

## **Appendix G. Constituent Involvement and Public Input**

### **G.1 Constituent Involvement**

Broad participation in the development of the ARMP improves the overall quality of the plan, the effectiveness of its management and recovery portions, and the Department's ability to implement the plan. Public involvement in the development of the plan ensures that decision makers consider a variety of perspectives which might otherwise not be available to them, addressing topics such as biological characteristics of the resource, the fishery, non-consumptive considerations, ecological considerations, and economic and social issues related to the resource. In addition, involving the public in the development of the plan includes them in the responsibility of sustainable management of the resource. The public will also be involved in the adoption of the plan, in addition to its implementation and amendment.

The draft ARMP has been developed with the input of various constituents, including the Recreational Abalone Advisory Committee, commercial abalone fishermen, the ARMP Advisory Panel, and members of the general public. As the Department developed concepts to be considered for the draft ARMP, it received constituent input on those concepts in addition to other ideas. The Department began the process of gathering public input for the development of the ARMP in July 2000, when it held a workshop for commercial abalone constituents. In fall 2001, the Department established an Advisory Panel for the ARMP. The panel is composed of members and alternates who represent recreational anglers and divers, environmental organizations, aquaculturists, and academia. The panelists were selected to reflect a diversity of interests and expertise in abalone and issues related to abalone. The first advisory panel workshop was held on 16 November 2001 at the Los Alamitos CDFG office. The focus of this workshop was the recovery of abalone resources in California. The ARMP advisory panel and Recreational Abalone Advisory Panel then participated in a workshop to provide input on the management of California's abalone on 15 March 2002, in Oakland. At the November and March workshops, members of the general public also provided input.

An early draft of the ARMP was made available for informal public review on the Department's web site ([www.dfg.ca.gov/mrd](http://www.dfg.ca.gov/mrd)) and Department offices. In addition, two town hall meetings were held in September 2002 to further provide the public with the opportunity to become more informed, ask questions, and make recommendations for the ARMP. Written comments were due to the Department by 5:00 p.m. October 4, 2002. Informal public comments were reviewed and summarized, and appropriate changes were made to the draft ARMP. Appendix G contains summaries of the public input events which occurred during the evolution of the draft ARMP, and a summary of the public comments.

The time line for the development of the draft ARMP, which included the dates of workshops, town hall meetings, and the informal public review period, was posted on the Department's web site. To inform the public of the availability of the draft ARMP for informal public review, a news release was distributed to over 500 media contacts, including reporters, major media outlets, legislators, and natural resource organizations. In addition, post cards and emails announcing the availability of the draft ARMP were sent to constituents interested in abalone issues.

## **G.2 Early Public Input**

### **G.2.1 Abalone Recovery And Management Plan Commercial Constituent Workshop**

#### **G.2.1.1 Workshop Summary**

The following is a summary of the first Abalone Recovery and Management Plan (ARMP) workshop, held in Santa Barbara on 26 July 2000. The workshop was intended to be an initial step in creating the ARMP which is required under Fish and Game Code §5522, and is due to the Fish and Game Commission on or before January 1, 2003. One intended outcome of this workshop was to allow commercial constituents interested in the ARMP to voice views on recovery and the future of California abalone populations. Another goal was to begin a positive dialogue with all constituents concerned with abalone recovery. Future workshops will include interested constituent groups, in order to get more complete input on the ARMP.

This summary covers the major topics discussed at the workshop, lists some of the key points brought forward, and details the next steps agreed to by the workshop participants. Names listed in parenthesis are individuals who led discussions, or made specific presentations on each topic.

#### Introductions

Ms. Kristine Barsky, CDFG senior invertebrate specialist, welcomed the participants and introduced the Department biologists present at the workshop. Participants then introduced themselves (see participant list). She asked that everyone do several things to have a productive meeting:

- Focus on common goals
- Identify points of disagreement, and look for solutions to them
- Acknowledge the legislative mandates governing the ARMP process

#### Workshop Objectives, Ground Rules, and Agenda

Ms. Debra Nudelman, a senior mediator at RESOLVE, Inc., was hired by the Department to assist in effective constituent involvement. She discussed her role as a guide through the process of the meeting, and a neutral leader who could help keep the group on track. Ms. Nudelman listed some ground rules for participation, so that everyone had a fair opportunity to discuss concerns without sidetracking the process or being disruptive. She also stated the main objectives of the workshop to:

- Share information about California abalone populations
- Develop preliminary perspectives on goals for the future
- Begin a constructive dialogue between the Department and constituents and decide who else might need to be involved in the ARMP process

#### Overview of California Abalone Population

Mr. Peter Haaker, CDFG associate marine biologist, gave a summary of abalone stock decline in southern California over the past 50 years. He made it clear

that even though many of his graphs used commercial abalone landings as an indicator of decline, there is a shared responsibility for the decline and many other contributing factors in addition to commercial take. These include sport take, inadequate management (managing as a group, not by species and area), poaching, pollution, habitat loss, disease, predation (mostly sea otter), and natural environmental changes (like the frequency of El Niño events in the last two decades). He spoke about how multiple abalone species supported what looked like a sustainable fishery, when in fact species composition and location of catch were shifting as individual areas and species were depleted. Workshop participants brought up several points of discussion and concerns that need to be addressed. An overriding concern, brought up here and in later discussions, was that of sea otter repopulation in southern California. It was agreed that while this was not a goal of the workshop it should be addressed when writing the ARMP. Sea otters are mentioned in FGC §5522 (a) (6) (A) where it states that measurable criteria to determine whether the goals of recovery are being met shall include "specified abundance and size frequency distribution criteria for former abalone beds within suitable habitat not dominated by sea otters" among others. Areas dominated by sea otters would not have to achieve the specified abundance and size frequency. Other participant comments included:

- Many early efforts to manage the fishery failed, these must be considered in future management
- The Commission should be directly informed of the other causes of decline, so the blame is shared among all contributing causes
- The Department should partner with other agencies to prevent causes of population decline, such as pollution and habitat loss

While Mr. Haaker stated that we can only control take, the Department should also be looking seriously at the possibility of enhancement (both larval outplanting, and translocation).

#### Overview and Comparisons between Northern California and Southern California Stock Status, and the Northern California Sport Fishery

Dr. Laura Rogers-Bennett, CDFG associate marine biologist, described current abalone assessment efforts on the north coast. These studies now include both transect counts and timed swim counts. The timed swim counts were initiated to give a comparison to counts occurring in southern California. A 1999 northern California study duplicated a study done in 1986. While the total population looks very good, it is apparent that little recruitment has occurred in the past 5 years, possibly due to poor oceanic conditions. The sport fishery, however, has sustained a high level of take. Approximately 35,000 abalone stamps are sold to sport divers who take an estimated 1 to 3 million pounds of abalone each year. The average size of individual abalone taken is increasing, but again it appears that few small abalone have come into the fishery in the past 5 years. The lack of a significant recruitment event causes some concern about the health of the abalone stock for the near future. Management recommendations to reduce sport take may be needed to insure a continued healthy stock.

Mr. Ian Taniguchi, CDFG marine biologist, described the current status of abalone populations in southern California. He noted that abundances at San Miguel island in the 1970s were similar to current north coast levels. Present stock, however, is well below that level. All other locations have current densities lower than those necessary to sustain any significant harvest. For both speakers the participants' comments focused on two major concerns: How is the research being conducted and how often will future surveys be done? It was acknowledged that the last survey at San Miguel Island was completed in 1999.

Regular sampling is an ongoing problem that will hopefully be resolved by funding increases, a new research vessel available this year, and a higher priority for abalone research. The research methods are being modernized so that timed swim data will be more directly comparable to past and future transect data. This may even allow the conversion of abalone per hour of dive (abundance estimates) to abalone per square meter (density estimates). Another concern expressed was that southern and northern California are such different habitats that comparisons may not be realistic. The concept of managing by individual areas, not as a single region, was brought forward as a possibility.

#### Current Regulations and the Mandates of FGC §5522

Ms. Barsky described current legal requirements for the ARMP and how they relate to the Marine Life Management Act. She apologized for the fact that commitments were previously made about when the ARMP would be completed. These commitments were made without consideration of the time involved in preparing a viable plan. This workshop was one way of trying to fulfill the intent of that commitment. The plan is due to the Commission by 1 January 2003. She also clarified the roles of current mandated abalone constituent groups working with the Department. The "Recreational Abalone Advisory Committee" (RAAC) reviews proposals and recommends projects and budgets for the expenditure of the abalone stamp fees to the Department's Director. RAAC will also make recommendations on the ARMP to the Director.

The "Director's Abalone Advisory Committee" (DAAC) makes recommendations on how to spend the commercial landing tax fund. This fund has about \$255,000 remaining (approximately \$420,000 was collected). When collected the fund was earmarked for enhancement. If this fund is not spent or without further legislation it will sunset and revert to the general preservation fund on 1 January 2003. Both committees have commercial diver membership.

A serious concern arose regarding the overlap in the ARMP and the Fisheries Management Plan written in 1997. The question of why the 1997 Fisheries Management Plan wasn't being used was asked. A clarification was made that the 1997 Plan became obsolete with the closure of the fishery. A draft version of the 1997 Plan exists, and will be used for parts of the ARMP. The ARMP is mandated by law, and must contain very specific sections that are not in a normal Fisheries Management Plan. It will be completed by 1 January 2003.

#### The Department's Initial Views on Recovery

Mr. Haaker presented a four-tiered "conceptual framework" of recovery including

recovery of the resource, fishery consideration, fishery development, and ecological consideration. He noted that any fishery must be conducted in a sustainable fashion. He also outlined criteria for determining if a population is recovered including area, stock abundance, size distribution, and ecological condition. He noted that area, stock abundance, and size distributions must reach historical levels. Ecological condition (environmental change, ecosystem strength) must also be taken into account.

Participant comments focused on the fact that recovery must be defined specifically with numbers. While the framework listed abundances and size distributions, the question was raised as to how the specific levels would be calculated. The usefulness of landings data to "back-calculate" abundance when it is recognized by all sides that these data are not complete was questioned. It was again noted that the frequency and locations of monitoring must be set, in order to determine if specific levels of recovery are being met. Another major concern was that the idea of enhancement was still not being given more consideration. It was noted that while the speaker's primary mode for recovery was through natural recovery, the tax fund's sole purpose was supposed to be enhancement. Certain types of enhancement were discussed, and it was agreed that more research is needed to prove which are the most effective.

Finally the concept of whether recovery and a future fishery could occur together was questioned. This was a major concern, as many of the participants felt it was the only real question. Some noted that if recovery had to occur in all areas before any fishery could begin, then no fishery would occur in their lifetimes. The idea was raised that if one area or species is healthy, perhaps a small fishery could occur. The FGC was cited to note that a fishery could not adversely affect adjacent areas. Genetic studies might show whether a specific island provided young to other areas. It was agreed that this type of information is of high priority to all concerned.

#### Current and Future Research Goals

Mr. Konstantin Karpov, CDFG senior marine biologist, discussed the Department's goals for research, and how they will be funded. These goals included habitat mapping, population monitoring, settlement and recruitment studies, enhancement, disease and parasite studies, and fishery assessment. Funding is being provided by the sport abalone stamp fund, outside grants, and Fish and Game Preservation Account funds. He asked for ideas on expenditures.

A suggestion was made to use commercial diver's knowledge of where habitat is as a means of effectively using their expertise and saving money and resources on that part of the study. Enhancement was again discussed. A concern of the Department was where the funding would come from for major enhancement efforts, and whether current science supports one or another specific type of enhancement.

#### Discussion Items, Identified Issues, and Concerns

At this point the meeting became more focused on bringing forward topics that could be discussed in the workshop setting, and developing ways to address them. Each participant was given the opportunity to voice a single, overriding, concern that they wanted the group to address. The 47 individual items voiced fell into six general categories:

1. Sea otter management, population expansion, its effects on abalone, and the Department's role
2. How to achieve real input from constituents that the Department heeds and the need for more constituent involvement in both management and research
3. Research and monitoring issues: what types of research are necessary, when and how monitoring will occur, and how will specifics of recovery be defined
4. The need for more enhancement activities on the short and long term timeline
5. The need for appropriate and sufficient enforcement to support recovery
6. What will the actual products of this meeting be?

Many of these categories were discussed briefly and some specific suggestions of how to address the identified concerns were made. Listed below are some of the participant's suggestions:

- Experience from New Zealand and Australia should be utilized
- There should be an efficient system to monitor and change catch limits (adaptive management)
- Catch limits should be based on quantitative data; densities for sustainability
- There should be several surveys of San Miguel Island each year to determine a baseline for sustainability
- Collecting data from the south coast should be an interim goal
- There should be a survey to bring local knowledge into the decision making process and acquire some of the baseline data
- We should not have the same density goals in all areas
- Enhancement is an important way to help recover this fishery

#### Participants' Views on Recovery

The discussion of concerns led to a need for clarification of what could realistically be accomplished at the single day workshop. Questions were asked of the group to elicit responses that would provide an initial view of recovery:

- What is recovery?
- What is the definition and criteria for measurement?
- What is "sustainability"?
- What are the commercial constituents' realistic goals for the future?
- What does a healthy fishery look like?

The definition of "sustainable" was discussed briefly and answered more fully by a quotation from FGC §99.5: "Sustainable," "sustainable use," and "sustainability" with regard to a marine fishery, mean both of the following:

- Continuous replacement of resources, taking into account fluctuations in abundance and environmental variability.
- Securing the fullest possible range of present and long-term economic, social, and ecological benefits, maintaining biological diversity, and, in the case of fishery

management based on maximum sustainable yield, taking in a fishery that does not exceed optimum yield.

It was also noted that definitions of many of the terms used are defined in the Fish and Game Code. A definite short-term goal of defining recovery, from the Department's perspective, was asked for. The participants showed a real desire to help with enhancement and research activities. A discussion of how this might happen resulted, and the Department gave some information on hindrances to their ability to work with outside contractors. Two major problems were in the areas of liability insurance for boat operators, and coverage for divers working for the Department. The biologists showed a desire to help overcome these obstacles. Participants also felt that it would be important to identify areas that are healthy as well as areas in need of recovery.

Since the definition of recovery is critical to the ARMP, the participants discussed methods for creating specific definitions that would be acceptable to the commercial constituents. One suggestion was that recovery should at least be a set number of abalone per square meter. The suggestions included:

- Recovery should at least be a set number of abalone per square meter. Possible approaches to determine this density include :
  - Densities on the north coast
  - Densities seen in healthy fisheries elsewhere (New Zealand, Australia)
  - The divers' knowledge of historical populations
  - Densities within areas dominated by sea otter
- Populations should be monitored by conducting at least 2 surveys per year in each of several pre-determined sites. These sites should be chosen taking into account the divers' input.
- Because each area may be different, recovery should be based on a separate goal in each area, and the existence of normal environmental cycles should be included.

### Next Steps

As a final product of the workshop, specific short-term steps were agreed upon. These steps were based on ideas and concerns raised throughout the day. A goal of having at least one Department employee and one commercial constituent as co-chairs of work-teams for each item was stated. The work-teams will report back at the next workshop to update all concerned parties on accomplishments and future needs. Each of these steps is listed below, along with the names of those who stated an intent to help with the work-teams:

- Develop an anecdotal fishery data form and distribute it to sport and commercial divers. This form will be used to identify sites that have or had abalone populations and to choose index sites for monitoring that are acceptable to both the divers and the biologists (Jim Marshall, Jim Finch, Carl Nienaber, John Ugoretz – this form is intended to be distributed by the end of September, 2000).

- Develop a way to determine projects needed to fulfill interim recovery goals to successfully complete the ARMP (John Colgate, Dave Parker, Ian Taniguchi).
- Determine the steps necessary to begin larval out-planting. This will include research needs, permitting issues, possible Sea Grant matching funds, and other topics (Kristine Barsky, Laura Rogers-Bennett, Sam Shrout, Phillip Sanders, Pete Haaker).
- Attempt to solve insurance issues regarding allowing the commercial divers to work with the Department in research and enhancement (Kristine Barsky).
- Determine genetic studies which need to be conducted, and locate possible funding sources (Kon Karpov, John Colgate).
- Explore the idea of forming an Abalone Council, to help with issues surrounding the ARMP and determine how this group will fit in with RAAC and DAAC (Michael Harrington, Kon Karpov, John Ugoretz, Debra Nudelman).

Shortly after the workshop it was determined that two planned scoping sessions would address at least some of the identified concerns. These two sessions could take the form of broad constituent input workshops, rather than an actual council.

#### Workshop Summary and Adjournment

Ms. Nudelman briefly summarized the highlights of the workshop. Ms. Barsky thanked the participants for their hard work and efforts. The workshop was adjourned at 5:00 pm.

#### Participants

Betts, Jerome	Commercial Diver
Brooker, Craig	Commercial Diver
Brown, Locky	Sport Diver
Colborn, Katherine	Marine Life Management Project
Colgate, John	Commercial Diver
Douglas, Jeff	Commercial Diver
Duncan, Bob	Commercial Diver
Finch, James	Commercial Diver
Frederick, Gabriella	Senator O'Connell's Office
Graziano, Norman	Commercial Diver
Gritsch, Jeff	Commercial Diver
Harrington, Michael	Commercial Diver
Liquornik, Harry	Commercial Diver
Marcus, Leonard	Commercial Diver
Marshall, Jim	Commercial Diver
McBride, Susan	Sea Grant Marine Advisor
Nienaber, Carl	Commercial Diver
O'Brin, Trudi	Commercial Diver
Packard, Michael	Commercial Diver
Pattie, Ian	Commercial Diver
Pettersen, Carlton	Commercial Diver
Rebuck, Steve	Industry Consultant



Richards, John	University of California
Sanders, Phil	Commercial Diver
Shrout, Sam	Commercial Diver
Thompson, Don	Commercial Diver
Voss, Chris	Commercial Diver
Williams, Richard	Save Our Shellfish
Wilson, Darrel	Commercial Diver
Zertuche, Ruben	Commercial Diver

## **G.2.2 Abalone Recovery and Management Plan Advisory Panel**

The Abalone Recovery and Management Plan Advisory Panel was established to aid Department biologists with the development of the ARMP. The advisory panel was made up from constituents and experts representing as broad an interest base as possible including environmental organizations, scientists, aquaculturists, commercial and recreational fishermen. Two advisory panel workshops were held to provide the department with advice, feedback, and recommendations regarding the issues and actions that need to be included in the ARMP. Prior to both workshops, ARMP panelists and alternates received a workshop overview and specific focus questions. All the advisory panel workshops were open to the public, and a comment period was provided at each meeting.

### **G.2.2.1 Advisory Panel Workshop, Los Alamitos**

The following is a summary of the ARMP Advisory Panel workshop, held at 4665 Lampson Ave., Suite C, Los Alamitos, California on 16 November 2001. The ARMP Advisory Panel is composed of members and alternates representing commercial and sport abalone fishermen, environmental organizations, aquaculturists, and scientists. The Department established this panel to obtain input and advice from a broad interest and experience base. The purpose of this workshop was to receive input on southern California abalone recovery.

Prior to the workshop, ARMP panelists and alternates received a workshop overview which included a review of potential recovery measures to be considered, and specific focus questions for the panel to answer. The objectives for this workshop were to review and comment on interim and long-term recovery goals and criteria, and evaluate suggested means of recovery and suggest alternative or additional approaches not considered. The workshop was led by Mr. Paul De Morgan of *RESOLVE*, a neutral facilitation organization based in Portland Oregon.

#### Welcome, Opening Comments, Introductions, Agenda Review

Ms. Patty Wolf, CDFG marine region manager, and Mr. Peter Haaker, CDFG senior marine biologist, welcomed the panel and thanked them for their efforts to aid the Department in the development of the ARMP. The facilitator, Mr. Paul De Morgan, led the introductions of Department staff and panel members present. He then reviewed the proposed workshop objectives and agenda. Ms. Diana Watters, CDFG associate marine biologist, briefly reviewed logistical items for the workshop.

### Overview of Advisory Panel Purpose

Mr. Haaker presented an overview of the panel's purpose. He explained that the panel's input, comments, ideas, and suggestions would be used to assist the Department in the development of the ARMP. This workshop provided the Department with the opportunity to hear from the panelists regarding the Department's preliminary approach to the recovery portion of the ARMP.

Mr. Haaker presented a brief history of the abalone fisheries in California. He noted that five of the seven endemic species were important in the fishery, with all species occurring in the south, and two occurring in the north part of California. He reviewed the current moratorium for commercial and recreational abalone fishing south of San Francisco, and the recreational fishery which operates north of San Francisco.

Mr. Haaker explained that the Department felt that recovery of southern abalone, while related, is different in scope and nature from management of the northern recreational fishery. As such, the Department is addressing these two subjects separately in the ARMP. He reiterated that the focus of this workshop would be issues associated with recovery of southern California abalone stocks. Management of the northern California recreational fishery would be the focus of the next workshop planned for Spring 2002. He explained that members of the public attending the meeting would have an opportunity to comment on workshop topics during a working lunch. He introduced Department abalone team members who would be presenting information to the panel.

It was explained that most of the work to be completed for the day would take place during the panel discussion after the Department presentations. The panel was asked to:

- Address the conceptual framework for recovery
- Evaluate the Department's approach to development of the ARMP
- Address the focus questions about interim and long-term recovery goals, criteria, and activities
- Suggest alternative approaches which have not been addressed.

He added a final note of appreciation for the panel members' time and concern.

### Presentation: Review of Fish and Game Code and Biology of Abalone

Mr. Konstantin Karpov, CDFG senior marine biologist, reviewed the legal framework guiding abalone management and the ARMP. Federal laws which have implications for abalone management and which supercede state law include the Endangered Species Act and the Marine Mammal Protection Act. These two federal laws affect sea otter and white abalone management. Mr. Karpov next explained the California law, under Fish and Game Code §5521, §5521.5, §5520, and §5522, which pertain to abalone and the ARMP. Section 5521 addresses the moratorium on the recreational and commercial take of abalone south of San Francisco; §5521.5 addresses the closure of the commercial fishery for abalone north of San Francisco; §5520 explains the Legislature's intent with regard to abalone management; and §5522 addresses the ARMP's content and due date (on or before 1 January 2003), as well as provisions for

reopening abalone fisheries (the Department may apply to reopen the abalone fishery on or before 1 January 2008).

#### Presentation: Biology of Abalone

Ms. Jennifer O'Leary, CDFG marine biologist, reviewed the biological aspects of abalone that present challenges to recovery. Abalone are long-lived (30 years or longer), slow-growing (10 to 14 years for red abalone to reach the minimum sport legal size), and have highly variable recruitment (successful reproductive years). Ms. O'Leary explained the Allee effect, a minimum density below which abalone cannot reproduce successfully. The Allee effect contributes to the vulnerability of abalone stocks to collapse at low densities. The limited distance that abalone larvae are able to disperse limits their ability to re-colonize depleted areas. Ms. O'Leary pointed out that abalone fisheries cannot coexist with sea otter populations. Sea otters consume 25% of their body weight per day, and abalone is one of the primary food items. Withering syndrome was a contributor to the decline of abalone populations in southern California, and must be considered in recovering populations.

#### Presentation: Interim and Long-term Recovery Goals and Criteria

Mr. Pete Kalvass, CDFG associate marine biologist, presented a conceptual framework for recovery, based on a model created by Restrepo et al. (1998). The model provides a potential means for measuring recovery, interim and long-term recovery goals, recovery evaluation criteria, and timelines for recovery, all of which are required for the ARMP. The presented model was developed to measure the rebuilding of finfish fisheries as part of the National Standard Guidelines in the federal Magnuson-Stevenson Fisheries Act. The model uses biomass at maximum sustainable yield as a measure of recovery. The boundaries between over-fished, recovering, and sustainable status are based on proportions of the biomass level at maximum sustained yield.

The proposed long-term goal of the ARMP is to rebuild depleted stocks in southern California to a maximum sustainable level with robust size distribution in former abalone beds. The proposed interim recovery goals include:

- Prevent extinction
- Re-establish sustainable abundances with robust size distributions at former abalone beds
- Attain biomass levels with sufficient surplus stock to warrant consideration of re-establishing a fishery

Mr. Kalvass explained how red abalone densities on the north coast, where red abalone are relatively abundant, could be used to set a biomass at maximum sustainable yield for the recovery model. This could serve as a proxy for the abundance criteria for recovery of southern California abalone stocks.

#### Presentation: Recovery Activities

Mr. Ian Taniguchi, CDFG associate marine biologist, discussed the pros and cons of various recovery techniques, as well as their implementation. Recovering

depleted stocks can be achieved using a range of activities to prevent extinction, assist in the recovery process, and increase recovery goals. Recovery techniques being considered include: translocation of adult stock from one area to another, aggregation of adult abalone within an area, larval out-planting, captive breeding programs, and establishing marine protected areas. The recovery program will require an assessment strategy to evaluate the effectiveness of each stage of recovery on a species by species basis. Assessments will be integrated into statewide research protocols that are currently being developed by the Department with collaboration from other state and federal agency researchers. The necessity for recovery actions will be reevaluated as abalone populations recover to self-sustainability.

#### Public Comment During Lunch

During the lunch break, members of the audience were given the opportunity to provide input. Mr. John Richards with the University of California's Sea Grant Extension Program made a general announcement explaining his involvement with Sea Grant and potential sources of information and funding available through Sea Grant.

#### Advisory Panel Discussion of Interim and Long-term Recovery Goals and Criteria

Comments made by the panel members are summarized here. The comments are in response to focus questions presented to the panel by the Department's Abalone Team, which is responsible for developing the Abalone Recovery and Management Plan.

Q: Are the interim and long-term goals valid?

- Several panel members expressed concern about the long-term goal of reopening an abalone fishery in southern California because the stocks are currently so depleted. It was recommended that this goal not be part of the plan. Rather, the immediate goal should be to recover these stocks and design a specific step-by-step plan for doing so. Such a plan should include research methods to assess the success or failure and cost-effectiveness of the methodologies employed.
- The panel was concerned about reopening a limited fishery once the population reached the minimum  $B_{msy}$ , suggested by the Restrepo et al. (1998) model. This concern was linked to the applicability of the Restrepo model to invertebrate populations.
- It is likely that sea otters will expand their range, and this should be considered for recovery of southern abalone stocks. The U.S. Fish and Wildlife Service (USFWS) has not implemented the capture and relocation provisions of the 1987 Sea Otter Translocation Plan since early 1993, thus allowing natural expansion of the otter population into southern California. The USFWS is currently evaluating whether failure criteria in the Translocation Plan have been met. If deemed a failure, there are no legal mechanisms for limiting sea otter range expansion. Therefore, if the long-term goal is to recover southern California abalone stocks to the point that a fishery can be reopened, that goal may be unattainable because of sea otter recolonization in southern California. The U.S. Fish and Wildlife Service should work together as partners on this situation.

- It was suggested that recovering a population to prevent extinction is a different goal than recovering a fishery. These two goals have different approaches which should be specified. The interim and long-term goals for the two kinds of recovery must be clearly defined and measurable.
- The recovery plan needs to be able to address the habitat quality at different locations for different species.
- The plan should be able to address the problem of incidental take if a fishery is reopened for fewer than all the species of abalone.
- Some panel members thought the interim goal of preventing extinction is redundant.

Q: Are there additional interim and long-term goals that should be considered?

- Re-ordering the interim and long-term goals was suggested. Some members felt management steps should come earlier in the process of recovery. There was some interest in the reopening of a fishery at the minimum biomass levels, but it was pointed out that this would extend the period for achieving maximum biomass levels.
- Add more interim goals to deal with various aspects of recovery; some of the long-term goals should be interim goals.
- Organize goals into stages of recovery (I, II, III, etc.) with specific triggers to signal transition into next stage.

Q: Are the long-term goals appropriate for all five species?

- There should be realistic specific goals for each species. One panel member suggested linking red abalone recovery goals to specific areas such as San Miguel Island.
- Do not consider reopening fisheries for black and green abalones. These species are found in very shallow, restricted habitats and are too available to divers. Even limited take could have serious negative effects on populations.

Q: Do you agree with the criteria as described?

- The panel felt that the recovery criteria presented did not adequately address Section 5522.6c, which pertains to the importance of areas proposed for reopening and the potential impact to the recovery of adjacent areas. Some panel members pointed out that some areas where abalone were found are no longer suitable for populations because of habitat loss and ecological changes.
- Triggers: Several panel members disliked the use of  $B_{msy}$  (or maximum sustained yield (MSY)) because they felt more data are needed to form the basis of a model. Some felt that 30% of  $B_{msy}$  is not a conservative threshold for a slow growing animal. These comments relate to the idea that the Restrepo model was inappropriate for application to invertebrates.

Q: Do you have any additional suggested criteria for recovery?

- If  $B_{smv}$  is used as a recovery criteria, there should be a clear measure for setting it (the perception was that the Department does not have a clear measure). The use of optimum yield (OY) in place of MSY was suggested.
- Develop specific research protocols for stock assessment.
- Incorporate university research and cooperative research efforts with abalone fishers.
- Establish a method to assess the effectiveness of these criteria as they are implemented.
- Age and growth data should be collected as they may be useful for making predictions about the future settlement and recruitment.
- Look to work done in Australia to use as a model for research and management (for example, Alistair Hobday's work).
- Begin gathering data immediately at San Miguel Island so that this data will be available for future assessments.
- Hold off on setting a maximum threshold for establishment of a fishery. In the interim, all work should be directed towards rebuilding stocks.
- Choose marine protected area (MPA) sites for abalone as soon as possible. Choose sites that can be protected by enforcement.
- Incorporate these MPA sites into the current MLPA and MERWG processes as soon as possible.
- The recovery plan presented lacks the flexibility to manage for differences in habitat quality among different populations, or for incidental take if a fishery is reopened in southern California for some species.

#### Advisory Panel Discussion of Recovery Activities

Review and comment on recovery activities:

- Several panel members stressed the critical need for assessment and filling data gaps. More research is needed in areas such as genetics for stock identification, density determination, effectiveness of abalone recruitment modules (ARMs), etc.
- The members were concerned about using fishery-dependant data in developing assumptions to be used in management plans.
- Larval out-planting and aggregation methods are uncertain in their ability to enhance natural stocks. Thus, more traditional monitoring of abalone populations is crucial. Aggregation experiments and ARMS have been unsuccessful so far. The actual cause of mortality is unknown. Experiments are needed to determine the validity of these recovery activities.
- Focus on designing experiments appropriate to recovery activities.

Q: Can you evaluate suggested means of recovery and suggest alternative or additional approaches not considered?

- Establish a data monitoring program and research methodology to determine the level of recovery for populations.

- Conduct experiments to test the effectiveness of recovery treatments. One could use a BACI (before/after control impact) approach with a sufficient number of replicates (example: six per site).
- Establish MPAs (for control sites) on Santa Cruz, Santa Catalina, and Santa Barbara Islands. Protect sites with effective enforcement. Recovery techniques must be linked to MPAs to protect stocks.
- Panel members suggested a compilation of existing data and literature be assembled. Funding could be sought from private and public grant agencies. Sea Grant Rapid Response funding was suggested.
- A recruitment model would be helpful to evaluate which sites to enhance, but there is an absence of the data to generate such a model.
- Baseline population genetic data are needed but difficult to obtain. Could look at recruitment and test for genetic homogeneity.
- A panelist advocated using aggregation rather than translocation because the areas chosen should have similar habitat and population structure. There was also concern about the spread of disease and parasites during these operations.
- Consider habitat grooming to aid larval out-planting. Such techniques as using coralline covered rocks in out-planting operations should be investigated as a technique for enhancement.
- Consider not applying enhancement techniques in certain areas; and there should be criteria about when to cease enhancement techniques, i.e., when population recovery is evident.
- Consider ocean current patterns when doing translocation studies to identify potential source and sink populations.

Additional focus questions posed to the panel based on the morning discussion:

Q: Does the model (Restrepo et al. 1998) make sense? Are there alternative models?

- Several panel members thought the Restrepo model was inappropriate for invertebrates and that it is not sufficiently conservative.
- In place of a Restrepo model, develop a model that includes individual growth rates, fecundity, size data, an estimate of mortality, and genetic connectivity between populations/stocks.
- A Skillam model was suggested as an alternative to Restrepo.
- A population model, rather than a fishery model was suggested.

Q: Are northern California stock densities appropriate for southern California recovery criteria?

- Density at San Miguel Island was suggested by one panel member to be a more realistic proxy for southern California recovery criteria.

Panel requested clarification and /or definition of the following terms/ideas:

- Robust size distribution

- Self-reproducing population
- How surplus stock will be measured
- Definition of former abalone bed

Next Steps

Mr. Paul De Morgan led a discussion of the next steps for the panel and the Department to take or consider taking:

- Explore funding opportunities (e.g., Sea Grant, NFWF) for development of an Abalone Data Library - Pete Haaker, Lead; Kate Wing, advice.
- Consider getting support of full panel behind the funding requests - would require drafting a proposal and sending out to the panel members for endorsement.
- Establish a science subcommittee - Pete Kalvass, Lead; Ron Burton, Tom Ebert, Steve Schroeter.
- Obtain and examine “raw” existing data.
- Further develop ideas for alternative models.
- Draft and distribute for comment a summary of the proceedings to all panel members.
- Schedule the March meeting.
- Consider adding a half-day of meeting in March to discuss recovery related issues.
- Consider convening conference calls to discuss issues (e.g., new models) prior to the next meeting.
- CDFG will consider potential MPAs and share their views on the most valuable marine areas for abalone recovery with the panel members.

Participants

Ben Beede	panel member
Tom McCormick	panel member
Kate Wing	panel member
Jim Curland	panel member
John Colgate	panel member
Jim Marshall	panel member
Michael Henderson	panel member
Stephen Benavides	panel member
Gregory S. Sanders	panel member
John Butler	panel alternate
Ron Burton	panel member
Stephen Schroeter	panel member
Thomas Ebert	panel member
Carolyn Friedman	panel member (participated by phone)
Pete Haaker	CDFG
Kon Karpov	CDFG
Peter Kalvass	CDFG
Jennifer O’Leary	CDFG
Ian Taniguchi	CDFG
Mary Bergen	CDFG



Kelly O'Reilly	CDFG
Diana Watters	CDFG
Jonathan Ramsay	CDFG
Patricia Wolf	CDFG
Fred Wendell	CDFG
Paul DeMorgan	Resolve, Inc.
John Richards	Sea Grant

### **G.2.2.2 Advisory Panel and Recreational Abalone Advisory Committee Workshop, Oakland**

Members of the ARMP Advisory Panel and the Recreational Abalone Advisory Committee (RAAC) met at the Elihu Harris State Office Building, 1515 Clay Street, Oakland, California on 15 March 2002, to provide input to CDFG on northern California abalone management. The objectives of the workshop were to:

- Evaluate and comment on the proposed management approach; and
- Evaluate and comment on alternative management strategies and refinements and make additional suggestions.

The ARMP Advisory Panel is composed of individuals representing commercial and sport abalone fishermen, environmental organizations, aquaculturists, scientists, and others. The panel was established by CDFG to obtain input and advice from a broad range of interests on efforts to develop the ARMP. The RAAC is an on-going Committee advising the CDFG on issues associated with the recreational abalone fishery. Copies of presentation slides and other materials distributed at the meeting may be obtained by contacting Diana Watters, at (650) 631-2535, or [dwatters@dfg.ca.gov](mailto:dwaters@dfg.ca.gov).

#### Welcome and Opening Remarks

Mr. Peter Haaker, CDFG senior marine biologist, welcomed everyone to the workshop. He noted that the Department was holding the workshop to solicit comments and suggestions from various perspectives, including those of biologists, non-governmental organizations, and recreational divers. He explained that the workshop included both the ARMP Advisory Panel and the RAAC in order to broaden the range of expertise and comments.

#### Introductions and Agenda Review

Mr. Paul De Morgan, RESOLVE, introduced himself and explained that as facilitator of the workshop he would ensure that CDFG had an opportunity to present the proposed management approach and the rationale behind it, and ensure that everyone had an opportunity to comment on the proposed approach and rationale.

After members of the ARMP Advisory Panel, RAAC, CDFG staff, and audience introduced themselves. Mr. De Morgan reviewed the agenda and other materials presented to the workshop participants. He outlined the ground rules for the workshop and asked the ARMP Advisory Panel and RAAC members to focus their comments on the management aspects of the proposed plan.

### Presentation: Update on Progress Since First ARMP Workshop and Overview of Workshop Purpose

Before providing the update, Mr. Haaker offered the apologies of Ms. Patty Wolf, CDFG marine region manager, and Mr. Fred Wendell, acting CDFG northern marine region manager, who were unable to attend the workshop but have been very involved in developing the ARMP.

Mr. Haaker reported that CDFG has been seeking funding for the abalone data library, but no funding has been secured yet. He said that in response to comments on the importance of marine protected areas (MPAs) he and Ms. Laura Rogers-Bennett, CDFG associate marine biologist, had evaluated all of the proposed MPA sites for their potential benefit to abalone. He noted that a consideration was that sites for concentration of abalone must be able to be protected or located in remote locations. He said that many of the proposed sites are in the vicinity of major population centers and probably would not be useful in abalone work. He also reported that Department staff had provided southern California abalone tagging and cruise data to the scientific subcommittee.

To help illustrate the connectivity of recovery and management, Mr. Haaker presented a general model for the ARMP.

Mr. Konstantin Karpov, CDFG senior marine biologist, explained that the Department is developing a management plan that is precautionary in a data-poor environment and uses an empirically derived total allowable catch (TAC). He said that the starting point for the proposed plan is the recent Fish and Game Commission action. He commented that the Department considers the plan a living document, allowing for refinements as more data become available and the science progresses. Mr. Karpov said that the proposed plan includes criteria that will “trigger” management actions based on the conditions of the abalone stocks and environment. He explained that in plan development, the Department is considering local area closures to protect the resource from localized depletions. He said the Department also is considering closing and opening fisheries as area-wide recovery dictates, thus linking proposed management to the recovery portion of the ARMP. In closing, Mr. Karpov commented that the Department’s staff was open to comments and critical thinking on the proposed management approach.

### Presentation: Status of Stocks and Management Considerations

Mr. Jerry Kashiwada, CDFG marine biologist, presented an overview of the status of abalone stocks and management considerations. He presented historical data on the serial depletion and overall decline of red abalone in central and southern California. He listed the fishery-dependent and fishery-independent assessment sites for northern California, commenting that the limited number of sites contributes to the data-poor scenario. He outlined the data on the northern red abalone fishery that indicate current trends of concentrated fishery effort and increased take, few young abalone, declines of deep-water stocks, and serial depletion in high-use areas. Mr. Kashiwada said that earlier this year, the Fish and Game Commission considered these trends and lowered the daily bag and possession limit from four abalone to three and the annual limit from 100 to 24. He commented that the new limits result in a projected annual take of 430,000 abalone.

In response to questions, CDFG staff made the following comments:

- Estimates of poaching (such as the number of people stopped who do not have an abalone report card or who have more than the bag limit) are developed primarily from information collected at enforcement checkpoints. “Black market” poaching is much more difficult to estimate.
- About 1-2% of fishermen caught their annual limit of 100 abalone under the old regulations. The average annual catch was 18 abalone. In 2001 there were approximately 40,000 fishermen.
- CDFG estimates bar-cut mortality at 2-3%, which is lower than in the past due to current gear regulations and education efforts.

A member commented that despite all the effort going toward abalone, the scenario is still data-poor. Dr. Rogers-Bennett noted that the Department is just beginning to receive data from increased research efforts supported by funds from the abalone stamp.

#### Proposed Management Approach

Mr. Peter Kalvass, CDFG associate marine biologist, and Ms. Jennifer O’Leary, CDFG marine biologist, presented an overview of the proposed management approach. Mr. Kalvass explained that the proposed plan is based on an empirically determined total allowable catch (TAC) of 430,000 abalone. He said that under the proposed plan total catch would be measured annually, post-season, and the Department would conduct a review every other year to determine if the TAC is being met with existing regulations, to determine if alterations of the TAC are warranted based on the established criteria, and to evaluate the sustainability of local areas.

Mr. Kalvass outlined the proposed criteria for recruitment, density, occurrence of adverse effects, and serial depletion and explained how each was developed. He noted, however, that since completing the document submitted to the panel (“Overview of Abalone Recovery and Management Plan Workshop on Management”) the Department had reconsidered the adverse effects criterion. He said the staff decided to propose the disease criterion but not the other adverse effects criterion, believing that not enough is known about El Niño, poaching, and sea otters to make strict criteria on them. He noted that the disease criterion distinguishes between a minor event (5-20% of stocks affected) and a major event (more than 20% of stocks affected).

Ms. O’Leary explained how the criteria work within the decision tables. She reviewed the fishery-wide TAC decision table, outlining the combinations of criteria (recruitment, density, and adverse events) that would dictate increasing the TAC, maintaining the TAC, decreasing the TAC, closing the fishery, or reopening the fishery. She noted that the maximum TAC would be set at 25 % above the base TAC of 430,000 abalone per year. She offered an example of a situation in which the criteria would require reducing the TAC.

Ms. O’Leary also reviewed the localized area closure decision table. She outlined the combinations of criteria (density, serial depletion, and adverse events) that would trigger a survey to determine if density in the area is approaching minimal viable population, closure of an area, or reopening of a closed area. She noted that if an area

were closed, the overall TAC would be reduced proportionately to prevent increased take in the remaining open areas. Ms. O'Leary also explained that a localized area that met the criteria for reopening would not be reopened if the entire fishery were closed (i.e., these criteria would not apply to localized areas in the southern fishery until the entire fishery met the criteria to reopen a fishery).

Ms. O'Leary listed the tools currently available to the Department to manage the fishery: gear restrictions, size limits, area closures, seasonal closures, daily limits, and annual limits. She commented that these tools may be refined or others may be added in the future and noted that daily and annual limits are the primary tools currently being used to adjust the TAC.

In response to questions, CDFG staff made the following comments:

- It takes from 5 to 10 years for an abalone to grow from emergent size to harvestable size; however, growth rates vary greatly in response to food source and some abalone may take several more years to grow from emergent to harvestable size.
- The fishery-dependent surveys are designed around access sites, with high use sites serving as index sites. There are no strict criteria for defining the boundaries of the sites, though the fishery-dependent surveys generally extend as far as the fishermen go. CDFG would prefer to have a different, random frame if it were possible. Monitoring a consistent area is likely more important than where the boundaries of sites lie.
- The biennial review of the TAC will coincide with the 2-year cycle of the Fish and Game Commission's regular sport fishery review. Total catch will be monitored annually, and it would be possible to make adjustments within the 2-year period if the situation warranted it.
- Estimates of the extent of withering syndrome at San Miguel Island in 1993 are based on data from CFG cruises, which indicated that up to 5% of abalone examined at some individual sites were affected by the disease.

A panel member noted that for the serial depletion criteria, a "significant" increase in distance from access point or "significant" decline in catch per unit effort (CPUE) means a *statistically* significant increase or decline, which may be large or small in magnitude and may or may not be biologically significant.

#### Refinements of the Proposed Plan and Alternative Management Strategies

Ms. Rogers-Bennett presented some of the CDFG staff's ideas of refinements and alternatives to improve the plan as new information becomes available. She noted that these refinements and alternatives will not be included in the first ARMP. Ms. Rogers-Bennett focused on five areas:

- *New criteria* - Aggregation criteria or criteria on the effects of El Niño, poaching, and sea otters may be incorporated in management decision making.
- *Marine protected areas* - MPAs may be established in shallow habitat to provide insurance against stock collapse.
- *Alternative management strategies* - Rather than a TAC-based strategy, the plan could use an area-based management strategy, which would adjust the amount of

- habitat reserved from fishing according to criteria.
- *Alternative approaches for setting TACs* - The proposed plan uses previous fishing levels to set the TAC. Alternatively, if data were available to support the methods, the TAC could be set based on a surplus production model or in response to the environment.
- *Additional quantitative methods* - Refining estimates of population parameters (growth, mortality, and reproduction) or modeling proposed management strategies could help to evaluate management options.

In response to questions, Mr. Karpov clarified that the TAC in the proposed plan does not assume any closed areas; if any areas are closed, as MPAs or for other reasons, the TAC would be lowered proportionately.

A member commented that the effects of MPAs may be counterintuitive. She gave the example that if an MPA included urchins, an increase in their population could reduce the amount of kelp in the area, which in turn could hurt the abalone population. Another member commented that CDFG staff should ensure that MPAs are beneficial for abalone. Ms. Rogers-Bennett noted that biologists do not understand all the intricacies of species interactions. CDFG explained that Mr. Haaker serves as a link between the ARMP and the MLPA processes, providing information on the potential effects of proposed MPAs on abalone. A member pointed out that unless an MPA is closed to all fishing it is difficult to prevent poaching.

### Discussion of Overall Plan

#### *Focus Questions:*

- What is your general reaction to the proposed management approach?
- Will it result in a sustainable fishery?

Several members commented that generally the proposed approach is good, given the data limitations.

A member expressed concern about basing decisions on data averaged across all sites and asked whether this was the best approach given the difficulty of predicting recruitment. Another member responded that treating the fishery as one unit may be the best approach since so little is known about the interconnections among sites from a population standpoint.

Several members commented on the need for CDFG to prepare a research plan that states priorities and timeframes for filling various data gaps. One member noted that clear priorities and rationale would be helpful in seeking funding from outside sources and or competing for limited state research funding. Comments on specific areas of research included:

- CDFG needs to determine the extent of abalone habitat (and the extent of accessible abalone habitat) in order to estimate the size of the fishery reliably.
- CDFG needs to outline what additional information it will gather and use to assess and prevent serial depletion. Site-specific data are important as different sites will

need to be managed differently. Site-specific reporting on the abalone report cards is a good start.

- The data need to cover the entire area. In particular, research should determine both where the juveniles are and what is happening in the grazer areas where the larger abalone reside.
- Data on connectivity of sites are important but extremely difficult to obtain given current technology. The use of non-genetic tracers as a way to identify larval sources was suggested.
- Data on settlement of postlarvae would be very useful as they provide an indication of the future population. Settlement collectors would be preferable to Abalone Recruitment Modules (ARMs) if an effective collector could be developed for abalone.
- CDFG should work to determine what impacts (e.g., fishing, El Niño, sea otters) have the greatest effect on abalone.

A member commented that when the Department's approach is to err toward conservation in a data-poor scenario, the Department may implement closures that fishermen believe are not justified. He said that adequate research and funding may alleviate some of this negative reaction.

Additional comments included the following:

- The plan should include a law enforcement component.
- The plan should include quantitative criteria to allow the public to evaluate whether CDFG is achieving its goals.
- The areas most heavily fished are those that are most accessible, not necessarily those that are most productive.

#### Public Comment

Mr. E.A. Flynn requested that the RAAC consider opening San Mateo County to recreational abalone fishing. He commented that opening San Mateo County would reduce fishing pressure on other counties and would also show how 5 years of closure had helped the abalone recover. He reported that he had observed an eighteen-fold increase in abalone in one area.

Mr. Paul Weakland expressed concern about the lack of abalone data and the resulting choice by CDFG to err on the side of conservation. He commented that all disease events should be considered major rather than using the proposed two-tier classification. He suggested that CDFG increase the minimum size requirement for harvestable abalone in order to increase abalone populations. He commented that 52 of the 104 existing MPAs are closed to abalone fishing and questioned why more MPAs are being identified when it is unknown whether the existing ones have benefitted abalone. He also requested that CDFG report the margin of error on its surveys.

Mr. Harold M. Hoogasian stated that raising the minimum size requirement is the easiest way to increase the abalone population. He commented that the Department's estimates of poaching are a gross underestimate and that commercial poachers are causing a lot of damage. He said that the abalone stamps are too inexpensive and suggested that fishermen would be willing to pay more if they knew the money were

going toward research. He also suggested that fishermen would be willing to give CDFG a tissue sample from the abalone they catch so that the Department could do a genetic population sample.

### Discussion of the Proposed Criteria

#### *Focus Questions:*

- Will the criteria assist the Department in determining fishery adjustments?
- What is the best proxy for good recruitment: emergent or invasive densities, or a combination of both?
- Is it reasonable to use average densities from emergent surveys at three index sites as the sustainable population density target in northern California?
- What measurable criteria could be used for El Niño events and poaching?
- Should sea otter expansion trigger localized or total closure?
- Are the definitions of minor and major disease events logical?
- Are there additional criteria that the department should consider?

A member suggested that the CDFG staff draw on the formal body of literature on decision making matrices to help develop the plan. She commented that the literature could offer methods of incorporating uncertainty into decision making and methods to take advantage of expert opinions as well as quantitative information.

Members discussed the advantages and limitations of survey methods. Several expressed concern about the impact of invasive surveys on the reef habitat, and some noted that invasive surveys are time consuming and labor intensive. One member commented that due to the long time it takes for abalone to grow from emergent size to harvestable size, CDFG can use emergent survey data to evaluate the fishery and effect management changes, making the invasive surveys unnecessary. Another member noted that emergent surveys do not adequately capture the 'hidden' part of the population which could lead to over- or under-estimations of stock trajectories. Some members recommended that the CDFG should continue to utilize the invasive surveys as they provide valuable information about the young-of-the-year. One member suggested that CDFG should think "outside the box" in developing new means of gathering data on the young-of-the-year. Specific suggestions offered by members included creating artificial habitat, using Lucite tubes to view the abalone, and using data from settlement collectors to focus the invasive surveys.

A member commented that collecting young-of-the-year for analysis is important. He suggested that chemical analyses of the shells might indicate locations where they were spawned. He said that archiving tissue samples might also be useful, noting that the samples should be from both large and small abalone.

A member commented that three index sites are too few for management decisions. He suggested that data from the three sites could be used as a trigger for more extensive data gathering efforts. He also commented that Van Damme is an anomaly and should not be used as an index site. Another member agreed that three sites is too few for management decisions, observing that an unusual event at one of the sites would have a large influence on the overall data if there were only three sites

total. A member commented that the very best sites should not be chosen as index sites as they are not representative of the whole fishery. Another member suggested analyzing how well the long-term sites tracked with each other and with the area-wide surveys.

A member expressed a concern about the limited number of sampling areas outside of northern California. She commented that some people might argue based on the criteria that some areas closed under the moratorium should be opened. She and others commented that in particular, CDFG should clarify how the plan applies to San Mateo County and whether it could be reopened under the criteria.

A member observed that the proposed criteria consider population size but not population trends. She suggested that developing an index of abundance over time would be useful. Another member suggested sampling more sites to build a genetics library that would help with developing a population structure and help with enforcement efforts. A third member suggested doing a delta plot and time series analysis to help determine how typical various sites are and whether different sites fluctuate similarly. He commented that if staff and funding constraints limit research efforts, CDFG should opt for developing time series data over expanding the number of sites sampled. He also suggested sampling annually to develop the time series, though another member commented that sampling every other year may be adequate.

A member requested that CFG provide a better explanation of how recruitment will be measured and how it will factor into decision making.

Members discussed adverse events and whether the Department should develop criteria based on them. One member suggested that the Department should distinguish between reversible adverse events, such as El Niño, and non-reversible events, such as the establishment of sea otters.

- *Disease* - A member suggested that areas affected by disease should be open to fishing as lowering the population density may decrease or slow the spread of the disease. Another member, however, expressed concern that fishing might harvest out disease-resistant animals. A member asked whether Crescent City would be closed under the proposed disease criteria. CDFG staff noted that the criterion requires the abalone to show symptoms of the disease, so Crescent City would not be closed. Mr. Haaker added that Dr. Carolyn Friedman (a shellfish pathologist) has advised CDFG that the proposed disease criteria are too simplistic and the criteria may need to be expanded.
- *Poaching* - Some members expressed concern about using criteria based on poaching estimates, given the difficulty of developing accurate and reliable estimates. One member commented that the effects of poaching are already incorporated implicitly in other criteria.
- *El Niño* - A member observed that the proposed plan focused on the potential negative effects of El Niño. He commented that El Niño may also have positive effects, noting that the period of strong recruitment at Van Damme was during El Niño. He said that using El Niño criteria as a trigger for closer research on its effects may be appropriate.
- *Sea otters* - One member commented that there is nothing management can do about otters; they will deplete an area of abalone on their own. Another member



commented that it is difficult to determine what constitutes establishment of an otter population. Noting that the presence of otters would be detected by a change in abalone densities, he commented that otter establishment should not be a criterion, but rather criteria should focus on what is happening in the fishery. Some members suggested that areas in central California where otters are established and the abalone are surviving should be used to determine the minimum viable population level for abalone. One member commented that it remains unclear whether sea otters will establish in the north, though another member commented that it is likely they will establish over the next decades. A member pointed out that the huge population of abalone was the result of the near extermination of sea otters, which is unlikely to happen again. One member suggested that rather than closing areas as otters move in, the TAC could be lowered incrementally. Another member responded that otters should trigger the opening of areas rather than closing, to allow fishermen access to the abalone before they are depleted by the otters.

### Discussion of the Proposed Management Approach and Alternative Management Strategies and Refinements

#### *Focus Questions on Fishery Adjustment:*

- Are the options presented in the decision tables logical?
- Do the specified sets of criteria warrant the actions listed?
- Do the listed actions provide adequate management alternatives?

#### *Focus Questions on Alternative Management Strategies and Refinements:*

- Would the new criteria improve abalone management efforts?
- Would the alternative approaches improve TAC estimates?
- Are there any additional alternative strategies that should be considered?
- Are there any additional quantitative methods to evaluate management options?

Some members noted that according to the proposed plan, the TAC would be reduced if the average population density fell below 5,000 abalone per hectare (ab/ha), the fishery would be closed if the density fell below 3,000 ab/ha, but the fishery would not be reopened until density rose above 6,600 ab/ha. They questioned why the proposed plan would allow fishing at reduced levels while the abalone population density was falling from 5,000 to 3,000 ab/ha but not while density was rising from 3,000 to 6,600 ab/ha. Some suggested that the plan should allow incremental reopening. One member suggested that an auction or lottery system be used to open closed sites on a limited basis, with the revenue going toward research. Another member commented, however, that closed areas should not be opened incrementally when population density is increasing because the fishery will need time to build up a surplus population without fishing pressure. Other members agreed, and one noted that requiring high densities before opening an area would be especially important in the absence of recruitment criteria.

A member recommended that the decision tables allow for discretionary adjustments. He commented that when implementing the plan, CDFG will learn which criteria and methods are most effective and should allow the possibility of dropping criteria in favor of others that work better. Another member supported the idea of having a range around the criteria (a buffer) such that if stocks reach the boundaries of this range, additional studies would be triggered before changes to the fishery regulations. He commented that without such a range, closures and TAC changes could be triggered every year.

One member asked whether the plan would include a range of alternative management goals and activities as required by the Fish and Game Code. Mr. Haaker responded that CDFG did not intend to include alternative density level criteria but would include different actions to respond to the criteria. Mr. Kalvass commented that the Department would welcome suggestions of alternatives.

A member observed that the Van Damme study site experienced a period of major recruitment and then a decade of no recruitment. He commented that under such a scenario, a model of linear increases in stocks in closed areas may not result in appropriate trigger points. He recommended that CDFG consider the time frame for evaluating stocks and consider using models to explore the effects of the proposed management actions under different recruitment scenarios. Another member commented that settlement may be on a 10-year cycle, with one good settlement event followed by a decade of poor settlement, and such a pulse of settlement might trigger a management change under the proposed plan. He suggested that CDFG could explore the effect of the pulse using a relatively simple model. Mr. Karpov commented that an incremental increase in the TAC in response to the pulse would not likely pose a major risk to stocks. The member responded, however, that the pulse may not actually produce a surplus, but rather an occasional major settlement event may be normal and necessary for a population of long-lived animals such as abalone. He suggested that if this were true, it would argue for a conservative response to major settlement events.

Other comments and suggestions included:

- Consider developing criteria based on concentration levels.
- MPAs are more difficult to enforce than changes in bag and annual limits or season length in part because enforcement could require continuous observation.
- Education efforts to explain the plan and what is being done with money from the abalone stamp will help reduce negative reactions to management activities.
- Consider what will happen in the absence of necessary data; the proposed plan seems to indicate that the fishery would be closed if the data were not available.
- Consider developing a population model to determine which sizes of abalone are most important for population survival and growth.
- Increasing the minimum size requirement may not increase larval production as younger abalone may be better reproducers. CDFG should examine what effect changing the minimum size requirement would have on reproduction.

Several members offered suggestions of cost effective ways to increase data collection:

- Contract commercial divers
- Use data collection partnerships
- Take advantage of volunteer programs
- Reach out to university students who are dive-certified

### Public Comment

Mr. Jesus Ruiz, of the YMCA SCUBA Program, commented that CDFG should look for ways to leverage research funding. He suggested that this could be done by further training researchers from other institutions (e.g., universities, junior colleges) to meet CDFG standards or by training volunteer researchers. He cautioned CDFG about raising a conflict in the Legislature or creating a social stratum by increasing license fees or establishing a lottery to open areas to a limited number of people. He also commented that the abalone fishery affects more than fishermen and has an economic impact on communities.

Mr. E.A. Flynn commented that the Fish and Game Commission has good control of the abalone resource through existing management tools. He commented that raising the minimum size requirement from 7 inches to 7.5 inches would increase reproduction. He also noted that the size of the area being considered affects the abalone density level.

Mr. Harold M. Hoogasian offered his support of Mr. Flynn's suggestion that raising the minimum size requirement would aid reproduction. He also commented in support of establishing a lottery or some other system to allow limited opening of some areas with the revenue going toward conservation. He suggested that a similar system might also be used for limited reintroduction of commercial fishing, which would relieve some of the pressure on the resource from black market poaching.

### Summary of Comments

Mr. Karpov and Mr. Haaker listed some of the comments they had heard from members and the public during the day's discussions:

- Generally the framework is sound.
- Reconsider the logic behind some of the proposed steps, and explain the rationale clearly in the plan.
- Opinions vary as to whether emergent or young-of-the-year (invasive) surveys are best.
- Three index sites are not a large enough sample for management decisions but could be used to trigger additional data collection. Sampling sites should be more numerous and more broadly distributed.
- Time series data are important.
- Examining the vectors of population change may provide useful information.
- Given the long time between major recruitment events, build conservativeness into the framework.
- Consider adding a buffer around the criteria to allow discretion with respect to what action is triggered.
- Consider expanding recruitment criteria.
- Sea otters probably should not be a criterion.

- It is not appropriate to have an El Niño criterion at this point. CDFG should further research the effects of El Niño on abalone.
- Prioritize the research needs to assess the stocks.
- Develop new or improved research methods.
- Consider ways to cost-effectively increase data collection efforts.
- The proposed criteria do not adequately address the complexity of disease events.
- Consider management tools other than bag and annual limits and seasonal closures.
- Consider how the plan applies to the central coast.
- Provide a means for the public to evaluate how CDFG's work is affecting the resource.

Mr. Karpov commented that the input from the panels and the public was very helpful in stimulating and focusing the thinking of the CDFG staff. He said the staff will incorporate the comments offered today as they continue developing the ARMP. Mr. Haaker added that he hoped everyone at the workshop would continue to provide input to CDFG in the future.

Participants

Ben Beede	panel member
Tom McCormick	panel member
Kate Wing	panel member
Jim Curland	panel member
Jim Marshall	panel member
Gregory S. Sanders	panel member
Ron Burton	panel member
Stephen Schroeter	panel member
Thomas Ebert	panel member
Leah Gerber	alternate for Carolyn Friedman
Stephen Campi	RAAC
Richard Pogre	RAAC
Steve Riske	RAAC
John Colgate	RAAC and panel member
Stephen Benavides	RAAC and panel member
Rocky Daniels	RAAC and panel alternate for Mike Henderson
Pete Haaker	CDFG
Kon Karpov	CDFG
Peter Kalvass	CDFG
Jennifer O'Leary	CDFG
Mary Bergen	CDFG
Jerry Kashiwada	CDFG
Jim Moore	CDFG
Thea Robbins	CDFG
Laura Rogers-Bennett	CDFG
Diana Watters	CDFG
Jonathan Ramsay	CDFG

Fred Wendell	CDFG
Eric Larson	CDFG
Frank Spear	CDFG
Paul DeMorgan	Resolve, Inc.
Sarah Litke	Resolve, Inc.

### **G.3 Informal Public Comments**

#### **G.3.1 Town Hall Meetings**

Two town hall meetings were held in Fort Bragg and Santa Barbara to receive informal public comments on the draft Abalone Recovery and Management Plan (ARMP). The objectives of the town hall meetings were to explain key features of the draft ARMP and to obtain public comments and suggestions on the draft ARMP. Presentations were given on abalone biology, status of stocks, recovery and both interim and long-term management proposals. Presentations were followed by a public comment and discussion period.

##### **G.3.1.1 Fort Bragg Town Hall Meeting Summary**

CDFG held a town hall meeting at Fort Bragg City Hall in Fort Bragg, California on September 7, 2002, to receive informal public comments on the draft ARMP. The objectives of the town hall meeting were to:

- Explain key features of the draft ARMP.
- Obtain public comments and suggestions on the draft ARMP.

##### Welcome and Opening Remarks

Mr. Konstantin Karpov, CDFG senior marine biologist, welcomed everyone and thanked them for attending the meeting. He noted that CDFG was holding the meeting to receive informal public input on the development of the draft ARMP. He explained that this meeting follows a series of workshops held by the CDFG, in July 2000, November 2001, and March 2002, to receive input from a broad spectrum of abalone interests and expertise. He also explained that opportunity for formal public comment on the ARMP would follow the CDFG's submission of the plan to the Fish and Game Commission in early December. Mr. Karpov then reviewed the agenda for the meeting. He explained the terms "precautionary" and "sustainable". He introduced CDFG's presenters that would be explaining key features of the draft ARMP.

##### Presentation: Abalone Biology and Status of the Stocks

Mr. Jerry Kashiwada, CDFG marine biologist, presented an overview of abalone biology and the status of the stocks, explaining aspects of reproduction, age and growth, disease, predation, and environmental conditions that affect abalone stocks. He explained the importance of close abalone aggregations for successful reproduction. Studies indicate that fertilization drops to 50% if abalone are more than 2 meters apart. CDFG estimates that a minimum viable population level of 2,000 abalone per hectare (2.5 acres) is needed for populations to sustain themselves. He explained

that abalone larvae don't travel far and for that reason, once adult populations are depleted, it is difficult for abalone to recover. At about 4 in., abalone appear in emergent surveys. Although CDFG biologists see many legal-sized abalone in surveys, they have not seen good recruitment of these newly emerged abalone. Since it takes at least seven years (in the south) for abalone to grow to legal size, the legal-sized abalone that are seen now must supply the fishery for several years. Mr. Kashiwada explained the impact of disease on abalone particularly withering syndrome in black abalone, which has devastated that population in southern California. Although the bacteria that causes the disease has been found in northern California abalone, the disease has not been detected. It is thought that the colder water in northern California has prevented the disease from occurring there. Sea otters are a significant predator of abalone and will preclude a significant fishery within their range. Mr. Kashiwada went on to explain the affects that environmental factors such as El Niño and pollution can have on abalone stocks. El Niño events affect the food supply, which affects abalone growth; in addition, warmer water may exacerbate the effects of withering syndrome. Pollution can impact kelp beds, affecting a food source and abalone habitat.

In describing the status of abalone stocks in southern California, commercial landings data from before the 1997 moratorium illustrated the decline of abalone species to very low levels; the decline was caused by disease, sea otter range extension and predation, and fishing. White abalone are federally listed as an endangered species, black abalone is a candidate for federal listing, and green and pink abalones are potential future candidates. Southern California red abalone has been reduced to one remnant population at San Miguel Island.

In the northern California red abalone fishery, concentrated fishery effort and increased take, poor recruitment (few young abalone), a decline in deep water stocks, and depletion in high use areas is evident. Consideration of these factors resulted in the Fish and Game Commission's decision to reduce the daily and annual limits for sport abalone.

A short period for clarifying questions followed.

#### Presentation: Recovery Plan

Mr. Peter Haaker, CDFG senior marine biologist, presented highlights of the recovery portion of the ARMP. He explained that the recovery portion of the draft ARMP focuses on southern California abalone stocks (south of San Francisco). The draft ARMP's interim goals are to: prevent extinction, rebuild populations to self-sustainability, and rebuild populations to fishable levels. The long-term goal of the draft plan is to rebuild populations to levels that a fishery could be considered. Mr. Haaker presented a conceptual model from the draft plan, which illustrates various levels of stock abundance. 6,600 abalone per hectare (2.5 acres) is considered a sustainable fishery level. From 6,600 abalone per hectare to 3,000 abalone per hectare is a precautionary zone, below which is the 2,000 abalone per hectare minimum viable population. Below the 2,000 abalone per hectare level is an at risk zone.

Mr. Haaker went on to present the draft plan's approach to monitoring recovery, using criteria from key index sites. Criterion 1 would be broad size ranges at all index sites; Criterion 2 would be self-sustaining populations, at densities of 2,000 abalone per hectare at all key locations; and Criterion 3 would be an average of 6,600 abalone per

hectare at the index locations in at least 75% of the recovery areas, the sustainable fishery level. These criteria would need to apply to each species. The number of index site locations could be re-evaluated in the event of habitat loss, environmental change, or other such factors, including sea otter reoccupation.

Mr. Haaker went on to describe the draft plan's proposed recovery activities and their potential drawbacks, including: aggregation of emergent stock, translocation of emergent stock, and culture. Mr. Haaker explained that the timeline for recovery is likely to take decades.

A short period for questions followed.

#### Presentation: Management – Interim and Long-term Approaches

Ms. Jennifer O'Leary, CDFG marine biologist, described the highlights of the management portion of the ARMP. She explained that the proposed plan consists of an interim plan that is precautionary and short-term (2003 through 2009), and is based on limited data and imprecise management controls. The proposed long-term plan could be less precautionary because it would be based on better and more data. She again reviewed the proposed conceptual model for interim management. 6,600 abalone per hectare would be considered a sustainable fishery level, and a level at which a closed fishery would be considered for re-opening. 3,000 abalone per hectare would be the level at which fishery closure would be proposed by the Department. Again, 2,000 abalone per hectare is the minimum viable population level.

Ms. O'Leary described the draft plan's interim management components, which include an annual total allowable catch (TAC), criteria for measuring stock conditions, and two decision tables using criteria to guide changes. She described the proposed criteria in the plan for stock conditions: recruitment (high abundance of sub-legal, emergent abalone); densities of 6,600 abalone per hectare at all depths and 3,300 abalone per hectare for deep depths, and 2,000 abalone per hectare minimum viable population; and catch-per-unit effort and serial (local) depletion (decrease in CPUE, significant increase in the distance traveled from an access point). Recruitment and density criteria would be used to adjust the TAC up or down, while CPUE, serial depletion, and density criteria would be used to consider area closures and re-openings. Ms. O'Leary explained some of the limitations of the proposed interim management plan, including the limited amount of data available for decision making, and that the TAC applies to the entire fishery range.

The key elements of the proposed long-term management plan were described, including zonal management, use of abalone tags, and increased fishery independent data collection. The proposed target for the long-term management plan's implementation is 2010. The proposed plan calls for a planning process for re-opening fisheries when 75% of the recovery index sites meet the 6,600 abalone per hectare criteria.

A short question period followed.

#### Public Comment

Mr. Ed Schulze suggested that the abalone report cards should include an explanation that the abalone need to be kept in the shell. He suggested that in order to get better compliance on returns of abalone punch cards, that the punch card system

be modified to be like the deer and bear tag systems. He proposed that the system be modified so that in order to receive an abalone card, one should fill out an application, and if the card is not returned, then that person would not be eligible for a card the next season. He provided written materials on the CDFG's hunting programs for reference. Mr. Schulze proposed that a raffle system for certain areas be considered by CDFG. He expressed a willingness to serve on a committee to help advise CDFG in these matters. He also suggested that CDFG consider an education program that includes an abalone safety course, to better educate the public on how to not fatally injure sub-legal abalone.

Mr. Mike Wilkins explained that he had an extensive background of 16 years as an urchin diver on the north coast. He stated that he thought a daily limit was alright, as well as a seasonal limit. He stated that he sees a lot of abalone, in the tens of thousands, and is sure that he could provide CDFG with areas that would exceed 6,600 abalone per hectare. He also stated that he sees size ranges that are desirable. Mr. Wilkins commented that he has never been approached to participate in surveys or to provide CDFG with information, and that he would be willing to help with surveys. He stated that he has observed areas that are not being fished where coastal access is limited, but even in areas where access is not as limited he sees a lot of abalone. Mr. Wilkins commented that he was skeptical of the TAC based on the survey sites that CDFG uses. He also stated that tag drawings could be problematic, that people could be moved around inefficiently in such a system. Mr. Wilkins expressed a strong interest in getting involved.

Mr. Paul Weakland commented that he was disappointed with CDFG because his questions have not been answered. He submitted a report that he wrote entitled "Calamity California", dated November 1997. He expressed concern about withering syndrome. He stated that if his questions were answered, the CDFG would not need to hold public meetings. He commented that the CDFG had not done a good job responding to comments. He stated that the CDFG needed to state the level of error in their data.

Mr. Gene Kramer commented that he liked the density criteria proposed in the draft ARMP. He also commented that he thought the TAC was appropriate. He suggested that a zonal management approach would need to be fine scaled enough to allow individual beaches a rest. He suggested that underwater scooters would allow the CDFG to cover more area in their surveys, which would help in areas with low abalone densities.

Mr. Ed Flynn commented that all indications are that there are a lot of abalone out there in the north. He stated that the CDFG's survey efforts should be focused on divers, not shore pickers, and that diving should be defined as greater than 10 feet.

Ms. Mary Lorenz commented that she agreed with Mike Wilkins, that the divers that she knows see a lot of abalone. She suggested that the CDFG take advantage of local people who know the coastline. She stated that the ARMP does not contain an education component, which needs to be emphasized. Ms. Lorenz suggested that an abalone education program be similar to a hunter safety program and that such a course be a requirement for obtaining an abalone card. She suggested that any closures be implemented on a rotating area basis, not total closures. She also suggested that CDFG include night dives as part of their diving surveys. Ms. Lorenz



also commented that CDFG should make available the scientific papers that it cites, not just the citations, because it is difficult for the public to locate scientific papers. She also requested that the CDFG hold another town hall meeting in Fort Bragg to allow more people to attend.

Mr. Fonseca commented that he thought that CDFG's enforcement was doing a good job. He stated that it was difficult to find follow-up reports on research that had been done. He also commented that there is a tremendous resource of local divers that CDFG is not utilizing. He suggested that any peer review of the ARMP include the international community, and that the recovery in New Zealand has been phenomenal. He expressed alarm over the outplanting of abalone on the north coast and the potential for disease. Mr. Fonseca commented that the CDFG is not using good science. He suggested a scientific study of outplants to check for disease, with only those without disease being used for outplants. He stated that the quarantine policy of the CDFG has not been adequate. He commented that imported animals must be quarantined.

Mr. Bob Janetz commented that there is plenty of abalone. He stated that he is in favor of closing areas that need it, but doesn't want continued take reductions. He stated that the three sites used for data collection are not representative. He suggested translocation of abalone. Mr. Janetz stated that he appreciated the meeting.

Mayor Jere Melo submitted written comments. He stated that the first that he was aware of the meeting was from the local newspaper on August 29, and that because of that, there wasn't enough time for all council members to provide comments by the morning of the town hall meeting. He thanked CDFG for holding a town hall meeting in Fort Bragg. He expressed how important abalone is to the residents of the Mendocino coast, as a food source, and as an important component of the local economy. He stated that local residents see poaching as a serious threat to abalone stocks, and that the sport abalone fishery helps in deterring poaching through the presence of sport divers. He encouraged CDFG to seek improved public access to the coast. He commented that the ARMP should allow for collection of data on a statistically sound basis. He expressed concern with no take abalone preserves, stating that poaching in these areas could be a problem. He invited CDFG staff to provide updates on abalone management at City Council meetings.

### Summary and Adjournment

Following a break, the CDFG staff presented a summary of the verbal comments that they heard at the meeting. Mr. Karpov thanked the audience for attending and providing the CDFG with their comments. The meeting was adjourned.

### **G.3.1.2 Santa Barbara Town Hall Meeting Summary**

The CDFG held a town hall meeting at Buchanan Hall, University of California in Santa Barbara on September 14, 2002, to receive informal public comments on the draft ARMP. The objectives of the town hall meeting were to:

- Explain key features of the draft ARMP.
- Obtain public comments and suggestions on the draft ARMP.

### Welcome and Opening Remarks

Mr. Fred Wendell, CDFG nearshore ecosystem coordinator, thanked those in attendance for their interest and for taking valuable time to help the CDFG with the process of developing the draft ARMP. He explained that the CDFG would give presentations on the key components of the draft ARMP, and then comments would be received. Comments will be considered in the process of revising the draft. He went on to explain that for the current informal comment process, each comment will not be responded to directly, but will be summarized and included in the draft ARMP. Mr. Wendell encouraged the audience to focus comments on how to improve the draft ARMP.

CDFG staff present were introduced. Members of the audience introduced themselves. Mr. Wendell directed the audience's attention to a handout of the Fish and Game Code sections that guide the content of the ARMP. He reviewed the public input process to date, and then explained that once the draft ARMP is submitted to the Fish and Game Commission, a formal public comment period will begin. He explained that formal public comments will be responded to.

### Presentation: Abalone Biology and Status of Stocks

Mr. Jerry Kashiwada, CDFG marine biologist, presented the biology and status of the stocks components of the draft ARMP. He began by explaining factors which affect the status of stocks, focusing on age and growth, reproduction, disease, predation, and environmental conditions. Mr. Kashiwada explained that one important component of reproduction that affects abalone includes the minimum viable population (MVP) level, which is the minimum abundance at which populations can sustain themselves. Studies have shown that when abalone are spaced more than two yards apart, only 50% of abalone eggs are fertilized. Abalone larvae do not disperse far, thus population recovery is slow. Research has indicated that the MVP is 2,000 abalone/hectare (2.5 acres). An important factor of abalone reproduction is that it is sporadic. In 1989 and 1990 there was a successful recruitment of young abalone, but none since then.

Mr. Kashiwada discussed abalone age and growth, which might be affected by environmental conditions. It takes about seven years for abalone in southern California to reach legal size and about 13 years in northern California, a result of different environmental conditions and food availability.

Mr. Kashiwada reviewed disease concerns for abalone particularly withering syndrome in southern California. He stated that although the bacteria that causes the disease has been found in a few individuals in northern California, no abalone in the region have been found showing signs of the disease. Research indicates that colder water temperatures on the north coast prevent the occurrence of the disease there.

It was explained that while humans and sea otters are major predators of abalones, sea otters will preclude a fishery within its range.

Mr. Kashiwada next addressed the status of abalone stocks. He explained that generally the stocks in southern California are in poor condition. White abalone is listed as an endangered species, black abalone is a candidate for listing under the Endangered Species Act, and pink and green abalones are potential future candidates for listing. Red abalone populations are mostly limited to San Miguel

Island. He noted the concerns about the northern California red abalone resource and fishery including concentration of fishery effort, irregular recruitment of young abalone, deep water stock decline, and serial (local) depletion (fishermen having to travel farther from access points to get abalone) in high use areas. He added that although there are many legal-sized abalone present today, the lack of recruitment of young abalone means that the large abalone present now will need to last for at least the next 10 years.

Clarifying questions and answers followed.

### Presentation: Recovery

Mr. Peter Haaker, CDFG senior marine biologist, presented key features of the recovery portion of the draft ARMP. He explained that the recovery part of the ARMP applies to white, black, red, green, and pink abalone in southern California and red abalone at San Mateo Point and the Farallon Islands. Mr. Haaker stated that the draft plan proposes a seven-year timeline to implement interim recovery goals: prevent extinction, rebuild populations to self-sustaining levels, and rebuild populations to fishery levels. The long-term goal of the plan is to reach levels where a fishery would be considered.

Mr. Haaker described a conceptual model from the ARMP that illustrates recovery of stocks from current levels. Southern California red abalone is currently at sustainable levels at one island, but pink, green, white, and black abalones are below minimum viable population levels. Proposed target minimum viable population levels are 2,000 abalone per hectare (2.6 acres), and fishery consideration would occur at 6,600 abalone per hectare. These levels are adaptable and could be changed when recovery occurs.

Mr. Haaker described three criteria to use in assessing the status of stocks. Criterion 1 would be a broad size range at many sites, which indicates growth and good reproduction. Data for this criterion would be collected from swim surveys. Once Criterion 1 was met, then density surveys could be used to evaluate Criterion 2, which would be 2,000 abalone per hectare, the minimum viable population level. Criterion 3 would be density of 6,600 abalone per hectare, the level at which a fishery could be considered. The criteria would apply to each individual species, at all index sites for Criteria 1 and 2, and at 75% of the sites for Criterion 3.

Mr. Haaker explained that the draft plan is adaptive, that index locations could be modified due to habitat loss, sea otter expansion, or environmental change. He noted that if recovery areas declined by 50% for a particular abalone species, then there would not be a fishery for that species, because of reduced biological capacity.

Mr. Haaker described activities that the plan uses for recovery. Aggregation, or moving abalone closer together, could help with reproduction, but has potential problems with handling and poaching and the source of individuals. Translocation, or moving abalone to other areas to re-establish them is another activity described in the plan, with similar potential problems to aggregation. Culture, or breeding abalone in captivity is another possible activity described in the plan; its drawbacks include cost, and past outplanting activity has been problematic. Mr. Haaker explained that future activities would depend on what happens in the interim period. He cautioned that the recovery period is likely to be a long one.

Clarifying questions and answers followed.

### Presentation: Management – Interim and Long-term Approaches

Ms. Jennifer O’Leary, CDFG marine biologist, described key features of the management portion of the ARMP. She explained that the proposed plan consists of interim and long-term parts. The interim part is precautionary and short-term (2003 through 2009), and is based on current limited data and management. The proposed long-term plan could be less precautionary because it will be based on more data and allow more precise management of the fishery. She reviewed the proposed conceptual model for interim management. 6,600 abalone per hectare would be considered a sustainable fishery level, and a level at which a closed fishery would be considered for re-opening. 3,000 abalone per hectare would be the level at which fishery closure would be proposed by the Department. Again, 2,000 abalone per hectare is the minimum viable population level.

Ms. O’Leary described the draft plan’s interim management components, which include an annual total allowable catch (TAC), criteria for measuring stock conditions, and two decision tables using criteria to guide changes. She described three proposed criteria in the plan for stock conditions:

- Recruitment (high abundance of sub-legal, emergent abalone)
- Density (6,600 abalone per hectare at all depths and 3,300 abalone per hectare for deep depths, and 2,000 abalone per hectare minimum viable population)
- Catch-per-unit-of-effort (CPUE) and serial (local) depletion (decrease in CPUE, significant increase in the distance traveled from an access point).

Recruitment and density criteria would be used to adjust the TAC up or down, while CPUE, serial depletion, and density criteria would be used to consider area closures and re-openings. Ms. O’Leary explained some of the limitations of the proposed interim management plan, including the limited amount of data available for decision making, and that the TAC applies to the entire fishery range.

The key elements of the proposed long-term management plan were described and include: zonal management, abalone tags, and increased fishery independent data collection. The proposed target for the long-term management plan’s implementation is 2009. The proposed plan calls for a planning process for re-opening fisheries when 75% of the recovery index sites meet the 6,600 abalone per hectare criteria.

A short question period followed.

### Public Comments

Mr. Steve Rebeck commented that the patch dynamics of abalone should be considered, because even though habitat may look good for abalone, they may be absent. He stated that suitable habitat doesn’t necessarily mean that abalone will be there. He suggested that CDFG use commercial divers to help locate abalone. Mr. Rebeck questioned what had happened to the 45,000 to 50,000 abalone being taken at the time of the fishery closure, and stated that they were continuing to grow and reproduce. He stated that he thought that there was some stability in the fishery at

the time of closure. He stated that survey work was needed at the Farallon Islands and mainland. He suggested that otter areas should be considered for fisheries and that the plan needed to be strengthened with regard to otters. Mr. Rebuck stated that a commercial fishery should be considered at the Farallon Islands. He also stated that there are a lot of abalone at Van Damme. He stated that some of the plan's goals were unrealistic, that we can't return to prehistoric levels. Mr. Rebuck suggested quotas and slot fisheries would be effective management tools. He agreed with Don Thompson that the CDFG has not delivered what it promised. Mr. Rebuck submitted a plan for ITQs in southern California. He stated that 50% of red abalone landings were made by 10 divers, and that the transferability of permits is a good idea. Mr. Rebuck stated that he would like to see electronic devices used to track fishermen. He stated that in 1991 he submitted a plan for using tags at the request of Earl Ebert, and was pleased to see that tags were in the plan. With regards to stock assessment, Mr. Rebuck commented that the CDFG's 1997 cruise report stated that commercial sized abalone were 1.2% of the population, and that he thinks that there are 4,000,000 abalone available to harvest south of San Francisco.

Mr. Mark Becker disagreed with the CDFG's statement that it takes from 10 to 14 years for abalone to reach legal size. He stated that Johnson's Lee data are wrong, and needs to be re-addressed. He stated that the decline data were wrong and that the die-off at Palos Verdes needs to be re-addressed. He commented that data from block 690 need to be verified, and suggested that fish tickets be linked to fuel receipts to prove that block 690 produced the abalone that were shown from there. Mr. Becker expressed concern about the movement of abalone, the effects of copper piping on them, and rickettsia. He stated that the CDFG needs more stringent controls over spread of disease. He commented that the science that was presented was poor, and that the plan is skewed. He stated that the plan needs new science collected with the cooperation of fishermen, and that studies need to be developed now.

Mr. Paul Weakland commented that he did not receive the postcard announcing the town hall meeting until late, and that the meeting was scheduled on the same day as an urchin meeting. He also commented that many people don't have Adobe Acrobat which is needed to view the ARMP on the Internet. He commented that the 6,600 abalone per hectare number is too precautionary and not realistic. He stated that the minimum viable population level figure should be reduced to 1,200 abalone per hectare, and that all of the numbers should be reduced. He stated that divers are stewards of the resource, and that withering syndrome is poisoning the roots of the abalone resource. He stated that disease is being ignored. Mr. Weakland stated that the CDFG is lying about sabellid worms and withering syndrome. He commented that the seven-year time line needs to be retroactive to the closing of the fishery. Mr. Weakland commented that he is offended that the ARMP is dedicated to Mia Tegner, and that that dedication should be removed.

Mr. Jim Marshall commented that pre-emergent abalone should be looked at for recruitment.

Mr. Jim Finch questioned what was meant by "deep water" and commented that free diving is becoming popular in southern California, so the CDFG should

consider that 25 feet is not that deep. He stated that poaching in northern California is a big problem. Mr. Finch commented that he believes in outplanting and thinks it works. He stated that divers saw results of outplanted abalone that became harvestable, but were discouraged when those abalone were wiped out by recreational fishermen. He stated that adequate penalties were needed to discourage poaching. Mr. Finch stated that tags were a good idea, and that education was needed. He suggested that fishermen not be allowed to take abalone without adequate education on handling them. He stated that the sport abalone size should be increased. He also stated that he starts to see abalone at 7 inches to 7.25 inches, and that a 7-inch size limit is a crime.

Mr. Mike Shane questioned the 6,600 abalone per hectare density, asking if that number was achievable in southern California. He asked that the plan be adaptable if that number was not possible for southern California. Mr. Shane also questioned the use of transplantation because there have been no genetics studies. He suggested that the plan contain a plan to do genetics work before translocating to avoid problems. He questioned whether there were plans to generate money from outside of the CDFG. Mr. Shane commented that he didn't want to see the CDFG five years down the road saying that we didn't have the money, and to make sure that the plan contains all potential sources of funding.

Mr. David Kushner commented that although fishermen say that biologists don't know how to find abalone, he believes that they do. He commented that an apprentice program is needed to train future people to identify and find abalone, because fishermen and biologists are a dying group of people. Mr. Kushner commented that the plan needs to clarify that threaded and pinto abalone are the same. He stated that we don't know what is going on with threaded abalone, that they have re-appeared, and that should be addressed. He stated that northern California populations should be looked at separately from southern California populations. He commented that there is no evidence that withering syndrome has affected red and pink abalone, and that that statement should be removed. Mr. Kushner commented that protection education needs to be emphasized more. He stated that the plan needs to document attempts at translocation and aggregation to look at successes and failures, in particular failures, since these are often not published.

Mr. Don Thompson complimented the plan's use of contingency tables in making decisions. He expressed concern about lack of data from only three sites. He commented that a biomass estimate is needed for abalone, and questioned why the CDFG had not extrapolated the data index sites to biomass estimates. He stated that he wanted the CDFG to stop grouping data over a long period. Mr. Thompson stated that a status report is needed to document recovery of abalone since the fishery closure. He commented that subjective statements should be removed from the ARMP and asked for more quantitative, statistical information. He stated that all of the information from the former plan, including public comments be included. Mr. Thompson stated that the CDFG ceased progress, and rescinded on promises made on a management plan for a fishery. He stated that in 1997 John Duffy stated that it was time to consider a possible re-opening of fisheries in southern California. He recalled a Fish and Game Commission meeting at which it was stated that the CDFG

was on its way to getting biomass estimates for abalone, and the CDFG still doesn't have them. Mr. Thompson commented that he was angry about how the CDFG is handling the delivery of the management plan, because CDFG has not delivered what it said it would do.

Mr. Bob Duncan expressed concern about poaching and questioned how the CDFG planned to protect areas where 6,000 abalone per hectare exist. He emphasized that enforcement needed to be better addressed. He stated that the plan needed to include a study of how threaded abalone have returned, and the ability for abalone to bounce back on their own.

Following a break, CDFG staff presented a summary of the oral comments received that day to the audience. Mr. Wendell again thanked those present for attending the meeting and providing valuable input. The meeting was adjourned.

### **G.3.2 Recreational Abalone Advisory Committee (RAAC) Meeting**

Oral comments on the ARMP were received from members of the RAAC at their meeting in Los Alamitos, September 21, 2002. The following is a summary of those comments.

#### **G.3.2.1 ARMP Review and Recommendations by RAAC**

Prior to the meeting, members of RAAC were asked to read the draft ARMP and give the department their questions and comments. A brief presentation was prepared for RAAC. The committee declined so they could have more time to discussing the plan.

Mr. Campi asked if the daily poaching numbers of 4,800 abalone a day in were correct. It was indicated that in 1997 that was the number the department came up with. Mr. Colgate was concerned about the lack of index sites listed in the plan. He also wondered what would happen to a site which became populated with sea otters and if so would we choose a new site. A similar concern arose about the effects that pollution and temperature can have on a site. Mr. Campi asked what PISCO was and it was explained that they are a surveying; marine monitoring organization ran through University Of California Santa Barbara and University of California Santa Cruz. They are similar to the Channel Island Research Institute and groups like this will be very helpful in obtaining the data we are lacking.

Mr. Colgate was confused on broad size distribution as discussed in the plan under Criterion 1. Mr. Haaker explained that we want to see the size distribution discussed in Criterion 1 in all index sites. It was questioned on how much time will be spent at the index sites. This will help point out that a density survey is warranted, but we need more resources to do this.

Mr. Pogre was concerned that the Farallon fishery was closed due to a small percentage of poachers and it was unfair to preclude a fishery due to a few poachers. He was also concerned about commercials lying on their landing receipts by marking down North Coast poached abalone as Farallon abalone. Lt. Morse discussed a case where they tracked a commercial fisherman who transported 600 marked north coast abalone and reported them as Farallon abalone. Mr. Pogre commented that most abalone fishermen have changed their attitude and

understand that any new abalone fishery will not be a free for all. The remaining commercial fishermen have more respect for the fishery.

If 25% of MPAs are implemented, what effect will this have on the fishery? MPA's are a vital component of recovery but percentages are unknown. Mr. Karpov pointed out that the north coast already has a 15% defacto refuge because abalone located in deeper water can not be reached by free divers. Recovery needs some areas of total protection. They need aggregation to spawn and no take zones are vital for this.

Mr. Campi was concerned that the San Mateo coast surveys need to be done. Shift opening of the San Mateo coast from short term to long term. This would help to relive pressure from the north coast. This assessment should be made a priority and should be conducted sooner than 2006.

Mr. Daniels commented that in the past he had anxiety over RAAC material but overall was very impressed with the draft ARMP. He pointed out that interim and long term goals have no alternatives which fall short of the legal requirements from the Fish and Game Code §5022(a). There was also some concern about the characterization of sea-otter and abalone long lived coexistence, which allowed maintenance of stable low density abalone populations. Mr. Daniels pointed out that there were some areas of high density areas.

Mr. Benevides was interested in fines money from abalone violations were going into the abalone fund. Lt. Riske said we are right now. Mr. Benevides was also interested if the laws and penalties were enough to protect the resource. Lt. Riske added that the commercial guidelines had been lowered from 30 to 12 abalone in possession. He added that enforcement has had special meetings with Mendocino's and Sonoma's judges and district attorneys to emphasize the importance for stiff fines and harsher sentences. Mr. Benevides again stated the importance of more enforcement is needed and that if we can not come up with more enforcement then the penalties for violations need to be harsher. A discussion about paper fines verses resource fines confirmed that some people fill out the abalone punch cards wrong and they are trying to be legal. A paper violation should not receive the same fine as someone who committed a resource violation. It was suggested to increase the resource violation and separate the two.

Mr. Benevides, who is also a member of on one of the Marine Life Protection Act working groups, stated that the MLPA process needs to hear from the abalone team for suggestions on areas for protection. Furthermore, MPAs need to be implemented right now and the MLPA process is moving too slow. Daniels suggested that RAAC needs to submit a letter, similar to the letter Dr. Mia Tegner previously submitted to the Department, to point out the importance of MPAs right now. This letter could be submitted to the commission, director and MLPA lead biologists.

A question about the sunset date for the DAAC funds and where they would go if lost. Mr. Campi clarified that the sunset date had been extended and the money will not be lost.

Mr. Pogre was concerned about central California red abalone and that if a fishery did open in that part of the state the commercial fishery should not be left out.



He added that assessment is necessary in the near future and that a commercial fishery would help relive some pressure on the north coast.

Mr. Colgate was upset that the plan had not been given to RAAC or the ARMP Advisory Panel, so their comments could accompany the document to the peer reviewers. No alternatives in the plan give a continued separation between the commercial fisherman and the Department. He also thought that white abalone had plenty of funding from the federal government and that the state would better spend its limited time and resource on the red abalone which can achieve a minimal viable population, unlike the white abalone. Mr. Colgate was also concerned that if sea otters move into an area which historically was unpopulated, would we let the sea otters decimate the abalone population. If this happens then a fishery for both sport and commercial fisherman should be open until the population reaches the 2000 abalone per hectare. Why should the sea otters be able to destroy the population? Mr. Colgate was also interested in the Farallon Island assessment be moved from long-term to interim goal. An assessment of the islands is needed as soon as possible.

Mr. Pogre believes that the recreational fishery lines should be moved south to Pigeon Point. He also believes that Pigeon Point would be a great index site. He also added that the Farallon Islands would be a good index site for the south. Mr. Pogre added that fishermen have developed a new attitude. They realize that they have a lot of money to lose and that they will as a whole respect the resource more than they did in the past.

Mr. Daniels felt that there need to be more index sites on the north and that there should not be a fishery on the Farallon Islands.

Mr. Campi was concerned that the ARMP did not follow the Marine Life Management Act (MLMA) guidelines. He thought that in the future, MLMA should guide changes in the ARMP even though the ARMP is not currently under the MLMA process now.

Mr. Campi was curious about differences between starving abalone and an abalone with withering syndrome. He added that two shrunken abalone were recently found on the north coast. Mr. Haaker explained that a hungry abalone will metabolize the foot thus causing foot shrinkage. Mr. Haaker reminded them that even if an abalone has the withering syndrome bacterium, the low water temperature in north coast waters does not allow the bacterium to take over. He added that all abalone with a shrunken foot should be sent to the Bodega Bay Marine Lab for assessment.

RAAC members present:

Steve Campi  
Rocky Daniels  
Richard Pogre  
John Colgate  
Steve Benavides  
Lt. Steve Riske

### **G.3.3 Written Comments**

Written informal comments on the ARMP came in the form of letters, faxes, and e-mail. The deadline for submission of written comments was 5:00 p.m., October 4, 2002. Written comments received are available on request, but are not appended to the plan. Comments that were considered relevant to the plan are included in the “Summary of Informal Public Comments”, Section G.2.4.

### **G.3.4 Summary of Informal Public Comments**

All of the written comments, and oral comments received at the town hall meetings and the RAAC meeting, were reviewed and considered by Department staff. Comments that were considered relevant to the plan and focused on improving it were given further consideration. If a comment or correction improved the plan, it was incorporated into the plan; if it was not found to improve the plan, it was not incorporated into the plan. To process all of the comments for consideration, each person who provided comments was assigned a number and each page of their comments was assigned a consecutive number, including the oral comments received at the town hall and RAAC meetings. Several people provided additional supporting documents to their written or oral comments. The supporting documents were assigned a lower case letter along with the person’s number (i.e. Person 1= written comments, and 1a= supporting documents). All of the written comments that were received are available on request, but are not appended here.

The following table summarizes the comments that were considered relevant to the ARMP and focused on improving it. Comments are not responded to individually, but rather summarized into categories in the ‘Comment’ column of the table. The ‘Source’ column lists the numbers of people who provided each comment and refers to the page number of that person’s comment. General responses to comments, when appropriate, are listed in the ‘Response’ column. Following this table is a second table, which lists the names of those who commented, their assigned number, and whether their comment was written or oral.

<b>Table G-1. Summary of informal public comments on the draft ARMP.</b>		
<b>Comment</b>	<b>Source</b> No. = commenter, (pg. no. of comment or appendix G - FB=Fort Bragg TH, SB=Santa Barbara TH, LA=Los Alamitos RAAC meeting)	<b>Response</b>
<b>Education</b>		
There is a need for better education about abalone resource	8 (info signs), 5 (App. G-FB), 24 (App. G-SB)	
Punch card should say keep abalone attached in shell	5 (App. G-FB)	
Education program should be tied to receiving punch card	19 (App. G-FB), 22 (App. G-SB)	
Papers cited should be provided	19 (App. G-FB)	
<b>Legal Framework</b>		
ARMP and CEQA compliance	1a (pg. 5), 14	Sec. 4.2.2 - added
ARMP and MLMA	12 (pg. 7)	Sec. 4.2.3 - added
ARMP and ESA	12 (pg. 8), 14	Sec. 4.3 - modified Sec. 6.5.2.5 - modified
<b>Biology</b>		
Allee effects	1 (pg. 5)	Refer to sec. 2.1.2.2 - (Allee effects) Refer to sec. 2.1.9 - mortality
White abalone status	1 (pg.9), 12 (pg. 7)	Refer to sec. 2.2.5 - modified
Red abalone status at San Miguel Island	1 (pg. 11), 12 (pg. 2)	Refer to sec. 2.2.1.2 - modified Exec sum. Pg. 1 - modified
Flat and pinto abalone should not be referred to as rare	1a (pg. 11), 15 (pg. 4), 25 (app. G-SB)	Sec. 2.2.6 - modified
Include cite of Tegner et al. 2001 regarding importance of El Nino events	12 (pg. 5)	Sec. 2.1.9.2 - modified Lit. cited - modified
Question the optimal temperature for southern Cal. Red abalone	12 (pg. 5)	Sec. 2.1.12.2 - modified
Revise fig 2-2 San Miguel Is. Ab abundance data for 1974	12 (pg. 5)	Fig. 2-2 - modified

Inadequate data to assess trends at the Farallon Is. and Fitzgerald Mar. Reserve	12 (pg. 6)	Sec. 2.2.1.2 - modified
<i>H. assimilis</i> taxonomy (sp vs. subsp.)	14 (pg. 5), 24 (App. G-SB)	Sec. 1.1 - modified Sec. 2.1 - modified
Define central California area	14 (pg. 7)	Refer to fig. 1-1
How can it take 14 yr for a red abalone to reach 7 in. when studies report that they grow on average 1in. per year	15 (pg. 3)	Refer to sec. 2.1.6 and Table 2-3 - added
Include description of stocks in otter areas	32	
Include estimate of age at maturity	32	Sec. 2.1.2.1 - modified and Table 2-1- added
Include statement about age and growth dynamics are shorten in presence of otters	32	
<b>Recovery</b>		
Clarification between emergent recovery levels and sustainable levels in otter areas	1 (pg. 6), 14 (pg. 3)	Fig. 5-1 - modified Glossary - modified (add at risk def.)
Density criteria	1 (pg. 7, pg. 12), 14 (pg. 8), 15 (pg. 1), 18 (App. G-FB), 23 (App. G-SB)	Refer to sec. 6.2.2 - modified Sec. 6.2.3 - modified Refer to sec. 7.1.2.1 Criterion 2
Engaging constituents in data collection for recovery	1a (pg. 4), 12 (pg. 11)	Refer to sec. 6.4.1
ARMP lacks alternatives to recovery	1a (pg. 7), 12 (pg. 4, 8), 15 (pg. 7), 32	Sec. 6.8 - added
Provide estimates of time to reach density goals	1a (pg. 7)	Refer to sec. 6.7
Present status of recovery since closure of the fishery	1a (pg. 8)	Refer to sec. 6.6.1.1 Task 1
Do not eliminate pinto and flat from future fisheries	1a (pg. 8), 11	Modified plan to include minor species
State resources should be directed at red abalone rather than white abalone	26 (App. G-LA)	
Continue to develop methods to increase assessment abilities	11	Refer to sec. 7.2.3

Aggregation/translocation experiments seem unlikely to succeed	11, 15 (pg. 42), 24 (App. G-SB)	Refer to 6.4.2.1
Include contingencies for black abalone if listed under ESA	11	
Incorrect FG code Section cited in justifying Criterion 1	12 (pg. 9)	Sec. 6.2.1 - modified
Identify reproductive connectivity between index sites and among recovery areas	12 (pg. 10), 15	Refer to sec. 6.4.1.3
Assessments for recovery is too infrequent, too long(5 yr.)	12 (pg. 10)	Sec. 6.4.1 - modified Refer to table 9-1
Task 9 should occur before Tasks 4-8	12 (pg. 11), 23 (App. G-SB)	Sec. 6.6.1 - modified Refer to table 9-1
Using the 6600 ab/ha density based on Australian data is not appropriate	14 (pg. 3)	Refer to sec. 7.1.2.1 pg. 7-4 Criterion 2
One-size-fits-all is not a realistic approach	14 (pg. 3), 15, 23 (App. G-SB)	Sec. 6.2.2 - modified
Do not relocate red abalone from SMI to other sites	14(pg. 11)	
Out-planting feasibility	15 (pg. 3)	Refer to Sec. 6.6.1.2 and Sec. 6.6.1.3
What are the recovery techniques?	15 (pg. 6)	Refer to Sec. 6.4.2
What are the key index sites?	15 (pg. 21)	Refer to Tables 6-3 through 6-8
Disease is not adequately addressed	15, 16 (App. G-FB), 21 (App. G-SB)	Sec. 2.1.9.1 pg. 2-6 - modified
Add Farallon Is. and San Mateo coast to recovery index sites	6 (App. G-LA)	Table 6.3 - modified
<b>Management</b>		
Allocation of resources between recreational and commercial fisheries	8	
Daniels and Floren (1998) citation on pg. 7-17 is misleading	1a (Comment 50), 14 (pg. 3)	Sec. 7.1.4.3 - modified
Alternative goals for management	27 (App. G-LA)	Sec. 7.3 - added

Provide a range of alternative target densities which correlate with exploitation rates	1a (pg. 11)	Refer to sec. 7.1.2.2 and table 7-2
Require abalone report card for individuals under 16 yr of age	5	Sec. 7.1.1.7 - modified
Assessment protocols	8 (3)	Refer to Appendix E
Add Gerstle Cove to Sec. 7.1.2.4	12 (pg. 11)	Sec. 7.1.2.4 - modified
How do amendments to plan occur?	15 (pg. 5)	Refer to Sec. 4.4
Adaptability of plan to environmental changes	15 (pg. 6)	Refer to Sec. 7.1
Add Punta Gorda to Sec. 7.1.2.4	15 (pg. 16)	Sec. 7.1.2.4 - modified
Increase minimum size to 7.75 in.	15 (pg. 54), 22 (App. G-SB)	
Socio-economic data needs are lacking	15 (pg. 76)	Sec. 3.2 - modified
Rotating zonal management	18 (App. G-FB), 19 (App. G-FB)	
<b>Fishery</b>		
Initiate a complete abalone moratorium until numbers increase	3	Sec. 7.3.6 - added
Initiate a tag program	5 (App. G-FB), 14 (App. G-SB), 22 (App. G-SB)	Refer to Sec. 7.1.3.2
Redesign report card system to prevent multiple purchases and insure compliance with returns i.e. application for report card	5	Sec. 7.1.1.7 - modified
Determine biomass estimates for all abalones to better manage fishery	1	
Open limited commercial take in areas not easily accessed in northern California	4, 15 (pg. 8)	Refer to Appendix B §5521.5
Reopen areas from Pigeon Pt. north and the Farallons to take of abalone (commercial and/or recreational)	1, 6, 7, 8, 9, 10, 12 (pg. 11), 14 (pg. 6), 15 (pg. 16), 10 (App. G-LA), 29, 31	Sec. 7.1.4.3 - modified

Include Pigeon Point to Pescadero Creek a fishing area for consideration.	6	
Explain concept of "depleted fishery"	1a (pg. 10)	Glossary - modified
Open private areas to public access	4, 13 (pg. 2)	Refer to Sec. 4.1.2
Economic values of commercial and recreational fisheries are not directly comparable	12 (pg. 2), 14 (pg. 7)	Exec. Sum. - modified Sec. 3.2 - modified
No. of permits in 1997 was 103	12 (pg. 7)	sec. 3.1 - checked no. permits at closure
Oppose any commercial fishery in northern Calif.	13 (pg. 2)	
Have a fishery at San Miguel Is.	14 (pg. 8)	
Consider raffle system	5 (App. G-FB)	
Consider ITQs in fishery	14 (App. G-SB)	
Consider using electronic tracking devices to track comm. fishermen	14 (pp. G-SB)	
No commercial fishery at Farallon Is.	27 (App. G-LA)	
Allocation between recreational and commercial fisheries	8	
<b>Research</b>		
Surveys - more needed in broader and more areas or better data	8 (specific index sites), 15 (pg. 58), 17 (App. G-FB), 20 (App. G-FB), 21 (App. G-SB), 10 (App. G-LA), 27 (App. G-LA)	
Monitor environmental factors (kelp beds abundance, El Niños, etc.)	8	
Need abundance/biomass estimates for better management	1 (pg. 11-12)	Refer to Sec. 7.2.3

Collaborative research efforts should include diver constituents	12 (pg. 12), 17 (App. G-FB), 19 (App. G-FB), 16 (App. G-FB), 14 (App. G-SB), 21 (App. G-SB)	Refer to Sec. 6.4.1
Need a stock assessment	14 (pg. 2)	Refer to Sec. 6.4.1
Include nighttime surveys	19 (App. G-FB)	
Include international community in peer review of plan	16 (App. G-FB)	
<b>Enforcement</b>		
Increase protection	11, 13, 15 (pg. 4), 22 (App. G-SB), 25 (App. G-SB), 27 (App. G-LA)	
<b>Marine Protected Areas</b>		
Identify and establish potential MPAs for abalone recovery (coordinate w/MLPA process)	11, 15 (pg. 53), 27 (App. G-LA), 30	Refer to Sec. 6.4.2.4 and 7.1.1.3
New MPAs and enforcement issues	13 (pg. 2)	
Suggest rotating MPAs	14 (pg. 10)	
MPAs will not help abalone recovery	15 (pg. 15)	
<b>Sea Otter</b>		
Take action to gain state control of sea otters	2, 8, 14 (pg. 4)	Refer to Sec. 4.3
Determine the density level of abalone in the sea otters' range for comparison with areas outside otter range	1, 8	
Consider re-opening areas where sea otter re-colonization is imminent	1a (pg.8), 6, 9, 26 (App. G-LA)	Sec. 7.3.3 - added
Consider a fishery within otter areas	14 (pg. 4)	Sec. 7.3.4 - added
Plan for recovery is useless if otters recolonize recovery areas	2, 8, 14 (pg. 4), 15 (pg. 26)	Refer to Sec. 4.3 Sec. 6.8.1 - added



<b>Miscellaneous</b>		
Change the word "would" to "could" in last sentence of Sec. 8.3.3 (now 9.3.3)	12 (pg. 12)	Sec. 9.3.3 - modified
Misleading language	1a (pg. 10)	Refer to glossary
Docent program (volunteer)	2, 8	
Measurements should be in English units	15 (pg. 20)	
Identify all funding sources for plan implementation	23 (App. G-SB)	
Abalone biologist in Santa Barbara area	32 (pg. 1)	

<b>Table G-2. List of people providing public comments</b>		
<b>Commenter number</b>	<b>Name</b>	<b>Comment type (W=written, O=oral)</b>
1, 1a	Don Thompson	W, O
2	Edward A. Flynn	W, O
3	Kristin Phillips	W
4	Earl Reid	W
5	Ed Schultze	W, O
6	Richard Pogre (RAAC)	W, O
7	Harry Vogl	W
8	Hank Lindemann	W
9	Jim Goodwin	W
10	Steve Campi (CenCal Divers, RAAC)	W, O
11	Tim Setnicka (CINP)	W
12	Jim Marshall	W, O
13	Mayor Jere Melo (Fort Bragg)	W
14, 14a	Steve Rebuck	W, O
15, 15a	Paul Weakland	W, O
16	John Fonseca	O
17	Mike Wilkins	O
18	Gene Kramer	O
19	Mary Lorenz	O
20	Bob Juntz	O
21	Mark Becker	O
22	Jim Finch	O
23	Mike Shane	O
24	David Kushner	O
25	Bob Duncan	O
26	John Colgate (RAAC)	O
27	Rocky Danniels (RAAC)	O
28	Steve Benevides (RAAC)	O
29	Robert Spencer	O
30	Kate Wing (NRDC)	W
31	Linda Meyer	W
32	Harry Liquornik	W

## **G.4 Formal Public Comments**

### **G.4.1 Formal Public Comment Meetings**

After submission of the draft ARMP to the Fish and Game Commission in late 2002, four formal public comment meetings were held to receive public comment on the draft plan. Two of the public comment meetings were held during regular Commission meetings, and two special Commission meetings were held specifically to receive public comment. The meetings were held at four separate venues throughout the state, and included Monterey (Nov. 19, 2003, special Commission meeting), Long Beach (Feb. 5, 2004, regular Commission meeting), Santa Rosa (April 20, 2004, special Commission meeting), and Crescent City (June 24, 2004, regular Commission meeting). At each meeting the Department provided a presentation that outlined the contents of the draft ARMP. The presentation was followed by a public comment and discussion period.

### **G.4.2 Written Comments**

Written formal comments on the ARMP came in the form of letters, faxes, and e-mail. All written comments were documented and are included in the "Summary of Formal Public Comment", Section G.3.3.

### **G.4.3 Summary of Formal Public Comments**

All of the written comments, and oral comments received at the four public meetings, were recorded and considered by Department staff. A response to each comment was provided. Comments that resonated with the Commission or the Department, and suggestions that would improve the draft plan were incorporated into the plan. A tabular format was used to process and organize all comments, and was divided into sections that correspond with each public meeting and a separate section for written comments. Within a particular section of the table, each person commenting was given a speaker code number (i.e. speaker one = S-1, speaker two = S-2, etc.) and each comment for that speaker was given a comment number (i.e. comment one = C-1 etc.). Some speakers provided supporting documents to their oral comments. The supporting documents were assigned a different comment code which is signified by an "E" rather than a "C" (i.e. support document, Comment one = E-1).

The following is the summary table of formal public comment. All comments were responded to individually. All comments that resulted in a change in the ARMP are signified by a "yes" in the "Revision Needed" column. The specific section that was revised is listed in the last column of the table.

**Table G-3. Summary of Formal Public Comments on the draft ARMP**

**Abalone Recovery and Management Plan Comments and Response to Comments  
Fish and Game Commission Special Meeting, November 19, 2003, Monterey, CA**

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>S-1: Don Thompson</b>				
C-1	The recovery goals and criteria are not realistic. Using northern California population survey data as a proxy for southern California density is not representative of the southern California stock which never was at that level (6600 abalone/ha).	Although it is possible that abalone abundance in southern California was less than that in northern California, there is no good estimate of what that abundance may have been in the past. The Department is currently using northern California red abalone densities as an estimate of abalone densities that can support a fishery. As southern California abalone populations recover and more data is collected, the Department may adjust the estimate. There is no data that indicates that southern California abalone populations could not reach densities seen in the north. Since abalone had been commercially fished in southern California for over 50 years and millions of pounds had been taken from the area, it is possible that abalone densities there initially were similar to that in the north.	No	
C-2	There should be some mitigation for fishermen who were impacted by the closure. The original intent of Department and Commission was to an abalone fishery, and not to eliminate all harvest.	Efforts were made to find suitable mitigation for impacted abalone fishermen, however nothing found was appropriate. There are no guarantees that any fishery will provide sufficient stock to support fishermen taking from those public resources. In May 1997, the Fish and Game Commission closed the abalone fishery because the best available scientific evidence indicated that the resource was at very low stock levels throughout the range. Later in 1997, the Legislature, in establishing the moratorium, addressed as a priority the recovery of a resource recognized as imperiled, not the management of a sustainable fishery. The critical need for protecting the abalone resource was further underscored when the white abalone (in 1997) and the black abalone (in 1999) were listed as candidate species under the federal Endangered Species Act (white abalone was subsequently listed as endangered in 2001). The Legislature closed the commercial and recreational abalone fisheries south of San Francisco Bay, and made the commercial fishery subject to additional closures north of that line (FGC § 5521.5). Thus, if the operation of a fishery presumes some level of "take" and take is expressly prohibited by the abalone statute, then the resource can no longer be considered a fishery. Consistent with its general public trust responsibilities and its specific responsibilities under the abalone statute, the primary focus of the Department's activities is on the conservation, protection, and management of biologically sustainable abalone populations.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-3	The Department should come up with a biomass estimate and a level of confidence in that estimate. The acceptable rate of exploitation should be based on the biomass estimate.	Ideally, biomass estimates would be a good basis for determining a total allowable catch, but for abalone, as in most fisheries, such estimates are not available. The intent of the recovery part of the ARMP includes the determination of a biomass estimate, which will provide the kind of information needed to consider reopening a fishery for a species. However, biomass alone cannot be used as an indication of a fishery determination. The evaluation of the number of legal-size individuals needs to be addressed. For instance, in a recovering resource, the biomass would be expected to be increasing and maybe high, but few individuals would be of legal size for take.	No	
<b>S-2: Steve Rebuck – comments based on exhibits submitted at the meeting are labeled “E”</b>				
C-1	Red abalone populations are healthy statewide, as was noted by former director of CDFG Jacqueline Schaffer in December 1996.	The comment refers to a memorandum from Director Schafer to the Executive Director Robert Treanor concerning an agenda item for the December 5, 1996 Fish and Game Commission meeting, a request by the Abalone and Marine Resources Council that the Commission issue no abalone diving permits until an abalone fishery management plan has been prepared. The Director’s reference to the statewide health of red abalone resource is plainly qualified by quotation marks around the word “healthy” and is understood in context with the preceding paragraph, which refers to “the Commission’s recent action to halt both commercial and recreational harvest of black, pink, green, and white abalone.” Thus, “healthy” is properly read as meaning subjectively compared to the other abalone species (two of which were federally listed as candidates under the federal Endangered Species Act the following year), and not as an objective statement of overall biological robustness. In fact, the memorandum recognizes that red abalone populations are depressed around the Farallon Islands and San Francisco and San Mateo counties, and that, with the exception of San Miguel Island, red abalone stocks are depleted in most of the remainder of southern California. The Department has since acknowledged the severity of depleted red abalone populations statewide and supported not only the commercial closure but an estimated 40% reduction in the northern recreational catch as well.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-2	There are red abalone declines in sea otter range, but populations are in no threat of extinction. Humans are being held to a higher standard of take than otters in regards to abalone populations levels that can sustain take (or predation). The MVP should be 1,100 ab/ha, as in sea otter range, or compromise at 2,000 ab/ha.	The interim recovery goals of the ARMP are to reverse declines by stabilizing stocks and establish self-sustaining populations range-wide. The long-term goal is to attain resource levels that can sustain a fishery. Although abalone populations can survive at densities below 2,000 ab/ha, there is probably low recruitment at those densities and the number of abalone available for harvest would also be correspondingly low. At densities above 3,000 ab/ha, recruitment rates would be higher and allowable take would be higher. Closure at the 3,000 ab/ha level would likely allow more rapid recovery of the fishery than if population densities were allowed to drop to lower levels or to those seen in sea otter-dominated areas.	No	
C-3	Test alternatives incrementally to see if they work, especially Alternative 4.	Abalone densities in southern California are so low that an incremental test of Alternative 4 would not be practical. The permissible take would likely be too low to generate enough fees to cover the added enforcement and monitoring costs needed for the fishery.	No	
C-4	The final recovery criteria of 6600 ab/ha throughout whole range (or three-quarters of the range) will never happen.	The commenter is primarily concerned about the impossibility of recovery of 3/4 <sup>th</sup> of the range due to encroachment by sea otters. Areas with sea otter populations will be excluded from calculations of recovered areas so the range will shrink with expansion of sea otter territory and it is feasible that 3/4 <sup>th</sup> of the sea otter-free range could recover. There currently is no information which accurately estimates the level of recovery possible for areas free of sea otters. There is no reason to change the criteria at this time. See S-1, C-1 above.	No	
C-5	Based on CDFG data: 1.2% of abalone populations were taken as commercial legal in 1997 (or 200,000 lbs). By 1999, 5% of the population was commercial legal size. Therefore, 1 million lbs of abalone should be available for fishery. If these abalone are gone, where did they go? If they are there, need to consider fishing.	The comment misconstrues the 1.2 percent value, which is the percentage of the size frequency distributions that exceeded the commercial legal size (7.75 in.). The size frequency data was not collected in a random manner, thus it is not a representative sample of the size or abundance of the population or red abalone at San Miguel. The size frequency was collected during all kinds of dives made at SMI, including, and mostly, during roving diver surveys. Such data is used to build a size frequency distribution for cohort analysis, but it is not useful in estimating abundance.	No	
E-1	Submitted a written proposal advocating and outlining an Individual Transferable Quota (ITQ) and Annual Catch Entitlement (ACE) fishery for red abalone south of San Francisco using a tag system.	These conservation and management tools contemplate an established commercial fishery. While this is a long-term recovery goal, the interim recovery goals of reversing declines and establishing self-sustaining populations must first be achieved.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
E-2	Submitted a written statement to the Commission that provides explanations relating to comments 1-5 above.	Responses to comments 1-5 take written statement into consideration.	No	
E-2-a	The ARMP selectively uses information to give the false impression that commercial divers had overfished the resource. Department data presented as Exhibits 4 and 5 show sea otter impacts need to be represented.	The ARMP recognizes that, in addition to legal harvesting by both recreational and commercial fishers, sources of abalone mortality include poaching, pollution, habitat impacts, predation, disease and other environmental factors such as El Niño. All of these various causes were recognized by the Legislature when it enacted the moratorium in 1997 and directed the preparation of the ARMP. The ARMP was never intended to present a comprehensive compendium of all available data on abalone. However, consistent with the Legislature's direction, the ARMP contains an explanation of the scientific knowledge regarding the biology, habitat requirements, and threats to abalone, as well as information most relevant to the recovery and management strategies. Figures such as Exhibit 5 which show the effect of sea otters on the densities of red abalone in a very small area of central California are not included because other than central California, sea otters had limited affect on red abalone populations. ARMP Figure 2-2 shows commercial red abalone catches declining significantly by 1970 in all southern California areas except San Miguel and San Nicolas Islands. Although sea otters generally can have a tremendous effect on abalone populations, none of the southern California declines are largely attributable to sea otters, because they had either never reoccupied those areas or had not moved into those areas until well after red abalone populations had declined. This would include San Nicolas Island which had much higher catches in the mid-1970s than the years just before the start of sea otter translocations in 1987.	No	
E-2-b	The recovery criteria are overly complex and confusing, with no explanation of how models were created	In enacting the moratorium and mandating the preparation of the ARMP, the Legislature required the use of size frequency distribution criteria to determine whether the goals and objectives of the recovery strategy are being met. The ARMP contains no models, which are used to predict changes in population due to management actions, and the commenter may be confusing the Recovery Flowchart (Figure 6-1), which is presented to help the reader visualize the steps in the recovery process.	No	

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E-2-c	Researchers are the only ones that benefit from the ARMP	In mandating the preparation of the ARMP, the Legislature has determined that the recovery and management of this public trust resource will benefit the people of the state, including those who participate in the commercial and recreational fisheries. Indeed, one of the objective measurable criteria required by the statute, "size frequency distributions exhibiting multiple size classes as necessary to ensure continued recruitment into fishable stock," clearly contemplates fishermen as beneficiaries of the ARMP. Thus the ARMP benefits recreational abalone fishermen by providing a mechanism to sustain the northern California fishery, while the long-term goals of the ARMP to restore abalone fisheries throughout the state will benefit fishermen south of San Francisco in the future.	No	
E-2-d	Plan makes references to "abalone" without specifying species.	The ARMP expressly specifies that the recovery portion of the plan will focus primarily on red, pink, green, black and white abalone.	No	
E-2-e	The goal of the plan seems to be to keep fisheries south of San Francisco closed. The reason for this is that the Directors Abalone Advisory Committee (DAAC) is made up primarily of people who favored the 1997 closure.	As required by statute, the ARMP summarizes the interim and long-term recovery goals, including a range of alternative interim and long-term conservation and management goals and activities, and explains why the Department prefers the recommended activities. The Legislature imposed the current moratorium, and subsequent decisions regarding whether the resource is sufficiently recovered to sustain a fishery will be made by the Fish and Game Commission. A goal of the ARMP is to promote the recovery of abalone populations south of San Francisco, which require closure for an unknown period. The Commercial Abalone Advisory Committee (CAAC) is composed of five commercial abalone divers (and one person who paid an abalone landing tax), all of whom were adversely impacted by the 1997 closure, and by the subsequent moratorium imposed by the Legislature. By law, two of the CAAC must be members of the California Abalone Association, which actively opposed the legislation mandating the ARMP. In approving the Department's formal recommendations before the Fish and Game Commission, the Director may consider the advice of the CAAC, but also takes into consideration the advice of the Recreational Abalone Advisory Committee, as well as the conclusions of the Department biologists and other relevant sources. Similarly, in deliberating on whether to accept all or in part the Department recommendations, the Commission considers input from diverse interests as well as the general public.	No	



Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
E-3	<p>Submitted exhibits labeled 1 through 8 with supporting documents including:</p> <ul style="list-style-type: none"> <li>- meeting notes from the December 1998 Commission meeting</li> <li>- data and graphics on commercial abalone landings</li> <li>- comments of the California Abalone Association on the amendments to the 1997 SB 463</li> <li>- a scientific paper (Fenshawe et al. 2002) regarding MPAs, red abalone, and sea otters.</li> </ul>		No	
<b>S-3: Steve Shimek, Executive Director of the Otter Project</b>				
C-1	<p>There are high densities of red and black abalones that still remain in central California but they are in cryptic habitat out of reach of otter predation and humans.</p>	<p>The ARMP's resource recovery and management strategies will not address the densities of red and black abalones within the sea otter range in central California as long as there is no additional human catch to deteriorate populations further. The resource is apparently sustainable and likely reflects the situation that existed before sea otters were extirpated by hunters in the 18<sup>th</sup> and 19<sup>th</sup> centuries. What has changed is the fishery, which targeted large emergent (out and about) individuals whose populations had proliferated in the absence of the sea otter. It is generally accepted that a red or black abalone fishery cannot be conducted within the range occupied by sea otters.</p>	No	
C-2	<p>There is too much emphasis in the plan for restoring a commercial fishery. This causes unnecessary conflict between groups that want a fishery and those who advocate recovery of sea otters. The emphasis should be on restoration of abalone populations, not restoration of a fishery.</p>	<p>The ARMP emphasizes resource recovery, not commercial fishery restoration, but when it refers to fisheries, it includes both recreational and commercial sectors. For example, under Section 7.1.4.1, "Planning Process For Fishery Re-Opening", the ARMP states: "For fisheries in southern California, additional planning will occur. For example, resource allocation between sport and commercial fisheries will need to be determined and a network of no-take reserves should be established prior to re-opening any fishery." Although a restored commercial fishery is not in the immediate future, former commercial abalone fishermen want to know as much detail as possible about future management policies that would affect their livelihood, because priority for participation in any such fishery must by law be given to those who previously held a commercial permit before the moratorium.</p>	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>S4: Steve Campi, President of Central California Divers</b>				
C-1	First priority should be for abalone population recovery.	Resource recovery is clearly the intent of the legislation that mandated the preparation of the ARMP, and that intent is evidenced in the plan's first recovery criterion.	No	
C-2	Recreational fishing should have preference in allocation of any abalone resource. If there is sufficient resource left, it can be allocated to commercial fishing.	In mandating the development of the ARMP, the Legislature required that it contain alternatives for allocating harvest between sport and commercial fishers if the allocation of the abalone harvest is warranted. However, allocation presumes a sustainable fishery, which can only occur after recovery of the resource. The issue of allocation can be revisited when a population of abalone has met the criteria for reopening a fishery. It cannot be resolved by the ARMP presently.	No	
C-3	Does not like Alternative 1 and the amendment to it; does not like the commercial slot limit at San Miguel Island. Stocks from areas that recover first should be used to boost recovery in other areas.	The legislation that mandates the ARMP contemplates recovery in multiple areas before a fishery is reopened. This is reflected in the ARMP's description of recovery areas (Chapter 6 section 6.2.1.1) Translocating abalone to restore populations would be a legitimate use of surplus abalone in recovered areas.	No	
C-4	The Department should put in an information table that has all metric numbers reported in the plan with the corresponding English conversion. This would make it easier for people to understand and grasp density targets (ie. convert abs./ha. to abs./ft.).	Comment noted and changes will be incorporated into ARMP.	Yes	Added "Conversion Tables for the ARMP" pg. xvii
<b>S-5: Paul Weakland – comments based on exhibits submitted at the meeting are labeled "E-"</b>				
C-1	Withering syndrome (WS) is the first and foremost reason that abalone were depleted. Some if not all areas are recovered and disease has run its course. We now have disease resistant abalone populations.	Withering syndrome (WS) was an important part of the decline in the populations of black abalone, together with continued landing of black abalone when WS was expanding. There is no evidence that pink, green, white, or red abalones were significantly affected by WS. The other species are susceptible to WS, but there is no evidence for WS as a cause of decline. These species were depleted well before WS was first noticed. The extent of recovery and the resistance of remaining abalone populations to WS have not been documented.	No	
C-2	Public comments submitted over the last six years have not been answered.	The purpose of this section is to efficiently respond to all relevant comments regarding the ARMP all at once, rather than piecemeal.	No	
C-3	The red abalone fishery should be opened now.	See response to S-2, C-3 above.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-4	The MVP of 2,000 ab/ha is too precautionary and there is no chance of success. 1,000 ab/ha has been shown in many studies as a reasonable MVP. Suggest that the MVP should be 1,000 – 1,500.	See response to S-2, C-2 above.	No	
C-5	Having a limited fishery would help gather some of the information needed for managing sustainably.	Fishery-dependent data is of limited value in managing fisheries, because: (1) it provides information only on certain life stages of those species that are taken by specific fishing gear; (2) it provides limited information about ecosystem interactions, and (3) the accuracy and reliability of the data can vary for a variety of reasons, including mis-identification of species, under-reporting, or mis-reporting	No	
C-6	Data will never be attainable if grant money motivates research. This will always create more questions, controversy, and conflict	The development and implementation of the ARMP is not being funded by grant money. The Department's abalone recovery and management efforts will be supported by either non-dedicated or dedicated funds deposited in the Fish and Game Preservation Fund. Dedicated funds are collected from the recreational fishery's abalone permit report card fees, fines for abalone violations, and previously collected commercial landing taxes. These funds are specifically designated by statute to be spent on the abalone resource. Non-dedicated funds are obtained from general tax revenues, sport and commercial license fees, and federal funds. Moreover, the reality is that grant organizations carefully scrutinize proposals and would not fund projects which perpetuate unending studies. Department research is largely funded internally but grants can be valuable supplements to available funds.	No	
C-7	Why must all parts of Criterion 1 be met before Criteria 2 or 3 can be explored?	In actuality, given the person power, when an index site attains broad size range, increased numbers and types of studies can be initiated in order to obtain more biological information. One example is at San Miguel Island, which has a broad size-range of red abalone. Further studies are proposed, even though the surrounding sites have not recovered.	No	
C-8	Concerned about ability to count ab/ha given abalone movement	Abalone abundance, as reflected by the term "ab/ha", is determined by conducting a number of randomly placed transects along which counts are made, over a short period of time. The actual value of the abundance is calculated from the surveys. Movement of abalone among survey locations is not significant.	No	
C-9	Use limited fishery to judge, evaluate, and collect data on populations.	Fishery-dependent data is limited in usefulness in population studies. See response to S-5, C-5 above.	No	

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C-10	Suggests increasing the size limit to 7¾ in. and reducing the bag limit.	This suggestion can be addressed by the plan, but the actual regulation is in the purview of the Commission.	No	
C-11	Abalone resources were fine until introduction of Withering Syndrome (WS) by CDFG outplanting. Small cryptic abalone disappeared because of disease. The chronology and location of outplanting match the appearance of WS.	Only black abalone were affected by WS. See response to S-5, C-1 above. Outplanting programs previously used red abalone, which were grown at several culture facilities. WS was mostly a black abalone disease and was observed at many locations where outplanting was not conducted.	No	
C-12	Carolyn Friedman thought outplantings and agriculture might be to blame for spread of WS.	Dr. Friedman's comments were speculation of causes for the spread of the <i>Rickettsia</i> bacteria that causes WS and do not show conclusive evidence for the connection between aquaculture outplantings and the spread of the disease. Although <i>Rickettsia</i> has been detected, there have been no cases of WS in northern California. The Department will take this into consideration before any future actions involving outplantings and agriculture.	No	
E-1	Submitted exhibits. See written comments W-3 below.			

**Abalone Recovery and Management Plan Comments and Response to Comments  
Fish and Game Commission Meeting, February 5, 2004, Long Beach, CA**

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>S-1: Paul Weakland</b>				
C-1	With systematic pruning the abalone fishery should grow and prosper. Withering Syndrome (WS) is cause for decline. Repeat of written comment W-3, C-16 and S-5, C-1 (Monterey Meeting).	Size and bag limits were unable to control depletion of abalone populations in southern California. Withering Syndrome mainly affected black abalone. See responses to W-3, C-16 and S-5, C-1 (Monterey Meeting).	No	
C-2	There is a direct correlation between outplantings and WS. WS killed the abalone that used to be in the cracks and crevices and supported the fishery. Repeat of S-5, C-11 (Monterey Meeting) and W-3, C-13.	No correlation has been established between outplantings and WS. The disappearance of small abalone is more likely the result of poor recruitment. See responses to S-5, C-11 (Monterey Meeting) and W-3, C-13.	No	
C-3	We have introduced hatchery raised abalone into the resource. Abalone died because there has been too much genetic diversity present. Repeat of W-3, C18 and C20.	There is no credible scientific evidence that outplantings hurt populations by introducing too much genetic diversity in the population. See W-3, C18 and C20.	No	
C-4	Larger, older abalone become necrotic and their spawn is no longer viable. Abalone between 2½ and 5½ in. are necessary, not the larger ones past 7¾ inches. Harvest would have no effect on MVP. Size limits would control any damage of over harvesting. Repeat of W-3, C-16.	Although larger abalone can have a higher frequency of necrotic eggs, their overall production is greater than smaller abalone. Size limits did not prevent depletion of abalone populations throughout southern California. See W-3, C-16.	No	
C-5	Comments regarding Option 1 under Alternative 1: The new material added to the plan has not been peer reviewed. Transponders on fishing boats will not work because there is no insurance that it will effectively prevent poaching. Who is going to pay for the transponders? The suggested minimum size limit of 7¾ inches for all (recreational as well as commercial) is good. The suggested summer season happens when red abalone are spawning and thus is not a good idea. The three summer months should be closed and the rest of the year should be open. TAC will not work. Proposed tax ( <i>cont.</i> )	Option 1, Alternative 1 was added at the request of commercial fishermen and is largely based on abalone management practices that are currently being used in Australia. The Department believes these are practices that deserve discussion when the decision has been made to re-open the abalone. The alternatives will not be peer reviewed since they are not preferred alternatives and were added to broaden options for the Commission to consider.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
	should only be dedicated to abalone and not used for other things. The Farallon Islands should also be included in Option 1.			
C-6	We should find a truthful, cost-effective method such as adding up the number of abalones landed to be able to see and judge, gauge, and evaluate the health of the resource.	Catch data is not reliable for indicating the health of the abalone resource. See S-5, C-5 (Monterey Meeting). Reliance on such data in the past was one of the factors responsible for the depletion of abalone populations throughout most of southern California.	No	
<b>S-2: Don Gilbert</b>				
C-1	Recovery program will take decades and we may not see it during our lifetimes. Rather than waiting for natural process to occur, he would like to seed larval abalone into the environment and expects recovery could occur in 5 to 6 years. He finished a draft Environmental Impact Report (EIR) to seed Point Loma. He would like to speed the EIR process up.	Larval out-planting is covered in the ARMP and is viewed as a possible method for enhancing natural recovery (Section 6.4.2.2). Even if larval out-planting is successful, recovery of a fishery would likely take longer than 5 to 6 years (ARMP Table 2-3). Comments regarding speeding up an EIR are not relevant to the ARMP.	No	
C-2	In contrast to the last speaker (S-1, C-4, Long Beach Meeting), the majority of the reproduction is in older animals. Younger abalone put out very few eggs while older ones put out millions.	Department agrees. See S-1, C-4 (Long Beach Meeting).	No	
<b>S-3: Dallas Weaver</b>				
C-1	The Withering Syndrome (WS) section seemed very weak and had an implicit assumption that WS will not be a controlling factor in recovery. If WS is a controlling factor then most of the plan is irrelevant. The rickettsia-like prokaryote (RLP) is very effectively transmitted by eating infected tissue and the slow movement of the disease northward against currents suggests human involvement in transmission. Without handling the WS problem, we may be wasting our time.	In Sections 2.1.9.2, 6.4.3.2 and 6.5.1, the ARMP recognizes that WS can be a threat to the recovery of abalone populations. The northward movement of WS does not require human involvement. Currents along the California coast change directions seasonally and water flows northward during El Niño conditions. The Department recognizes the severity of the WS situation and its continuance in the ocean environment may hinder recovery efforts. Additional discussion regarding continued WS assessment in all surveys will be added to Sections 6.6.1.1 and 6.6.1.2.	Yes	Sections 6.6.1.1 and 6.6.1.2 amended

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-2	<p>Recommends that the viscera and waste products not be discarded in the ocean. Department has done nothing to educate the diving community about this basic bio-security. Mexico appears to be way ahead us with strict regulations on disposal of all waste tissues and allowance of take of sick, undersized abalone. Preliminary data show that Mexican procedures are having an impact on the disease.</p>	<p>Currently, RLP is largely restricted to areas closed to abalone fishing so the discarding of abalone viscera in the ocean is not a major factor. Mexico's ability to develop procedures impacting WS is largely dependent on having a commercial abalone fishery in which a limited number of fishermen take abalone. Since there is no commercial fishery in California, therefore Mexican procedures cannot be followed. Allowing the general public to take sick abalone in the closure area will likely harm abalone populations since healthy abalone will likely be removed as well.</p>	No	
<b>S-4: Don Thompson</b>				
C-1	<p>Would like the red abalone fishery to be re-opened. See S-2, C-3 (Monterey Meeting).</p>	<p>Most abalone populations in southern California are too low to sustain a fishery. The current red abalone population has not recovered at enough sites to ensure a sustainable fishery. Also see S-2, C-3 (Monterey Meeting).</p>	No	
C-2	<p>When no suitable mitigation could be found for fishermen who were impacted by the closure, the mandatory 10-year moratorium was changed to a permissive moratorium that allows the Commission to re-open the fishery when the ARMP is completed. According to Fred Keely, a SB 463 co-author, the legislative intent of the bill was to result in a recovery and sustainability plan for abalone which will then allow the fishery to be re-opened. The Department's plan is not consistent with the legislative intent. The criteria are so high they basically would be impossible to achieve.</p>	<p>The statute does not allow the Commission to re-open the fishery when the ARMP is completed, but provides that following adoption of the ARMP, the CDFG <i>may</i> apply to the Commission to re-open the fisheries. If the CDFG takes this discretionary action based on substantial evidence, the Commission must then make a formal finding that the resource can support additional harvest, consistent with the ARMP (FGC § 5522(d)). The criteria proposed in the ARMP are based on the ongoing recreational abalone fishery in northern California. As more data is collected for southern California, the Department may adjust goals and criteria. Also see S-1, C-1 (Monterey Meeting).</p>	No	
C-3	<p>The Department should come up with a biomass estimate and a level of confidence in that estimate. Repeat of S-1, C-3 (Monterey Meeting).</p>	<p>Ideally biomass estimates would be a good basis for determining a total allowable catch, but for abalone, as in most fisheries, such estimates are difficult to accurately calculate and are not available. See S-1, C-3 (Monterey Meeting).</p>	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>S-5: Steve Rebuck</b>				
C-1	Jacqueline Schaffer, former Department Director, stated in December 1996 that red abalone populations were healthy state-wide. How did we go from a healthy resource statewide in 1996 to this created crisis? Repeat of S-2, C-1 (Monterey Meeting).	The comment takes Director Schaffer's statement out of context. See S-2, C-1 (Monterey Meeting).	No	
C-2	Annual commercial catch of abalone was 200,000 lb at the closure. Based on lack of take in recent years there should be in excess of 1 million pounds of abalone available for take. Repeat of S-2, C-5 (Monterey Meeting).	The data used are not adequate for determining the amount of red abalone available for a fishery. See S-2, C-5 (Monterey Meeting).	No	
C-3	The goal of 6,600 ab/ha is extremely unrealistic. Abalone populations are patchy at best and for many years the fishery operated at populations much less than this. Repeat of S-1, C-1 and S-2, C-2 and C-4 (Monterey Meeting).	Although the fishery operated at low population levels, the fishery was not sustainable. Continued harvest at low population levels likely contributed to the serious depletion of abalone populations throughout southern California except for perhaps at San Miguel Island. See ARMP Figure 2-2, Santa Cruz and Santa Rosa Islands. See also S-1, C-1 and S-2, C-2 and C-4 (Monterey Meeting).	No	
C-4	The abalone fishery operated at 2 million pounds per year for about 6 decades. What has changed is a recovering sea otter population. Within the sea otter range, abalone are at 70 to 1,100 animals per hectare. Why do humans need a higher standard? Repeat of S-2, C-2 and E-2-a (Monterey Meeting).	In enacting its moratorium, the Legislature noted that abalone numbers all along the coast have declined drastically since the early 1970s, and attributed the decline to the cumulative impacts of commercial taking, a growing market demand, expanding sport fisheries, growing sea otter populations, pollution, loss of kelp beds, El Niño, and disease.  Sea otters were not the sole cause of abalone depletion in southern California. Abalone densities seen in sea otter range are unlikely to support a commercial fishery. See S-2, C-2 and E-2-a (Monterey Meeting).	No	
C-5	Supports ARMP alternative 4 but would prefer a blend of alternatives. A small experimental fishery could be conducted with about 50 participants. Repeat of S-2, C-3 (Monterey Meeting).	Abalone densities in southern California are so low that an incremental test of Alternative 4 would not be practical. See S-2, C-3 (Monterey Meeting).	No	



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C-6	Part of the reason for the abalone closure was the resentment by recreational fishermen of export of the commercial catch to Asia. This could be solved by export bans which have been used in the past.	The key factor in closing abalone fisheries south of San Francisco is the depleted condition of nearly all abalone populations and a ban on exports is not relevant to the main problem.	No	

<b>Abalone Recovery and Management Plan Comments and Response to Comments Fish and Game Commission Special Meeting, April 20, 2004, Santa Rosa, CA</b>				
Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>S-1: Jeff Baldwin – comments based on exhibits submitted at the meeting are labeled “E-“</b>				
C-1	Proposes to re-open the commercial red abalone fishery in southern California and also open the North Coast to commercial fishing. The fishery would work on a rotational fishing area basis between northern and southern California. Additional details are listed on the handout submitted by Mr. Baldwin.	Based on the best scientific information available and other relevant information, the red abalone population has not adequately recovered to sustain a commercial fishery. The Commission has no authority to re-open the northern California red abalone commercial fishery, which is closed by statute (FGC § 5521.5(a).).	No	
E-1	<ol style="list-style-type: none"> <li>1. Northern &amp; Southern California Rotation Abalone Market Fishery</li> <li>2. Seven (7) dozen per day</li> <li>3. Ten (10) days per month</li> <li>4. Ten (10) months per year</li> <li>5. Closed August and February</li> <li>6. Fishery opens in Northern California for four (4) years</li> <li>7. Northern California is divided into ten (10) blocks ranging from Farallon Islands to Oregon border</li> <li>8. Rotates to Southern California for the next four (4) years</li> <li>9. Southern California, San Miguel Island, backside from Adam's Cove to sand (<i>cont.</i>)</li> </ol>	These comments will be considered when the Department determines that the resource has recovered to the point where it can support a sustainable commercial fishery.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
	<p>spit; Santa Rosa Island, back side to East Point, front side to Talcott Shoals; Rocky Point to Point Conception and San Clemente Island (?)</p> <p>10. Return to transferability permits, two for one buy-out</p> <p>11. \$5.00 per lb tax paid by abalone market divers via abalone processors, paid to CDFG for law enforcement and abalone research and monitoring</p> <p>12. Size limit 8 in.</p> <p>13. Divers with permits prior to moratorium receive new permits</p> <p>14. No new licenses issued until divers number less than 75</p> <p>15. New divers eligible to purchase license if they have worked as an abalone tender or have had an active abalone permit in the past for at least three (3) years</p> <p>16. Once the number of divers is below 75 and there are not two available licenses for sale, the CDFG can opt to generate the sale of new licenses for \$50,000</p>			
<b>S-2: George Lawry</b>				
C-1	Enforcing MPAs in remote areas as suggested in the plan for southern California will be difficult.	Although marine law enforcement poses unique challenges, the Department believes that these areas can be adequately protected through a coordinated inter-agency strategy such as that already in place at the Channel Islands.	No	
C-2	The reason the northern California abalone fishery is sustainable because harvest is limited to breath-hold diving.	The Department agrees that regulations prohibiting the use of SCUBA and surface-supplied air while catching abalone is an important factor in providing a reserve population that is removed from sport harvest.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>S-3: Paul Weakland</b>				
C-1	With systematic pruning the abalone fishery should grow and prosper. Withering Syndrome (WS) is cause for decline. Repeat of written comment W-3, C-16 and S-5, C-1 (Monterey Meeting).	Size and bag limits were unable to control depletion of abalone populations in southern California. Withering Syndrome mainly affected black abalone. See responses to W-3, C-16 and S-5, C-1 (Monterey Meeting).	No	
C-2	Larger, older abalone can become necrotic and their spawn no longer viable. Abalone between 2½ and 5½ in. are necessary, not the larger ones past 7¾ in. Harvest would have no effect on MVP. Size limits would control any damage of over harvesting. Repeat of W-3, C-16.	Although larger abalone can have a higher frequency of necrotic eggs, their overall production is greater than smaller abalone. Size limits did not prevent depletion of abalone populations throughout southern California. See response to W-3, C-16.	No	
C-3	Expressed concern about not counting or measuring the number of small recruits (<100 mm). How can we effectively measure recruitment if the small recruits are not assessed?	Small abalone are counted and measured using invasive transects. See response to W-3, C-33.	No	
C-4	Abalone is a public resource and currently not all Californians can benefit from this resource. By allowing a commercial fishery for a strictly Californian market, more people can enjoy abalone and not just a select few that can recreationally dive to get them.	A commercial fishery would not significantly increase the number of people who could enjoy abalone. A “California only” market would impermissibly interfere with interstate commerce. See responses to W-3, C-10 and W-3, C-86.	No	
C-5	Specifically in regards to the plan, having only four index sites is not representative of all of California if you use the density numbers for criteria in central and southern California.	Four index sites are not representative of all of California, but provide the best available data for fishery density estimates.	No	
C-6	Size limits are not effective if you consider the number of mortalities that occur from short abalone mortally injured and put back when trying to get legal-size abalone.	Size limits are effective at protecting most short abalone, but near the size limit there is incidental mortality due to take. More public outreach and education would convey the importance of divers measuring abalone before take. A combination of size, bag, and season limits and gear restrictions appear to be an effective management strategy in the interim plan.	No	
C-7	San Francisco south is the largest Marine Protected Area in the world. The black abalone fishery has been closed for 10 years without any benefit. Why should we continue to fail with that concept?	1997 legislation closed the area south of San Francisco and contemplates an <i>initial</i> recovery period of 10 years. As with any slow growing, overfished species, the rebuilding period could actually be much longer. The critical need for protecting the abalone resource was further underscored when white abalone (in 1997) and ( <i>cont.</i> )	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
		the black abalone (in 1999) were listed as candidate species under the federal Endangered Species Act (white abalone was subsequently listed as endangered in 2001). Closure has stopped fishing mortality on species which are severely depleted. Even if recovery has not yet occurred, the closure cannot be considered a failure since it prevented abalone populations from dropping to lower levels than those seen at the close of the fishery.		
<b>S-4: Gene Kramer</b>				
C-1	Opposes commercial abalone fishery in northern California. Does not see how a commercial catch could be justified since the recreational limits have been lowered in recent years.	See S-1, C-1 (Santa Rosa meeting).	No	
C-2	The use of density criteria in adjusting management of the fishery is good, but how can density be accurately measured in a highly rugose habitat?	Density estimates are based on stratified random surveys in all types of habitat, including highly rugose areas. Therefore, the overall density estimate does reflect some of the densities in that habitat type. To provide a much more detailed density estimate for rugose habitat and other abalone habitat would require more intensive surveying and accurate habitat maps, which would be stratified for sampling. Unfortunately the Department does not have the resources for more intensive surveys and accurate habitat maps are not available at this time.	No	
C-3	How does the plan address areas like Humboldt County which never had 6,600 abalone per hectare. Will these sites be closed?	Under the interim plan, Humboldt County is included in the entire north coast fishery management area. Humboldt County would not be closed unless fishery-dependent creel data from Shelter Cove reveals a significant decline in stocks and subsequent dive surveys showed low densities of abalone (refer to table 7-4).	No	
C-4	San Mateo County should be opened to abalone fishing before sea otters reoccupy the area.	The action is addressed in FGC § 5522 (d) as far as re-opening a fishery. Abalone populations in San Mateo County face a number of serious threats to their populations including WS disease and future predation by sea otters. Adding a fishery catch to these threats could cause localized population failures. Furthermore, to re-open a fishery in anticipation of sea otter reoccupation would likely ( <i>cont.</i> )	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
		have implications for the management of an endangered species and would require consultation with the USFWS.		
<b>S-5: Harry Vogl – comments based on exhibits submitted at the meeting are labeled “E-”</b>				
C-1	Proposes opening the commercial fishery (including northern CA.) with the previous regulations and some additions and changes.	See response to S-1, C-1 Santa Rosa meeting.	No	
E-1	This (commercial abalone) closure in 1997 was based on very little documented research due to lack of funds and qualified researchers. Since the time of closure to this date, no stock assessments have been made by expert researchers in most areas of the California Coast and very little is documented in a small portion again due to lack of funds and researchers.	In enacting its moratorium, the Legislature noted that abalone numbers all along the coast have declined drastically since the early 1970s, and attributed the decline to commercial taking, a growing market demand, expanding sport fisheries, growing sea otter populations, pollution, loss of kelp beds, El Niño, and disease. Moreover, as a logical corollary of its power to regulate and protect its environmental assets, the State should be able to take preemptive measures to protect its natural resources even before those resources appear threatened with extinction or before it incurs significant costs in maintaining or rehabilitating the resource. Although stock assessments specific to abalone have been limited, there are numerous monitoring programs throughout the area which would have detected a large-scale recovery of abalone populations. There has not been any report of significant abalone recovery.	No	
E-2	Otter predation on abalone has not been addressed. The idea of keeping a fishery closed in order to rebuild the stocks in the areas adjacent to the known as [sic] otter zones is a waste of this California resource.	Rebuilding abalone stocks before reoccupation by sea otters would help to ensure that abalone populations are healthy enough to withstand the resumption of sea otter predation. Also see response to S-4, C-4 Santa Rosa meeting.	No	
E-3	Why is it that State researchers claim that abalone densities ranging at 1,000 ab/ha are considered normal in areas populated with otters for centuries and less than 6,000 ab/ha is considered depleted in the unpopulated otter zones used only by sport divers?	Abalone populations would not be considered depleted until they dropped to 3,000 ab/ha (Table 7-4). The difference between densities found in the sea otter zone and the closure level in the ARMP is because the ARMP closure level supports an active fishery. The numbers of abalone produced at densities with sea otters would be much less than those produced at the ARMP closure level. Also see response to S-2, C-2 Monterey meeting.	No	
E-4	It is time to restart the commercial abalone fishery with a conservative safe harvest limit...A restart of this fishery will create several tax revenues to the State...I along with many displaced fishermen would also agree to (cont.)	Fish and wildlife resources are held in public trust by and through the Department, which has jurisdiction over the conservation, protection, and management of fish and habitat necessary for biologically sustainable populations of those species. Although, consistent with that authority, the primary fisheries management goal is (cont.)	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
	<p>a landing tax per abalone or 10% of the ex-vessel price and landing, which is now estimated to be \$60.00 or \$6.00 per... An open fishery would not only bring employment and tax revenue through permit divers but also to tenders working on the vessels, dock workers, processors and brokers. It also benefits the State economy indirectly through marine supplies sales tax, fuel dock sales tax, food markets, and restaurants. If a re-start of the fishery is to occur, a good rule to enact in the fishery would be to eliminate abalone export out of the U.S. or State.</p>	<p>sustainability. The economic aspect of sustainability is appropriately considered only if a fishery is first determined to be biologically sustainable.</p>		
E-5	<p>If a small bag limit to TAC was set at 300,000 lb, the yearly landing tax would generate a tax revenue to the State of \$500,000 to aid in research. This TAC would still be 10 times less than what is now estimated landed by sport divers and the black market of the North Coast.</p>	<p>These comments will be considered at such time the Department determines that the resource has recovered to the point where is can support a sustainable commercial fishery. The suggested TAC would be considerably more than 1/10 what is estimated to be taken by sport divers and poachers.</p>	No	
E-6	<p>Much assistance can be given to the research community by the abalone divers:</p> <ol style="list-style-type: none"> <li>1. Monitoring of area sites could be set up in the usual harvested areas. Size, growth and movement information could be obtained through a tagging program where and while harvest is in operation.</li> <li>2. Artificial recruitment modules could help answer questions concerning basic growth rates and settlement differences in ocean conditions.</li> <li>3. Tracking transponder placed on each commercial boat can give valuable research information and can aid in enforcement.</li> <li>4. Daily trip plans can be filed with the CDFG office, telephone, and hot line.</li> <li>5. Daily log and landing ticket information as before closure is always a resource tool.</li> </ol>	<p>These comments will be considered at such time the Department determines that the resource has recovered to the point where is can support a sustainable commercial fishery.</p>	No	

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E-7	<p>My suggestions for a fair conservative abalone fishery are as follows:</p> <ol style="list-style-type: none"> <li>1. Allow a conservative yearly TAC with a daily individual permit bag limit of 4 dozen.</li> <li>2. Have a minimum 7¾ in. and maximum 9 in. size limit. This allows the sport diver sole access to trophy-size abalone.</li> <li>3. Provide a better working relationship with resource management by using tracking transponders, tagging devices, daily trip plans, and telephone daily log information to CDFG.</li> <li>4. Provide a 10% ex-vessel landing tax to help support the cost of research and enforcement.</li> <li>5. Provide a weekly closure as used in the sea urchin fishery to gain closer working relations with State researchers and enforcement.</li> <li>6. Keep all other rules and regulations as written before closure of the fishery in 1997.</li> </ol>	See response to S-5, E-6 Santa Rosa Meeting.	No	
<b>S-6: Charles Lorenz</b>				
C-1	Wanted to know whether there will be any more meetings such as this to discuss the plan.	There have been four public comment meetings for the draft ARMP. In the future, after the Commission adopts the plan, there will be opportunities to make further public comment as the plan is implemented and amended. The public will also have opportunities to specifically comment on the northern California abalone sport fishery as part of the Commission's biennial review of its sport fishing regulations.	No	
<b>S-7: Jeff Gritsch</b>				
C-1	Abalone populations (pink and green, as well as black) were decimated by the disease in southern California	There is ample documentation of the decline of black abalone due to WS. However, similar evidence does not exist for pink and green abalone. All three species are susceptible to WS, but the mortality for each species may vary.	No	

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C-2	Suggests that using density criteria is not a good way to manage resource. Often times in his experience highly dense areas were not the best fishing areas, but were what they call stunt beds where the abalone never grew in size. Management should be by size, season and number of abalone caught.	Using density criteria is a traditional method for management, and will be an integral part of managing and evaluating the resource. The sole use of size, season, and number of abalone caught was not effective at maintaining a sustainable fishery in southern California.	No	
C-3	Suggests opening the commercial fishery at SMI, the Farallones, and in northern California with a 2 dozen per day bag limit and free dive only.	Opening of abalone fisheries in the moratorium area may be considered once all recovery criteria in the ARMP for a given species have been achieved (refer to Chapter 6 for criteria). For the north coast see S-1, C-1 (Santa Rosa meeting).	No	
C-4	Reduction of daily limit to 3 caused campgrounds to be empty as many people decided the trip was not worth making for 3 abalone.	Tourism nationwide was greatly reduced in 2002 and it would be unlikely that any reduction in northern California campgrounds was solely due to the change in the abalone bag limit, which was a necessary effort reduction measure. Yearly abalone stamp sales declined by 12% after reducing the bag limit in 2002. However, the number of permits sold in 2003 increased slightly to approximately 37,000. Qualitative evidence for the current 2004 year indicates that access points along the coast continue to be heavily used.	No	
C-5	Should have stricter penalties for not turning in punch cards by not allowing the issuance of another card unless the one for the previous year is turned in.	The Department may consider this once its computerized point of sale license system is implemented.	No	
<b>S-8: Curtis Degler</b>				
C-1	Mr. Degler is opposed to any commercial fishing for abalone in northern California. Allowing commercial fishing in northern California will create fishery compaction, i.e., what happened in S. California as described in the presentation. The deep water refuge exist, and allowing a commercial dive fishery would threaten the continuance of this refuge. Commercial fishing could become a good cover for increased poaching. Currently the recreational fishery in northern California provides tourism dollars to local communities. He does not see how having a commercial fishery would increase or add to <i>(cont.)</i>	FGC § 5521.5 (a) prohibits any commercial fishing north of San Francisco. See comment S-1, C-1 (Santa Rosa meeting).	No	



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	the existing tourism. The argument that non-divers do not have access to the abalone resource of the state is not entirely true. Farmed abalone is available for sale if people want to have abalone and can't dive for it themselves.			
<b>S-9: Ed Schulze</b>				
C-1	Would like to see the punch card system evolve into something similar to the deer tag system	Section 7.1.3.2 in the ARMP discusses the potential use of such a tag system under the long term management plan.	No	
<b>S-10: Richard Pogre</b>				
C-1	Objects to specific text in the plan that would disallow a commercial fishery in San Mateo Co. Repeat of written comment W-4, C-1.	This section inadvertently retained text from an earlier draft and will be amended. See response to W-4, C-1.	Yes	Section 7.2 amended
C-2	No valid reason to disallow commercial abalone fishing in San Mateo County. If ROV surveys are correct in identifying lack of abalone on the Farallons, there is a severe problem causing the disappearance of abalone since the closure. Commercial fishermen in San Mateo County and the Farallons are under constant observation from shore by different agencies that can verify activities.	The most current surveys of the San Mateo coast suggest that there are insufficient abalone densities to support a fishery (Karpov et al. 1997, Rogers-Bennett and Pierce 1998).  The ROV survey is discussed in Section 2.2.1.2. We have no historical density data at the Farallons. But the 2000 survey indicates an insufficient density to conduct a fishery. We have no indications or cause for why the population is so low.	No	
<b>S-11: Mike Malone</b>				
C-1	Criteria for expanding the fishery looks to be unrealistically precautionary because it requires high density and high recruitment. High recruitment might not be possible if the habitat is already full. More research is needed.	A precautionary approach is the preferred fishery management strategy in data-poor circumstances. Recruitment criteria can be found in Section 7.1.2.1. Recruitment is defined as individuals between 4 and 7 in. An increase in the TAC can only be implemented if there are more than 4,500 ab/ha of emergent 4 to 7 in. animals. Increasing the TAC without these sub-legal animals would not be precautionary because the replacement of fished abalone could not be assured. If the habitat is full of legal-size animals, then none are protected by the size limit, and increasing the TAC would be risky. The Department supports the need for more research on ( <i>cont.</i> )	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
		stock recruitment relationships for abalone. Having more increased knowledge of the resource may allow less precautionary management in the future.		
C-2	Opposes any commercial fishery for abalone in northern California because of enforcement problems. The current recreational fishery has a high value and should remain the same.	See response to S-8, C-1 (Santa Rosa meeting)	No	
C-3	Need to consider other alternatives to geographically- or area-based closures. Rather than complete closure of defined areas consider severe limitations on take. Most likely areas of closure will be the easy access points to the coast; by closing those areas you are reducing the overall public access to the coast for the purpose of abalone fishing.	Refer to Section 7.1.2.4 where the site closure mechanism is discussed. The use of the site closure decision frame work is meant to be used only in the interim plan, and is designed to close areas as a last resort to avoid local population collapse. In the long term plan under Section 7.1.3.1 the commenter's suggestion would allow for limited take in low density zones through the use of the tag system.	No	
<b>S-12: Bill Bernard</b>				
C-1	The index sites are too small to be representative of the rest of northern California. These heavily fished sites will experience serial depletion and will always be on the edge of falling below sustainable sport fishing thresholds.	In the absence of the ability to monitor more index sites to better represent all of northern California, the interim plan is based on monitoring four highly used index sites (which would be most sensitive to fishing pressure). Past and recent surveys at all four index sites are well above the 3,000 ab/ha threshold for closure.	No	
C-2	The proposed trigger for closure of the entire fishery (average densities at index sites fall below 3,000 ab/ha) is too precautionary and is only 50% away from closure.	See Section 6.2.2.1 for a description of the scientific basis for MVP. Although the threshold for closure is roughly at 50% of the sustainable fishery level, it is based on published data for MVP levels that are required for successful reproduction. Falling below MVP levels may trigger recruitment failure, thus the threshold for closure was set at a buffer level above the MVP. If an abalone fishery is sustainable, then the number of recruits should be equal to the number of abalone caught by the fishery or dying from natural causes. In a sustainable fishery, there should be no drop in abalone density. Under a sustainable fishery scenario, a 50% drop in density is reason for great concern.	No	
C-3	Table 7-2, Action 4 should be amended to read: Fishery closure only on approval of the Commission until stocks are recovered according to the recovery criteria or enough data are collected to shift to the long-term management plan and after input and (cont.)	See Section 4.1.2 which describes the Commission's regulatory power, and Appendix B section B.2.2.2 (first paragraph) of the ARMP. The Commission will be guided by the ARMP. The long-term plan (Section 7.1.3) includes more survey areas (such as low-use sites), however the interim plan is constrained by limited data and resources and is therefore based on four high-use index sites.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
	evidence is received from four other selected low-use index sites. The four low-use index sites must be selected from any of the 51 coded creel sites in the northern recreational abalone fishery zone. Only after input and evidence are received shall a closure be allowed if the evidence suggests that the abalone population level is at low levels.			
C-4	Text should be amended to read: The fishery will close only upon approval of the Commission until stocks are recovered according to the recovery criteria or enough data are collected to shift to the long-term management plan and after input and evidence is received from four other selected low-use index sites selected from any of the 51 coded creel sites in the northern recreational abalone fishery zone. Only after input and evidence are received shall a closure be allowed if the evidence suggests that the abalone population level is at low levels.	See response to S-12, C-3 above.	No	
C-5	Notice of the intent to close the abalone fishery by the Commission must be given 180 days prior to any closure. The 180 day notice is for any group or any individual to review the evidence for supporting or disputing the closure of the fishery.	The Fish and Game Code authorizes both the Department Director and the Commission to take emergency action to close a fishery. (FGC § 240, § 7710). Commission action to permanently close the fishery would follow the Administrative Procedures Act (APA) regulatory process, which would allow for a 45-day public review and comment. A 180-day notice period would delay the closure for six months, is not precautionary, and could imperil remaining stocks.	No	
C-6	Use of index sites to determine fishery closure should be removed from the ARMP and only specific site closures would be in effect for the ARMP. The current ARMP is the first time that a fishery closure could take place automatically due to a trigger such as 3,000 ab/ha. The Commissioners would not, for the first time in history, have the say of whether to keep the fishery open or closed.	The use of index sites is the basis for monitoring the fishery within the ARMP. The index sites provide fishery-independent evaluation of the resource and also supply a historical overview for comparison. Reliance on site-specific closures could result in the serial depletion of the resource. A proposal to close the fishery would not be an automatic action. The proposal would follow the Commission's regulatory process.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>S-13: Roy Gordon</b>				
C-1	Poaching is a very big issue and it is not adequately addressed in the plan. We need to stop poaching that happens within the punch card system by increasing funds to implement the automated system that will help reduce the number of cards purchased by individuals and allow wardens to electronically access information in the field.	See response to S-7, C-5 (Santa Rosa meeting). We agree poaching is an issue and we need to increase our enforcement capability. We also need to implement a system that prohibits the issuance of multiple punch cards to a single person.	No	
C-2	We need to double the portion of the abalone stamp funds that are allocated to enforcement. Criminals outside the report card system accomplish the major proportion of the poaching that is going on constantly in California. They often target small abalone which increases the impact to the fishery.	Stamp funds are allocated by the RAAC, and a substantial portion of the funds go towards enforcement as well as research and management of the fishery. The removal of short abalone by poaching undercuts the future production of abalone to the overall stocks.	No	
<b>S-14: Al Karbousky</b>				
C-1	Favors increasing the compliance for turning in punch cards by increasing penalties for not turning in cards.	Recent efforts have been directed towards improving compliance. Implementing a point of sale licensing system would help increase abalone permit report card compliance.	No	
C-2	Economic incentives could be used by establishing a bounty on poachers.	The CALTip program provides a system for reporting poaching activities and includes a financial reward system.	No	
C-3	Data needs to be improved to defend against lawsuits.	Data not only needs to be improved to help defend against lawsuits, it is also needed to improve management of the resource.	No	

**Abalone Recovery and Management Plan Comments and Response to Comments**

**Fish and Game Commission Regular Meeting, June 24, 2004, Crescent City, CA**

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>S-1: Paul Weakland</b>				
C-1	Black abalone closed in 1993, that is over ten years ago. Fish and Game has given millions of dollars, thousands of man hours, to answer the questions about this closure of black abalone. It's been ten years still we have no answers.	Department expenditures on abalone cover all species and are not solely focused on black abalone. Recovery of black abalone populations has been minimal.	No	
C-2	Recent landing information shows that abalone recovery is already underway. Just look at the commercial landings and the reduction in the bag limit and seasons from 1990-96. Using the CPUE in 1996 and increase in numbers of red abalone were landed from San Nicolas Island, San Clemente Island, Santa Rosa Island, San Miguel Island, Farallon Islands. This was before the closure. Because your scientists would not use CPUE upon any of the information used for reasons to close the fishery.	CPUE is not a reliable indicator of abundance in sedentary species such as abalone. Assumptions of using CPUE include random re-distribution of the stock after fishing, and randomness in the way the stock is fished. Neither of these assumptions apply to abalone, thus its use is inappropriate	No	
C-3	I would like to show you a flyer that I have kept that shows the foremost reason for closing the fishery, withering foot syndrome (WS). That was the reason CDFG gave for closing the fishery. Repeat of S-5, C-1 (Monterey Meeting)	See response to S-5, C-1 (Monterey Meeting)	No	
C-4	The best analogy is to consider the abalone fishery as a shrub or hedge. Harvesters or divers as gardeners or caretakers acting as stewards that guard the resource by trimming and stimulating uniform growth. What has happened is something has poisoned our fruits. That something is WS, an introduced infectious disease. Repeat of written comment W-3, C-16 and spoken comment S-5, C-1 (Monterey Meeting).	See response to written comment W-3, C-16 and spoken comment S-5, C-1 (Monterey Meeting).	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-5	We know one of the reasons CDFG does not want to open up the southern California fishery is because it will show the extent of WS and sabellid worm via aquaculture.	A re-opened southern California fishery will not provide additional data on the extent of WS or sabellid worms. WS is found throughout southern California and sabellid worms are not known in the wild. See also response to written comment W-3, C24.	No	
C-6	This evaluation criteria, the description of objective measurable criteria by which to determine whether the goals and objectives of a recovery strategy are being met. If you look at your numbers and the four sites in northern California that have been heavily fished you will see that Criteria 1 has already been met. Criteria 2 has been met. Criteria 3 is unattainable and will never be met.	The criteria are for an area that needs to be recovered. Northern California does not need recovery and passes all three recovery criteria. Criterion 3 was based on the average density of the three heavily fished sites that had been surveyed at the time the ARMP was written (See ARMP Sections 6.2.2.2 and 7.1.2.1).	No	
C-7	The peer review of the first abalone plan to come through (the only peer review) was scathing on the numbers and the measurable criteria for recovery. The peer review says that Criteria 3 with its unscientific number, the number that was grabbed out of the air. There is no science to implement 6,600 ab/ha. The peer review made that perfectly clear, and 650 and 800 ab/ha is the minimal viable population for red abalone. But to be precautionary we raise the number to 1,000. Now CDFG has doubled that number to 2,000 ab/ha. That is what they say is the minimal viable population. No science, they just grabbed that number. First peer review was never considered in the changes (see written comment W-3, C-93).	The peer reviewers did not criticize the 6,600 ab/ha figure. No recommended minimum viable population level was given by the peer reviewers. Also see response to written comment W-3, C-93.	No	
C-8	Size limit is what protects a minimum viable population for abalone. Many studies that have been done show that spawn from older abalones is necrotic and not viable. Size limits for the sport fishery of 7 in. and 7 ¾ in. for the commercial fishery was determined after many years of study of what mandates a minimum viable population and what size that abalone begin to propagate. Repeat of written comment W-3, C-16.	See response to written comment W-3, C-16.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-9	The only thing that is the credible and honorable to do is Alternative 4 and allow us to go back to what we had which was a sustainable fishery. Repeat of written comment W-3, C-66.	See response to written comment W-3, C-66.	No	
C-10	I would like to mention it says 24 abalone per season. That is incorrect. An abalone fisherman that has paid for a license and a tag is allowed 27 abalone a year. You're allowed 3 on free fishing day when you do not have to declare. So right away your paperwork is not accurate.	A free fishing day does not exempt fishermen from following regulations and does not add extra abalone to the annual limit. Regardless of whether fishermen are recording abalone taken on free fishing days, abalone permit report cards provide a more accurate estimate of abalone catch than has been possible in the past.	No	
C-11	Large numbers of abalone are being poached along the central California coast, but no one is allowed to fish there. The otters are leaving this area. They are moving farther south, but this area will never be considered for abalone fishing.	The existence of illegal fishing effort does not justify re-opening the central coast, where a fishery is precluded by sea otters	No	
C-12	We should be able to live along side the sea otter even though in the history of California and the Spanish exploration, Sir Francis Drake and many of the others who explored the California coast early on would write down meticulously all the plants and animals they encountered, never once did they describe large numbers of sea otters. Nowhere in California in any of the museums or ecological reserves have archaeologists found anything from any culture made of sea otters.	These statements are incorrect and are not relevant to the ARMP which must take into account the presence and impact of sea otters in regards to the management of abalone populations.	No	
C-13	If you want another site, I suggest the Farallon Islands. Your guys have never dove out there, they don't even know what the resource is, but that doesn't stop them from wanting to close.	The Department conducted a ROV survey which is discussed in Section 2.2.1.2. We have no historical density data at the Farallons. The 2000 ROV survey indicates an insufficient density to conduct a fishery.	No	

Speaker/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-14	Poaching in southern California is tremendous. Game wardens aren't looking. They figure no abalone, don't look. What about this guy just caught poaching abalones on the north coast, he even admitted poaching at San Clemente and San Diego.	Although poaching might occur in southern California, it does not constitute proof that local abalone populations could support a legal fishery.	No	
C-15	Californians should be allowed to have abalones. How does someone who does not dive, who is ill and old, does not have the finances to come to northern California and dive share in this public resource? Repeat of written comment W-3, C-86.	See reply to written comment W-3, C-86.	No	
C-16	Abalone has many medicinal qualities that make them highly prized.	The medicinal qualities of abalone are not substantiated.	No	



**Abalone Recovery and Management Plan Written Comments (written comments are verbatim and not corrected for spelling, grammar, or typographical errors)**

Writer/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>W-1: Dan Wilson/Bob Strickland</b>				
C-1	<p>Suggested bag limit changes:</p> <ul style="list-style-type: none"> <li>A. Four per week, week ending on Sunday, north of Gualala River.</li> <li>B. Three per week, week ending on Sunday, south of Gualala River.</li> <li>C. No take south of Golden Gate Bridge.</li> <li>D. Thirty-six per year.</li> <li>E. Only people deemed the ability to have abalone card (10 years old?) shall take or possess abalone.</li> </ul> <p>Note: A&amp;B should help stop the transferring of animals, thus reducing the overall take. E. will stop parties from taking mass quantities.</p>	<p>The Department would like to see what the effects of recently changed regulations are over the next few years before recommending bag limit changes to the Fish and Game Commission. If the Department believes further reductions are needed, these suggestions will be given consideration.</p>	No	
C-2	<p>Suggested punch card changes:</p> <ul style="list-style-type: none"> <li>A. Fill out on dry land or dry boat, whichever is closest.</li> <li>B. Fill out on dry land for wet boats or tube divers. i.e. (inflatable, open boats as in whalers or aluminum boats).</li> </ul> <p>Note, the cards are for monitoring and management data. They are not much use when they are not legible. Also there have been problems with wardens giving card holders a bad time over smeared ink.</p>	<p>The abalone permit report cards are also for enforcement of daily and annual limits. Although current regulations may impose requirements that are inconvenient for some fishermen, many people forget or neglect to complete cards when on dry land. Divers within 500 yards of their vehicles may keep their cards in the vehicle. Refer to W-1, C-1.</p>	No	

Writer/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-3	<p>Suggest reinstating allowance of SCUBA equipment on boats with abalone:</p> <ul style="list-style-type: none"> <li>A. Punish abusers, not the compliers</li> <li>B. This is safe practice, less fatigue on divers, a tank on board can save a divers life that is hung up if that tank can get down to the diver in time.</li> <li>C. Cuts back on pollution going to and from docks. Boats do most polluting at idol while trying to get dock space, or starting up at launch.</li> </ul> <p>Note, if the wardens have a problem with lack of management ability towards this, then have a call in by the sportsman of when and where it will take place, like the commercial boats do on extended trips for 3 day limits.</p>	<p>There are not enough wardens to monitor the activities of all boats either while they are out fishing or when they are docking. Although current regulations may impose requirements that are inconvenient to some divers, the prohibition of SCUBA gear on boats with abalone is the most effective method of ensuring the abalone were not caught with the assistance of SCUBA gear. Refer to W-1, C-1.</p>	No	
<b>W-2: Edward A. Flynn</b>				
C-1	<p>Open San Mateo County to recreational ab hunting. There has been amazing recovery in the area. Bring bag limit down to 1 or 2 abs per day, 24 per season, raise size limit for recovery reasons.</p>	<p>An adequate survey of the area would have to be made before considering whether to re-open the fishery. The most recent (1993) survey in the area found so few abalone that it is doubtful there would have been enough of a recovery to support a fishery.</p>	No	
C-2	<p>Add 500 or so active sports hunters with good background checks to assist the Fish and Game wardens in reducing poaching.</p>	<p>The Department currently has insufficient enforcement staff to coordinate such an effort.</p>	No	
C-3	<p>If San Mateo county is opened to the take of sport abs, the Fish and Game Commission would gain a tremendous amount of information on the Recovery Plan, as of new they don't have enough personnel or money.</p>	<p>The allocation of enforcement and scientific staff that this action would require is not justified by the potential information that could be obtained. Opening San Mateo County, even on a limited basis, would risk quick depletion because of the proximity of very large population centers.</p>	No	

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<b>W-3: Paul Weakland</b>				
C-1	When will the questions be fully and honestly answered? Who is responsible for answers?	The Department is responsible for providing the Fish and Game Commission responses to all relevant comments it receives.	No	
C-2	When will the fishery south of San Francisco resume harvest? Is the excuse to leave the southern area forever closed so as not to allow the extent of the introduction via aquaculture of Withering Syndrome and the Sabellid Worm? If the worm has established itself in the wild in California a limited harvest would identify where and perhaps effects.	If the CDFG applies to the Commission to re-open the fisheries based on substantial evidence, the Commission must then make a formal finding that the resource can support additional harvest, consistent with the ARMP (FGC § 5522(d)). There is no plan to permanently close southern California nor is there any attempt to hide the extent of the spread of diseases or parasites. There is no evidence that the sabellid worm has been established in the wild.	No	
C-3	Not to allow commercial harvest in former area at a reduced bag limit is not the best way to gauge, judge, or evaluate the true conditions masked by misinterpreted, manufactured, less than accurate data....	A reduced commercial harvest will further endanger depleted abalone populations and will not significantly improve the accuracy of abalone population data.	No	
C-4	The dedication of this document shows beyond a shadow of a doubt a bias and slanted opinion of your abalone team.	Dr. Mia Tegner was greatly respected by researchers world-wide as well as by the State Legislature which honored her posthumously.	No	
C-5	The abalone team seems to be making great effort to confuse, not clarify persistent lingering questions, concerns, cares and worries. How can this approach of misleading the public be rational, logical, ethical or prudent?...Is it for liability, image, lawyers, corporate interest, and the grant process of never answering all the questions on purpose to get another grant?	The Department acknowledges the commentor's confusion. See response to W-5, C-1, above. The Department always endeavors to fully answer all relevant questions. See response to S-5, C-6, Monterey Meeting.	No	
C-6	The fishery was closed because of withering syndrome, the first and foremost reason given. Theory that Withering Syndrome has always been present and is only blooming or blossoming now is not correct. Was it introduced? What has been done to honestly show where this disease came from? Repeat of S-5, C1 (Monterey Meeting).	See response to S-5, C1, Monterey Meeting. The origins of the disease are unknown. By definition, a "syndrome" is group of symptoms that characterize a disease, and a disease may have various causes.	No	

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C-7	Why does the Dept of Fish and Game refuse to do an environmental impact report on abalone? Is it because all questions and conditions would have to be explained?...	EIRs are only required when specific “projects” (as defined in CEQA) are determined to potentially have significant adverse environmental impacts. Under the ARMP, different levels of CEQA analysis may apply to individual projects once that activity is approved and funded.	No	
C-8	How can you say abalone that grow at a rate of one inch a year take fourteen years to be seven inches?	Growth rates of 1 in. per year only occur during the first few years. See ARMP Section 2.1.6.	No	
C-9	Why have we become over cautious or to [sic] precautionary? This is poor management. To error [sic] on the side of conservation is to acknowledge a mistake.	The expert consensus is that precautionary approach is the preferred fishery management strategy in data-poor circumstances. Past management has not been cautious enough and has led to the depletion of many species, including abalone	No	
C-10	Only 40,000 out of 40 million are able to enjoy this public resource because of no commercial harvest. Preference for the majority of Californians should be given so they may buy at markets and restaurants.	The Legislature established the abalone sport fishery in the north, and banned commercial abalone fishing below San Francisco, and remains the appropriate forum for discussing those actions. A commercial fishery would not significantly increase the amount of abalone already available from foreign or aquaculture sources, nor would it necessarily lower its cost to the consumer.	No	
C-11	What impacts to habitat do you mean? Abalone habitat on the islands is not impacted like the coast. Even with perfect habitat W.S. is the serial depleater [sic]. You seem to want to confusion cumulatives [sic].	The statement in question is a general list of human causes of abalone mortality and does not mean to imply that all factors are active in all parts of the state. The amount of responsibility of each factor in the depletion of abalone populations is not known. See response to S-5, C-1, Monterey Meeting.	No	
C-12	Poor recruitment? Is this because of genetic problems from outplants? Flats and pintos are not uncommon but well camouflaged and hide well. Is it because of W.S.? Alternative 4 shows the dept using 2,000 abs per/HA as the number for Minimum Viable Population and still double precautionary.	Poor recruitment was observed in areas such as Point Cabrillo Marine Reserve and Fort Ross which had no out-plantings. There is no evidence of genetic problems with out-planted abalone. See W-3, C-18, and C-20 below. The MVP is a population level which can prevent extinction but will not sustain a fishery. See S-2, C-2 (Monterey Meeting).	No	
C-13	Rapid decline in landings 1969-1982. Outplantings started in 1965-1985. Is that the cause for decline? Withering Syndrome and Sabellid Worm along with genetic hybrids introduced during this period?	In enacting its moratorium, the Legislature noted that abalone numbers all along the coast have declined drastically since the early 1970s, and attributed the decline to commercial take, a growing market demand, expanding sport fisheries, growing sea otter populations, pollution, loss of kelp beds, El Niño, and disease. There is no evidence that out-planting abalone is the cause for rapid decline in landings through the dispersal of Withering Syndrome (WS), sabellid worms, or hybrid abalone. Both WS and sabellid worms were not noticed until after 1985. If out-plantings were a significant source of either affliction, they	No	

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		would have been discovered much earlier. There is no evidence that genetic hybrids could cause population declines and since the survival rate of out-planted abalone was very low, their possible impacts on populations would be correspondingly low.		
C-14	Is the shift from mainland to island harvesting due to habitat destruction on the mainland from pollution, construction? Poaching otters, Military operations, pharmacological companies, oil exploration interest not factored in?	In enacting its moratorium, the Legislature noted that abalone numbers all along the coast have declined drastically since the early 1970s, and attributed the decline to commercial take, a growing market demand, expanding sport fisheries, growing sea otter populations, pollution, loss of kelp beds, El Niño, and disease. Although the factors listed may have contributed to declines in abalone populations along the mainland, abalone populations on the islands are generally free from the listed impacts and have also collapsed. The ARMP includes factors contributing to abalone population declines to the extent of current knowledge. The most likely reason for the shift from the mainland to islands is overfishing (Karpov et. al. 2000).	No	
C-15	The value of the fishery is underestimated? Why false statements show you are not being honest. Value of fishery per year is between 21-35 million dollars. This was one of the most money making fisheries in California. The underestimation of the value of the fishery is not a true profile or potential of the fishery.	The value of the fishery used in the ARMP is estimated from ex-vessel landings, which is standard for all fisheries. Although the primary fisheries management goal is sustainability, the economic aspect of sustainability is appropriately considered only if a fishery is first determined to be biologically sustainable.	No	
C-16	How can harvesting the outside edge of population hurt? The older, larger abalone that have necrotic spawn or are not viable. Reproduction of these for broodstock or larvae is a Pandora's box. Proven past studies show seven and three quarter inch abalone and smaller are the best spawners.	Although, size and bag limits can be effective conservation and management measures, they did not adequately prevent abalone populations throughout southern California from collapsing. All abalone populations in southern California are seriously depleted and were not adequately protected by the size and bag limits in place. It is unreasonable to advocate ineffective management strategies by rationalizing them with size-related fecundity studies. Recent studies have shown that although larger abalone have a higher percentage of necrotic eggs, their higher egg production offsets the number of non-viable eggs, and their total reproductive contribution to the population is greater than smaller abalone.	No	

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C-17	What about Crescent City? Have there been outplants there?	Abalone have been outplanted near Crescent City and there is an aquaculture facility which tests positive for the <i>Rickettsia</i> -like prokaryote (RLP) which is a causative factor in WS. Five of 29 abalone collected in the Crescent City area have tested positive for RLP but none showed signs of WS.	No	
C-18	2.1.2.2 Spawning and fecundity A minimum density is essential...consider hybrid [sic] contamination or lack of spawning success due to genetics? That nature is trying to cleanse or purify itself from hatchery reared outplanted abalone. Therefore we believe that the 'Allee [sic] Effect' may well be another illusion that the Fish and Game stated.	Genetically unfit out-plants would not survive to reproduce and contribute to the local gene pool. There is no credible scientific evidence that outplants have any negative effects on the spawning success of native populations. In general, the broadening of a gene pool is viewed as beneficial to depleted populations. A lack of genetic diversity is a greater danger to populations than increased diversity, because traits necessary to adaptation and survival are less likely to be passed on. This section was peer-reviewed by an independent panel of scientists including geneticists who made no comments concerning hybrid contamination or lack of spawning due to genetics.	No	
C-19	Criterion one will be met when all index sites have met the size category percentage values. Why all? And how when some are not counted?	Criterion 1 does not need to be met at all sites. See response to S-5, C-7 (Monterey Meeting). All abalone encountered are measured and counted. For Criterion 1, abalone below 100 mm are not considered because they are not adequately sampled by emergent surveys.	No	
C-20	2.1.4 Genetics Burto [sic] and Tegner (2000) No real effect or benefit to resource from outplants. Facts show outplanting hurt the populations by introducing too much diversity and stops or negates spawning? ....In nature when too much genetic diversity is present a mechanism creates mass mortality to cleanse or purify itself. Why will you not even consider this a possibility? Allee Effect here may be harmful.	There is no credible scientific evidence that outplanting abalone hurts populations by introducing too much genetic diversity that stops spawning, nor is there a mechanism that creates mass mortality to cleanse excess genetic diversity. See response to W-3, C-18 above.	No	
C-21	2.1.5.2 "Wide range of dispersal" occurs. This contradicts 'Allee Effect' does it not?	The Allee effect describes the reduction in successful broadcast spawning when adult densities are too low. It is not affected by dispersal range.	No	
C-22	2.1.6 Growth Abalone tend to grow comparatively quickly given favorable conditions. This contradicts 7" abalone takes 14 years.	The context of this statement in the ARMP is that abalone grow comparatively quickly before sexual maturity and growth slows thereafter. There is no contradiction with the whole statement and the relatively slow estimated growth seen in this species.	No	

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C-23	2.1.8 Movement Abalone move and migrate. So to have a set site that abalone move from is not being real. How can you say since site has less abalone in it there are less abalone? Why not move with them? How can an index site or key location be the best way to monitor abalone?	Although some migration and movement of red abalone has been observed, most movement is limited and most abalone would remain within the index sites. Unlike the Channel Islands National Park sites which are limited in size, Department index sites would cover a wide area. Transects are randomly selected within index sites so that abalone moving within the index site have an equal chance of being counted no matter where they move. Enough transects are conducted within a site to adequately estimate abalone abundance.	No	
C-24	2.1.9.2 Diseases and Parasites How did outplants of abalone contribute to the introduction of Withering Syndrome to wild before outplantings in 1965 and full blown outplanting from 1974-1984. Ten Years. How can you eliminate this fact from the possibilities? You are telling the truth about Sabellid worm? It has already been found in the wild and around abalone farm outfalls and outplant sites.	No correlation has been established between outplantings and WS. Both WS and the Sabellid worm did not appear until after the outplanting program stopped. The section on sabellid worms is accurate and current. No sabellid worms ( <i>Terebrasabella heterouncinata</i> ) are known in the wild. A single incident in which sabellid worms were found near the outfall from one abalone farm is believed to have been eradicated.	No	
C-25	2.1.9.3 Is there anything man can do to stop or start the El Nino Effect? How can this be anything but another one of natures cycles? Abalone not much affected except for the spread of W.S. from outplants.	El Niño events can have detrimental effects to abalone populations as outlined in ARMP Section 2.1.9.3. The effect of WS on abalone populations is exacerbated by warm El Niño waters, but out-planted abalone are not the source of WS. See W-3,C-24.	No	
C-26	2.1.9.4 Sea Urchin harvest does not harm small juvenile abalone. They are in different habitats. Small juvenile abalone way back in cracks and holes were killed by W.S. The Serial Depleater [sic].	Sea urchin harvest can have negative effects on abalone populations. See ARMP Section 2.1.11. Also see S-5, C1 and S-5, C-11 (Monterey meeting) concerning WS.	No	
C-27	2.2.1.1 Evidence of poor recruitment Is the poor reproduction in your study sites because these sites are outplant locations? And the mechanism of mass mortality from artificially propagated or hybrid hatchery reared abalone factored in? And or that abalones 100mm or smaller are not counted?	There is no correlation between out-planted or hybrid hatchery-reared abalone and poor reproduction in study sites. See responses to W-3, C-12 and W-3, C-18. Abalones 100 mm or smaller are adequately sampled by invasive transects (see ARMP Appendix E). Evidence of poor recruitment is based on data from invasive transects (see ARMP Table 2-4).	No	

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C-28	3.1.1.1 History lacking accuracy, what about 1820-1948? Evidence of commercial harvest north of San Francisco with no adverse effects to the resource? Landings were steady before outplantings. Why will you not tell the truth about the problems with outplants? Is it because of grant money, liability and image? 1997 -101 permits not 130. Why Lie? How many on list now that would buy permit? How many divers are optimum? Zero? Please explain the illusion that Fish and Game says now they experienced about landings. Was it Mia Tegner's Egg-Per-Recruitment model error that contributed to the illusion and contributes to poor recruitment reports?	The history of California abalone fisheries prior to 1942 largely involved areas currently occupied by sea otters and was not discussed in ARMP Section 3.1 because these areas are currently unlikely to support an abalone fishery. The commercial harvest north of San Francisco was too small and short-lived to adversely impact the resource (1942-1945 with a total catch of 525,000 lb). Abalone populations off San Mateo County were severely depleted by fishing activities. There is no data to show out-planted abalone were the cause of declining landings. See responses to W-3, C-12 and W-3, C-18. Speculation on the number of divers that would currently buy a permit is unnecessary until the sustainability of the fishery is confirmed. The optimum number of divers is variable depending on the total allowable catch and the economics of a re-opened fishery. The "illusion" referred to is that of apparently stable catch levels which were maintained by shifting to new species and locations while serially depleting both species and locations. Egg-per-recruit (EPR) models estimate the amount of reproduction to expect from abalone before they are subject to fishing pressure. EPR models are not connected to the illusion of stable catches or poor recruitment reports.	No	
C-29	3.2.1 How can there be any commercial value of abalone in the year 2000 when the fishery closed in 1996-7? Is it research or F&G selling brood stock?	There is no commercial value of abalone for the year 2000. In Section 3.2.1, the values given are for the fishery in 1995 and 1993. The phrase "in 2000 base year" means the value of the fishery for 1995 and 1993 in terms of dollar value for year 2000 adjusted for inflation.	No	
C-30	3.2.4 "Difficult to asses accurately" [sic] The whole thing, not just this part. Is the illegal take and W.S. the greatest takers or mortality? Are W.S. and hybrids outplanted the Serial Depleater [sic]?	The clandestine nature of illegal take makes it impossible to accurately determine what proportion of the population depletion is attributable to that activity. WS and hybrid abalone cannot be blamed for depletion of most abalone populations. See responses to S-5, C-1; W-3, C-12; and W-3, C-18 .	No	
C-31	6.2.1.1 Why use millimeters and hectares? Why not use US scale of inches acres and feet ... Here at least give both. Appendix E is in question of its accuracy and value. How can a ROV see abalone if they are not in deep water, ie. 28 feet or deeper? If dive conditions are not just right – good visibility and calm water – no reliable surveys will be accomplished. But Fish and Game go anyways. Did you or can you see well on all surveys? Admittedly not but had to dive because the day was scheduled. No matter, better we don't see?	The metric system of measurement is standard for all scientific writings because it is much less cumbersome than the US system. Conversion tables will be provided. The survey methods described in Appendix E are standard procedures that have been used for numerous peer-reviewed scientific publications. ROVs have been used in water as shallow as 15 feet and can provide data useful for surveys. ROVs provide video images which give a much more detailed record of habitat than the notes and observations recorded by divers. The Department does not conduct dive surveys when conditions are too poor to collect accurate data. Cruises are often cancelled because of poor weather conditions.	Yes	See "Conversion Table for the ARMP", page xvii



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C-32	6.2.1.1 (con't) How can estimates made in appendix E be checked for accuracy? Even with GPS tracking system abalone here today can crawl a long ways before you are back. Surveys are of much question. How can we guarantee accuracy or reliability?	Surveys are based on randomly selected transect sites which are adequate for sampling abalone density. See response to W-3, C-23.	No	
C-33	6.2.1.1 (con't) Why do you not count abalone smaller than 100mm? These small abalone are not being counted. Is this why your studies are skewed on recruitment? Or can this be why poor reproduction is being reported? If these small abalone are present and not being counted, how can we use any of this stuff? How many 100mm or smaller abalone are there in the study sites Did you underestimate?	Timed swim surveys are only used to determine whether there is a broad size distribution of abalone present. All abalone encountered are measured but for the purpose of analyses, abalone smaller than 100 mm (approximately 4 in.) are not included since animals that size are likely to be missed in timed swim surveys. As explained in Appendix E, these data are not used for either density or recruitment studies. Emergent transects (Appendix E) count and measure all visible abalone and are used for density studies. Small abalone are adequately sampled using invasive surveys (Appendix E).	No	
C-34	6.2.1.1 (con't) Locations for recovery area sites were determined by commercial block data. Are any of these multiple index locations? Are any of these sites outplant locations? Are any of these sites without Withering Syndrome?	Some blocks have more than one index location. Some of the index locations are likely to have been outplanting sites. WS is present throughout southern California and is likely to be present at index locations.	No	
C-35	6.2.1.1 (con't) Why will you not admit that abalone migrate, change locations, move travel, and crawl to new and different places? And even sometimes return?	Abalone movement is acknowledged and described in ARMP Section 2.1.8.	No	
C-36	6.2.1.1 (con't) Destruction of abalone has for ever been changed by habitat destruction. F&G has allowed many projects that have destroyed forever some abalone habitat. How can you say 50% of former habitat must be recovered or no plan for recovery can be achieved?	Contradicts C-11 above. The comment is too vague for a detailed reply. Most index locations are on islands which have had little habitat destruction. If less than 50% of the recovery areas are not recovered, abalone populations will not be adequate to sustain a fishery.	No	

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C-37	<p>6.2.2 Population parameters and target densities have been already met in some if not all areas. If we use the precautionary number of 1,2000Ab [sic] per/HA for our M.V.P. Alternative 4 calls for 2,000 ab per /HA which is double precautionary. Why will you not admit it? Is it grant money? How much grant money and job security? Are you created to be a grant sucking parasite? This data will never be attainable if grant money motivates research. They will always create more questions, controversy, and conflict.</p>	<p>A density of 1,200 ab/ha is not precautionary because it is very close to densities which could not sustain fisheries on Santa Rosa Island. See response to S-2, C-2 above. Grant money is not a consideration in setting MVP density levels. See response to S-5,C-6 above.</p>	No	
C-38	<p>6.2.2.1 Criterion 2: Why must all parts of criterion 1 be completed to F&amp;G liking before criterion 2 and 3 can be explored? The MVP (Minimum Viable Population) of 2000 ab/ha is way to [sic] precautionary. Studies of past show 1,000 M.V.P. 1,200 would be more rational, giving the best chance for success. And besides, how can you count per/ha if abalone only locate on part of the area? This concept is skewed. How, if abalone move and like people some places they go in large numbers and some places they yield no populations. This number is to [sic] high and has little chance of success. We do not believe that the density of 1,000 ab/ha would ever cause stock collapse. The studies stated here leave out the facts of poor understanding [sic] of a dynamic environment and outplants in the area. Past studies state 1,000 ab per/HA is M.V.P. and precautionary when published peer review.</p>	<p>Not all parts of Criterion 1 need to be completed before Criterion 2 and 3 can be explored. See response to S-5, C-7 (Monterey meeting). MVP of 2,000 ab/ha is not too precautionary. See response to W-3, C-37. A count per hectare is an average of many randomly placed transects that cover a wide area. See response to W-3, C-23. Although a density of 1,000 ab/ha may not lead to stock collapse, it would likely have a very low allowable catch. See response to S-2, C-2 (Monterey meeting).</p>	No	

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C-39	6.2.2.2 Criterion 3: The number 6,600 ab/ha is to [sic] high and not realistic. This number needs to be reduced so that an expectation of achieving our goals can be attained. Criterion 2: 2,000 ab per/HA is double precautionary. Where in nature does such a thing occur? Let us go look, because we find it hard to conceive this anywhere. This number is of much importance and is of much question. Again, how can your index sites and key locations ever expect to get this accomplished? Outplanting? The density at which abalone are comfortable? There are many seasonal changes. Again, like people they move together for a while and apart. Some straying away.	The targeted emergent abundance of 6,600 ab/ha is based on data from surveys in 1999 and 2000 at sites impacted by the northern California recreational red abalone fishery and is the best available estimate of a sustainable density for an ongoing fishery. Researchers outside of the Department have observed similar densities of red abalone in northern California. See responses to S-1, C-1 (Monterey meeting). Movement of abalone is not a significant problem for estimating abalone densities. See responses to S-5, C-8 (Monterey meeting) and W-3, C23.	No	
C-40	6.4.1.1 Why not use a limited fishery so as to judge, gauge, evaluate, and collect data on populations and area? Increased size limit 7 ¾ inch and reduced bag limit 2 sport 2 doz. Commercial? Landing info would show all. But if afraid of W.S. and worm found [sic]? Then no fishing at all is what we get. Liability questions? Image? Lawyers?	Fishery dependent data has limited utility in population studies. See responses to S-2, C-3 and S-5, C-5 (Monterey meeting).	No	
C-41	6.4.2.1 Translocation is a bad idea. Abalone that try to get out of contaminated areas are brought back why? If brought from afar genetics problems. Let nature alone and it will cure itself. To bring abalone into areas with W.S. is death. Broodstock and translocations take some of the best chances of recovery out of the ocean....	Translocation enhances recovery by aggregating abalone to increase reproductive success. Genetic problems could result from long distance translocations but the Department will avoid such translocations. Since WS is found throughout southern California, translocation from one southern California site to another does not increase the chance of mortality from WS. Broodstock collections involve a small number of abalone and have no significant impact on abalone population densities.	No	
C-42	6.4.2.2 Larval Outplantings Genetic problems have already been identified. Why will you not recognize them or why ignore this grant money? Image?	There is no credible scientific evidence supporting this assertion. See W-3, C-18 above.	No	

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C-43	<p>6.4.2.3 Captive Breeding It has already been proven that artificially spawned abalone can be considered hybrids; these have fouled the genetic reservoir, the gene pool of abalone and is a big part of the problem. But, Grant money is the motive. Will they succeed at all costs? Outplants are not for California. This program has already taken the most healthy disease resistant abalone out of the gene pool and made their offspring hybrids in a way that they will not admit. This denial has been the base of underlying problem. Poor recruitment due to nature trying to cleanse or purify itself. How many times must we learn the same lessons, over and over, for the grants. Taking the best chance for natural recovery out of our ocean is not the way. Leave the best chance for recovery alone. No permits for collection of any brood stock should be allowed. Repeat of W-3, C-18 and S-5, C-6 (Monterey Meeting).</p>	<p>There is no credible scientific evidence supporting this assertion. See W-3, C-18 above. Broodstock collections involve a small number of abalone and have no significant impact on abalone population densities. Most Department abalone research is not supported by grants. See S-5, C-6 (Monterey Meeting).</p>	No	
C-44	<p>6.4.2.4 Marine Protected Areas Abalone have and have had in many areas of California no take zones, for a long time in some. But no evidence of worth or value have been seen. From San Francisco to Mexican border for 7-5 years for some species. Black 7, red 6 and no recovery will be admitted by biologist? So, no recovery, no benefit to abalone why? Why would you want to continue to fail? No value or worth to the resource has been observed. Hard to enforce. Are you not allowed to make hard plain language to enforce regulations?</p>	<p>Refugia and other “no-take” areas, which are now known as Marine Protected Areas (MPAs), have often been too small to be effective. Low abalone population levels have prevented rapid recovery in areas recently closed to abalone fishing. The recovery process may need to be augmented by out-planting. Re-opening a fishery before recovery would endanger remaining abalone populations. The problem with enforcing MPAs is not in writing regulations, but in having enough personnel to adequately patrol the MPAs.</p>	No	

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C-45	6.4.2.4 Marine Protected Areas (con't) How does M.V.P protect abalone from oil spills, pollution, sea otters, El Nino, Withering Syndrome, poaching, storms, botched experiments, mismanagement, those that crawl from or are outside of these areas? Would size limits, bag limits, seasons, areas be a good way to manage abalone? Partial repeat of W-3, C-16	One function of MPAs is to recharge fisheries and to help rebuild overfished stocks. Animals within an MPA might still be impacted by other problems which could adversely affect fished populations (i.e. oil spills or El Niños). However, since population levels will be higher within the MPA, there will be a greater chance that there will be survivors which can repopulate the affected area. The traditional management methods mentioned by the commenter did not prevent depletion of most of southern California and the San Mateo coast. Also see W-3, C-16	No	
C-46	6.4.3 What specific genetic and disease concerns are you referring to here? Why not be honest and tell of outplant problems? And introduction of aquaculture had already been done. Why lie? Repeat of W-3, C-18 and C-20 above.	Genetic and disease concerns are discussed in detail in Sections 6.4.3.1 and 6.4.3.2. Out-planting problems discussed earlier by the commenter are not valid. See W-3, C-18 and C-20 above.	No	
C-47	6.4.3.4 Genetics Research What genetic concerns are you talking about? Is it that there is a mechanism in nature that stops or negates all spawning when to much genetic diversity exists? Such as outplants, artificially stimulated to spawn hybrids. "Ocean Ranching" Repeat of W-3, C-18 and C-20 above.	There is no Section 6.4.3.4. Genetics Research is section 6.4.3.1. There is no credible scientific evidence supporting this assertion. See W-3, C-18 and C-20 above.	No	
C-48	6.4.3.5 Is it true that W.S. was created by Scripps [sic] and outplant [sic] with hatchery reared abalone? Where did it come from? The lack of honesty is disrespectful to California. Disease control member suggests removal of larger abalone would slow or eliminate the spread of W.S. – Commercial harvest to judge how far the problem has gone.	Origins of WS are unknown. It was certainly not a creation of Scripps Institution of Oceanography. Although removal of larger abalone may slow the spread of WS, there is no longer any area in southern California which has not been affected. Removal of larger abalone could also be detrimental to surviving abalone populations. One of the reasons for closing the black abalone fishery was to protect remaining animals that may have a genetically-based resistance to WS and thus allow recovery of resistant populations. There was concern that continued operation of a fishery would remove resistant abalone from the population.	No	

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C-49	6.5.1 How much money has been spent? Is it true Carolyn Friedman is related to the executor of Scripts [sic] and has kept the truth about W.S. from being known? Why are none of the studies trustworthy? Why must we wait till 2005 for the disease report? Can people get or host any problems from consuming W.S. abs? What other fish or mollusks, shell fish or organisms effected [sic]? Where have all the moon snails gone? Limpets? Others?	The annual Disease Lab budget related to abalone work is \$124,000. All available information regarding WS is open to the public. The disease report scheduled for 2005 covers disease resistance which requires time for carefully controlled experiments. There are no known medical problems resulting from people consuming WS-infected abalone. No other organisms are known to be affected by WS, which is not likely to have affected the marine species listed.	No	
C-50  C-51	6.6.1.1 What has been done since closure of fishery? We were promised time was needed to complete all this stuff you now say needs to be started? What, why, who, where has all this money gone?  6.6.1.2 Feasibility Studies Study past studies. How many times must we learn the same lessons? Outplants started 1964, full blown 1974-1984. What did you learn? What about honest research? Why have these studies not been completed? No one wants to admit failure and silence gets more grants?	As stated in Section 6.6.1.1 some of the exploratory surveys have already begun. Survey cruises have been conducted including ROV surveys for white abalone. A great deal of time has also been used in writing the ARMP.  Experiences with past out-plantings are that few survive and great care must be taken to prevent spreading known disease and parasites. Past studies have been completed and are the subjected to peer-reviewed publications. Granters do not fund needless or redundant studies	No  No	
C-52	7.1.2.2 Contradictions in TAC Why, how can you first say 6,600 per/ha – now 8,300 per/ha? Where in California do you find an area with 6,600 per/ha? Studies show 1,000 per/HA M.V.P. We can not believe this is true or accurate. Show us where in nature this has ever been possible. Alternative 4 calls for 2,000 per/HA still to precautionary.	The 8,300 ab/ha in ARMP Table 7-2 is the level for increasing the TAC. Van Damme and Salt Point both have average abalone densities above 6,600 ab/ha. Researchers outside the Department have also found abalone densities in excess of 6,600 ab/ha. Fanshawe et al. (2003) found densities of abalone off Sonoma County ranged from 11.5 to 18.1 abalone per 2 x 10 m plot, which is equivalent to 5,750 to 9,050 ab/ ha.	No	
C-53	7.1.2.5 What is or how long is biennial? Where is your honesty now? Why not be truthful and say 5 years.	Biennial is a commonly used term which is found in most dictionaries. It means every two years.	No	

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C-54	7.1.2.6 Why would only large increments for adjustments be used? How can that be considered precautionary? We continue to hear 'Fine Tune Our Management Techniques' Is this another contradiction?	Relatively large increments for adjustments are used because fine controls are impractical. The process of changing regulations is very time-consuming and should not be used to make a series of minor adjustments when a single larger adjustment can be made. The large increment changes can still be considered precautionary by making changes before problems become extensive. The Department endeavors to make management techniques as responsive to changes in the fishery as possible. While current techniques might not be ideal, they are improvements over past practices in abalone management.	No	
C-55	7.1.2.7 If sites are not sampled then how can you say 'Detecting actual declines in stock and recruitment estimates need to be more precautionary'?	The commenter misinterprets what was written in this section. The scenario described in Section 7.1.2.7 calls for a precautionary reduction in the TAC if monitoring is reduced. The precautionary reduction does not depend upon whether declines in stock and recruitment are detected, which is what the phrase in quotes indicates.	No	
C-56	7.1.3 Why would long term plan not be back dated to first action taken? Closure of fishery in 1995?	The fishery was closed by 1997 legislation. Back-dating would not affect the implementation of the long-term plan since implementation depends upon accomplishing enough monitoring to establish management zones.	No	
C-57	7.1.3.3 Data There are only four index sites all in northern California. All are past outplant sites and high use sports areas. How can that even give an accurate accounting?	Fisheries and resource management decisions must often be made in data-poor circumstances. While more data is always desirable, decisions must be made with what is readily available, and these sites do provide an indication of the condition of the resource. High use sport fishing areas are used because they will be the most likely places to show local depletion. The Department recognizes the limitations of low sampling coverage and compensates by using precautionary TACs.	No	
C-58	7.1.3.4 75% of the zones? Are these zones index sites and is 75% 3 sites? What zones have even been established? So are you talking about fantasy? What if no funding is available? Lacking honesty here.	This section discusses proposed management under the long-term plan. Zones have not yet been established. Index sites would be included within zones. Creation of zones would be one of the tasks that need to be accomplished before the long-term plan is implemented. Implementation of the long-term plan is subject to available funding.	No	
C-59	7.1.4.1 Three quarters of sites. What is that? Why not be honest and say 3 sites since there are only 4 index sites? Why must every species be met by criteria for all? If reds are abundant, why not harvest them? Confusion misleading way?	The long-term plan is not limited by the current number of index sites. The ARMP does not require the recovery of all species before any species can be harvested. See ARMP Section 6.3.	No	

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C-60	7.1.4.3 Why if central California is so much different than southern California do you want to use criteria for southern California on central California? This makes no sense. Alternate 4 with 2,000 per/HA use may open it up to other criteria for central may be needed [sic]?	The main differences between central and southern California is the presence of sea otters and the reduced number of fished abalone species in central California. Allowing for these differences, the overall management of these areas can be similar including, when appropriate, the allocation of harvest between recreational and commercial fishermen.	No	
C-61	7.2 How can you say no recovery can occur? Where is the truth?	This section makes the point that if “sea otters reoccupy this area (the San Mateo coast), recovery to fishery levels cannot occur.” The problem of sea otters is discussed in ARMP Sections 2.1.9.1 and 6.5.2.	No	
C-62	7.2.5 Why Is information on the Socio-Economic data non-existent? What about jobs an [sic] economy? Worth and value of fishery underestimated. Partial repeat of W-3, C-15.	Although, the primary fisheries management goal is sustainability, the economic aspect of sustainability is appropriately considered only if a fishery is first determined to be biologically sustainable. The Legislature has made it clear that resource recovery, not socio-economic impacts, is the primary consideration. See W-3, C-15.	No	
C-63	7.3.1 Alternative 1 The number 6,600 ab/ha is not necessary to achieve population goals. Criteria 3 may never be fully achieved and alternative 1 recognizes this. Limited fishing is accomplishment of goal. With increased 7 ¾” size limit and reduced bag limit 2 sport 2doz. Commercial, seasonal closures and increased enforcement. How can a precautionary approach like that have a negative effect? Only the outside population would be candidate for fishery. The old, the worst spawners or those that spawn is not longer need of MVP or those that spawn is negative or no longer viable or important [sic]? Repeat of S-1, C-1; S-2, C-2; and S-5, C-10 (Monterey Meeting) and written comments W-3, C-16 and C-39.	A range of alternatives are required by the ARMP legislation and are not an acknowledgement of problems with the preferred management plan (FGC § 5522(a)(2)). The proposed regulations were not adequate to protect abalone populations in most of southern California. Necrotic spawn of older abalone is not well documented. See responses to S-1, C-1; S-2, C-2; and S-5, C-10 (Monterey Meeting) and written comments W-3, C-16 and C-39.	No	
C-64	7.3.2 Alternative 2 The number 6,600 per/ha of abalone would be reduced to 3,000 ab/ha still high [sic]. Criterion 2 2,000 per/HA. But F&G admits here it is to [sic] high by how much? 3,600 ab/ha and still to [sic] high. Why make 6,600 ab/ha criterion 4? It is a number to be eliminated for ever. It is unattainable when studies show 1,000 per/HA is M.V.P. To (cont.)	Alternatives are required by the ARMP legislation and are not an acknowledgement of problems with the preferred management plan (FGC § 5522(a)(2)). A density of 3,000 ab/ha is a minimum level for a fishery. See S-2, C-2 (Monterey meeting). Attaining Criterion 4 would allow increased fishing effort. Although more frequent assessments will provide more monitoring, this will divert resources from other needed recovery activities such as aggregation, larval out-planting, habitat and genetics studies.	No	



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	<p>change parameters for criterion 3 to 3,000 ab/ha and leave the rest the same is not logical. If you change the number you recognize a problem. It is not the only one. At least ¾ of recovery areas will now go by that new number. Criterion 1,2,3 can be accomplished now with 1,000 ab per/HA. Creating a new category or criterion 4 is not rational or reasonable is it? Criterion 4 would never be attained or achieved, would it? Why require it if it can not be done? Eliminate Criterion 4 or more requirements That will not allow for success, or limited fishing. Pro is: Assessments will have to be done more frequently, every 2 years instead of every 5 years. This keeps you guys busy and it allows for more monitoring. This is a Pro not a Con. The more abs landed the more money from landing tax.</p>			
C-65	<p>7.3.3 Why will areas soon be reoccupied by sea otters? The otter recovery plan is a failure. Again, modification of criteria 3, WHY? Is it because 2,000 per/HA is double precautionary? What specific criteria for implementation do you mean? 2,000 per/HA is more like it. Change criterion 3 to 2,000 ab/ha is closer to real, but close area when 20 or more otters, NO. Compaction of fishery a problem. We must all share. Otters should not be moved anymore. It always fails.</p>	<p>Alternatives are required by the ARMP legislation and are not an acknowledgement of problems with the preferred management plan (FGC § 5522(a)(2)). Alternative 3 only applies if areas are being reoccupied by sea otters; it does not say that sea otter reoccupation will happen soon. The 20-otter trigger is one of the criteria for allowing the fishery and not for closing it. There are no plans for sea otter translocations.</p>	No	
C-66	<p>7.3.4 Why only short term fishing opportunities? How can this alternative drive abalone to extinction? With precautionary size limits, bag limits, season and increased enforcement. Only the outside edge of population would be fishery qualified. Those that their most productive spawning days are gone. Withering Syndrome was the first and foremost reason for closure. How would you violate any part of recovery and (cont.)</p>	<p>Alternative 4 will likely result in short term fishing opportunities because it will result in depletion of abalone populations. WS was not significant in reduction of abalone populations except for black abalone. See responses to written comments W-3, C-16 and S-5, C-1 (Monterey meeting).</p>	No	

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	with [sic] a number 2,000 ab/ha? That is double precautionary. Use 1,000 per/HA. This allows for multiple site recovery. Repeats comments W-3, C-16 and S-5, C-1 (Monterey meeting).			
C-67	7.3.5 Alternative 5 If you can not accurately estimate illegal take into the TAC, why use flawed concept. TAC is unenforceable. You can not enforce TAC as well as daily bag limits. TAC is more opportunity for illegal take. Daily bag limits are easily enforced. May be idea for numbers game but bad management. You have already caused many lives to suffer from moratorium. So many ways can be used to have more illusion and is not easily enforceable. Easy to get around it.	The Department recognizes that poaching is difficult to estimate and that the TAC in the ARMP is not strictly enforceable. Alternative 5 provides an option that could be used if poaching is a major concern of the Commission. The TAC is a guideline for regulating catch and not a firm TAC used to close fisheries when it has been exceeded.	No	
C-68	7.3.6 Closure would cause unnecessary economic loss.	Although, the primary fisheries management goal is sustainability, the economic aspect of sustainability is appropriately considered only if a fishery is first determined to be biologically sustainable. The Legislature has made it clear that resource recovery, not socio-economic impacts, is the primary consideration. The power to regulate fishing has always existed as an aspect of the inherent power of the Legislature to regulate the terms under which a public resource may be taken by private citizens.	No	
C-69	7.3.7 TAC is not the best management, is it?	TACs are widely used fishery management tools and an integral part of successful abalone fisheries in Australia.	No	
C-70	8.2 Enforcement Lack of enforcement has contributed to poaching. Poachers have no size, bag, season, or closed areas. This contributes to Serial Depletion [sic] Please explain in precise and exact details of undercover wardens? How are they organized? What requirements or rules do they follow? Who are these wardens? What training qualifies them? How many busts a year are they supposed to make?	The Department understands the relationship between enforcement and poaching as well as the effects of poaching on the fishery. Abalone report card funds support one undercover (Special Operations Unit or SOU) warden. SOU wardens have a high degree of specialized training and have no requirement for number of arrests in a year. More details of SOU wardens are not relevant to the ARMP.	No	

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C-71	8.3 How can we be sure wardens would prosecute unethical biologists? Why is aquaculture exempt from laws, or why are aquaculture requirements not adequate for enforcement? Monitoring of ab farms for broodstock etc. Poaching, contamination of areas.	Wardens enforce laws regardless of the occupation of the violators. The aquaculture questions are not relevant to the ARMP.	No	
C-72	8.3 (con't) Abalone punch report cards are not being returned, people are trying to tell you something. Punch cards or yearly limits are not enforceable. TAC is not enforceable. Abalone stamp was for number of sport divers. We have that. The questionable worth or value of information gathered is not equal to the public resentment. What if info not received? Rid us of such unenforceable clause or conflict. These 40,000 out of 40 Million are the only Californians allowed to enjoy abalone. Why not all? 40,000 @ 24/year is more then [sic] the commercial harvest ever in a year.	The number of complaints about the requirement for possession of an abalone permit report card has been insignificant. Although difficult to enforce, wardens have found the cards to be valuable tools in preventing people from taking too many abalone day after day. The Department believes abalone permit report cards will provide valuable information on the number of abalone caught and the location of catch. Together with a random telephone survey, the cards provide a more accurate picture of effort and location than was previously possible. There is no intention of having 40,000 people harvest 24 abalone per year. Relatively few people take 24 abalone per year. The TAC proposed in ARMP Section 7.1.2.2 is 400,000, an average of 10 per person. If large numbers of people began to catch the annual limit of 24 abalone, the Department would take action to reduce the annual catch.	No	
C-73	9.1 Activities How much has been spent on all activities associated with abalone? How about exact breakdown? How much grant money, public funds? What worth or value? Are we getting our monies worth?	ARMP Table 9.3 has a summary of current costs. Before the abalone stamp and abalone permit report card fee, much less funding was available. Most of the dedicated money comes from abalone permit report card fees. The Department does not have a more detailed breakdown of expenditures than is reflected in ARMP Table 9.3.	No	
C-74	9.1.1 Assessment How much has been done? Why do you not discuss this honestly? How do you increase efficiency of data collection? Chapter 6 and 7 are lacking details. How about more detailed landing receipts and commercial harvest?	Assessment activities to monitor current abalone population status are ongoing. Data collection is made more efficient when agencies and interested parties cooperate to gather data of common interest using comparable methods. Detailed landing receipts alone are inadequate sources of fishery management data. See response to S-5, C-5 (Monterey meeting).	No	
C-75	9.1.2 Research How much of this has been done? Why not do homework on past studies? What genetic research needs do we still have? Why since 1975 questions of gene pool contamination and fouling of genetic reservoir not completed? Are those given these duties skilled or qualified enough to carry out (cont.)	None of the research listed has been completed although most are currently underway. Department biologists take into consideration past studies when designing their research plan to ensure past work is not needlessly repeated. Gene pool contamination was not a concern expressed by the peer review panel, which included geneticists. See response to written comment W-3, C-18. The peer-reviewed results mentioned in this section are part of the process of publishing a (cont.)	No	

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	honest work? Where is the peer-reviewed results from this work? Abalone Enhancement program 1974-1984?	research article in a scientific journal. However, the actual comments during the review are not directly included in the publication, but are incorporated into the article to the extent recommended by the journal editors.		
C-76	9.2 Why must we wait for honesty about situation and agenda for aquaculture? Why wait until 2009 to initiate recovery assessment? What about all the feasibility studies already done? Scheme for grants? Excuses?	Aquaculture management is not within the scope of the ARMP. Exploratory surveys will be undertaken before 2009. Recovery assessment can be initiated if exploratory surveys indicate abalone populations show signs of recovery. There have been no feasibility studies on the scale needed for recovery activities.	No	
C-77	9.2.1 Black abalone resistance to W.S. was started in 1993 by pathologist, F&G, and others. Why not produce summary of efforts of Carolyn Friedman? Why wait until 2005, when we were told in 1997 we must wait until 2003? 2005 does nothing for plan. Recommendations on a potential plan to go to Commission? What about last 6 years to develop this plan? The F&G has studied black abalone to death and will not admit that any of their actions may possibly contribute to the decline or mass mortality from outplantings. Introduction of W.S., Sabellid Worm, gene pool fouling?	The analysis of the results of the disease resistance studies in abalone are not anticipated before 2005. The results of most of Dr. Carolyn Friedman's research have been published and are available to the public. The recommendations that will be presented to the Commission in 2005 are the only amendments to the ARMP which should be in place before then.	No	
C-78	9.2.2 Beginning in 2006, what? F&G said in 1997 how things would go. Not once were they honest about any of it. Based on 5 year reports only if resources are available. That is no commitment, sounds like never with no alternatives. TAG system is another enforcement nightmare. A daily bag limit is the most enforceable way to limit take. TAG and TAC will be a quagmire of controversy for ever. Why deal with the uncertainties? Experiment has been done but why not be honest of past efforts? Studies, analysis, projects, and failures? How can this help if not here?	The Legislature enacted the provisions mandating the preparation of the ARMP in 1997. Implementation of the proposed long-term plan is contingent upon the availability of funds appropriated by the Legislature through the budget process. The Department is committed to the effective management of the abalone resources within the budgetary constraints to which all State agencies are subject. The implementation of a tag system has enforcement advantages as well as disadvantages. There is no reason to summarily dismiss the use of tags prior to a thorough review of this potential management tool which has been used successfully for other game species.	No	
C-79	9.2.3 When will enforcement staff release summary of efforts and review?	The preparation of summary reports of enforcement activities for individual fisheries is not statutorily required and is not a priority task of marine enforcement policy. There are neither personnel nor budgeted funds available for such a program.	No	

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C-80	9.2.1[sic] How can it cost that much? Are you being precautionary and inflating the cost? It seems obvious the estimates of cost are to [sic] high. Eliminate the cost of punch card info if that is of no true value or statistical significance, it will save a lot. Commercial landing tax could pay for it all. Landing tax of landed abalone for monitoring of fishery. Allow Californians to buy at markets and restaurants.	The correct section number is 9.3.1. The costs listed are based on current budget tables and there is no precautionary inflation of figures. The costs of implementing the abalone permit report card are small (\$12,000 for printing) and are not significant in the overall budget. Although limited, the information received through cards is valuable and when used in conjunction with random telephone surveys can be made more useful than the fishery-dependent information gathered previously. Commercial landing taxes for abalone were never adequate to cover Department expenditures for abalone monitoring and enforcement in the past.	No	
C-81	9.3.1.1 Table 9-1 What has been done for the last 5 or 6 years? Why if genetic testing DNA and feasibility studies already done not included? Tasks 1,2,3,4 and follow-ups were to be completed by Jan 1, 2002. What happened? This timeline ends in 2009 with listing as endangered all abalone, and more MPA's. How can that be true or warranted?	Table 9-1 is a summary of future activities and does not include past activities. The legislation only required that the ARMP be submitted to the Commission by January 1, 2003 (FGC § 5522(a)). The 7-year timeline for implementing interim recovery and management activities started in 2003. The Legislature stated that the ARMP <i>may</i> include a network of no-take abalone reserves (FGC § 5522(b)(1)). Table 9-1 only recommends more MPAs if <i>warranted</i> , and that authority rests with the Commission. Table 9-1 will be amended to recommend endangered species listings if warranted. Actions under the federal Endangered Species Act are outside the scope of the ARMP.	Yes	Table 9-1
C-82	9.3.1.1 (con't) Table 9-2 Report Assessment With less than 20% of cards and great public resentment, how can it all depend on that? TAC adjustments not sound management? Eliminate punch card data and flawed TAC and TAG concepts or controversy of this data will always be a draw back.	The abalone permit report card assessment is only used to identify potential problem sites. No closure provisions depend solely on card data. Despite flaws, abalone permit report card data and TAC calculations are much better than previous monitoring efforts. Card data covers many more sites than just the eight creel sites. The Department needs to develop better methods of monitoring and regulating abalone catch. TACs are widely used in other fisheries including abalone fisheries. Tags are a method of easily identifying legally taken abalone which has the support of divers as well as biologists and wardens.	No	
C-83	9.3.1.1 Table 9-3 These costs seem extraordinarily high. How can we double-check and be sure increases are not being to [sic] precautionary? How can enforcement of abalone alone have such costs? And or is it not true that these standard costs are for multiple ocean species? What controls on spending are there?	The costs in Table 9-3 are based on current budget tables and there is no precautionary inflation of estimates. Wardens patrolling northern California dedicate a significant amount of their time enforcing abalone sport fishing regulations. The wardens' daily record, the time spent on abalone enforcement, and their average salary are calculated in determining the cost of abalone enforcement. A summary of enforcement costs is shown in Section 9.3.1.2. Spending is controlled by an annual budget process along with all other State spending.	No	

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C-84	9.3.2 How can long term costs even be a factor with no fishing or no management of abalone allowed south of San Francisco? Commercial landing tax could fund a great deal of F&G. And give managers incentives to try and allow more fish to be landed, as was before.	Past commercial landing taxes on abalone have not come close to covering costs for monitoring the fishery. The peer review committee criticized the concept of managers depending upon landing taxes because it can create a conflict of interest in which managers would be reluctant to reduce catch since it would affect revenue.	No	
C-85	Appendix A If the F&G was given authority to regulate commercial abalone harvest since 1939, what happened? Mismanagement? W.S.? Aquaculture?	Appendix A is a summary of abalone regulations and is not meant to discuss the results of the regulations. The Fish and Game Commission was given authority to regulate the commercial abalone fishery in 1939, not the Department. In enacting its moratorium, the Legislature noted that abalone numbers all along the coast have declined drastically since the early 1970s, and attributed the decline to commercial take, a growing market demand, expanding sport fisheries, growing sea otter populations, pollution, loss of kelp beds, El Niño, and disease.	No	
C-86	Appendix B How does [sic] someone, a Californian, able to share in abalone resource if they do not dive or have someone willing to give up catch? Not willing to eat aquaculture products? How does [sic] this public resource that is renewable with no by-catch able to be available all Californians? Contradictions and hypocrisy.	Abalone, like deer and other sport fish and game, are not equally accessible to all members of the public. Commercializing these species can increase the threat to their populations by increasing the numbers caught. If a commercial fishery were re-opened, abalone would be very costly, and thus probably not equally accessible to all Californians.	No	
C-87	Appendix B (con't) How can adequate funding be achieved without commercial landing taxes? Why not let all Californians share in cost of studying, monitoring by allowing them to buy at markeys [sic] and restaurants? B.3.3 Commercial? What are the benefits?	Increased revenue from a commercial abalone fishery would not offset the added expenses for monitoring and enforcement that would be incurred if the fishery was re-opened.	No	
C-88	Appendix C F.G.C. section 5522(a)(6)? What is it? Why not tell us? Confusing cross reference?	FGC Section 5522(a)(6) is a summary. The details are in the three sub-sections which follow, 5522(a)(6)(A), (B), and (C).	No	

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C-89	Appendix D Farallones left out. Why? Most prolific abalone population on earth. What about 1850-1950? Northern area harvested with no ill effects. Commercial harvest north of San Francisco for many years, why not now?	The Farallon Islands are included. Recent Department ROV surveys at the Farallons, covering waters as shallow as 15 feet, did not find substantial numbers of red abalone in areas recommended by former commercial abalone fishermen. Legal commercial abalone harvest in northern California only occurred from 1942 to 1945 and was too small in scale to damage population levels. See response to written comment W-3, C-28.	No	
C-90	Appendix E Appendix is questioned on its reliability, honesty, and accuracy. Some of this [sic] manufactured, misleading, biased, and opinionated. Surveys are admittedly skewed and not rational or prudent.	All surveys methods have limitations; however, the proposed methods for the ARMP were found to be acceptable by the peer review panel.	No	
C-91	Appendix G Fort Bragg Meeting My comments are not correct or complete. This is how you mislead the public and show lack of honesty. In 1997 F&G had an abalone document put out and begged for comments. I produced comments for 45 day time limit. Title Calamity Californian as a response. No answers ever given. I also stated if F&G would answer past questions, we would no longer have to keep asking the questions over and over. Not that no more public meetings needed. None of the verbal comments on genetic problems are included and none on the origin of W.S.? nothing mentioned about written comments.	Appendix G is a summary and the Department endeavors to correctly capture all relevant comments. The 1997 document and comments related to it were superceded by the 1997 legislation which mandated the ARMP. Comments on WS were summarized and included in the text in Section G.2.1.1 and in table G-1. Comments on genetics problems will be added to Table G-1. See responses to written comments W-3, C-18 and C-48. Written comments are summarized in Section G.2.4, Table G-1.	Yes	Table G-1 amended
C-92	Santa Barbara Town Meeting Once again, F&G is not being honest about the meeting. None of my concerns about size limits or genetics are included. No where does it state anything about written comments, even though others are fully credited for theirs.	Appendix G is a summary and the Department endeavors to correctly capture all relevant comments. All written comments were summarized into categories in the Comment column table (Table G-1). Summary of concerns of size limits were addressed in Table G-1. Genetics comments will be added to the table.	Yes	Table G-1
C-93	Appendix F What? Where are the Peer Review comments? According to Fred Wendell, they are subtle and incorporated into the document.	The latest draft of the ARMP incorporates the peer review panel comments. A summary of comments and the Department response to the comments was submitted to the Commission.	No	

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C-94	<p>Appendix G My comments are not complete nor are my written comments included. Some of the most important about W.S., Sabellid Worm, genetics, etc: How much money has been spent on study of abalone? Where is the worth or value of these expenditures and so called research? Where did W.S. come from? Was it outplanted with hatchery reared hybrids, artificially spawned for the scheme of 'Ocean Ranching'? We know that some mysteries of the ocean will never be understood if we keep grant money flowing. Grants have created much condemnation. Genetics? Is it not true that when to much genetic diversity is present, nature tends to cleanse or purify itself by mass mortality of introduced or all such hybrids? And why will F&amp;G not consider or recognize this? It is not nice to fool with mother nature. Outplanting of abalone, hatchery reared, hybrid or artificially spawned is the reason for lack of recruitment of young. Why are these not included?</p>	<p>Appendix G is a summary and the Department endeavors to correctly capture all relevant comments. All other comments have been addressed in written comments W-3.</p>	No	
<b>W-4: Richard Pogre</b>				
C-1	<p>Section 7.2 Research Protocols – Managing a Sustainable Fishery</p> <p>What I find most disturbing about this section is that it is an attempt to displace the commercial abalone divers from the North Central coast. This dive fishery that has existed for close to a century and as of its closure had maintained consistent landings.</p> <p>To address the monitoring of the fishery we had divers provided landing tickets providing numbers taken and area of take. This provided current information of the abalone resource. These records provided information that we had consistent landings through the years. (cont.)</p>	<p>This section inadvertently retained parts of an earlier draft of the ARMP which proposed that if the central California region was re-opened, it would be managed similarly to the northern region with no commercial or SCUBA catch of abalone. This proposal was changed in a later draft ARMP to manage central California similarly to southern California in recognition that this would be a controversial management decision that required detailed discussion.</p> <p>Landing records are inadequate indicators of the health of a fishery and cannot be the sole basis for reopening San Mateo or the Farallon Islands to fishing.</p>	Yes	Section 7.2 amended



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	<p>The Farallon Islands have maintained a sustainable abalone population with little or no take from the sport divers and to open it to only sport diving would only prove that this section is tainted towards removing commercial divers from their rightful place in the abalone fishery. This section is not acceptable to the commercial divers of the San Mateo County Coast. It serves no purpose except to displace working people for the benefit of a special interest group. If landing records were used today as a gauge the San Mateo coast and Farallon Islands a fishery could be reopened soon after the ARMP was implemented.</p>			
C-2	<p>The ARMP seems to incorporate a number of assumptions or presumptions by some of the Plan's authors that are incorrect. The Plan set a standard for the State based on the premise that all of the State waters are the same. It does not strongly recognize that some areas are highly impacted by pollution and human population density. It recognizes the impact of sea otters on the remaining abalone resources but takes no position on failure to contain sea otters north of Point Conception.</p>	<p>Because this is a data-poor situation, interim management treats large portions of California's coast as one entity. More data is needed to be able to manage resource recovery on a finer scale which considers the different nuances of each part of the coast. The USFWS has authority over the management of sea otters. However we do recognize the incompatibility of having sea otters and an abundant invertebrate resource for fishery use.</p>	No	
C-3	<p>The Plan seems to address harvesting limits for human consumption only, even though size and bag limits exist. The Plan sets a double standard as to acceptable population density in and out of the sea otter zones.</p>	<p>The plan addresses and directs the human utilization of the abalone resource through size, bag, and season limits. The plan uses emergent abalone density as a criterion in the recovery and management of the abalone resource. Within the sea otter range this density is essentially zero because of otter predation. Abalone densities in otter-occupied areas are cryptic. Thus there is no double standard. Cryptic populations within the otter range are not sufficient to support a fishery.</p>	No	
C-4	<p>The Plan fails to justify density numbers for recruitment and fails on its own assumption in Northern California, with lack of recruitment even with abalone density numbers sited as at optimum levels. [lowering of sport limit to 3].</p>	<p>Recruitment data is derived from the four index sites' size frequency information. We recognize the need for more of this type of data from more sites. Currently the amount of resources and funding limits our ability to collect this additional data and therefore our management scheme must be precautionary.</p>	No	

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C-5	Statements are made that show little knowledge of current abalone habitat and populations. False information is incorporated into the Plan, which could be mistaken as factual if one had know [sic] prior knowledge of the subject.	Response to this comment is not possible without specific reference to the supposed "false information" in the plan.	No	
C-6	Commercial landing records exist with block numbers showing exactly where abalone habitats exist and the number harvested in previous years. Plan authors fail to use this information to deny that sustainable populations exist and have been harvested for decades. [San Mateo County Coast, Farrallon Islands] This seems to me as an attempt to deny commercial access to the abalone resource. A.B 229 [Burton] was the first attempt to curtail commercial diving. It was brought about by a group of self-serving sport divers and failed because it had no merit. S.B. 223 [Thompson] later incorporated Southern California into politically motivated legislation and the sport and commercial fishery was closed south of San Francisco.	Reliance on fishery-dependent data, such as landing receipts, is a poor indicator of stock health. The ARMP is based on a mixture of both dependent and independent fishery data to derive management and recovery criteria. Having two sources of data provides a more accurate picture of the health of the resource.	No	
C-7	I believe that the ARMP has to many implanted bias to be a fair overview of the abalone fishery in California.	The draft ARMP has been independently peer reviewed by a panel of scientists coordinated by California Sea Grant independently of the Department.	No	
C-8	The Plan should be reviewed by a [sic] unbiased arbitrator, who will review all aspects impacting the abalone marine resource. Some of which would be: geographical, political, human population density, pollution, sea otter perdition, reasonable sustainable densities, and social-economic impact, only then would we get a fair overview of the fishery and its future.	The ARMP is not a fishery management plan; it is a plan to guide the recovery of a seriously imperiled marine resource which, if successful, might sometime in the future be able to sustain a fishery. See response to W-5, C-6.	No	

Writer/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-9	As of this time the ARMP has shown little change since introduced to the public. It is still fragmented, biased and lacks the common sense approach to good resource management. Too many people are pushing their own agenda. This is why I feel that an outside arbitrator should be used to level the playing field.	See response to W-5, C-6.	No	
<b>W-6: Richard Vannelli</b>				
C-1	...The problem has been exacerbated substantially in the last 10 years or so with the large increase in Asian abalone fishermen. I have seen, and continue to see, entire families of Asians...both hand picking and boating/diving for abalone along the coast ... with bags full of abalone of all sizes...In my opinion, the problem is not with the honest people who love the sport, buy their stamps and pay their fees. The problem is with the poacher – those who have no regard for the abalone, those who wipe out entire beaches for monetary gain. If you penalize the honest fishermen too much by reducing the limit, to the point where it will not be worth their while to even make the trip, then you may ultimately be reducing the money generated through license fees and stamp purchases – money desperately needed to protect the abalone. Most poachers, especial [sic] the type I mentioned, don't buy fishing licenses or abalone stamps.	The legal catch of abalone indicated on abalone permit report cards is still substantial and rivals the higher levels of the commercial catch. There are not enough wardens to monitor all recreational fishing activities in northern California. The public can be of enormous help by notifying the Department of any violations by calling (888) 334-2258 or (916) 358-1300.	No	
C-2	Do not reduce the limit below the present limit of 3 abalone	Although the Department will try to avoid recommending further reductions in bag limits to the Commission, such reductions are more effective at reducing total catch than changes in annual limits or seasons.	No	
C-3	Shorten the Abalone Season to May and June, August and September	A shorter season would not necessarily reduce the amount of abalone taken if it only concentrates the effort in the remaining months. Businesses based on abalone fishing-related tourism along the northern California coast would suffer with additional closed months.	No	

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C-4	Raise the price of the Abalone Stamp to \$25.00	The price of an abalone permit report card was increased this year from \$12.00 to \$15.00 along with an increase in fishing license fees. An increase to \$25.00 could cause an overall decrease in revenues and a large amount of negative publicity if a significant number of abalone fishermen believe the increase fees are excessive.	No	
C-5	All monies generated from Abalone Stamps to be used by CDFG on Abalone and Game wardens – 2 full time men and 2 full time women. The money would NOT go into the general fund	Funds generated from abalone permit report card sales go to a dedicated account within the Fish and Game Preservation Fund and do not go into the general fund.	No	
C-6	An alternative license would be \$100 to \$150 license fees, 4 abalone limit per day, 24 per season, and 8 in possession. This would help busy people who can only go a few times per season, but can afford to pay more money.	The addition of a separate, more expensive card would be complicated to administer, and might create a more privileged class of fishermen based on ability to pay, which would be difficult to justify.	No	
<b>W-7: Harry Vogl</b>				
C-1	At the special Fish & Game Commission meeting held April 20, 2004 ...Commissioner Flores proposed a management plan for a very limited fishery. In that plan, it was recommended that the fishery be opened to only 15 permits...to be distributed on a lottery basis. Each and every owner of a commercial abalone transferable permit was financially impacted when the fishery was brought to a sudden closure in 1997...I believe it is unfair to the fleet as a whole to leave out any permit holder at the time of the closure. I believe all permit holders when the closure began should be re-issued a permit. Each permit holder can then decide to share the TAC, no matter how small a bag limit, or decide not to fish of turn in the permit [sic].	Commissioner Flores' proposal was for discussion purposes only; it was not an agenda item or voted on, and so cannot be considered a formal management plan for re-opening the fishery. These comments will be taken into consideration when plans are made for reopening a fishery.	No	

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<b>W-8: Donald R. Gilbert, CEO Maritech Ocean Ranching</b>				
C-1	<p>Since the beginning of life, species are shaped by environmental pressures. For our cultured animals and plants we choose the biggest and best and breed them with the biggest and best to obtain a superior offspring; a process called selective breeding. When man places a minimum size limit on the harvest of an animal such as abalone it induces an environmental pressure for the animal to never attain that legal size or to grow real slow. The gene characteristic for fast growing animals is rapidly removed from the broodstock.</p>	<p>The concerns expressed have some basis in theory but there is no proof that size limits actually result in stunted populations. The long lifespan of abalone would make them less vulnerable to such selection and the selective pressures that encourage quick growth are not known.</p>	No	
C-2	<p>...abalone will not naturally sustain the significant harvesting that man can accomplish. The Maritech Ocean Ranching aquaculture project is an alternative to the recovery of abalone populations rather than the decades of time nature will take.</p>	<p>Out-planting operations in southern California were found to be uneconomical due to the small numbers of survivors. The value of an ocean ranching operation in speeding recovery of abalone populations is unknown.</p>	No	
<b>W-9: Richard Pogre</b>				
C-1	<p>I would like to propose that the area known as North Central California, San Francisco county coastline including the Farallon Islands, San Mateo county coastline to Pigeon Point be made a "Commercial Only" area for the harvesting of abalone.</p> <p>I believe that the area would gain no economic advantage by reopening the area for sport divers. It would help curtail sport poaching in the area, by restricting access (which means) less enforcement would have to be on hand. A commercial only abalone area would provide a much needed access to the retail fish market which would diminish the illegal trade that is out of control.</p>	<p>These comments will be considered when the Department determines that the resource has recovered to the point where it can support a sustainable commercial fishery.</p>	No	

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<b>W-10: Richard Pogre (letter to Governor Schwarzenegger)</b>				
C-1	A management plan for a sustainable fishery has been developing for seven years with no real results in sight. California Department of Fish and Game has made little progress and is in my opinion biased against the commercial taking of red abalone, since only sport fishing is allowed. I consider this unfair.	<p>The northern California sport fishery for red abalone and the closure of all fisheries below San Francisco is the result of legislative action.</p> <p>The Department is not biased against commercial abalone fishing. The southern and central California commercial and recreational fisheries were closed because the stocks of all the abalones, not just red, were depleted. Landings had fallen to less than 10 percent of historic landings. The depletion was a result of several factors, including excessive take, sea otter expansion, disease, and pollution. In contrast, the northern fishery remained open because most of those factors affecting the southern and central resource did not impact northern California.</p>		
C-2	... please give the commercial abalone divers access to an unbiased arbitrator to look at all the facts and information and to render a decision as to our ability to harvest abalone at a sustainable level now. At this time the position of the California Department of Fish and Game is to deny the commercial harvest of abalone, this denies equal public access to a historical sport and commercial fishery that belongs to all Californians.	The ARMP was submitted to the Commission in 2002. The process for preparing this document included consultation with representatives of the commercial, recreational, and conservation communities, followed by external scientific peer review. Such review is the normal method of assuring that the plan is appropriately scientifically based and unbiased.		

Abalone Recovery and Management Plan Email Comments				
Writer/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>Email-1: Jim Marshall</b>				
C-1	<p>We've been studying the ARMP in light of the new sections and we've noticed some disconnects.</p> <p>The amendment to Alternitive 1 that we submitted contains two phases. First, it presents options for monitoring/research. These suggestions for monitoring/research should be included in Chapter 6, 7, and 9 where discussion of monitoring/research is placed. Those sections of those chapters which contain descriptions of research both funded and unfunded are the proper place for discussion of our suggestions concerning gathering of data. Second, the amendment contains options for a future fishery that properly belong where it has been placed (Chapter 7) in the document.</p> <p>Our concern is that if consideration of these monitoring suggestions is tied to approval of a fishery they would not be considered until such approval.</p>	<p>To incorporate the changes into the document as suggested would cause confusion. Our strategy of monitoring/research (m/r), in the ARMP provides a general guideline for how we would like to proceed with m/r through recovery and management. This approach will allow flexibility in how the m/r is accomplished, and gives us the ability to change and develop more efficient ways of doing m/r as recovery continues. We would then be able to incorporate other parallel m/r programs or ideas (such as proposed) into the overall program for recovery without having to constantly amend the document.</p> <p>Your m/r proposal is captured in the document, and there is nothing that prevents us or you from moving forward on implementing it at any time. The key element here is to work together in planning and coordination so that we are not duplicating work but rather doing complimentary m/r that builds upon our goal of recovery.</p>	No	
<b>Email-2: Jim Marshall</b>				
C-1	<p>The descriptions of research, past, present, and future, in the ARMP are cryptic. Everyone might be better served if this information were brought together in one chapter as is outlined in the MLMA Master Plan for the development of FMPs. I find the sample Table of Contents of an FMP at <a href="http://www.CDFG.ca.gov/mrd/masterplan/appendix_b.pdf">www.CDFG.ca.gov/mrd/masterplan/appendix_b.pdf</a> to be lucid. Access to research protocols and proposals for future work would be a straightforward process if this outline were followed. In it's present form, the ARMP is anything but straightforward in this respect.</p>	<p>Biologists writing the ARMP considered the Master Plan Appendix B format when writing the Research Protocols section and chose to go in a different direction for Chapter 7. Although titled Research Protocols, Chapter 7 of Appendix B had many sections which did not really come under the topic of research protocols. The chapter title was changed to Abalone Management which seemed to be a better description of the sections and a section for research protocols was kept in the chapter. The research protocols section had been much larger with descriptions of many research options but was subsequently edited down to what was relevant to the ARMP. The decision was made to keep the document brief and not include an extensive discussion of all research protocol options. Chapter 7 of Appendix B was not lucid to (cont.)</p>	No	

Writer/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
		Department biologists because it muddled the definition of research protocol which they believe is much narrower than indicated in that outline.		
<b>Email-3: Jim Marshall</b>				
C-1	<p>Section 7.2.6. of the ARMP was not changed to reflect the following comments made previously on ARMP section 7.2.6 Collaborative Research Efforts:</p> <p>This section ignores a whole area of collaborative research; collaboration with fishermen. The knowledge and experience of fishers can streamline and enhance project designs and implementations. Such collaborations are called for by FG Code 7060(c). Clearly, "collaboration" means more than the inter-agency collaboration described here.</p> <p>This section should include a discussion of "collaborative" efforts focusing on using fisher's ecological knowledge (FEK) (Johannes et al, Fish and Fisheries, 2000, 1, 257-271.)</p> <p>Is the subject dealt with elsewhere in the Plan? If so, where?</p>	The comment was interpreted as pertaining to recovery assessment, since it would be directly applicable to recovery first and then apply to the collaborative research for managing a sustainable fishery in the future (Section 7.2.6). The response given in Appendix G was to refer to Section 6.4.1, which deals with the periodic assessment of abalone and essential habitat during recovery. The second paragraph captures the comment of collaborative research.	No	
<b>Email-4: Jim Marshall</b>				
C-1	<p>FGC 5522 says; "The plan shall contain all of the following:" 5522(a)(3) says, "Alternatives for allocating harvest between sport and commercial divers if the allocation of the abalone harvest is warranted."</p> <p>The law does not say that if harvest is warranted then allocation alternatives may be developed. It says that alternatives for allocation shall be included in the plan. If ever harvest is warranted a decision would be made using alternatives presented in the plan. (<i>cont.</i>)</p>	The plain meaning of FGC Section 5522(a)(3) is that the identification of allocation alternatives is dependent on, and subject to, the Department's determination that allocation is warranted. However, no allocation can be warranted unless there is a fishery, and the fishery cannot be re-opened unless the Department first makes a determination, based on substantial evidence on the record, that the resource can support a biologically sustainable fishery. Including an allocation recommendation with alternatives in the ARMP at this time would greatly restrict options in the future when the allocation needs would be better understood.	No	



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	<p>This issue has been sidestepped by saying, "Ultimately, resource allocation is a political decision that can most readily be addressed when stocks have recovered and the number of potential users is known." The Department is not asked to make a decision, it is asked to include alternatives. Though this issue is fraught with political overtones that does not release the Department from including allocation alternatives in the Plan as is called for by 5522(a)(3).</p>			
<b>Email-5: Jim Marshall</b>				
C-1	<p>In Section 7.2., a section that ostensibly deals with Research Protocols -Managing a Sustainable Fishery, there is the following statement. "The recommendation of moving the northern fishery boundary to Point Año Nuevo, including the Farallon Islands and the San Mateo County coast, will necessitate monitoring this area for recovery to a sport-only, no-SCUBA fishery."</p> <p>I find this rather odd, as it is mentioned no where else in the plan that I am able to see, and in light of the Department's stance in the previous paragraph's discussion of the political nature of resource allocation. If a fishery is warranted in this area then a discussion of allocation is also warranted as per 5522(a)(3). As per that statute, the Department is asked to include alternatives for allocation of any reopened area not make an arbitrary decision as to such allocation.</p> <p>Is the recommendation an alternative? If so, why isn't it included in section 7.3, Management Alternatives? Or is it part of the preferred alternative? If such a recommendation is preferred/sought will it not necessitate CEQA protocol? (cont.)</p>	<p>This section will be amended. It was incorrectly retained from an earlier draft of the ARMP which contained a paragraph in Section 7.1.4.3 proposing that if the central California region was re-opened, it would be managed similarly to the northern region with no commercial or SCUBA catch of abalone. This proposal was changed in a later draft ARMP to manage central California similarly to southern California in recognition that this would be a controversial management decision that required detailed discussion. Also see response to W-4, C-1 above.</p>	Yes	Section 7.2

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	I would not like to see the agenda of the northern sportsmen carried forth in such a manner i.e. one sentence buried in an appearantly unrelated section of a document over 100 pages long.			
<b>Email-6: Jim Marshall</b>				
C-1	<p>Speaking directly to this issue (fulfilling the ideal of “adaptive management” as defined in the MLMA), I quote the ARMP which says on page 4-3, 4.2.3 Marine Life Management Act (MLMA) The MLMA was signed into law and incorporated into the FGC (§7050 to §7090) in January, 1999. The act created state policies, goals, and objectives to govern the conservation, sustainable use and restoration of California’s marine living resources. Although many of these have been incorporated into the ARMP, the ARMP is mandated by legislation that preceded the MLMA, and has different goals and objectives from the MLMA. Because the ARMP is not intended to be a fishery management plan (FMP), it is not subject to the MLMA provisions governing the preparation of FMPs.</p> <p>This section reflects the Department’s legal opinion that the ARMP <sup>3</sup>has different goals and objectives<sup>2</sup> from an FMP that would be created under the MLMA. As the ARMP certainly deals with the <sup>3</sup>conservation, sustainable use and restoration of California’s marine living resources.<sup>2</sup> , I ask how can this be so?</p> <p>Further, exception must be taken with the contention that <sup>3</sup>the ARMP is not intended to be a fishery management plan (FMP)<sup>2</sup>. Chapter 7 of the ARMP is titled Abalone Management, section 7.1 is called Fishery Management Plan and deals with management of the existing fishery in Northern California as well as plans (<i>cont.</i>)</p>	<p>The ARMP and an FMP have different goals and objectives. One objective of the MLMA is to achieve the primary fishery management goal of sustainability. <i>Fishery</i> means “fishing for or harvesting marine fish populations.” <i>Sustainability</i> addresses continuous replacement of resources and taking in a fishery that does not exceed optimum yield. The term <i>yield</i> is not expressly defined in the MLMA, but its use in the context of maximum sustainable yield and optimum yield are consistent with the plain dictionary usage of production from a natural resource. Thus, each of these concepts in some way contemplates an ongoing “take” of fish. By contrast, the abalone statute addresses the recovery of a resource recognized as imperiled, not the management of a sustainable fishery. Indeed, the imposition of the moratorium is prima facie evidence that the abalone resource is not sustainable. If “take” is integral to the MLMA but is expressly prohibited by the abalone statute, then the resource cannot reasonably be considered a fishery for MLMA management purposes.</p> <p>The ARMP and an FMP also have different content requirements. The MLMA identifies five general subjects that must be included in an FMP: fishing statistics, natural history, habitat, ecosystem role, and economic/social factors. The ARMP, while covering some similar subjects, emphasizes “interim and long-term recovery goals,” makes provisions for the “review and amendment of the [recovery] strategy,” and describes “objective measurable criteria by which to determine whether the goals and objectives of the recovery strategy are being met and procedures for recognition of successful recovery.” This express emphasis on recovery indicates that what is being presently managed is basic health of the resource, not the fishery that results from a healthy (e.g. sustainable) resource.</p>	No	

	<p>for reopening other fisheries if and when restoration occurs. If the ARMP is not a fishery management plan, then what is it?</p> <p>I suggest that the Commission, upon adoption of the ARMP, acknowledge that the ARMP is indeed a fishery management plan and that future actions concerning it be carried out under MLMA guidelines dealing with FMPs.</p>			
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**Abalone Recovery and Management Plan, Fish and Game Commissioner Comments**

Writer/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
<b>Commissioner Michael Flores</b>				
C-1	<p>We ought to be assessing other sites to be able to get a good read on the entire population. We ought to think about spreading out and taking a look at some other sites. Basically your methodology is to assess a few heavily fished sites and then extrapolate your results to the rest of the population and make your decisions based on that. This doesn't sound reasonable unless you are incorporating other sites that are less harvested. In other words you are not getting a good read of what the real population is out there. What you are doing is studying areas that are heavily harvested. In the mean time there may be a large amount of abalone outside of those studied sites. I think what the public's concern was that we are looking at four sites that are heavily harvested, but outside of those sites there is a tremendous amount of resource that is available. So when we talk about shutting down we are basing it on those popular areas that are in trouble. There are other areas out there that may be still ok for fishing. We need to get a truer assessment of what is out there.</p>	<p>One of the great drawbacks to relying on fishery-dependent information is that abundant catch can lead to the incorrect assumption of continuing abundant reserves. Thus, the rate of harvest continues until the fishery is overfished. Fishery management in a data-poor situation such as this must recognize that a precautionary approach is best. The Department recognizes that survey data about the red abalone resource is limited both spatially (number of areas surveyed) and temporally (the frequency of the surveys). The fact that surveys are conducted in specific heavy-use areas is a matter of concern. This situation was addressed in the ARMP by addressing the absence of broad scale data along the northern California coast in a precautionary way. In a data poor situation, a high level of precaution must be taken to protect the resource. If more sites were to be established, there would be more and better information upon which to make decisions about the resource, and adjustments would not have to be as severe.</p> <p>The reason for the absence of relevant and sufficient data to manage the abalone fishery is funding and manpower, a lack which is often magnified by the remoteness and often severe conditions along the northern California coast. However, the issue of not having enough fishery index sites to adequately assess the entire fishery stock in more detail is important. Four additional, moderately used fishing sites will be added to the four existing index sites for assessment. Because of funding and manpower issues, these additional sites will be used if additional funds and resources are available to conduct the surveys.</p>	Yes	Section 7.1.2.2 <u>Index Sites</u> , revised

Writer/ Comment Number	Comment	Department Response	Revision Needed?	Revised Section
C-2	<p>We should be more inclusive in the data gathering process. We should let some of these dive clubs and public help out with gathering some of this data. This would make the process more transparent so that the public sees what you are saying is true.</p>	<p>The abalone team has been inclusive in collecting data about the north coast abalone fishery. Past efforts have included the contracting of dive surveys to Universities, i.e., Humboldt State and UC Davis. Efforts have also included commercial abalone and urchin divers to conduct surveys. Problems arise in using non-scientifically trained personnel to conduct surveys, which necessarily require specific scientific protocols to obtain valid data. Generally, data collected by non-scientists is not well received by peer review.</p> <p>Volunteers are used to collect data where they can be supervised by scientific staff or where data collected is straightforward, i.e., creel censuses. The use of volunteers in abalone surveys is complicated by the inability of untrained volunteers to dive under the auspices of scientific divers (as buddies), because of the lack of scientific diving certification, and Departmental liability. Data needs to be collected in a scientific manner using specific guidelines. It is the job of the scientist to conduct resource surveys in a systematic manner acceptable to the scientific community.</p> <p>The public is certainly interested in the data, and often want to be involved in its collection, until the necessary rigor becomes evident. The public does participate by the purchase of abalone stamps and licenses, and should be commended for supporting the abalone permit report card. The data collected is summarized at Recreational Abalone Advisory Committee meetings and eventually published in scientific journals.</p>	No	