

The California Nearshore Fishery Management Plan: Some Questions and Answers

Prepared for the
California Seafood Council by
LMR Fisheries Research, Inc.
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California Seafood Council

PO Box 1951, Buellton, CA 93427
(805) 693-5430

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THE CALIFORNIA NEARSHORE FISHERY MANAGEMENT PLAN SOME QUESTIONS AND ANSWERS

A Report for the California Seafood Council
by LMR Fisheries Research, Inc.

I. INTRODUCTION

Management of living marine resources in California has entered a new stage with the passage of the California Marine Life Management Act (MLMA) of 1999, the Keeley Bill. The MLMA requires the Department of Fish and Game to develop a Master Plan for implementation of the Act including a plan for preparing, adopting and implementing Fishery Management Plans (FMP) for the State's living marine resources. The MLMA changes how management is accomplished by delegating greater authority to the Fish and Game Commission and mandating management based on conserving ecosystems rather than single species. Each species, or species group will eventually have its own FMP with the objective of restoring depressed resources and ecosystems to a level where they can provide an Optimum Yield (OY) for the citizens of the State.

The MLMA recognizes that this will be an enormous task and so mandates the crafting of a Guide for the Development of Fishery Management Plans along with preparing two initial FMP's. Other FMP's will follow after the completion of the Guide. The first two FMP's will be for white seabass, which was already in progress in another format when the Bill was written, and for nearshore finfish fisheries, for which management was being developed by the legislature. Both plans are of immediate concern and are specifically listed by the Act (Section 8585) as having high priority. The nearshore finfish fisheries have been given priority in the new management process because they are believed to be very vulnerable to increased fishing pressure by recreational and commercial fishermen. Recreational because of the easy access to the nearshore resources from the coast, piers and jetties, boats and by spearfishing. Commercial mainly because of the growth of the market for live fish which targets some of these species.

The MLMA states that the Commission must adopt a Nearshore FMP by January 1, 2002. At present this FMP is well underway, but still under development. Management alternatives are being developed for consideration by the Commission. Only some of the alternatives will become part of the final Plan after a series of public hearings. This paper was prepared to provide information on alternative management actions that are under consideration, and reviews the main issues in the development of a Fishery Management Plan for the California nearshore finfish resources.

This paper was prepared over the period April-October 2001, during the course of the development process of the FMP. Because the development process was dynamic, the basic paper was completed in July, and the final comments were added after the Draft FMP was submitted to the Commission in August. (Please see Section V. COMMENTS AND OUTLOOK.)

II. NEARSHORE FISHERIES DEFINED

The MLMA defines "nearshore fisheries" as commercial and recreational fisheries for nearshore finfish stocks, which are stocks of certain finfish species found primarily near rocky reef or kelp habitat in

nearshore waters. In the MLMA nearshore waters are defined as “...ocean waters of the state waters extending from shore to one nautical mile from land, including one nautical mile around offshore rocks and islands.” Subsequently, the Commission has modified this definition by deleting the distance provision and substituting a depth limitation so that it now reads: “...ocean waters including around offshore rocks and islands extending from shore to a depth of 20 fathoms.”

The MLM-A includes Article 17. Nearshore Fisheries Management Act, which defines nearshore finfish stocks as including 5 species of rockfish (*Sebastes*), California sheephead, cabezon, all species (2) of greenlings, and California scorpionfish. The Act gives the Fish and Game Commission authority to add additional species, and the Commission has added nine more rockfish species to the list. A species summary is provided in Table 1.

This grouping of species into nearshore finfish stocks has come to pass after a series of public hearings and includes species that are taken in shallow water and have been perceived by the recreational fishing sector as being subject to over-exploitation by commercial fishing. The grouping is political, and not biological, which complicates management in two ways. First, by excluding species that form part of the nearshore ecosystems. These species might well have been included had they not already been reserved exclusively for recreational use, or been of little interest to commercial fisheries. (Ecosystem management of the nearshore (mainly) hard-bottom and kelp bed ecosystems will require a more extensive FMP at a future date). Second, because as shown in Table 1, these species have diverse ranges. None of these species are exclusive to the waters of the state, and they are exploited by fisheries outside California. Information for species that range south of the border is lacking for Mexico, but in 1999 the landings reported in Oregon for some nearshore fishes were:

| Species | Landings MT |
|----------------|-------------|
| Cabezon | 26.5 |
| Greenling | 24.7 |
| Black Rockfish | 127.8 |
| Blue Rockfish | trace |

Source: Oregon Department Fish and Wildlife

Ignoring this fact means that management may be less effective than intended. Whereas rockfish are subject to federal and cooperative management with the northern states, no such joint management exists with Mexico. Joint management is particularly important for the northern and southern extremes of the state where recruitment is highly dependent on a supply of larvae and juveniles, and even adults, from the north or the south. For example, recruitment into southern California is dependent on healthy stocks of California sheephead and scorpionfish in Mexico. Recruitment of many species is variable, mediated by the extent of northern transport resulting from such events as the El Niño, which appears responsible for recruitment of southern species into the waters north of Point Conception. (Cowen 1985, Mullin 2000)

III. THE FISHERIES

Nearshore fish stocks as defined by the Commission are caught both by commercial and recreational fishermen. The commercial catch is about equally divided between southern California and northern California and made by fishermen using hook and line, lines with multiple hooks either set or trolled, traps, and some trawling. Most of the commercial catch currently is sold to the live and premium fish market (see below). Tables 2, 3, and 4 list and rank these species in importance to the commercial and recreational fisheries. About 70 percent of the nearshore finfish recreational catch is in northern

California, where they are taken by hook and line and by spearfishing. The recreational catches for south of Pt. Conception include some catches made south of the United States-Mexico border.

Q. How good are these data?

A. These are the best estimates available, but there are uncertainties that need to be taken into account in interpreting the numbers. For example, some of the recreational catch estimates come from state-mandated logbooks maintained by California commercial passenger-carrying fishing vessels (CPFV). These data report the *numbers* of fish of various species caught. There have been serious problems of under-reporting (failure to complete and turn in the logbooks). In order to estimate the total recreational catch, which includes catches by private vessels, shore, jetty and pier fishermen, and spearfishermen, these CPFV data must be combined with estimates from the federally funded Marine Recreational Fisheries Statistics Survey (MRFSS), which are considerably less precise and accurate. The precision for the combined recreational catch has not been estimated, but is certainly not good and year-to-year variations in catches may be greatly influenced by the sampling coverage and associated errors.

The commercial landings' statistics for *weight* of species taken in each statistical block each month are better, but include some nearshore species that were taken outside of the "nearshore waters." Another serious problem with the commercial data is that some species are reported as a group *e.g.* "Rockfish unspecified" and the actual species composition is estimated from samples of a limited number of deliveries. Much of the southern California catch estimate has been derived from sampling northern California boats, where the species composition is different. Nearshore catches taken in nearshore waters but reported in aggregate as "unspecified" or "small" have not been counted in commercial landings' history, setting up yet another problem. This means that greater reliability can be placed on landings of single species such as sheephead, cabezon, etc. than on rockfish species sold as a group. ***With both commercial and recreational data there are additional sources of error involved if weights are converted to numbers of fish or numbers converted to weight, and in most cases bycatch and discards are poorly estimated.***

Q. Is the nearshore fishery a new fishery?

A. No, these species have been exploited for centuries by Amerinds, and later by Europeans and Asians. In this century, the Department of Fish and Game has a nearshore fishes category in their reporting, but this included species such as kelp bass, yellowtail, barracuda and lingcod to name a few that share the hard-bottom and kelp bed habitat, but are not considered in the newer "nearshore finfish stocks." Commercial fisheries for all these species have a long and varied history in the state. Statistics are complicated for the various rockfish species in that landings were reported by species and species groups for only some species, with the majority of species being reported as rockfish, although the nearshore rockfish species always were part of the catch. The way the statistics were collected in the early years makes it impossible to document the annual landings of the nearshore species. Landings for species such as scorpionfish, California sheephead and cabezon, however, were reported and collected separately, and the annual landings since 1916 are available (Figure 1). The figure shows considerable variability in the amount of the landings reflecting changes in the markets. California sheephead was more popular early in the period, but lost market share as mechanized fishing, such as trawling, and better truck transportation made other species available to the fresh fish markets in the state. Scorpionfish (sculpin) on the other hand were a specialty product that commanded a separate niche in the marketplace until well into the second half of the century when seafood restaurants shifted to greater emphasis on shellfish, and imported fish cut into steaks and fillets. Cabezon, because of its green flesh when fresh, never had a large following until demand increased for the live-fish market in the 1980's.

As stated above the nearshore rockfish cannot be separated in the statistics, but were always a part of the “rockfish” catch. The greenlings and monkeyface eels were never more than a very minor part of the commercial landings until the end of the 1990’s when some landings of kelp greenling were made in the northern part of the state.

Q. What are the markets?

A. Sheephead were salted and dried for the California Chinese community in the 1800’s, and were popular in the fresh-fish market during the war years. In recent years a new market for live/premium fish has developed. Formerly a small market for live sheephead and other fish taken incidentally in lobster traps existed mainly in southern California. With the influx of affluent Chinese from Taiwan and then from Hong Kong as time to return the Colony to China approached, a demand developed for live fish for seafood restaurants modeled after those that existed in the Orient. This started with a few fishermen saving live fish along with live crabs and lobster for these restaurants in order to receive the higher prices offered. Initially, deliveries were made in tubs and tanks in the back of pickups, but the trade developed rapidly in the 1980’s as entrepreneurs developed better methods to transport live fish. Now the Asian markets for live fish are supplied by buyers who send trucks long distances to meet the boat and buy a variety of fish and other live sea animals. The benefit of this market has been substantial to the small-boat operators who have installed live tanks onboard. This market offers premium prices for certain species and sizes of fish that can be delivered alive, or have other qualities desired by specialty restaurants. An added advantage is that the fishermen receive a better income for fewer fish. Both the amount sold and the price received are reported to the Department, so there are good data on this market; the live sales portion of which is dominated by the nearshore species. The top 20 species in 1999 for the commercial market for live/premium fish are listed in Table 5. Twelve of the top 20 were nearshore species.

Q. What is the dollar value for the nearshore fisheries?

A. Data are available for commercial landings of nearshore species subject to species identification problems mentioned previously. Most of the commercial landings of these species are delivered to the live/premium fish market. Table 5 presents some data from the California live/premium fish fishery, which includes 12 of the 19 nearshore species. The value of these 12 nearshore species in 1999 (preliminary report) totaled \$2.4 million, or about 86 percent of the total live/premium market. This market pays a much higher price for live fish. Because the values reported for some species in Table 5 include a substantial percentage of fish delivered dead, the average price per pound is lower for those than the price received for live fish only. There are no economic studies of the benefits the state derives from nearshore fisheries other than such simple evaluations based on ex-vessel prices.¹

IV. MANAGEMENT

Q. What concerns prompted the legislature to give highest priority to the Nearshore FMP?

¹ There have been some studies of recreational fisheries in California, but no studies for the nearshore fisheries. The MLMA calls for socio-economic studies of both the recreational and commercial fisheries. The difficulty is that to be able to compare directly recreational and commercial fisheries requires using similar socio-economic models for both, and would mean quantifying for commercial fishing the social benefits to the fishing families and communities in order to be broadly analogous to the recreational experience used in studies of recreational fishing. Such studies will be costly and take several years to complete.

A. The driving force behind the Nearshore Fisheries Management Act in the MLMA seems to have been incipient sport/commercial conflict brought about by the growing live-fish market in southern and central California as described previously in this report. Since many fish taken in deep water do not survive the rapid ascent to the surface, much of the fish offered to the live market are taken in the nearshore areas in less than 20 fathoms of water. The increased activity in the nearshore area was seen by recreational fishermen as a threat and an allocation conflict developed between fish for sport and fish for a growing ethnic market. The legislature already had a nearshore fishing bill under consideration when the MLMA was developed. The nascent nearshore fisheries bill was subsumed by the MLMA and became a mandate for an immediate Nearshore FMP.

Q. How did this conflict start?

A. Some people report it started because of concerns over growth of the fishery for live California sheephead, which saw annual landings increase from less than a metric ton in the decade of the 1970's to over 100 metric tons in 1987, a level that has been roughly maintained ever since. This ignores the fact that commercial landings of this species has always responded to market demand, and landings were substantial earlier (Figure 1). The prices received for live sheephead stimulated the growth of a specialized fishery and buying/marketing apparatus that targeted and distributed a number of live products. As this market spread into central and northern California, the small-boat recreational, half/day - full/day nearshore CPFV operators and spearfishermen combined efforts with some environmental groups to have legislation introduced giving sports first priority access to the nearshore resources. A look at the species listed as nearshore in the MLMA (see Table 3) strongly suggests that it was the commercial catch that prompted legislative consideration, as many other species of fishes that are taken recreationally in the nearshore area have been excluded from management under the Nearshore FMP.

Q. Are the nearshore fish stocks overfished?

A. This is difficult to answer as there are few data other than estimated annual catches to provide indications of changes that might be associated with high fishing mortality. Much of the evidence is anecdotal and comes, for example, from some divers who report a noticeable decline in apparent abundance for some species in some areas. In the absence of information on the biology of each species, an ever-changing ocean environment, on fishing effort, size composition of the catch, and a better understanding of the precision and accuracy of the catch data, an accurate evaluation of the status of these stocks is extremely unlikely in the near future.

Q. How then can the nearshore fish species be assessed?

A. The legislature is silent on this, leaving it up to the Department scientists and other scientists who may be called upon for methodology to determine if fisheries are depressed and what steps are needed to rebuild them to maximum sustainable yield (MSY). What has surfaced so far in the course of the drafting process of the FMP is some consideration to following guidelines used by the Pacific Fisheries Management Council. According to these, in the absence of better information, MSY would be taken as a historical average catch over a time when there is no evidence of a decline in abundance (i.e. catch). This, of course, presumes that effort is stable over this period. Using this criterion for MSY, the allowed catch for Optimum Yield (OY) in a data-poor situation, such as exists for the nearshore fisheries, would be set at half this MSY (average catch) level. This method has been employed already in drafting the FMP to produce OY numbers for some species and species groups, but there is no explanation of what catches and what years were used, or the rationale for selecting the time period.

Q. How can one judge the alternatives for OY and the proposed allocations in the Nearshore FMP if one does not know what data to look at?

A. Although the Draft FMP does not specify what numbers were used to calculate numbers for some alternatives, reported catches over time are available. These do not give the same results as found in the Draft, so there may be other sets, but any set can be looked at to see if there is any consistent trend in the catches that might indicate changes in abundance (Figure 2).

Q. The catches appear to decline over the time period; does this mean nearshore fish stocks are overfished?

A. If fishing effort has stayed the same or increased over this time period, then Figure 2 might indicate some general decline in abundance, possibly due to overfishing. Figure 2 is an aggregate of the catches for all areas and all top 10 species. So before reaching any conclusion it is always wise to look at the data more closely. Figure 3 shows the species composition of the catches.

Q. Why don't all the species show similar trends?

A. Each species has a different life history, a different pattern for its fishery, and a different distribution. Any or all of these factors determine its trend in abundance. Remember too, that the data are subject to large errors in estimation that may cause large random fluctuations in the catch estimates. Also, the species with the larger catches may dominate the trend. This can be seen in Figure 4.

Q. Why does the trend seem so much less pronounced in Figure 4?

A. Because four species of rockfish: blue, black, copper and olive rockfish make up 75 percent of the total nearshore fish stock catches. The trends in catches for the other species are much less pronounced.

Q. So the commercial fisheries have overfished these four species and depressed the stocks?

A. That is not likely. Over the past two decades more than 80 percent of the catches of these four species were by the recreational fishery, higher earlier in the period, but it is not at all certain that these stocks are depressed in the sense "depressed" is used in the MLMA; namely, the best scientific evidence indicates a declining population trend over a time period appropriate for the fishery.

Q. If there is a continuing decline for these four species, what period of stable catches can be used to estimate "proxy MSY" for rockfish? How can this work for other species that live in different regions and have different life histories?

A. Perhaps this method cannot be applied in every case. In any event the MLMA requires OY's to be specified for all species and groups. These OY's should be such that they are likely to allow stock abundance to stabilize or increase. Finding defensible ways to do this is obviously challenging. Whatever they are, they should incorporate as much information on life history, recruitment rates and interactions with the biological and physical environment as is possible. The MLMA directs that such matters be taken into account.

Q. Are all the living marine resources of the state going to be managed in accord with the provisions of the MLMA?

A. That is the intent of the legislature and the law and yes, it is indeed a daunting task if it is to be done properly. It will require very large expenditures for data collection, research, and enforcement. Unfortunately, the legislature has not directly addressed the cost issue.

Q. What about present regulations? How effective are they?

A. Regulations for nearshore fish stocks are at present based on seasonal closures and size limits. Without better data it is going to be very difficult to tell if they are effective in reducing fishing mortality. And without better data it is very difficult to set any target mortalities.

Q. Where are these data going to come from?

A. The MLMA specifies that each FMP include a protocol that does all of the following:

- Describes past and ongoing monitoring of the fishery,
- Identify essential fishery information (EFI) for the fishery, including, but not limited to, age and growth, minimum size at maturity, spawning season, age structure of the population, and if essential, fishery information is lacking, identify the additional information and the resources and time necessary to acquire the information,
- Indicate the steps the Department shall take to monitor the fishery and to obtain essential fishery information, including the data collection and research methodologies, on an ongoing basis.

Q. How much of this EFI is available for the nearshore fish stocks?

A. Tables 1 through 5 summarize quite a bit of the biological and historical catch data.

Q. These species seem diverse in habits; can they be managed as a group?

A. In general they share a common habitat and sources for fishing mortality (removals due to fishing as separate from deaths from all other causes or natural mortality).

Q. But some occur in the north and others in the south; how can they be managed in a single FMP?

A. The Draft FMP divides the state waters into four regions to take into account the pattern of species distribution and the differences in fishing and fishing effort. It does not, however, avoid the problems caused by differences in their biology, nor the fact that they range into waters outside the control of the state. Information for species that range south of the border is lacking for Mexico, but in 1999 the landings reported in Oregon for some nearshore fishes are shown on page 2.

Q. Why is biology so important?

A. Some species grow fast, some slow, some are highly fecund, others less so, one species even changes sex. What is good management for a fast-growing species may be fatal applied for a slow-growing species. Probably management will have to be species, or species-group specific if the yield from this fishery is to be maximized.

Q. What more is needed?

A. Essential fishery information (EFI) in the form of better catch and effort data from the various fisheries, including better characterization of the live/premium fish fishery. Obtaining this additional EFI are big ticket items, and costly in terms of data collection, and time consuming in terms of developing a useful data series. Probably the fishery data will be obtained as part of a large data collection and monitoring program with only some necessary portion specifically collected for the Nearshore FMP. Better recreational catch and effort data is likely the single-most important set of data currently lacking. Recreational fishing catch and effort is harder than commercial fishing to monitor, and the extant sampling surveys have large associated errors and variability. Unless sampling is increased, or perhaps supplemented with a system like the salmon punch card, these data will be of limited use.

Q. Why does this matter if OY can be established from existing catch data?

A. Because the one alternative proposed rule is to set OY at half the level of the recent, stable catches. This means a big reduction in allowed catch. And worse, without better data to refine OY the likelihood of any increase in OY will be in the indefinite future; unless the EFI is of such good quality that a more precise and accurate OY can be determined and increases in stock abundance detected over a reasonable time span.

Q. Aside from an OY that limits the catch, what other measures might be needed in this FMP?

A. Setting OY's for the Nearshore Fishery or for species and groups in it is perhaps the easiest part. Getting acceptance of reduced catches, and particularly how these catches are allocated will be accompanied by much debate. The bigger challenge comes in regulating the recreational sector since this involves a very large number of anglers and divers. The simplest solution of closing the fishery once the OY is approached is not very practical, and more complex rules will have to be devised and accepted.

Q. How can catch reductions be enforced?

A. A number of options are being considered. These are summarized in Table 6.

Q. Why are Marine Protected Areas (MPA's) being considered as part of the Plan of Management if they are more effective in protecting habitat than in limiting fishing mortality?

A. MPA's have been around for many years but recently they have become rediscovered and are being proposed as a solution for many fishery management issues. MPA's are set up to allow some extractive activities whilst prohibiting others. More recently it has become fashionable to propose large no-take reserves as a management tool. The size proposed by some scientists ranges between 30 to 50 percent of the habitat area, and often this is intended to include the area covered by drifting larvae, so these MPA's tend to be very big. The difficulties with these ideas are several. The MLMA requires that management measures be based on the best available science and so far there is little scientific basis for the numbers 30 to 50 percent, nor to support the idea that such large closures can substitute for conventional management measures. In fact, unless the MPA is accompanied by a substantial reduction on the total allowable catch (TAC), or restricted access, the result may be to concentrate fishing effort in

the small suitable habitat outside the MPA with potentially damaging results. MPA's have a place in the management tool bag, but this place needs careful consideration.

V. COMMENTS AND OUTLOOK

Q. When will we know the provisions of the Nearshore FMP?

A. The FMP is still being finalized through public hearings and receiving written comments.

Q How does public comment influence the choice of options?

A. The MLMA specifically outlines a procedure for obtaining public comment on any FMP. The Department has held a number of public meetings seeking specific public input on a number of alternatives and options. The MLMA, however, does not say how the Department should incorporate this public comment, and this is problematic. The Department has attempted to develop the FMP and to incorporate ideas and suggestions from the public and to address, or include, concerns that are raised during this process. However, the process has been less than perfect owing in part to the enormous amount of work thrust upon the Department staff. In part, however, the process has suffered also from the way the Department has been able to interact with the public and with its Advisory Panel.

Public comment is most useful in allowing the Department to sense what types of regulations and allocation schemes might likely receive the greatest public support and acceptance. Public comment on more esoteric matters such as the mechanics of estimating OY are helpful in highlighting subjects that perhaps need fuller explanation and discussion in the FMP. What probably is least useful to the Department is an orchestrated position statement reiterated by many members of an organized group espousing foreclosure of one group at the expense of another.

The MLMA is clear that the resources are meant to be conserved and shared in a manner that benefits all groups as long as the resources and ecosystem can be maintained in a healthy state. Because there is a natural conflict of interest among the so-called "stakeholders," public meetings tend to become polarized and platforms for less than helpful criticism of the Department's past management policies, and opportunities to finger-point at rival user groups. This is evident in the fact that the Draft FMP has been unable both to provide meaningful summaries of the public meetings it has hosted, and to indicate how it has considered and addressed public concerns. One solution would have been to employ the use of a trained facilitator at the open meetings to keep the discussion focused on issues that need to be resolved. Unfortunately, this opportunity is past.

A second difficulty arose due to the need to obtain comment from stakeholders who are actively involved in the fishery, and who had scheduling problems due to conflicts of fishing, and in particular the season opens for lobster, which occurred during the final comment period.

A third problem is evident with the use of the Advisory Committee, which experienced difficulty receiving and having the time and opportunity to comment on the Department's proposed alternatives including *inter alia* final changes to the preferred harvest control rule.

Q. Does this mean that the public has had little input in the development of this FMP so far?

A. No, at least a segment of the public, mainly conservation and recreational angling groups, had a major input in the development of the MLMA enabling legislation. What is reason for concern is that

this legislation sets what may prove to be an unreasonably short time frame to accomplish its purpose. The magnitude of the task, and the complexities of the issues produced a Draft of daunting proportions. Further, a Draft for comment was not even released for study prior to the start of the Commission hearing process. And the hearing process itself appears to have been shortened, making it difficult for affected groups to have time for careful consideration and discussion among themselves, and to develop their input.

Q. But there still remains time for comment; won't that give the public a chance to make their views known to the Commission?

A. Known, yes, but having them taken into account in the remaining time is difficult. The process has now reached a stage where the Commission will have to accept the recommendations of the Department without much further debate. Any details that should have been considered during the formative process of the FMP through public meetings will now likely not have an opportunity for inclusion in the FMP as adopted. It is important that concerned parties provide concise written comments in a timely fashion so that these can be considered and responded to by the Department staff in the short time remaining.

Q. Are there any examples of areas of concern that need to be addressed by the Department?

A. Perhaps most important is how the FMP can and will be modified. There are many decisions that are being made for which, at present, there is little factual basis for action. These include developing plans for regional management within the proposed areas that better reflect the special conditions of each area. Also, very little information has been provided on the economic impacts of the FMP on the various segments of the industries affected. Thus it is difficult to evaluate alternatives in terms of maximizing sustainable use and minimizing economic hardship. As an example, the special needs of the live-fish business appear to require management as a separate entity, yet that has not been considered an alternative.

The needs for restricted access is recognized, but has there been enough public deliberation to decide on the most effective approach to this question? What documentation is there on the scientific efficacy of MPA's as management tools? What technical basis is there for some of the proposals?¹

A different concern comes from the fact that, in general, the nearshore commercial fisheries are more readily manageable in the sense that quality data are more easily obtained, and enforcement simplified due the small number of participants. This can lead managers inadvertently to impose greater restrictions on the commercial side. On the recreational side, the sheer magnitude of attempting to collect data from private fishermen operating from many small ports and landing ramps represents a large and costly endeavor. Unless some new system for nearshore fishes similar to salmon and steelhead tags is developed, the statistical system is likely to continue to have extremely wide confidence intervals making it difficult to estimate effort and mortality. The tools available to the manager will be restricted to bag limits, size limits and time and area closures, which can only be as effective as the ability to estimate effort and to enforce the regulations.

Q. If the Commission adopts the FMP before such concerns can be addressed, how can mistakes be corrected?

¹ For example, in the case of size limits for sheephead, is protecting females at the expense of the larger secondary males better than setting catch quotas? Might it make better sense to manage scorpionfish as a separate species? Must the state adhere to federal management groupings for rockfish in the nearshore? If these fish migrate out of the nearshore, what is the logic for MPA's? Should SCUBA be allowed in spearing fish?

A. Presumably the FMP can be adjusted and modified by the Commission as new information becomes available. However, the more the concerns that people have are addressed before the FMP is adopted, the better. There are a number of decisions that need to be made that should have time for more public input and more deliberation. There is the potential danger that finalizing this very complex document in the next month will result in some actions that will have unneeded social and economic consequences that could be avoided by better communication with the stakeholders; consequences that can result in permanent economic hardships that might later prove to have been unneeded, but be irreversible by the time new, better information is at hand. This is particularly the case for the use of MPA's as a means to control fishing effort, the development of OY targets and capacity goals, and restricted access programs.

In its present form, the Draft FMP seems to lack the necessary guidance to decide these issues without a more complete dialogue between the Department and the affected industries. Certainly, the FMP could have benefited greatly from a summary that could have been more readily distributed and read. Consulting documents in public libraries and from incomplete CD's is frustrating and time-consuming, and the time between availability and the beginning of the final hearing process was short. One possible solution would be to adopt the FMP as required by the MLMA, but to select *status quo* as the interim preferred options to give the Department and the public the opportunity to develop acceptable alternatives.

Q. How long would that process take?

A. Probably another year would be needed to finalize modifications to the FMP, but most of the decisions and agreements might be reached fairly quickly if user groups chose to work constructively with Department, and if meetings were properly facilitated.

Q. What will result from the Nearshore FMP?

A. It is too soon to say. The MLMA has launched a very ambitious undertaking that requires a lot of time, effort and money if it is to meet the goals of the Act. This Nearshore FMP is the first under the MLMA. The guidelines for other FMP's need to be developed and agreed upon. Once that is accomplished, if resources are available, one set after another of California's living marine resources will be placed under a system of stewardship that will conserve it for sustainable use for the coming generations.

Q. That will be good for all Californians.

A. That was not a question, but yes. The process has begun and faces many challenges, but a successful outcome has benefits that reach far beyond just the State of California.

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Table 1. Summary of Nearshore Fishes and Their Biology.

| NAME | LENGTH & AGE AT MATURITY | MAXIMUM LENGTH & AGE | HABITAT, HABITS, (FOOD) - USUAL, AND MAXIMUM DEPTH RANGE (ft) | RANGE: EXTREME - (COMMON) | YEAR 2000 CATCHES (mt) COM/ REC/TOTAL |
|---------------------------|---------------------------|---------------------------|---|---|---|
| Black rockfish | 14-16 inches 6-7 years | 25 inches 36 years | Surface to mid-water, schooling and migratory, (fish and zooplankton) - 40 to 300 ft, 1200 ft. | Alaska to Santa Barbara (central California northward) | South North C 0.4 37.1 R 0.0 125.2 T 0.4 162.3 |
| Black-and Yellow rockfish | ? ? | 15-16 inches 15 years | Reefs, solitary, territorial (crustaceans, fish and cephalopods) - less than 60 ft, 120 ft. | Eureka to central Baja (to San Diego) | South North C 0.3 9.4 R 6.8 19.6 T 7.1 29.0 |
| Blue rockfish | 12 inches 8-9 years | 21 inches 24 years | mid-water, schools over rock and kelp, resident, (fish & zooplankton) - 15 to 200 ft, 1800 ft | Canada to north Baja (Oregon to Dana Point) | South North C 0.4 7.5 R 2.5 140.8 T 2.9 148.3 |
| Brown rockfish | 15 inches 5 years | 21 inches 18 years | bottom near rock, pilings, etc., territorial, (small fish and crustaceans) - 20 to 420 ft. | Alaska to central Baja | South North C 7.4 10.9 R 10.7 36.9 T 17.1 47.8 |
| Calico rockfish | ? ? | ? ? | ? ? | ? ? | South North C 0.0 0.0 R 0.2 0.0 T 0.2 0.0 |
| China rockfish | 12 inches ? | 17 inches ? | Rock crevices, solitary, resident and territorial, (bottom invertebrates) - 30 to 300 ft, 420 ft. | Southeast Alaska to southern California | South North C 0.1 4.4 R 0.0 17.3 T 0.1 21.7 |
| Copper rockfish | 16 inches 8 years | 22-23 inches 14+ years | Bottom, high relief reefs, solitary, territorial, (bottom organisms, fish) - 20 to 400 ft, 600 ft. | Alaska to central Baja (BC Canada to southern California) | South North C 2.5 8.9 R 22.7 9.8 T 25.2 18.7 |
| Gopher rockfish | ? ? | 15-16 inches 13 years | Bottom on reefs, solitary, territorial, (crustaceans, fish and cephalopods) - 30 to 120 ft, 180 ft. | Eureka to central Baja (Mendocino to Santa Monica) | South North C 14.0 9.8 R 2.5 66.1 T 16.5 75.9 |
| Grass rockfish | 13-14 inches 5-8 years | 22 inches 13 years | Rock with seaweed, (fish and invertebrates) - intertidal to 20 ft, 150 ft. | Oregon to central Baja | South North C 17.8 5.8 R 0.6 1.7 T 18.4 7.5 |
| Kelp rockfish | 10 inches 4-5 years | 16-17 inches 20 years | Rocky areas with kelp and seaweed, aggregate at times, (small fish and crustaceans) 15 to 50 ft, 150+ ft. | Northern California to central Baja | South North C 0.3 0.5 R 2.2 2.2 T 2.5 2.7 |

| Table 1. Summary of Nearshore Fishes Biology (continued) | | | | | |
|---|--|--|--|--|---|
| NAME | LENGTH & AGE AT MATURITY | MAXIMUM LENGTH & AGE | HABITAT, HABITS, (FOOD) - USUAL, AND MAXIMUM DEPTH RANGE (ft) | RANGE: EXTREME - (COMMON) | YEAR 2000 CATCHES (mt) COM/REC/TOTAL |
| Olive rockfish | 14 inches 6 years | 24 inches 25 years | Territorial over high relief bottom areas, (fish and invertebrates) - 15 to 180 ft, 480 ft. | Redding Rock to Baja (southern California to Mendocino) | South North C 0.6 0.4 R 0.2 50.7 T 0.8 51.1 |
| Quillback rockfish | 9-12 inches 12 years | 20+ inches 32+ years | Bottom, sand near rock, solitary, (shrimp and other crustaceans) - 40 to 250 ft, 900 ft. | Alaska to Pt. Sur (Alaska to northern California) | South North C 0.0 4.4 R 0.0 6.8 T 0.0 11.2 |
| Treefish | ? ? | 16 inches ? | Reefs in caves and crevices, solitary and territorial, bottom invertebrates) - 20 to 100 ft, 150 ft. | San Francisco to central Baja from Santa Barbara south) | South North C 1.4 0.0 R 3.3 0.0 T 4.7 0.0 |
| Cabezon | 12+ inches 3 years | 39 inches 13+ years | Hard bottom, reefs and wrecks, sedentary (Crabs, abalone, invertebrates) - intertidal to 90 ft, 250 ft. | Alaska to central Baja (Washington to southern California) | South North C 50.6 46.1 R 5.8 31.9 T 56.4 78.0 |
| California scorpionfish | 8 inches 2 years | 17 inches 21 years | Hard bottom, migratory, aggregate to spawn, small crabs, etc. - 20 to 450, 600 ft | Santa Cruz to southern Baja and Gulf of California | South North C 11.4 0.0 R 78.9 0.0 T 90.3 0.0 |
| California sheephead | <u>females</u> 6-8 inches 4 years <u>males</u> 12-14 inches 8 years | <u>females</u> ? 30 years <u>males</u> 36 inches 53 years | Over reefs and in kelp, mostly solitary, fish change sex from female to male at 12-14 inches (crustaceans and mollusks) - subtidal to 280 ft, 10-200 ft. | Monterey Bay to southern Baja and into Gulf of California (scarce north of Pt. Conception) | South North C 70.0 0.0 R 79.3 0.1 T 149.3 0.1 |
| Greenlings (2 species) | 10-12 inches 4 years | 21 inches 16 years | Rocky nearshore and kelp, solitary bottom fish (small invertebrates) - subtidal to 150 ft. | Alaska to San Diego, (scarce south of Pt. Conception) | South North C 0.0 0.1 R 0.2 16.3 T 0.2 16.4 |
| Monkeyface eel | 14-18 inches 4-7 years | 30 inches 18 years | Solitary and territorial in rocks and crevices (mostly vegetarian on red and green algae) - intertidal to 80 ft. | Southern Oregon to northern Baja (scarce south of Pt. Conception) | South North C 0.0 0.0 R 0.0 2.4 T 0.0 2.4 |

Table 2. Ranking in 2000 of Nearshore Species in the Commercial Landings (in Metric Tons)

| Species: Original species in the MLMA shown in bold face | Landings south of Pt. Conception | Rank | Landings north of Pt. Conception | Rank | Total Catch | Rank |
|---|---|-------------|---|-------------|--------------------|-------------|
| Cabazon | 50.6 | 2 | 46.1 | 1 | 96.7 | 1 |
| Sheephead | 70.0 | 1 | 0.0 | 12 | 70.0 | 2 |
| Gopher rockfish | 14.0 | 4 | 9.8 | 4 | 23.8 | 3 |
| Grass rockfish | 17.8 | 3 | 5.8 | 7 | 23.6 | 4 |
| Brown rockfish | 7.4 | 6 | 10.9 | 2 | 18.3 | 5 |
| B&Y rockfish | 6.5 | 7 | 10.2 | 3 | 16.7 | 6 |
| Copper rockfish | 2.5 | 8 | 8.9 | 5 | 11.4 | 7 |
| Scorpionfish | 11.4 | 5 | 0.0 | 12 | 11.4 | 7 |
| Blue rockfish | 0.4 | 12 | 7.5 | 6 | 7.9 | 8 |
| China rockfish | 0.1 | 14 | 4.4 | 8 | 4.5 | 9 |
| Black rockfish | 0.1 | 14 | 4.4 | 8 | 4.5 | 9 |
| Quillback rockfish | 0.0 | 15 | 4.4 | 8 | 4.4 | 10 |
| Treefish | 1.4 | 9 | 0.0 | 12 | 1.4 | 11 |
| Olive rockfish | 0.6 | 10 | 0.4 | 10 | 1.0 | 12 |
| Kelp rockfish | 0.3 | 13 | 0.5 | 9 | 0.8 | 13 |
| Calico rockfish | 0.5 | 11 | 0.0 | 12 | 0.5 | 14 |
| Greenlings | 0.0 | 15 | 0.1 | 11 | 0.1 | 15 |
| Monkeyface eel | 0.0 | 15 | 0.0 | 12 | 0.0 | 16 |
| TOTALS | 183.6 | | 113.4 | | 297.0 | |

Source: Preliminary summary by California Department Fish and Game

**Table 3. Ranking in 2000 of Nearshore Species in the Recreational Catch
(in Metric Tons)**

| Species: Note original species from MLMA shown in bold face | Catch south of Pt. Conception | Rank | Catch north of Pt. Conception | Rank | Total Catch | Rank |
|--|--------------------------------------|-------------|--------------------------------------|-------------|--------------------|-------------|
| Blue rockfish | 2.5 | 8 | 140.3 | 1 | 142.8 | 1 |
| Black rockfish | 0.0 | 12 | 125.2 | 2 | 125.2 | 2 |
| Sheephead | 79.3 | 1 | 0.1 | 15 | 79.4 | 3 |
| Scorpionfish | 78.9 | 2 | 0.0 | 16 | 78.9 | 4 |
| Gopher rockfish | 2.5 | 8 | 66.1 | 3 | 68.6 | 5 |
| Olive rockfish | 0.2 | 11 | 50.7 | 4 | 50.9 | 6 |
| Brown rockfish | 10.7 | 4 | 36.9 | 5 | 47.6 | 7 |
| Cabazon | 5.8 | 6 | 31.9 | 6 | 37.7 | 8 |
| Copper rockfish | 22.7 | 3 | 9.8 | 9 | 32.5 | 9 |
| China rockfish | 0.0 | 12 | 17.3 | 7 | 17.3 | 10 |
| Greenlings | 0.2 | 11 | 16.3 | 8 | 16.5 | 11 |
| Black & Yellow rockfish | 0.3 | 10 | 9.4 | 10 | 9.7 | 12 |
| Quillback rockfish | 0.0 | 12 | 6.8 | 11 | 6.8 | 13 |
| Kelp rockfish | 2.2 | 9 | 2.2 | 13 | 4.4 | 14 |
| Treefish | 3.3 | 7 | 0.0 | 16 | 3.3 | 15 |
| Monkeyface eel | 0.0 | 12 | 2.4 | 12 | 2.4 | 16 |
| Grass rockfish | 0.6 | 5 | 1.7 | 14 | 2.3 | 17 |
| Calico rockfish | 0.2 | 11 | 0.0 | 16 | 0.2 | 18 |
| TOTALS | 209.4 | | 517.1 | | 726.5 | |

Source: Preliminary summary by California Department of Fish and Game

Table 4. Ranking in 2000 for Nearshore Fisheries - Commercial Landings and Recreational Catch Combined (Metric Tons)

| Species: Original species listed in the MLMA shown in bold face | Total Catch (MT) | Rank |
|--|-------------------------|-------------|
| Black rockfish | 162.7 | 1 |
| Blue rockfish | 151.2 | 2 |
| Sheephead | 149.5 | 3 |
| Cabazon | 134.4 | 4 |
| Gopher rockfish | 92.4 | 5 |
| Scorpionfish | 90.3 | 6 |
| Brown rockfish | 65.9 | 7 |
| Olive rockfish | 51.9 | 8 |
| Copper rockfish | 43.9 | 9 |
| Black & Yellow rockfish | 26.3 | 10 |
| Grass rockfish | 25.9 | 11 |
| China rockfish | 21.8 | 12 |
| Greenlings | 16.6 | 13 |
| Quillback rockfish | 11.2 | 14 |
| Kelp rockfish | 5.3 | 15 |
| Treefish | 4.7 | 16 |
| Monkeyface eel | 2.4 | 17 |
| Calico rockfish | 0.2 | 18 |
| TOTAL | 1056.6 | |

Source: Preliminary summary by California Department Fish and Game

Table 5. Top 20 Fish Species or Market Category Groups Landed in the California Live/Premium Fish Trade in 1999

| Market Category | Live (MT) | Dead (MT) | Value | \$/lb. |
|---------------------------------------|------------------|------------------|--------------------|---------------|
| Cabezon | 137.9 | 6.9 | \$906,000 | \$2.84 |
| California Sheephead | 54.6 | 4 | \$373,000 | \$2.89 |
| Gopher group/gopher rockfish | 47.6 | 6.8 | \$274,000 | \$2.29 |
| Group bolina/brown rockfish | 39 | 20.4 | \$264,000 | \$2.02 |
| Lingcod | 36.7 | 114.4 | \$91,000 | \$0.27 |
| California scorpionfish | 29.6 | 8.3 | \$146,000 | \$1.75 |
| Grass rockfish | 26 | 0.4 | \$190,000 | \$3.27 |
| Rockfish - unspecified | 19.4 | 270.3 | \$123,000 | \$0.19 |
| Kelp greenling | 13.2 | 1.4 | \$77,000 | \$2.40 |
| Red rockfish group | 12.5 | 95.7 | \$60,000 | \$0.25 |
| Black and Yellow rockfish | 10.3 | 0.4 | \$81,000 | \$3.44 |
| Blackgill rockfish | 8.5 | 26.7 | \$23,000 | \$0.30 |
| Copper rockfish | 8.3 | 7.5 | \$42,000 | \$1.21 |
| White croaker | 6.5 | 85.6 | \$19,000 | \$0.09 |
| Black rockfish | 6 | 52.6 | \$14,000 | \$0.11 |
| Quillback rockfish | 5.4 | 2.6 | \$53,000 | \$3.01 |
| China rockfish | 5.2 | 1.1 | \$33,000 | \$2.38 |
| Blue rockfish | 4.7 | 8.7 | \$8,000 | \$0.27 |
| Ocean whitefish | 3.7 | 1.3 | \$19,000 | \$1.73 |
| Vermilion rockfish | 3.4 | 7.1 | \$13,000 | \$0.56 |
| Total - all species | 478.5 | 722.2 | \$2,809,000 | \$1.06 |
| Total - Nearshore species only | 374.6 | 119.7 | \$2,384,000 | \$2.19 |

Source: CalCOFI Rpt. Vol. 41, Oct 2000

Table 6. Typical Fishery Management Options for Consideration in Developing an FMP

| Option | How it works | Pro's and Con's |
|-----------------------------|---|---|
| Quotas | Sets a cap on the number of fish or weight that can be landed. Allows no fishing, or bycatch only, once quota is reached | Easy to implement, recreational catch difficult to monitor, costly to enforce, bycatch allowance necessary and may be wasteful |
| Gear restrictions | Limits the types of gear that can be used commercially; recreational gear might limit number of hooks, line, strength, and prohibit the use of SCUBA for spearfishing | Easier to enforce, less precise and effective in limiting fishing mortality |
| Area and Season Closures | Prohibits fishing in certain areas or depths, and/or during certain seasons or months. Marine Protected Areas (MPA's) are an extension of area closures. | Easy to enforce if area or season closure is no take for all species. Area closures are more effective in protecting habitat than in limiting mortality. Both need to be calculated to achieve desired reduction in fishing mortality |
| Size, bag and trip limits | Sets minimum and/or maximum size to move/shift mortality to older or younger age groups. Sets number of fish taken per unit time or per trip. | Size limits may be tailored to adjust age-specific fishing mortality or to protect spawning size fish, or to allow young fish to reach maturity. Not useful to directly achieve OY. Bag and trip limits restrict effort and tailored to directly achieve OY |
| Restricted (limited access) | Controls number of fishing units - boats, gears, anglers | Controls effort and can be tailored to achieve OY and may improve the economics of OY by reducing capitalization. |

Note: All of these options can be implemented separately or in combination, and applied differently to commercial and recreational fisheries, and to species and species groups.

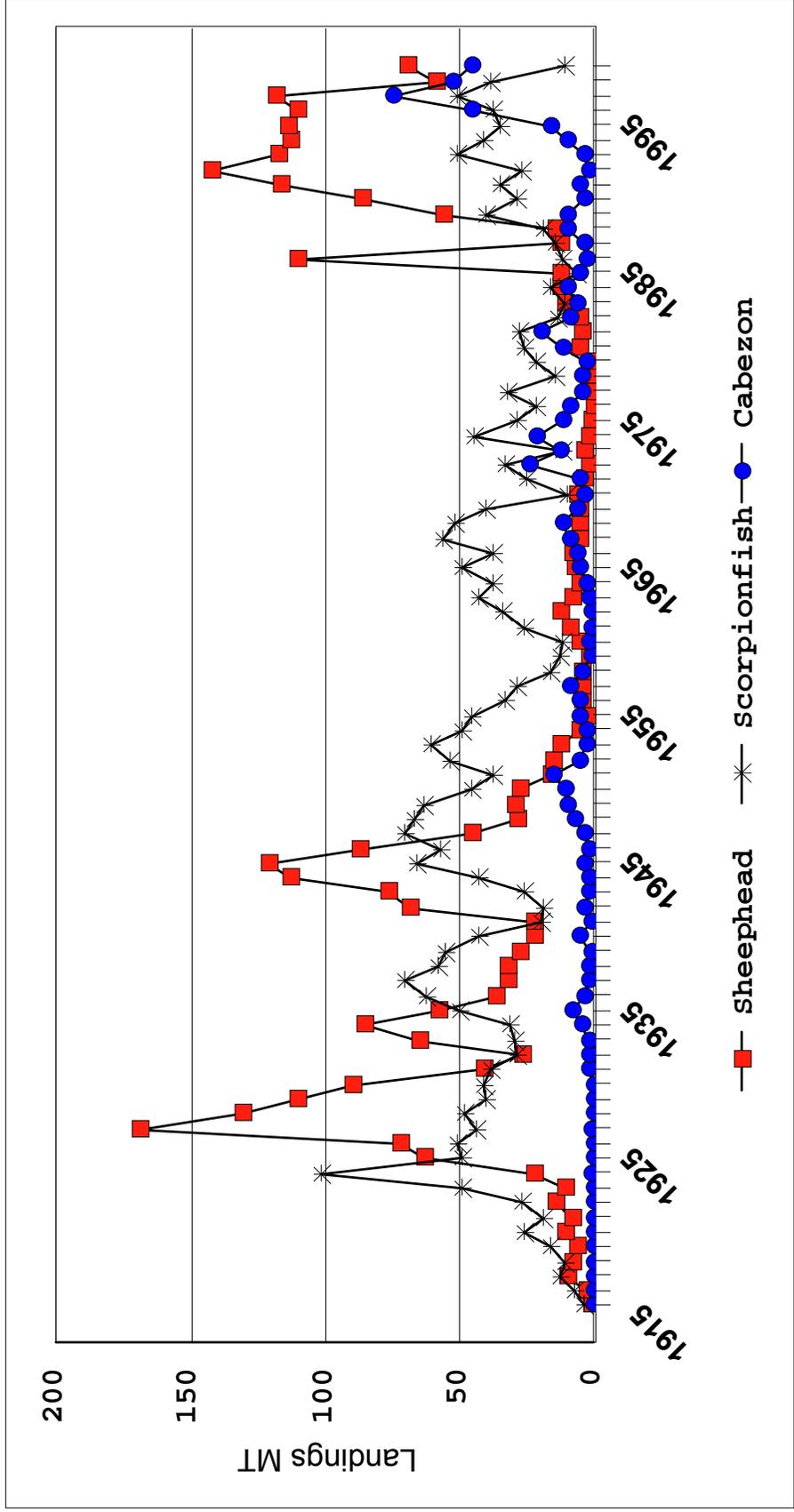


Figure 1. Historical landings for three nearshore fish stocks.

Total Catch of Top 10 Species Commercial and Recreational

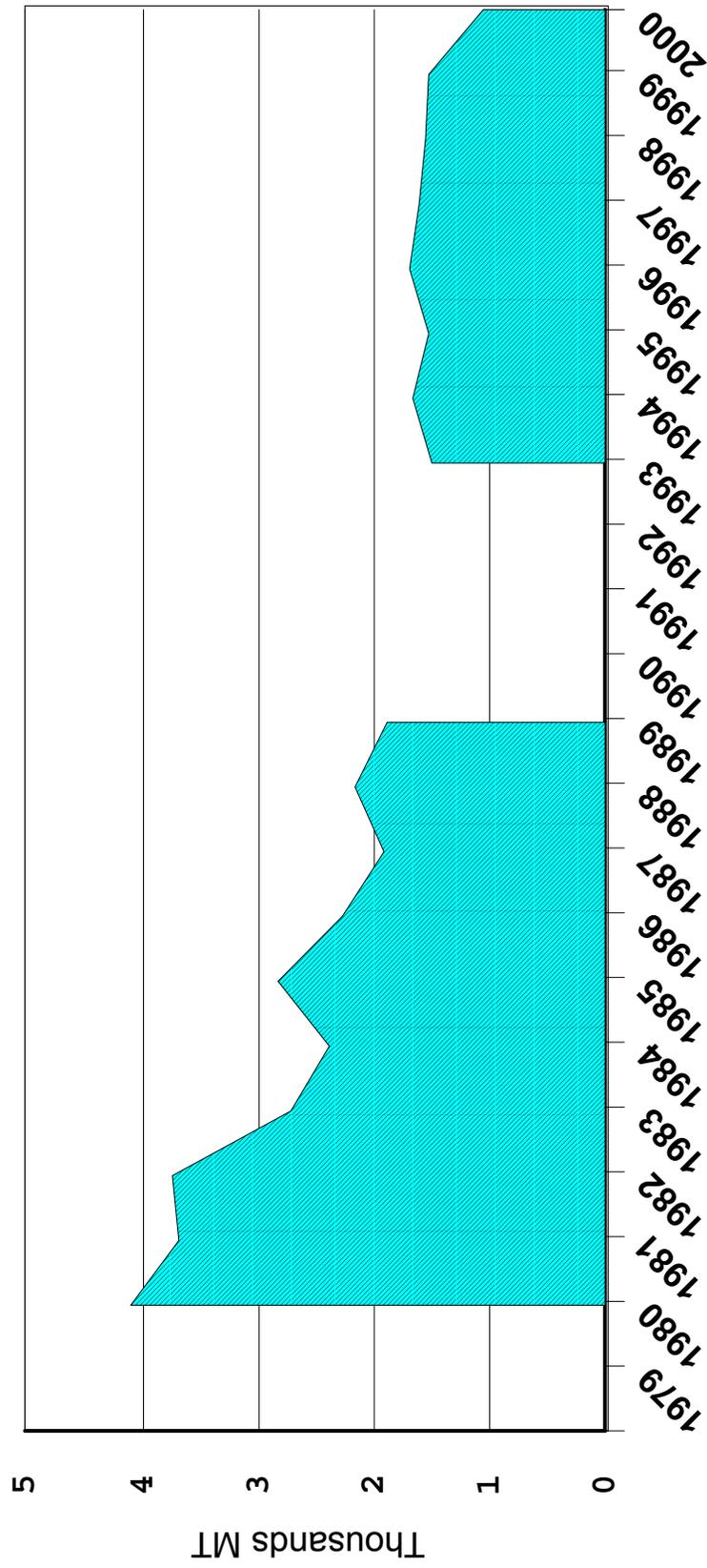


Figure 2. Combined catches (MT) for top 10 nearshore fish. Years with missing catches lacked MRFSS.

Total Catch Commercial and Recreational

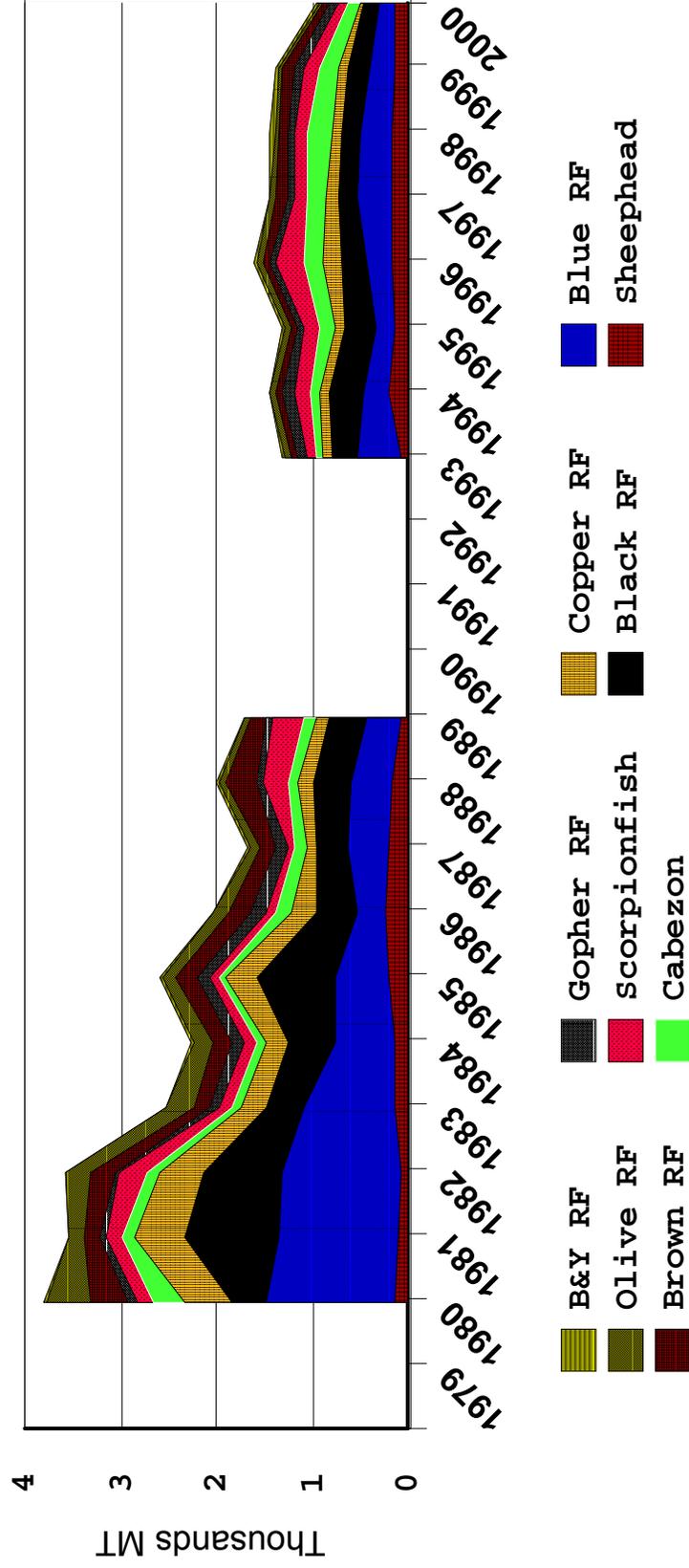


Figure 3. Catch Composition Nearshore Fisheries - Top 10 Species by Weight (MT).

Total Catch minus Black, Blue, Olive and Copper
Commercial and Recreational

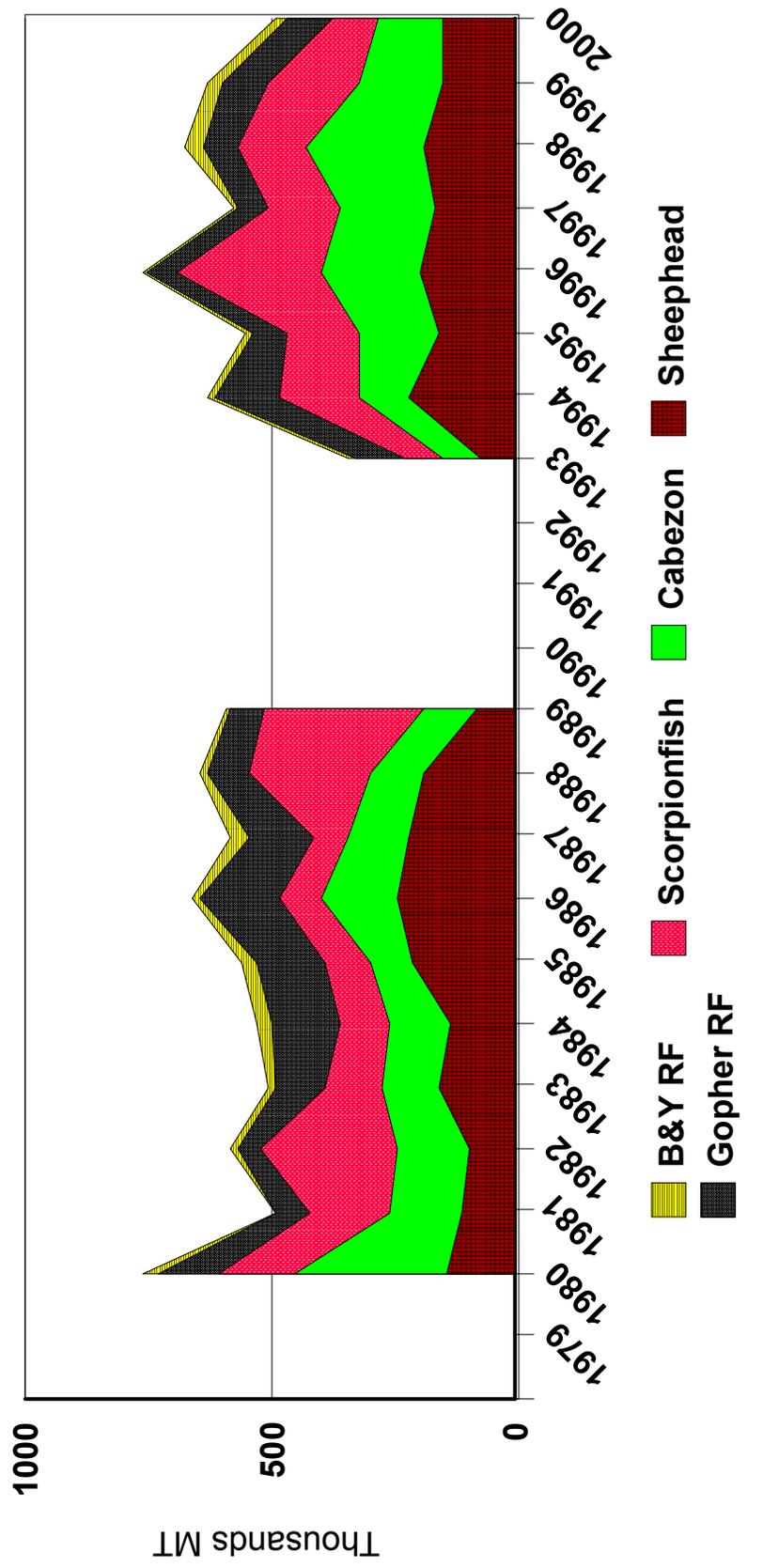


Figure 4. Trend in nearshore fish stocks from catches excluding four species.