that a description of the bootstrap methodology for the TAC be included in the alternative and that the sustainability aspect be clearly addressed.

Alternative 2 (Recreational)

Bill Bernard explained that he and Terry Maas have incorporated all the available information from both the TP and RC to inform their most recent version. Maas stated that they are uncomfortable about recommending any harvest based on a TP report which states the population is in decline. Thus the alternative suggests completion of recommendations in the Review Committee Report to address a demonstrational/experimental fishery. Maas believes that their recommended 50/50 allocation split is justified given that there were limits on the previous recreational take and the resource should be shared equally by everyone in California. Voss reminded Maas that if the 50/50 split is applied to the entire State then half of the north coast

fishery should be commercial. Maas did not see that as applicable to the discussion regarding SMI.

John Butler inquired whether the monetary value assumed for abalone in this alternative might be too low. Marshall felt that the revenues estimated in this alternative might not cover a “user pay” program at SMI. Bernard is thinking that some funds from the northern California fishery, in the form of RAAC funds, might be used to support a portion of the SMI fishery activities.

Alternative 3 (Conservation)

Jessie Altstatt has not yet redrafted the alternative. She reminded the group that this alternative provides a two pronged precautionary harvest which furthers the goals of the ARMP and provides critical information to rebuild depleted stocks. Altstatt described a new addition to the alternative that seeks to address concerns on funding translocation work. The new thought is to allow a percentage of the TAC to consumption harvest thus fishery revenue is collected to help fund translocation efforts. She feels that creating new population centers elsewhere is a very precautionary approach and using abalone from SMI might be the last chance to repopulate other islands.

Maas expressed some concern on the success of translocation as a tool for aiding recovery. Taniguchi noted that the CDFG is currently conducting a translocation study for pink and greens and they are actively working toward developing the best method to implement this type of recovery technique.

Alternative 4 (Assurance Approach)

Geiger described the alternative deemed the “Assurance Approach” where no harvest is recommended until population density reaches 4,000 per hectare. This level is suggested to compensate for the potential 50% mortality of abalone due to Withering Syndrome that may occur with a strong El Nino event. If such an event occurred then a minimum density of 2,000 abalone per hectare would still remain to carry on the population. Above 4,000 abalone per hectare a fishery may occur with the appropriate TAC and allocation that is sustainable.

Maas asked if additional risk analysis suggests a different level of sustainability (possibly lower), could the alternative change to accommodate this information. Geiger said that it could.

Brief presentation on MSC Pre-assessment

Ms. Alison Cross was invited to give a brief presentation on the WWF- Marine Stewardship Council (MSC) certification process. The CAA is using an MSC pre-assessment to determine the rigor of their management approach and to help insure that their fishing cooperative approach is following sustainable fishery practices. Ms. Cross introduced herself and stated that she is the program manager at WWF’s Palo Alto office that helps guide small scale and community based fisheries through the MSC certification

process. She explained that the MSC goal is to recognize, reward, and promote sustainable fishing practices. The MSC standards are based on three principals: 1) health of target stock, 2) impact of fishery to ecosystem, and 3) management. The process for MSC certification consists of a pre-assessment and a full assessment. The pre-assessment helps identify information gaps and possible roadblocks that may arise in the full assessment. This information is useful for entities going through the certification process to address those concerns in preparation for a full assessment.

Cross reported that WWF will support the CAA in the pre-assessment process which will evaluate their commercial alternative, identify gaps in their proposed management plan, and determine if a reopened fishery can meet the MSC standards. The report should be completed in November and may be provided to the CDFG and AAG members.

Barnes asked if the MSC full assessment process includes an independent peer review and stock assessment analysis. Cross responded that there is not a formal peer review process related to the full assessment, but that an independent third party is in charge of the assessment and thus the process is run similar to a peer review to provide impartiality.

It was suggested that the recreational fishery in northern California be incorporated in this process. Cross stated that the certifier will determine what the proper “unit of certification” will be and the focus will remain on SMI because it is a separate stock. It was noted that the SMI analysis might be expanded during the MSC certification process to encompass the entire southern California region, if it is determined that SMI is part of a larger geographic stock.

Several AAG members remarked that the CAA should be applauded for going through this process.

D. Discussion of Timeline for Presenting AAG Recommendations to the Commission

CDFG staff related their concerns about moving forward with an AAG recommendation to the Commission in the absence of the risk analysis that has been proposed to complete the SMI population modeling work. Without the additional modeling information available CDFG staff feels that the AAG process is not complete and thus CDFG is faced with making a recommendation based only upon the available modeling results, which indicate that the stock will decline in the near term even without fishing. CDFG agrees with the TP and RC recommendations that additional modeling projections need to be performed over a longer time frame so that the long-term stochastic nature of recruitment may be used to better characterize the long-term sustainability of the stock, and its ability to support a fishery. CDFG staff suggested that an interim report describing the work on the alternatives to date could be submitted to the Commission with a full report provided after the supplemental risk analysis is complete.

The AAG discussed some alternative scenarios such as submitting the final alternatives and then asking the Commission for further guidance in proceeding forward with the AAG process or not. The AAG was in agreement that the supplemental risk analysis information would be valuable. However, the group felt it was important to finish the alternatives and proceed with a presentation of their recommendations to the Commission in February 2010 without the supplemental modeling information at this time.

Altstatt asked if the Department will prepare a feasibility cost study of each of the alternatives in their report to the Commission. Taniguchi indicated that he can work with individuals regarding the feasibility of their proposal; but there will not be a cost analysis presented by CDFG to the Commission.

It was noted that any necessary CEQA document process would begin after the Commission makes a determination.

II. SUMMARY OF NEXT STEPS

Based on the last discussion item, plans were further developed for preparing the final AAG report with the alternatives. CONCUR will begin preparing their final report once all the alternatives have been received.

The following next steps were identified:

- 1) Text describing the respective alternatives must be completed and transmitted to CONCUR Inc. by Oct. 2 unless the deadline is extended
 - a. It is possible that at a minimum the executive summary for each alternative needs to be submitted for CONCUR to begin drafting the report
- 2) CDFG staff will notify the Commission staff about the intent to make a presentation from the AAG at their February meeting
 - a. CDFG will check with the Commission staff to confirm and then will begin the scheduling process
- 3) CONCUR will draft the report that will be available for comment and review by the AAG sometime in mid to late November
- 4) An AAG meeting may need to take place in late November/early December to discuss and confirm the content of the draft report
- 5) CDFG will continue to look for funding to complete the supplemental modeling

Key Outcomes Memorandum

Concur Inc 12/10/09 4:16 PM

Deleted: DRAFT

Date: December 10, 2009

To: Members, California Abalone Fishery Advisory Group (AAG)

From: Scott McCreary and Rebecca Tuden, CONCUR, Inc.

Re: Key Outcomes Memorandum – December 8, 2009 AAG Teleconference

cc: California Department of Fish and Game Staff (DFG)

Background

On December 8, 2009, the San Miguel Island (SMI) Abalone Fishery Advisory Group (AAG) participated in a teleconference meeting. The primary objective of the meeting was to discuss suggested text edits on the Draft AAG Report and the next steps for presenting this Report to the Marine Resources Committee (MRC) of the California Fish and Game Commission (Commission).

Meeting Participants

AAG members participating in the teleconference included: Jessie Altstatt, Bill Bernard, John Butler, Daniel Geiger, Sean Hastings, Terry Maas, Jim Marshall, Dan Richards, Greg Sanders, and Chris Voss.

Technical Panel members included: John Butler.

Department of Fish & Game (DFG) staff included: Tom Barnes and Ian Taniguchi.

Fish and Game Commission (Commission) staff included: Craig Shuman.

Public participants included: Alicia Bonnette and Cynthia Button.

The facilitation team included Scott McCreary, Rebecca Tuden and Gia Brazil from CONCUR, Inc.

Key outcomes

- **Presentation to the Marine Resources Committee (MRC) of the Fish and Game Commission (Commission):** DFG staff and Commission Marine Advisor, Craig Shuman, discussed the details for recommending the Draft AAG Report be presented to the MRC in advance of going to the full Commission. It was suggested that the AAG process is very complex and includes uncertainties that would benefit from a

Prepared by CONCUR, Inc.

Page 1 of 3

This Key Outcomes Memorandum summarizes the results of the December 8, 2009 AAG meeting held by teleconference. It focuses on key issues discussed, decisions made, and next steps identified. It is not intended to be a transcript of all meeting activities.

more detailed discussion with the MRC. The format of the MRC is intended to be a roundtable discussion to help inform the Commissioners about the AAG effort. The recommendations of the MRC Commissioners are then forwarded to the full Commission for discussion at a later meeting.

- **Text Choices for AAG Consideration:** AAG Members discussed the text choices on four key topics in the AAG Report as identified in CONCUR's handout. The AAG members reached agreement on the following key text choices and decisions:
 1. **Reference to supporting studies** – Report can reference (and include as an Appendix) any published, peer-reviewed literature and analyses vetted within the AAG's joint fact-finding process. For studies and analyses conducted outside of the AAG process that are not published or peer-reviewed studies, the Report may reference such studies and analyses cited by an AAG member, provided it is made clear that it was conducted outside the AAG process. Such studies and analyses conducted outside of the AAG process may be submitted to the Commission under separate cover for their consideration.
 2. **Statement on modeling work** – Modeling work undertaken as part of the AAG process will be characterized as follows: Include a statement that AAG members agree that while the modeling work constitutes the Best Available Science, the work is incomplete, needs refinement and additional information is needed concerning the long-term ability of the population to sustain a fishery. Some members of the AAG are comfortable with the modeling work's short-term conclusion that the current red abalone population is not sustaining itself. Other members of the AAG want to wait until additional long-term projections are completed before making a TAC recommendation, and still other members of the AAG relied upon additional, outside information to support their management option(s).
 3. **Statement on Future Data Collection** – Report will include a statement indicating the entire AAG supports the need for ongoing data collection to inform adaptive management of the abalone resource. Specifically, more data collection is recommended that helps determine the size and structure of the population, as well as recent recruitment and population increases or decreases.
 4. **Reference to a No-Action Alternative** – Report will add a sentence in the background section providing a brief description of the current management of the fishery. Report will also include a sentence acknowledging that the no action alternative will be considered in any subsequent CEQA document.
- **Additional, Recommended Changes to AAG Report:** The AAG members reviewed and discussed the recommended changes on organization, process description, monitoring, and characterization of the Review Committee's advice. The AAG members agreed to make these changes in the document.
- **Received update on funding and timing for supplemental modeling work:** Ian Taniguchi reported that directing funds from the Recreational Abalone Restoration and Preservation account to the AAG effort has been recommended by the DFG's

Director and may be earmarked for completing the refinement of the modeling, risk analysis, and facilitation of the AAG process. The administrative and contracting process will likely result in the funds being made available at the start of the next fiscal year (July 1). AAG members expressed their support for this good news.

- **Authors of Management Options to Provide Final Version of Text not later than December 15** – The authors of each management option were asked to review the options included in the Draft AAG Report and make any changes necessary for inclusion in the Final AAG Report. Final management options (executive summary and additional information) should be transmitted to CONCUR by December 15, 2009 (or earlier!).
- **CAA Comments at upcoming Commission Meeting** - Chris Voss requested the AAG's support in going to the upcoming Commission meeting and asking the Commission to agendize the work of the AAG and to encourage the Commission to move toward the next step in the AAG process. While appreciating the notice that Chris was going to speak at the upcoming Commission meeting, fellow AAG members felt it was premature to request this action of the Commission in advance of the MRC meeting. It was agreed any request for Commission action on the AAG process will be expressed solely as an interest of the CAA.

Next Steps

The meeting generated the next steps, described below.

- CONCUR will complete the Final AAG report and transmit to AAG members in early January 2010.
- This Final Report will be discussed at the February MRC meeting (tentatively scheduled for February 18, 2010 in Santa Barbara). The format of the MRC is intended to be a roundtable discussion to help inform the Commissioners about the AAG effort.
- The final agenda, date and location for the MRC meeting will be finalized and provided to the AAG in early 2010.
- Authors of each management option will review their individual write-up (Executive Summary and Additional Information) and provide the final version of their management option to include in the final AAG Report. This final version of the management option should be transmitted to CONCUR no later than December 15, but authors are encouraged to send this information sooner.
- DFG will work toward initiating a contract with Dr. Yan Jiao for refinement of the current model early in the 2010-2011 fiscal year.

Questions or comments regarding this summary may be directed to Ian Taniguchi (562) 342-7182 with DFG or Rebecca Tuden and Scott McCreary (510-649-8008) with CONCUR.