

STATUS OF MARINE RESERVE PROPOSALS FOR THE CHANNEL ISLAND
NATIONAL MARINE SANCTUARY

Situation: The California Fish and Game Commission (CFGF) has authorized the department to publish notice on five scenarios for identifiable marine reserves in the Channel Islands National Marine Sanctuary (CINMS), a no action alternative, and an alternative that would role the CINMS marine reserves process into the process for consideration of a state-wide system of marine protected areas. The state-wide system of marine protected areas are being pursuant to under California's Marine Life Protection Act. The scenarios being considered for the CINMS include delineation of marine reserves in federal waters (see maps in Exhibit F.1.b, Attachment 1). As of publication of the briefing book, the full regulatory package for the CINMS marine reserve scenarios was not available. Representatives from the California Department of Fish and Game will update the Council on the California process. The CFGF could take final action as early as its February 2002 meeting. If final CFGF action is taken at that time, then this Council meeting will be the only opportunity the Council will have to provide the CFGF with comments on CFGF alternatives.

The procedures to be followed for considering federal regulations for federal waters in the CINMS area have not been completely delineated. The staff from the CINMS will address the Council on alternative approaches for federal consideration of marine reserves for the CINMS.

One of the major issues of contention in the CINMS process has been the appropriate size for marine reserves. At the request of the Council and Scientific and Statistical Committee (SSC), Dr. Satie Airame of the CINMS staff provided documentation on how the CINMS Science Panel arrived at its determination that a 30%-50% area set aside was required to meet fishery management objectives within the CINMS. At the June Council meeting, the Council authorized the establishment of an SSC ad hoc subcommittee to evaluate the justification for large marine reserves to achieve fisheries management objectives for Council fishery management plan species. This subcommittee met October 1 and 2 with the CINMS Science Panel to review this issue. The SSC will review its subcommittee analysis and expects to report the results of its review to the Council at this meeting.

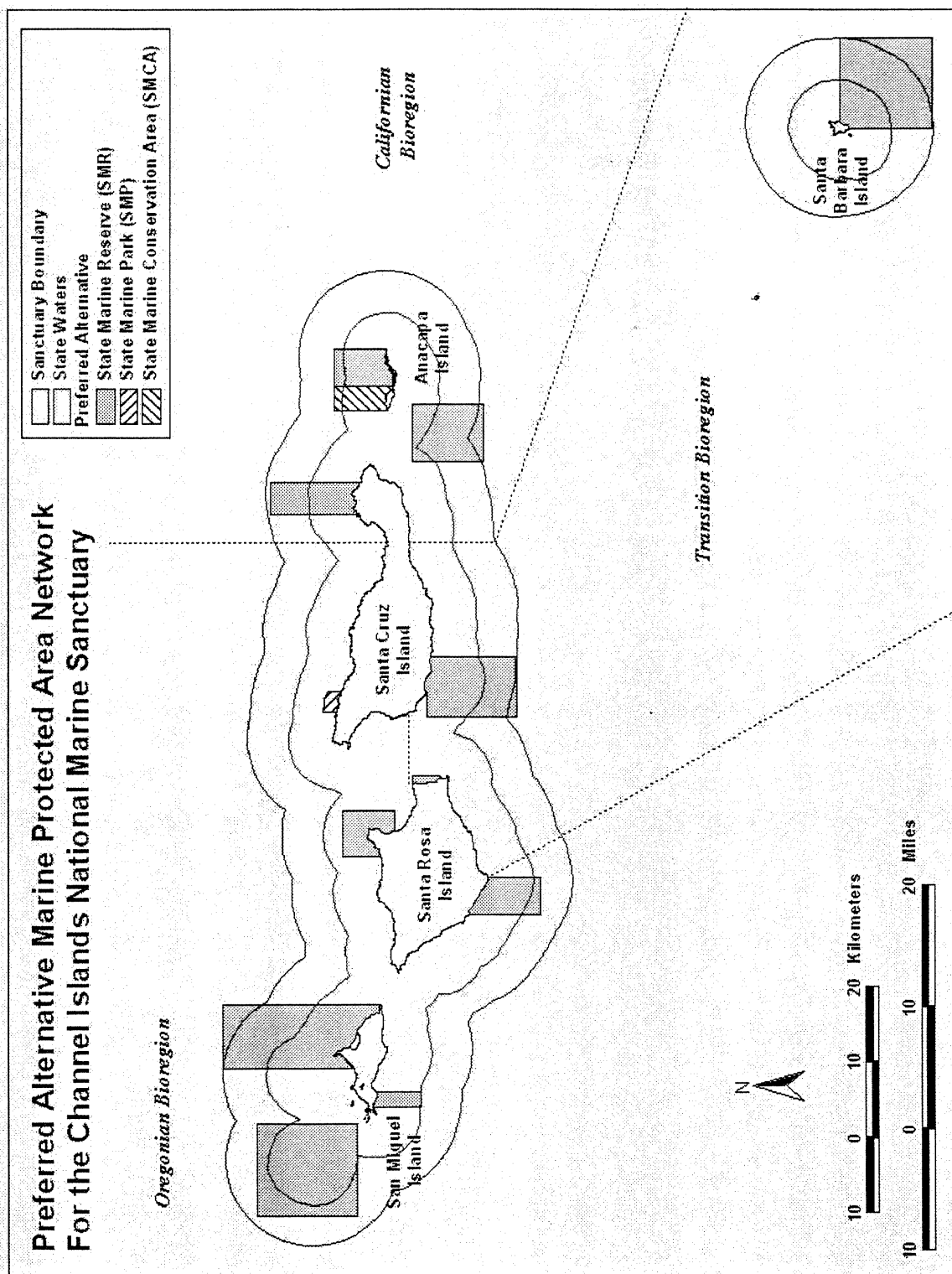
At the meeting, the staff will present some options for directions the Council might proceed under this agenda item.

Council Action:

1. Consider the SSC report and provide guidance, if needed.
2. Decide on a response to the CFGF Marine Reserve Alternatives *State process on Attachment 2*
3. Respond to the CINMS staff report on procedures for federal consideration of marine reserves in the CINMS, if appropriate.

Reference Materials:

1. Exhibit F.1.b, Attachment 1 (Maps).
- ~~2. Exhibit F.1.b, Supplemental CINMS Report.~~ *oral report.*
- ✓ 3. Exhibit F.1.c, Supplemental SSC Report. *Received 10-31-01*
4. Exhibit F.1.e, Public Comment 1.
5. Draft Summary of the Joint Meeting Science Advisory Panel to the Marine Reserves Working Group SSC Ad hoc MRC (Exhibit F.1.c, Supplemental MRWG Science Panel Report).
6. Options for Council Action Under Agenda Item F1 (Exhibit F.1, Supplemental Attachment 2).
7. Exhibit F.1.d, Supplemental GAP Report.



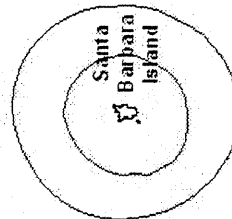
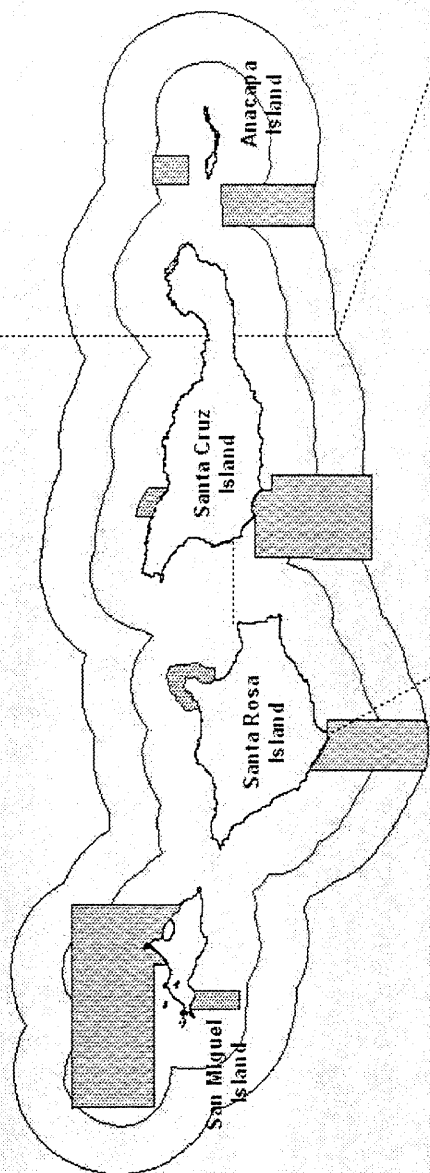
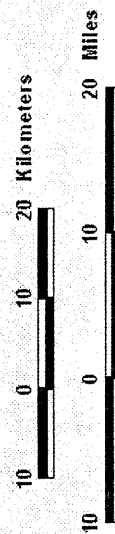
Alternative 1: Marine Protected Area Network For the Channel Islands National Marine Sanctuary

State Waters
Sanctuary Boundary

Oregonian Bioregion

Californian Bioregion

Transition Bioregion









Alternative 2: Marine Protected Area Network For the Channel Islands National Marine Sanctuary

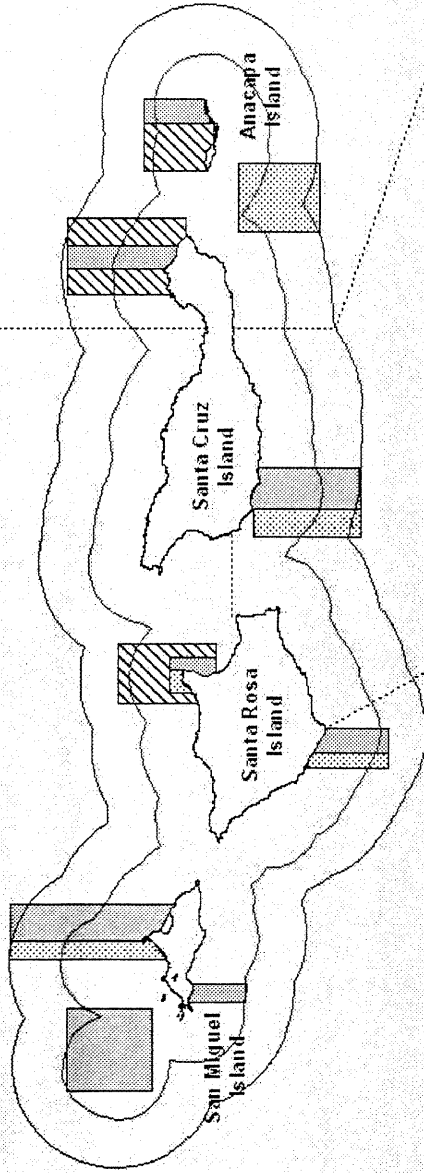
Oregonian Bioregion

*Californian
Bioregion*

Transition Bioregion

Santa
Barbara
Island

-  Sanctuary Boundary
-  State Waters
-  Alternative 2
-  State Marine Reserve (SMR) Phase I
-  State Marine Reserve (SMR) Phase II
-  State Marine Conservation Area (SMCA) Phase II



10 0 10 20 Kilometers

10 0 10 20 Miles

Alternative 3: Marine Protected Area Network For the Channel Islands National Marine Sanctuary

☐ State Waters
☐ Sanctuary Boundary

Oregonian Bioregion

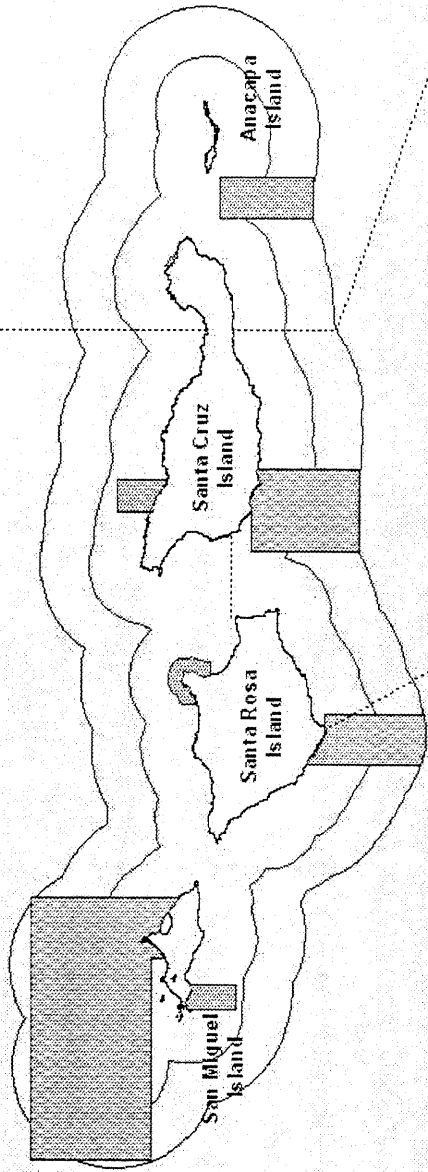
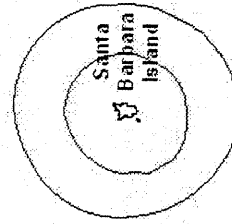
Californian Bioregion

Transition Bioregion



10 0 10 20 Kilometers

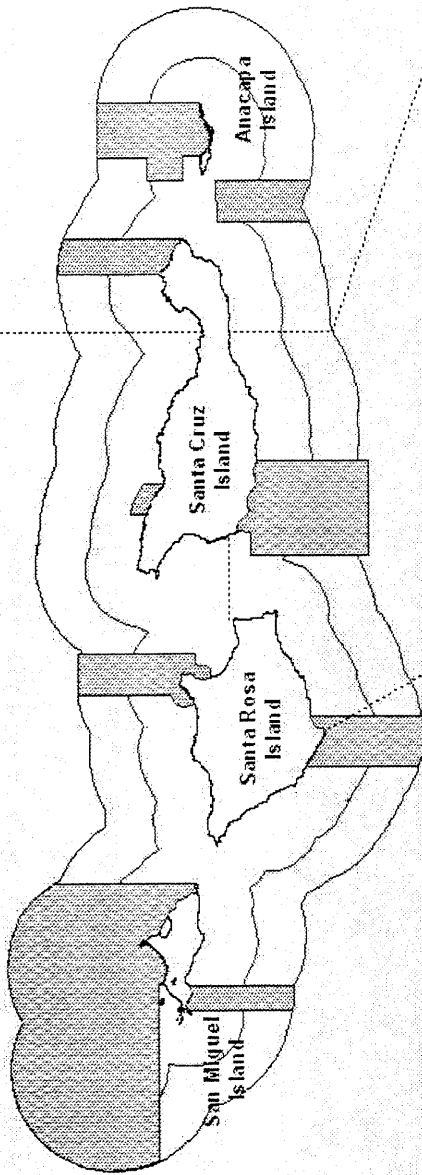
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Alternative 4: Marine Protected Area Network For the Channel Islands National Marine Sanctuary

State Waters
Sanctuary Boundary

Oregonian Bioregion



Californian
Bioregion

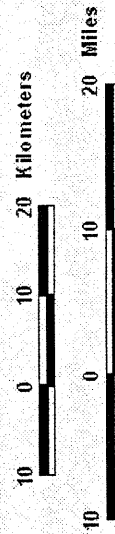
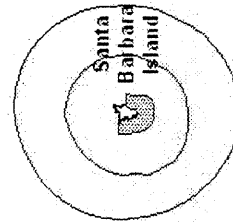
Anacapa
Island

Santa Cruz
Island

Santa Rosa
Island

San Miguel
Island

Transi6n Bioregion



Draft Summary of the Joint Meeting
Science Advisory Panel to the Marine Reserves Working Group
Science and Statistical Committee Ad-Hoc Marine Reserve Committee

October 1-2, 2001
Santa Barbara, California

This report summarizes material that was presented and discussed at a joint meeting of the Science Advisory Panel to the Marine Reserves Working Group (MRWG) of the Channel Islands National Marine Sanctuary (CINMS) Advisory Council and the Scientific and Statistical Committee (SSC) of the Pacific Fishery Management Council (PFMC). The meeting was held October 1-2, 2001 in Santa Barbara and was attended by CINMS staff, a subset of Science Panel members, the SSC's ad hoc Marine Reserve committee, and interested members of the public. The objective of the meeting was to clarify the scientific basis for the Science Panel's recommendation to the MRWG with respect to the range of sizes of proposed marine reserves in the CINMS.

In order to evaluate the Science Panel's recommendation, it is important to first understand their specific charge. The Science Panel did not site specific marine reserve locations in the CINMS. Instead, the MRWG asked the Science Panel to develop ecological criteria for reserve design (including location and size) in order to achieve two goals developed by consensus of the MRWG: (1) to protect representative and unique marine habitats, ecological processes, and populations of interest in the CINMS (hereafter referred to in this statement as the "ecosystem biodiversity" goal), and (2) to achieve sustainable fisheries in the CINMS by integrating marine reserves into fisheries management (hereafter referred to in this statement as the "sustainable fisheries" goal). The MRWG requested that the Science Panel give equal consideration to both goals. The MRWG constrained the Science Panel to define all "populations of interest" to be circumscribed by the boundaries of the CINMS.

The CINMS encompasses approximately 1252 square nautical miles from mean high tide to 6 nautical miles around each of the northern Channel Islands and Santa Barbara Island. The MRWG identified 119 species of interest to be protected by marine reserves in the CINMS, including plants, invertebrates, fish, seabirds, and marine mammals. The MRWG specified a minimum time horizon of 20 years for protection of populations of interest. The list of species to be protected included species that are: (1) economically and/or recreationally important, (2) keystone or dominant species, (3) candidate or listed species under the Endangered Species Act, (4) species that have shown long term declines in landings and/or average size, (5) habitat-forming species, (6) indicator or sensitive species, and (7) important prey species. Given the wide range of life-history characteristics of species of interest, it is nearly impossible to identify a reserve size or location that is optimal for all species. In addition, fish catch data for the CINMS (or other data from fishers on fish abundances at a scale of $1 \times 1 \text{ nmi}^2$) were not available for consideration by the Science Panel because of restrictions placed on the data by the Fisherman's Data Review Committee (a data oversight committee of fishing representatives). Thus, areas of

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potentially high species diversity were not based on the actual availability of fished stocks. The Science Panel recommended a strategy of protecting representative marine habitats instead of attempting to design reserves for individual species.

The Science Panel recommended setting aside at least 30%, and possibly 50% of the representative and unique habitats in each biogeographical region in the CINMS. Because the CINMS is a complex region influenced by different ocean water masses and conditions, the Science Panel concluded that it was necessary to protect similar habitats in each of three unique biogeographical regions. Vulnerable habitats, such as giant kelp, eelgrass and surfgrass, were considered explicitly to ensure that such habitats are represented adequately in reserves. Vulnerable species, such as endangered seabirds and breeding marine mammals, also were included among the ecological criteria to insure adequate representation. Given sufficient data, other marine species could be included among the ecological criteria for reserve design.

The Science Panel considered a variety of factors when developing its reserve size recommendation for the CINMS, including: (1) a general review of the marine reserve literature, (2) the PPMC's default harvest rate policy, (3) dispersal rates of macroalgae, invertebrates, and fish, and (4) concerns about emerging fisheries.

In developing its recommendations, the Science Panel considered the status of managed fisheries inside and outside of the CINMS. For some fisheries (e.g. abalone, sea cucumber, red sea urchins, some rockfish species), the Science Panel evaluated data from the CINMS collected by the Channel Islands National Park and other local marine scientists. For other fisheries, such data were not available for the CINMS area so the Science Panel evaluated the status of the fisheries based on data for southern California or west coast populations. The Science Panel considered recent changes in fisheries management (e.g., the California Department of Fish and Game cowcod closed area). In this case, the Science Panel determined that the cowcod closure is likely to contribute to rebuilding cowcod populations, and possibly other species protected within similar habitats in the southern CINMS. However, the Science Panel determined that such single species closures did not address conservation and fisheries issues for the broad range of species of interest and habitats of concern.

No systematic analytical assessments of populations within the CINMS were completed by the Science Panel. Instead, the Science Panel examined a variety of trend indices and other information. The top commercial fisheries in the Channel Islands (squid and red sea urchin) exhibit high variability in landings from year to year, whereas other fisheries have shown dramatic declines in abundance (e.g. some rockfish and sharks, abalone, CA sheephead, black sea bass, and sea cucumber). In addition, many species targeted by recreational and/or commercial fishers have significant interactions with other species (e.g. as predator or prey). Reductions in the numbers or changes in population size structures of targeted species can alter community structure through direct and indirect linkages. After considering the available data, the Science Panel concluded that, for some species, particularly those species with low reproduction and delayed maturity, the assumption that there is little or no effective protection from current

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management strategies may be reasonable, especially over a time horizon of twenty years or more.

After examining the available literature on the use of marine reserves for fishery management, members of the Science Panel concluded that many of the studies assumed an excessive level of fishing in areas outside of reserves. In situations where management through effort control is consistently effective, the conclusions from some of these papers are not likely to provide appropriate guidance for determining the size of marine reserves used for fishery management.

The Science Panel compiled information on marine reserves from a broad review of the scientific literature. Although numerous studies evaluated the impacts of marine reserves on fisheries, few studies of marine reserve size were based on information pertaining specifically to the U. S. west coast. In the CINMS, there is one very small marine reserve on the northeast side of Anacapa Island. Data collected inside and outside the marine reserve show significant increases in abundance and size of fished species in the reserve. Because of the limited data from marine reserves in the CINMS, the Science Panel relied mostly on empirical data from other regions and theoretical studies to estimate the range of reserve sizes that are likely to contribute to ecosystem biodiversity and sustainable fisheries. The Science Panel identified the need for additional study of the potential role of marine reserves as a conservation and fisheries management tool on the U.S. west coast. However, the consistency of responses in reserve systems from throughout the world supports the notion that the general findings from studies focused on other locations may be applicable to the U. S. west coast.

Specific recommendations for reserve size depend on the goals for marine reserves. Although most of the studies considered evaluations of fisheries yields, some of the studies were related to population persistence or ecosystem biodiversity. Most theoretical studies and limited empirical data indicated that protecting a minimum of 10 to 40% of all marine habitats is needed to conserve ecosystem biodiversity. If reserves are designed for fisheries enhancement and sustainability, most theoretical studies and limited empirical data indicated that protecting 20 to 50% of fishing grounds will minimize the risk of fisheries collapse and optimize long term sustainable catches. Several studies suggested that stocks should be maintained at 60-75% of their natural population size if reserves are to be used as the primary management approach. Without other management measures, highly mobile and migratory species may require very large closures (70-80%). The Science Panel developed a histogram showing the distribution of optimal marine reserve sizes, assembled from all the theoretical studies that they examined. The resulting distribution was very broad, ranging from 5-80% of a species' range. The central tendency of the distribution was centered in the range of 30-50%, which provided the primary impetus for the Science Panel's recommendation for reserve size. In this regard, the Science Panel's recommendation is a meta-analysis of theoretical studies, providing a distribution that could be used in a more formal Bayesian context. When asked by the SSC whether or not their recommendation of reserve size could be applied generally to areas outside of CINMS, the Science Panel responded that a 30-50% set aside could be appropriate for other regions trying to

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achieve similar goals of ecosystem biodiversity and sustainable fisheries for a diverse array of species and habitats.

One of the Science Panel members argued that, to the extent that a 30% set aside corresponds to protection of 30% of virgin spawning biomass, then a 30% minimum reserve size is consistent with the American Fishery Society published guidelines for prevention of extinction risk in rockfishes (which are characterized as very low productivity species). A 40% area set aside would likely achieve the goals of the PFMC's harvest policy to maintain a minimum of 40% of virgin spawning biomass (VSB) to achieve Optimum Yield (OY). This 40% VSB target for OY has also been adopted by the State's Nearshore Fisheries Management Plan. Larger reserves (>40%) may be needed to achieve timely rebuilding of highly depleted stocks (e.g. the cowcod closed area). If stocks are rebuilt and fishing effort reduced to maintain VSB outside of reserves, then large reserves designed strictly for single species management could be reduced in size.

A third line of reasoning employed by the Science Panel relates to the dispersal distances of populations of concern. The Science Panel presented information on population genetics that suggested the dispersal distances of fishes, in contrast to macroalgae, are relatively large and in the range of 10-1,000 km. Thus, to insure that populations in reserves replenish themselves and do not simply export their larvae to unproductive areas (= sinks), reserves must either be quite large or highly networked. Ideally, the size of a single reserve should depend on the potential dispersal distance, population growth rate, and fishing pressure on species of concern. Movement of organisms between reserves and fished areas will decrease as the size of the reserve increases, and for this reason, the Science Panel recommended that conservation goals will be better served by large reserves (>30% of the CINMS). However, net emigration out of reserves is required if fisheries are to benefit from spillover of adults and juveniles. Therefore, to better serve fisheries for species with low to moderate dispersal potential, the Science Panel recommended that reserves be spaced out across a management area and not exceed 50% of the CINMS. To meet multiple goals, the Science Panel recommended networks must incorporate reserves of a variety of sizes.

The Science Panel also was concerned about the problem of reacting to emerging fisheries, including, for example, that for sea cucumbers in the Channel Islands. Emerging fisheries often require remedial management attention to rectify inadequate controls on fishing during their development. The Panel saw merit in the ecosystem protections provided by marine protected areas, even for species that may not currently be the focus of targeted fisheries.

In their recommendation, the Science Panel did not explicitly consider changes in existing fishery management regulations outside of the CINMS. To enhance conservation benefits and the potential for fisheries to be sustainable over the long-term, the Science Panel recommended either limiting catch outside of the reserves to current levels or reducing catch if current levels are insufficient to achieve sustainability. The Science Panel believes effort reduction outside marine reserves may be needed because displacement of fishing effort from within reserves may

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cause fishing effort outside reserves to become concentrated. The Science Panel considers this recommendation especially important initially after reserves are established, when the benefits from growth of populations within reserve boundaries have not yet occurred. Concentrated fishing effort outside reserves may cause dramatic declines in fished populations. Declines in fished populations may not only affect the long-term sustainability of fisheries, but they may also hamper the ability of marine reserves to meet the biodiversity goal identified by the MRWG. The Science Panel's recommendation of reduced effort is based on the assumption that many fisheries in CINMS are at or over their capacity to withstand additional fish mortality.

Because of the complexity upon which their recommendation on reserve size is based, the Science Panel recommended continued evaluation of the effectiveness of marine reserves to determine whether subsequent alteration of reserve design (reduction or increase) is appropriate.

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON
STATUS OF MARINE RESERVE PROPOSALS FOR
CHANNEL ISLAND NATIONAL MARINE SANCTUARY

Draft Scientific and Statistical Committee (SSC) Statement on the October 1-2, 2001
Meeting of the SSC Ad Hoc Marine Reserves Committee and the CINMS Science Advisory Panel

Introduction

In April 2001, Mr. Matt Pickett, Mr. Sean Hastings, and Dr. Satie Airame of the Channel Islands National Marine Sanctuary (CINMS) made a presentation to the SSC in which they described the process being used to consider marine reserves at CINMS. They described the roles of the Sanctuary Advisory Council, the Marine Reserves Working Group (MRWG), the Science Advisory Panel and the Socioeconomic Panel in that process. They also described work conducted by the Science Panel to map and characterize habitats within the CINMS and the algorithm used to ensure that each habitat type would be adequately represented within reserve areas. The SSC was impressed by the site selection algorithm developed by the Science Panel.

At the April meeting, the CINMS also informed the SSC of the Science Panel's recommendation for a reserve size of 30%-50% for all CINMS waters and, in justification, provided a table listing references from the marine reserve literature. However, the conclusions that could be drawn from the citations in the table and the Science Panel's size recommendation were not fully persuasive to the SSC. The SSC therefore requested that the CINMS provide written documentation of the rationale underlying the Science Panel's 30%-50% size recommendation. The CINMS subsequently provided the SSC with a draft document dated May 23, 2001 and entitled "How large should marine reserves be?" The CINMS also provided the SSC with copies of many of the references cited in that document.

At the June 2001 Council meeting, the SSC offered to create an SSC Ad-Hoc Marine Reserve Committee to meet with CINMS and the Science Panel to further review the reserve size recommendation and its potential relevance to the Council's future consideration of marine reserves, particularly for the groundfish fishery. The Council accepted the offer. The meeting was held on October 1-2, 2001 in Santa Barbara, California. The meeting itself was devoted to three specific discussion points: (1) the analytical basis for the Science Panel's 30-50% reserve size recommendation, (2) the relationship between the reserve size recommendation and existing management controls, and (3) the extent to which the approach underlying the Science Panel's reserve size recommendation can be generalized to the west coast groundfish fishery. The SSC appreciates the participation of the Science Panel and CINMS staff at that meeting.

After the meeting in Santa Barbara, the CINMS provided the SSC with a slightly revised version of their draft report entitled "How large should marine reserves be?" (dated October 17, 2001). The purpose of this statement is to summarize SSC's conclusions derived from the new Science Panel draft report and the discussions that occurred at the Santa Barbara meeting. This statement to the Council constitutes an independent peer review of one aspect of the marine reserve deliberations conducted at CINMS, namely the Science Panel's recommendation regarding reserve size. The SSC notes that this statement should not be interpreted as a comprehensive review of marine reserve deliberations at the CINMS.

In order to evaluate the Science Panel's size recommendation, it is important to first understand their specific charge. The Science Panel was asked by the MRWG to evaluate the size of marine reserves at CINMS needed to achieve two goals: (1) to protect representative and unique marine habitats, ecological processes, and populations of interest (hereafter referred to in this statement as the "biodiversity" goal), and (2) to achieve sustainable fisheries by integrating marine reserves into fisheries management (hereafter referred to in this statement as the "sustainable fisheries" goal). To facilitate their consideration of these goals, the Science Panel was provided with a list of 119 plant, invertebrate, fish, mammal and bird species of particular concern in the CINMS. The list included: (1) economically and/or recreationally important species, (2) keystone or dominant species, (3) species listed or proposed for listing under the Endangered Species Act, (4) species that have shown long term declines in harvest and/or size structure, (5) habitat-forming species, (6) indicator or sensitive species, and (7) important prey species.

Specific Comments

Given this background, the SSC has the following comments relative to the three specific discussion topics at the Santa Barbara meeting.

Topic 1. What is the analytical basis for the Science Panel's 30-50% reserve size recommendation?

The Science Panel provided the SSC with various types of evidence (i.e., factors) relating to their 30-50% reserve size recommendation, including (1) the Council's default harvest rate policy for rockfish, (2) dispersal rates of macro-algae, invertebrates and fish, (3) concerns about emerging fisheries, and (4) a general review of the marine reserve literature. While factor (4) represents the major driving force behind the Panel's size recommendation, a brief discussion of factors (1)-(3) is warranted before addressing factor (4).

Factor (1): At the Santa Barbara meeting, a Science Panel member made a presentation asserting that the 30%-50% reserve size recommendation is consistent with the Council's default harvest rate policy for rockfish (i.e., $F_{50\%}$ with 40:10 precautionary adjustment). The SSC notes the following regarding that assertion: (a) The Council's harvest rate policy seeks to maintain groundfish populations at a level equal to 40% of the unfished level ($B_{40\%}$) by reducing the exploitation rate when biomass drops below the target. If 40% of the available habitat were set aside in no-take reserves, that alone might be expected to provide long term protection to 40% of the stock, which would nominally satisfy the Council's spawning stock preservation requirements. The stock within reserves, combined with the portion of the stock residing outside of reserves would then represent an aggregate level of abundance in excess of $B_{40\%}$. (b) With respect to harvest rate, $F_{50\%}$ is the mortality rate that reduces spawning per recruit to 50% of that expected in the absence of fishing. Unless recruitment is completely independent of stock size, reductions in recruitment due to the effects of fishing at an $F_{50\%}$ rate will reduce the total spawning potential of the stock to a level lower than 50% of virgin conditions, often substantially lower. Given both these considerations, the SSC does not view a 30%-50% area set aside for marine reserves as equivalent to the Council's default harvest policy.

Factor (2): The Science Panel provided information showing that dispersal distances of fishes, in contrast to macro-algae, are relatively large (i.e., 10-1,000 km). Thus, to ensure that reserves replenish themselves, and do not simply export their larvae to unproductive areas, reserves for fishes must be large and/or highly networked. Recognizing there is little assurance that reserves within CINMS will be self-sustaining for species with large dispersal distances, such as groundfish, the Science Panel felt that large reserves within CINMS would at least enhance the self-sustainability of species with lesser dispersal ranges.

Factor (3): The Science Panel noted that emerging fisheries frequently require management attention to remedy inadequate controls on fishing during fishery development. Thus the benefits of marine reserves could extend to species that may become targeted in emerging fisheries. The SSC agrees with this point.

Factor (4): The Science Panel and CINMS staff provided the SSC with a histogram that depicted the distribution of optimal marine reserve sizes indicated by studies from the literature. The resulting distribution was very broad, ranging from 5-80% of available habitat. Most of the studies that were cited indicated a minimum of 10-40% of marine habitats would need to be protected to conserve ecosystem biodiversity, and that 20-50% of fishing grounds would need to be protected for fishery sustainability. The central tendency of the two distributions occurred in the range of 30-50%. It was this result that provided the primary impetus for the Panel's reserve size recommendation. The SSC notes the following regarding the Science Panel's rationale under Factor (4):

- In addressing the biodiversity goal, the Science Panel operated under the premise that the inclusion of habitats in proportion to their occurrence within the reserve could be expected to provide broad ecosystem protections. In terms of protecting populations of interest, which were defined to include 119 diverse plant and animal species, the Panel assumed that the best way to ensure protection of those populations was to protect representative habitats. The SSC considers the Panel's approach to addressing the biodiversity goal to be reasonable, particularly given the large number and diversity of species that the Panel was asked to consider and the limited information available regarding the life history and current status of many of those species.

- While many of the studies from the literature cited by the Science Panel indicated that a minimum 10-40% of habitat would be needed to conserve biodiversity, the Panel noted that biodiversity benefits increase continuously with reserve size. Biodiversity *per se* cannot be used to establish an upper bound on reserve size. In other words, the upper bound on reserve size is driven more by the sustainable fisheries goal than the biodiversity goal.
- The reserve size recommendations made in the studies cited by the Science Panel depend critically on assumptions about how well fisheries are managed prior to the establishment of reserves and/or how well they are managed in the open areas once reserves are in place. Significantly, many of these studies assume negligible or loose effort controls in the open area, which predisposes them to conclude that large reserves are required to achieve fishery sustainability.
- The Science Panel identified the existence of an emerging body of spatial meta-population literature which suggests that effort controls alone are incapable of matching sustainable yields that are, in theory, possible when using a combination of methods. Beyond noting the existence of such a literature, they did not specifically link this literature to their reserve size recommendation.

Topic 2. What is the relationship between the Science Panel's reserve size recommendation and existing management controls?

As indicated under Topic 1, the Science Panel's size recommendation was based on results from studies that largely assumed that existing management measures are ineffective or non-existent. The Panel felt that this assumption applied to many of the species in CINMS. Their conclusion was not based on systematic analytical assessments of populations within the CINMS but on a variety of trend indices and other types of information for a limited number of species. The SSC was unable to evaluate the general validity of this conclusion, given the limited documentation provided regarding State fishery management practices and the status of stocks within CINMS. Clearly some resources are in jeopardy (e.g., abalone), while others (e.g., market squid) are considered to be robust.

The Science Panel was instructed to consider the 119 populations of interest identified at CINMS to be circumscribed by the boundaries of the CINMS, thus invoking a non-biological definition of the term "population". This was done in recognition of the fact that the CINMS has no authority over areas outside its boundaries. Even so, because the biological populations of virtually all species within the Sanctuary extend well beyond its boundaries, this is an oversimplification. Consistent with this narrow geographic focus, the Panel's reserve size recommendation was not tempered by any explicit consideration of fishery regulations outside of the CINMS and the conservation benefits that such regulations might provide to resources dwelling within the CINMS.

According to the Science Panel's October 17 draft report, "To enhance conservation benefits and the potential for fisheries to be sustainable over the long-term, the science advisory panel recommended either limiting catch outside of the reserves to current levels or reducing catch if current levels are insufficient to achieve sustainability". Given that the Panel's 30-50% size recommendation is based on studies that generally justify large reserves as a substitute for management using more traditional measures (effort/catch controls), a reserve size of 30-50% should reduce the need for strict controls in the open area. A number of studies cited by the Panel suggest that the same sustainable fisheries benefit can be achieved (1) with controls on fishing effort alone, (2) with marine reserves and no restrictions on effort in the open area, or (3) with some combination of these approaches. The Panel's recommendation regarding the need for catch restriction outside a 30-50% reserve appears to ignore the trade-off between reserves and traditional fishery management.

Topic 3. To what extent can the approach underlying the Science Panel's reserve size recommendation be generalized to the west coast groundfish fishery?

Because the Council will be considering marine reserves under the auspices of the Magnuson-Stevens Act, a biodiversity conservation goal is not likely to be equally weighted with a sustainable fisheries goal, as it was

by the Science Panel. Moreover, because of data limitations, the habitat inventory developed for CINMS to address the biodiversity goal by protecting habitats in proportion to their occurrence will be difficult for the Council to replicate with similar resolution on a coastwide basis.

As indicated earlier, the Science Panel's reserve size recommendation is derived largely from studies that assume poor to nonexistent fishery management. As such, the Panel's size recommendation is not broadly applicable to situations where traditional fishery management measures contribute significantly to sustainable fishery management. In conducting its own deliberations regarding reserve size for the groundfish fishery, the SSC recommends that the Council be selective in terms of focusing on empirical studies that are most relevant to west coast groundfish and on theoretical models that are based on assumptions that realistically reflect conditions in the groundfish fishery, where restrictive management measures have been implemented.

The marine reserve papers from the literature that were pivotal to the Science Panel's size recommendation consist largely of theoretical studies and a limited number of empirical studies; very few pertained to the U.S. west coast. Any assertions that marine reserves provide similar benefits on the west coast as they do elsewhere should be viewed with caution and subject to verification.

The Science Panel was not asked merely to provide scientific advice regarding the ecological/biological implications of alternative reserve sizes for achieving the separate goals of biodiversity conservation and sustainable fisheries. They were asked to provide a single reserve size recommendation by balancing the two goals, a task that was complicated by the fact that biodiversity benefits were thought to increase with increasing reserve size. The difficulties associated with achieving a balance in these goals may have been minimized and masked by results from the literature suggesting that similar reserve sizes might be appropriate to achieve fishery sustainability and meet minimum biodiversity requirements. Nevertheless, the balancing of goals done by the Science Panel essentially makes their size recommendation a policy rather than a scientific recommendation.

In the context of Council groundfish management, an attempt is usually made to distinguish "risk-neutral" recommendations from "precautionary adjustments" when technical information is presented to the Council, with an accompanying decision table that allows the Council to assess the implications of uncertain decision making on its part. This procedure clearly separates science from management, as levying precautionary adjustments in the face of uncertainty is ultimately a policy decision, not a scientific one. Some of the studies cited by the Science Panel, however, incorporate insurance against management uncertainty as a factor influencing optimal reserve size. Thus size recommendations derived from such studies should be interpreted in the Council context as precautionary rather than risk neutral.

Because socioeconomic issues were considered in a separate and independent process at CINMS, the Science Panel did not include members with socioeconomic expertise, nor were they provided access to socioeconomic information. It was therefore inevitable that their policy recommendation regarding reserve size would exclude any explicit consideration of socioeconomic factors. In the Council context, policy guidance of the type provided by the Panel would need to be informed by information on short-term transition costs, long-term benefits and costs, and other relevant socioeconomic information in order to meet the requirements of the National Environmental Policy Act.

General Conclusions

Given the mandate of the Science Panel and the constraints under which they conducted their deliberations, the SSC is generally supportive of their reserve size recommendation as it relates to the biodiversity and sustainable fisheries goals as defined in the specific context of CINMS. Beyond that context, however, the methodology used by the Science Panel will require substantial modifications and extensions to be more broadly useful to the Council in considering marine reserves for the groundfish fishery and other resources under its authority. The SSC recognizes the many benefits of marine reserves and endorses their use as a valid fishery management tool. For example, reserves are a potentially useful way for the Council to protect essential fish habitat and to address other requirements of the Magnuson-Stevens Act. However, just as it is important to recognize the uncertainties inherent in traditional fishery management, it is also important to recognize the uncertainties associated with reserves as a management tool. Integration of reserves with traditional fishery management will require innovative thinking and careful consideration of costs and benefits.

Next year the SSC will be reviewing its Research and Data Needs and Economic Data Plan, which will provide a good opportunity to revisit and perhaps expand on our previous consideration of information gaps as they relate to marine reserves.

PFMC
10/31/01

GROUND FISH ADVISORY SUBPANEL STATEMENT ON
STATUS OF MARINE RESERVES PROPOSALS FOR
CHANNEL ISLAND NATIONAL MARINE SANCTUARY

The Groundfish Advisory Subpanel (GAP) discussed information presented by Council staff on the Channel Islands National Marine Sanctuary (CINMS) marine reserves process. The GAP also reviewed a draft of the Scientific and Statistical Committee's report on its subcommittee analysis of CINMS scientific data. The GAP appreciates the Scientific and Statistical Committee (SSC) sharing their draft report.

After reviewing the SSC report, the majority of the GAP interprets it to mean there is no scientific rationale for establishing a marine protected area in the CINMS comprising 30% to 50% of the CINMS area.

A minority of the GAP supports the full SSC report as drafted.

PFMC
10/31/01

RECEIVED

OCT 10 2001

COALITION TO PRESERVE and RESTORE PT. PINOS TIDEPOOLS

P.O. Box 433, Pacific Grove, California 93950

Within these areas, no risk of change is considered acceptable unless it is part of a natural process*

PFMC

October 1, 2001

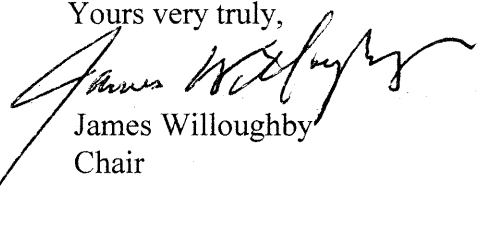
Dr. Donald O. McIsaac
Pacific Fishery Management Council
2130 SW Fifth Avenue, Suite 224
Portland, Oregon 97201

Dear Dr. McIsaac:

In accordance with the correspondence we received concerning the Pacific Fishery Management Council public meetings scheduled for October 28 through November 2, 2001 in Millbrae, it is noted that one of the topics on the agenda is Marine Reserves. Our organization is submitting written public comments via a copy of a letter sent to California Governor Gray Davis earlier this year concerning establishing marine reserves along the central California coast, specifically in Monterey Bay. Please include the Governor's letter and accompanying pamphlet in the briefing books to council members prior to the meeting.

We appreciate receiving notice of this important meeting, and thank you for the good work you are doing.

Yours very truly,



James Willoughby
Chair

enclosures

RECEIVED

OCT 10 2001

PFMC

COALITION TO PRESERVE and RESTORE PT. PINOS TIDEPOOLS

P.O. Box 433, Pacific Grove, California 93950

Within these areas, no risk of change is considered acceptable unless it is part of a natural process*

February 20, 2001

The Honorable Gray Davis
Governor, State of California
1st Floor State Capitol
Sacramento, California 95814

Dear Governor Davis:

The organization which I chair is again writing to you concerning the dearth of **"fully protected marine reserves"** along the Central California coast. Please allow me to call to your attention that many citizens and conservationists on the Monterey Peninsula, and users of our coastal resources are in favor of a **"fully protected Pacific Grove Marine Gardens Fish Refuge,"** a refuge established by the State Legislature in 1963. This is a refuge that literally serves thousands of users each year.

Our primary concern are the pre eminent Great Tidepools of Pt. Pinos that lie within this refuge. In recent years there has been an observable reduction in biodiversity and abundance of marine life. This is the same phenomenon that has occurred in the tidepools of Southern California, and which has been documented in scientific studies recently presented to USC's Academy of Sciences. This reduction is attributed to human impact.

Our tidepools, with their easy access especially Pt. Pinos, are unquestionably some of the most magnificent in the temperate zones of North America. Moreover, they have great biological, historical and archeological significance. Unfortunately, these fragile tidelands have been sadly neglected by the agencies with primary responsibilities for marine resource management and conservation.

*Pacific Grove Coastal Parks Plan

The people of this community became so concerned with the lack of protection of local tidepools that they banded together and formed a **“Coalition to Protect and Restore Pt. Pinos Tidepools.”** In spite of citizens’ efforts and a peoples’ grassroots Initiative, the local Fish and Game Department, Monterey Bay Sanctuary and its Sanctuary Advisory Committee have not supported citizens’ pleas for **‘total protection’, often referred to as ecological ‘no take’ zones.**

Last Spring, 1400 environmentally oriented citizens signed a conservation petition calling for greater marine protection in our refuge. Later in the Fall, a successful Citizens’ Initiative (1700 (20%) of registered voters) in Pacific Grove directed the City of Pacific Grove to file with the California Department of Fish and Game, (DFG Code 1002 (h), an Objection to the taking of invertebrates from tidepools within our refuge. We also oppose the taking of kelp from our refuge for commercial purposes which can readily be obtained elsewhere. The Objection was filed June 8, 2000 with the Fish and Game Commission and DFG. To date, we have had not have a written response, but expect a legal decision from Joseph Milton, DFG Counsel in the near future.

A six member committee of the Coalition recently requested a meeting with Sacramento DFG representatives. This meeting was held 2/16/01 with Director Hight’s aide, David Bunn, and a local DFG permit officer, the Coalition’s attorney and a representative of Assemblyman Keeley’s staff. Mr. Bunn candidly admitted the DFG has lacked staff, budget and even interest up to this time in tidepool management. With the exception of law enforcement and six newly posted conservation signs which were initiated by the Coalition, little has been done in the way of effective local tidepool conservation.

Mr. Bunn also commented that California tidepools with their wonderful life, their educational and recreational value have not been a priority or even an issue with the California Legislature. He confirmed our deepest suspicions that the DFG is reluctant to share any of its management authority with the City of Pacific Grove. However, in the past, the State Legislature established a precedence of sharing authority with other institutions, public and private.

Another objective of the Coalition is to bring to the attention of the Legislature the very loosely defined wording in the DFG code regarding collecting for '**scientific purposes**'. Because of the obstinacy of the DFG to release collecting reports and/or the absence of such reports, we believe this provision of the law and the privilege of "scientific collecting" has been greatly abused, and that definitions and terminology must be tightened up to include only "**bona fide**" science, science that helps to define the health and fitness of the resource.

We would hope we would have your interest and support so that we may tell the people of this community that the State's Legislature is indeed concerned with fully protected "**no take**" reserves which are the vanguard of marine conservation throughout the world in this new millennium.

We are aware of the pressing energy problems facing California at this time and the great responsibilities on your shoulders, but hope you can find the time to respond to our concerns.

Yours very truly,

James Willoughby, Chair

cc: Fred Keeley, Assemblyman
Dan Basta, Director of Sanctuary Programs

WILL YOU HELP US PRESERVE AN IRREPLACEABLE RESOURCE?

* The fascinating community of marine organisms that inhabit the intertidal zone of California's coastline is in serious danger. Indiscriminate, mass collecting of specimens and the disturbance of the habitat have caused an alarming decline in the population of many species.

The tide pools, rocky pockets which retain water when the tide goes out, and the intertidal zone, that area between high and low tides, host an extremely rich and diverse marine community. Making their home here are species of plants and animals including seaweeds, barnacles, anemones, sponges, worms, snails, sea slugs, clams, oysters, scallops, seastars, chitons, octopuses, abalones, periwinkles, limpets, mussels, cockles, shrimps, crabs, sea urchins, and fish.

The ecology of the intertidal zone, as complex as it is fragile, adds a great deal to the natural values of state coastal parks and refuges. Because of the fragile nature of this marine community, it is easily disturbed. Such a simple act as turning over a rock can expose certain immobile marine animals to the fatal rays of the sun. Therefore, regulations have been adopted to protect most of the invertebrates in the intertidal zone of the state. Your cooperation in observing these regulations is essential if the unique marine community of the intertidal zone is to be preserved for this and future generations.

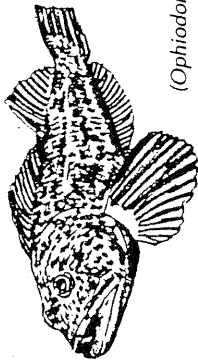
TIDEPOOLS

The sea spat out along its shore
logs and weeds and shells galore.
It offered from its warm, green, deep
treasures to view, to ponder...
but the shore to keep.



NOICE:

This is only a guide to this area's special regulations. Always consult the Department of Fish and Game's regulations.



Lingcod
(*Ophiodon elongatus*)

Call any State Park office or the Monterey Department of Fish and Game office at (408) 649-2870 for current information.

No commercial fishing is allowed in reserves or refuges.

A current California sport fishing license is required for any person 16 years and older to take fish and invertebrates. Taking of fish and invertebrates is restricted by seasons, as well as, bag and size limits.



Department of Parks and Recreation
Department of Fish and Game
State of California - The Resources Agency

Illustrations - Sarah S. Tamblyn

Second printing, June 1998



printed on recycled paper

Sport Fishing Guide Reserves, Refuges, and State Parks of the Monterey Bay Area



Taking fish, including invertebrates, is permitted as specified in Department of Fish and Game regulations.

Special regulations apply in:

1

HOPKINS MARINE REFUGE

Boating and diving is allowed, but no taking of marine plants, fish or invertebrates. Please do not disturb experiments in progress. Refuge includes waters to 60 feet deep.

2

PACIFIC GROVE MARINE GARDENS FISH REFUGE

Boating and diving allowed. Fishing and spearfishing is permitted for fin fish and eels. A valid sport fishing license is required. No taking of any other marine life or shellfish is permitted. Refuge includes water to 60 feet deep. The refuge includes Asilomar State Beach.

3

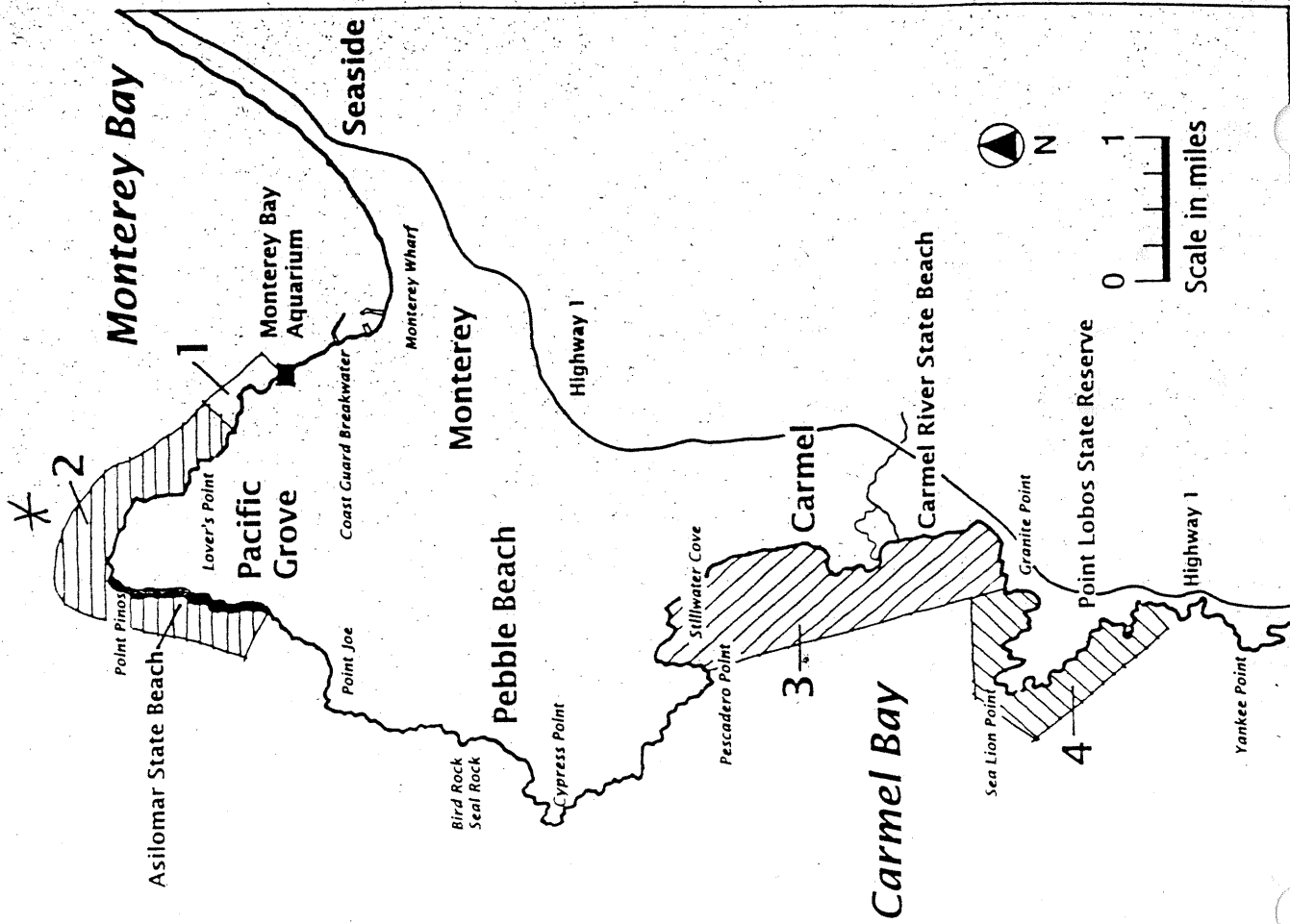
CARMEL BAY ECOLOGICAL RESERVE

Boating and diving allowed. Fishing and spearfishing is permitted for fin fish and eels. A valid sport fishing license is required. No taking of any other marine life, shellfish, or marine plants is permitted. The Reserve includes water to 90 feet deep in area of the Pinnacles. See the map for the remainder of the Reserve boundaries.

4

POINT LOBOS STATE RESERVE

Entry permitted only through main gate at Pt. Lobos State Reserve. Boating and diving allowed. Diving in Pt. Lobos allowed only in Whalers Cove and Bluefin Cove by permit only, (see Pt. Lobos dive brochure). No fishing or taking of any kind is permitted. Reserve boundaries are approximately 500 yards from shoreline.





OCEAN AND COASTAL POLICY CENTER
MARINE SCIENCE INSTITUTE
SANTA BARBARA, CALIFORNIA 93106-6150

RECEIVED

OCT - 9 2001

PFMC

September 14, 2001

Mr. Robert Hight

Director

California Department of Fish and Game
1416 Ninth St. 12th Floor, Sacramento, CA 95814

Regarding: Failure of Marine Reserve Work Group. Channel Islands National Marine Sanctuary (CINMS) and California Department of Fish and Game (CDFG).

Dear Mr. Hight,

I was a member of the Marine Reserve Work Group. As a volunteer in this process, I spent roughly two to three days per week preparing for meetings, and participating in informal discussions with commercial fishers.

After the February 2001 meeting of MRWG, I resigned from the planning process. Recently, I have heard that Mr. Robert Fletcher has blamed conservationists for the failure of MRWG. Since I understand that Mr. Fletcher is a major player in the current debate over the establishment of no-take marine reserves within State waters, I thought it would be appropriate to share with you and the CDFG Commission my "letter of resignation" from the MRWG, which is dated February 20, 2001. This letter clearly describes why I resigned from the planning process. The letter was widely distributed to the media, the Sanctuary Advisory Council, federal and state resource agencies, and other interested individuals. The letter is also part of the administrative record.

The major reason I resigned from the process is the lack of good faith on the part of Mr. Fletcher and Mr. Tom Raftican, who both failed to contribute to the planning process on all counts. Both of Fletcher and Raftican represent important recreational interests. They failed to accept the scientific evidence and the basic tenets of community-based planning and decision making.

My letter of resignation was based on my expertise in collaborative ecosystem-based planning and management. I have received support from three National Science Foundation grants to study collaborative decision-making. I have published several essays on the subject.

Despite the general failure of the CINMS/CDFG Marine Reserve Work Group to reach consensus on a map, this collaborative process has been successful. The indicators of success are: increased public participation and general discussion, more coverage of the issue in the local and regional newspapers and media, a heightened sense of "accountability" and "partnership" within and between resource agencies, and the development of a regional social network and alliance that is in favor of marine life conservation. Members of the community are more informed about the marine environment, and less apathetic. The partnership and cooperation between diverse government agencies, such as the National Park Service, the CINMS and the CDFG, is perhaps the greatest sign of success – it needs to be

sustained during the next several years of developing and implementing the MLPA and federal environmental laws.

Since the Science Advisory Panel's recommendation, the members of this region and community have become better educated about their relationship to the marine systems of the Bight and the northern Channel Islands. CINMS management has received over 10,000 letters in support of the use of no-take marine reserves within the sanctuary. Local and regional newspapers have covered the marine reserve planning process, and reported on the ecology and economic use of the sanctuary. In public testimony, several hundred individuals have spoken in favor of the Science Panel's recommendation. It is fair to say that the region and public sentiment is strongly in favor of no less than 30% as the bottom level of protection for the CINMS.

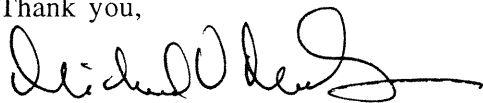
Overall, the proposed map (July 2001) of a network of marine protected areas (MPAs) encompasses 25% of marine areas within the boundaries of the CINMS. *The proposed reserve scenario fails to protect kelp forest and shallow reef habitat and associated marine life against the dynamic and ever-changing climate-ocean variability of the Southern California Bight.* The proposed reserve design protects only 17% of the kelp forests within the Oregonian province and 12% of the kelp forests within the California province are part of a proposed reserve scenario (Page 15). Based on the "best available scientific information", the proposed reserve scenario cannot protect kelp ecosystems in the California and Oregonian biogeographical provinces.

Many of these nearshore kelp and reef ecosystems are used by commercial and sports fishers. In general, the quality reef and kelp habitats are not part of the CDFG/CINMS proposed reserve system for the State waters within the national marine sanctuary. Field biologists who know the Channel Islands have informed us that the most important high quality nearshore habitats are not part of the proposed reserve design. Moreover, I am concerned that some of the habitats that are part of the proposed map will be cut by the CDFG to support the short-term interests of commercial and sports fishing industries. Such a "cut" on the proposed reserve would represent a clear sign that the values and interests of special interests are primary to those of this region, place, and community.

As a member of this community, I believe that a future reduction in the level of marine life protection under the CDFG/CINMS proposed plan would represent a major compromise on the 'best available scientific information', a break from the public interest, and a turn away from the intent of relevant federal and state environmental laws, such as the Marine Life Protection Act (MLPA) and the National Marine Sanctuary Act (NMSA).

If you should wish to discuss this comment letter in more detail, please feel free to contact me at (805) 683 1676.

Thank you,



Michael Vincent McGinnis, Ph.D.
Director
Ocean and Coastal Policy Center
University of California, Santa Barbara

cc. California Department of Fish and Game Commission
Pacific Marine Fisheries Council

DATE: FEBRUARY 20, 2001

FROM: MICHAEL VINCENT MCGINNIS, PHD

Member, Marine Reserve Work Group, Channel Islands National Marine
Sanctuary

REGARDING: THE CHANNEL ISLANDS NATIONAL MARINE SANCTUARY
PROGRAM'S MARINE RESERVE WORK GROUP

I represented local conservation interests in the Channel Islands National Marine Sanctuary's Marine Reserve Work Group. Last Thursday, at the end of an all-day meeting to discuss the group's major differences, I withdrew from this process. I have been asked to provide you with information on why I left this process.

Over one year ago, I wrote the Study Area Report for the Channel Islands National Marine Sanctuary's management plan revision process. I was asked to join the Marine Reserve Work Group before completing this study last January 2000.

I am familiar with the ecology of the northern Channel Islands and the Southern California Bight. As a political scientist, I am also very familiar with the needs of consensus-based decision-making (and have received support from the National Science Foundation since 1993 to study these types of planning efforts for wild salmon, rivers and watersheds).

I have attempted to persuade members of the group to support biodiversity and resource protection in the northern Channel Islands. This marine system shows dramatic signs of ecosystem disturbance, which is caused by human activity and natural events. I support the Science Panel's recommendation that 30-50% of a network of large no-take marine reserves is needed to protect fisheries and marine biodiversity. Since September 2000, the scientific evidence for the establishment of large no-take reserves has been growing. This past Saturday, 160 of the country's top marine scientists signed a petition in favor of large no-take marine reserves.

Despite the clear and compelling evidence and consensus-based recommendation from the members of the CINMS's Science Panel, the Marine Reserve Work Group has failed to agree on a minimum level of biodiversity and fisheries protection-not even the low end of the science panel's recommendation of a 30% no-take reserve scenario has been accepted by the user groups at the table. Last Thursday, you have agreed to move to mapping without agreeing on the basic issue of size of future reserves. Conflict over the size of reserves will return. Without a clear criteria that supports the promise of large reserves, I fear that the mapping activity will conclude without achieving the goals and objectives of biodiversity protection and sustainable fisheries.

We have not been dealing with unfavorable information. The truth of this information can take many forms -- a fisher's knowledge, a story from your father, the meadowlark's song that wakes me up early each morning, or the overwhelming weight of the scientific evidence offered in this process thus far. All are part of the foundation of this "community-based" process.

Nothing is more untenable than a political regime, which is indifferent to truth. The task of "truth telling" is an endless work: respecting it in its complexity is an obligation no power can dispense with. Unless to impose the silence of servitude.

— Michel Foucault

When you question the importance of truth, you also question the importance of the trust that is needed in this political process to reach consensus. Consensus means very little to this community if you break from some bottom-level of biodiversity and resource protection. I think that is the direction you have chosen.

I have two major points:

FIRST

"A viable community," writes Wendell Berry, "like a viable farm, protects its own production capacities. It does not import products that it can produce for itself." We need some combination of economic and ecological resolution to our differences. This does not require that we break from the merits of local or scientific knowledge – our economy depends on both. Without prosperous local economies, the people of this place have no voice and no power. The local knowledge needs to be protected but not by rejecting scientific information.

We need to develop (together) a strong local economy that supports the needs of local fishers, who are willing to work (together) in fishery cooperatives, who are willing to develop local and regional markets for local fish landed. We can't keep exporting all the protein from our regional waters. Instead, a "sustainable fisheries stamp" is one idea, but let's not break from the best available scientific information. The federal or state governments can help, but we should depend on our own shared resources to develop and renew a sense of a healthier economy.

SECOND, We need to protect the ecology of community. One general goal of collaboration is to "solicit" community, but not by creating a process that forsakes the truth for an irresponsible outcome that diminishes the ecology of a place.

The facilitators are stakeholders in this process, and decided to break away from the promise of the joint-fact finding process, which is the cornerstone to collaborative decision-making. Values matter. But the best available scientific information, the general level of public support in favor of reserves, and federal and state laws matter as well.

I hoped that we could bring the truth out into the open, to discuss our shared interests and diverse forms of knowledge, and to build common ground of understanding. In this type of process, a shared knowledge can be created.

I have witnessed the development of a shared trust among some members of the MRWG, but no shared sense of responsibility to the community and place. Since September, the tactic for many of you in this process has been to find ways of avoiding and denying a truth – we need to recognize that this community needs large reserves around the northern Channel Islands; that the rocky reefs of the Islands are unique and important to humans, birds, mammals, invertebrates, kelp and fishes -- these animals and plants are not only resources to use but are essential parts of our community and this place.

I do not believe that the MRWG can satisfy the goals of biodiversity protection and sustainable fisheries by breaking from some bottom-level of protection, as recommended by the Science Panel. There will be economic impacts, and we should work hard together in this community to equitably and responsibly deal with these impacts but not by compromising on Science Panel's recommendation.

I withdrew from the MRWG this past Thursday afternoon because this group agreed to break from the bottom-line level of protection of fisheries and biodiversity. Such a move,

in my view, is compromise on the needs of this community and my interests as a stakeholder in this process. We need large no-take marine reserves for the following reasons:

GENERAL ECOLOGICAL INFORMATION

- I. The Southern California Bight is the most studied system in the world (Hickey 1993).
- II. The ecology of the Bight, including the CINMS, is influenced by the relationship between oceanography (currents and eddies), biology and climate.
- III. The animals and plants of the Bight are influenced by ocean-climate variability. Temperature of the sea is a contributing factor to change in abundance and distribution of marine life in the Bight.
- IV. The current warm-water regime began in 1977 (while the sanctuary was designated in 1980).
- V. There has been a large-scale decline in primary and secondary levels of ecological productivity in the Bight (McGowan et al. 1998 among others).
- VI. We do know that over the past 60,000 years, the Bight has included a cycle of cold- and warmer-water regimes. After studying the core sediments of the Santa Barbara Channel Dr. James Kennett et al. found no evidence of species extinction at the benthos level. Today populations of benthos invertebrates and other animals are very low. Extinction is a possibility.
- VII. The current warm-water regime has had affected the distribution and abundance of marine animals and plants. There has been a general decline the food supply produced in the euphotic zone; a decline in bird abundance (e.g., the sooty shearwater has declined by 90% since 1988), fishes, plankton, and invertebrates; and a decline in southern California kelp (that began in the 1958).
- VIII. Scientists show an increase in climate-related events, such as intense storms, El Nino events, among others. These natural events impact the ecology of the Bight. A special White House Task Force on Regional Impacts of Climate Change shows that the temperature of the Eastern Pacific is getting warmer.
- IX. Many species and habitats show a trend toward decline that began before the current warm-water regime. The evidence shows a decline in the biomass of the Bight.

ON MANAGEMENT

- I. The SANCTUARY does not have the capability to enforce its mandate to "protect".
- II. There are 15 CDFG marine wardens in southern California.
- III. There is 1 NMFS special agent for enforcement in southern California. In general, given the character to ecosystem disturbance noted above, the CINMS, the CDFG, the NMFS, and the NMSP have not protected the animals and habitats of the sanctuary.
- IV. We need to develop methods of co-management, adaptive management, integrated management, watershed-based management that include comprehensive monitoring and enforcement approaches and combine government and nongovernment roles.
- V. Local knowledge matters; it is a form of truth based on the knowledge of the terrain and system. It can take many forms. Local knowledge is not incompatible with scientific information.

FEDERAL AND STATE INITIATIVES

- I. 17 federal agencies now support an ecosystem-based approach to biodiversity protection, including the US Department of Defense, the NRC, AAS, and the Executive Office of the White House.
- II. The National Marine Sanctuary Program emphasizes an ecosystem-based approach to protect marine diversity.
- III. The National Marine Sanctuary Program is compatible with the CDFG (February 2000) Marine Region Strategic Plan: An Ecosystem Approach to Managing California's Diverse Marine Resources. The Mission of the CDFG is "to protect, maintain, enhance, and restore California's marine ecosystems for their ecological values and their use and enjoyment by the public."
- IV. A marine ecosystem-based approach requires the protection of habitats and species diversity.
- V. There are a range of federal and state laws that support the use of no-take marine reserves, such as the MLPA.

ON CONSUMPTION AND PRODUCTION

- I. We do not eat most of the fish that are caught within the sanctuary. Why?
- II. 15% of the California fish landings are from the CINMS. New global fisheries began after 1980, and are now found within the sanctuary. The top fisheries (by value\$ and by volume) are caught in the sanctuary and are exported (squid, urchins, among others). Some of these fishing industries use more ecologically destructive technologies than others, e.g., trawlers.
- III. Less than 15% of the total fishers catch more than 80% of the fish.
- IV. A large proportion of commercial fishers do not make a living only by fishing. They often need two or more jobs.
- V. Commercial and sports fishing activities contribute less than 3% to this region's economy.
- VI. Californians import most of the fish eaten and export most of the fish caught. Why?
- VII. Global markets have replaced the local markets for fish caught in this region, and threaten the future of this maritime culture and local economy. I believe that the level of resource extraction that is part of the global market for fishery resources exacerbate the capacity of marine species and plants to adapt to the current warm-water regime disturbance.

ON BIODIVERSITY PROTECTION The Link between the Policy and Science

- I. The Science Advisory Panel Recommendation reads: "The best available science demonstrates that the minimum area set aside should be no lower than 30%, and perhaps 50%, of representative and unique marine habitats, features, and populations of interest in all bioregions of the CINMS. Because of the complexity upon which this estimate is based, evaluation of its effectiveness is necessary to determine whether alteration (reduction or increase) is appropriate based on future assessments."
- II. The Science Panel recommendation included both empirical and theoretical evidence.
- III. The Panel's recommendation is consistent with the scientific literature on the merits of no-take marine reserves, and recent recommendations by the NRC and other scientific organizations.

- IV. A 30% recommendation can protect up to 70% of the biodiversity that we have information on. 50% can protect up to 85% and can minimize the risk of biological collapse.
- V. The Science Panel recommendation did not cover the needed insurance (120% to 180% of any particular reserve scenario).
- VI. For the first time in 20 years, marine managers, the scientific community and the general public has some understanding of the meaning of marine biodiversity "protection" for the northern Channel Islands.

Members of the Science Panel believe that the size of reserves matter. The goals/objectives of biodiversity protection and sustainable fisheries Since the late 1950s, scientists have recognized that size of habitat protected is directly associated with the level of biodiversity and resources protected. We cannot hope to protect threatened fish, endangered birds, and marine mammals in a series of small, disconnected, detached, multiple-use reserves. Size matters.

It has been argued that the National Research Council's draft report (2000) is inconsistent with the Science Panel's recommendation. This assumption could not be further from the truth. The information for the NRC report was collected three years ago, before the NCEAS group on no-take reserves was created, and before the Science Panel (and Satie Airame) began their joint fact-finding efforts. Several of the marine scientists who worked on the NRC report signed the petition at the AAAS meeting in San Francisco. On what basis do you reject this information? Take a hard look at the available socio-economic information before you answer this question.

The conservationists and other interests at the table held out an olive branch at the last meeting, with the hope of working with those who remain unwilling to accept the scientific information. Without large reserves you can not protect quality habitat; small reserves will serve very little purpose. Given the dynamic and complex nature of the northern Channel Islands, small reserves cannot serve the function of protection but, rather, the illusion (and general misperception) of protection of life. My greatest fear is that the MRWG will recommend a reserve design that merely perpetuates and simulates the illusion of protection.

I am not in favor of a process that perpetuates that illusion of protection, the faking of "sanctuary", or the faking of reserves.

As a "stakeholder", I come from the standpoint and principle that the land and sea are irrevocably connected, and that biodiversity and culture depend on a healthy marine-coastal interface. We are all part of the "problem" -- we are all part of the solution. I accepted the stakeholder position as the representative for local conservation interests. I am accountable to these interests. If they are violated, there is no place for me in this process.

Micheal Vincent McGinnis, Ph.d.

**OPTIONS FOR COUNCIL ACTION UNDER AGENDA ITEM F1
(Matters 2 and 3 in the Situation Summary)**

Some Possible Council Actions for the November 2001 Council Meeting
(not necessarily mutually exclusive)

1. No action (no response at this time).
2. Respond to the California process.

Request final commission action not occur until the Council has an opportunity to review options and their impact analysis.
3. Decide whether or not the Council has an interest in pursuing consideration of the needed regulations using its authorities under the Magnuson-Stevens Act.
4. Respond to the National Marine Sanctuary process.
 - a. With respect to amendment of the Channel Islands National Marine Sanctuary (CINMS) designation document, request the Council have opportunity to comment on proposed amendments to the designation document.
 - b. With respect to implementing specific marine reserves in federal waters of the CINMS:
 - (1) Request the opportunity to review and recommend options to be evaluated in analytical documents.
 - (2) Request a preliminary draft environmental impact statement (DEIS) be available for the Council at the time the Council is asked to make its recommendation.
5. Recommend coordination of all.

Request the state and marine sanctuary participate with the Council in a memorandum of understanding pledging intent for timely consultation and coordination of the consideration of marine reserves for the Channel Islands National Marine Sanctuary

Possible Order of Decision

At this point, California has the leadership role in the consideration of marine reserves for state waters of the CINMS. Options for marine reserves within federal waters of the CINMS would likely be closely coordinated with the reserve areas set up in state waters. After state action is completed, there appear to be two main paths which may be followed for the consideration of no-take marine reserves for federal waters of the CINMS.

1. No-fishing restrictions implemented by NMFS/NOAA after development by the Council under the Council's Magnuson-Stevens Act authorities.
2. No-fishing restrictions implemented by National Ocean Service (NOS)/NOAA after development of recommendations by CINMS and the Council under the role established for the Council by the National Marine Sanctuaries Act.

Following the first path, the Council/NMFS/NOAA could implement fishing prohibitions to the maximum extent of its authority under existing FMPs. Council/NMFS authority to prohibit fishing might be extended to cover any fishing activity that might incidentally harvest an FMP species; for example, shrimp trawling. For fishing activities not covered under existing FMPs, California state authority could be used to prohibit California vessels from fishing in federal waters.

Following the second path, the Council would recommend, as appropriate, regulations prohibiting the take of fish in certain CINMS Exclusive Economic Zone (EEZ). NOS/NOAA would implement regulations creating marine reserves, after amending the CINMS designation document to allow for the regulation of fishing.

State Process	
Action	Possible Council Role
CFG Decision	Prior to decision comment to CFG on preferred options and analysis based on review of state regulatory package

Federal Process			
Path Under M-S Act Authority		Path Under Sanctuary Authority	
Action	Possible Council Role	Action	Possible Council Roles
Develop draft regulatory package.	Based on CFG decision, sanctuary goals, and other applicable law. Council specifies options for consideration and works with CINMS and NMFS to develop regulatory package.	CINMS moves to modify its designation document to allow the establishment of no-take reserves.	Council comments on amendments to the designation document. OR Forgoes comment opportunity.
Regulatory package sent out for public review and comment.	Council decides whether or not to recommend closures to NMFS.	CINMS develops options and analysis to establish specific no-take areas.	1. Council provides advice on options to be considered. 2. Council reviews and comments on adequacy of analysis. OR Forgoes review and comment opportunity.
NMFS publishes proposed rules and completes process for implementation of preferred alternatives.	Normally no Council role at this point.	CINMS completes preliminary draft of DSEIS, will specify a preferred alternative.	Council comments on preferred alternative and implementation and comments on analysis. OR Council defers to the Sanctuary Program.
		CINMS publishes DEIS, proposed rules and, as appropriate, completes process to implement preferred alternative.	Final opportunity for Council and public to comment (similar to what occurs when NMFS publishes proposed rule after Council final recommendation).

NOTE: For the path under Sanctuary Authority, the Council would have the opportunity at any time to defer to the CINMS, forgoing the role designated for the Council under the National Marine Sanctuaries Act.