Pacific Fishery Management Council
Groundfish Fishery
Strategic Plan

"Transition to Sustainability"

Executive Summary

Prepared by
The Ad-Hoc Pacific Groundfish Fishery
Strategic Plan Development Committee

For
The Pacific Fishery Management Council

October 2000

Statement of Purpose and Acknowledgments

The Ad-Hoc Pacific Groundfish Fishery Strategic Plan Development Committee was formed by the Pacific Fishery Management Council and tasked with the development of a Draft Groundfish Strategic Plan for review and comment by the Council, its Advisory Entities, and the Public.

The members of the Ad-Hoc Committee were selected from the Council membership or as a Council member's designee.

This draft document was prepared through a consensus decision-making process and is the work-product of all members of the Committee.

The Groundfish Strategic Plan Document is *not* proposed as a Fishery Management Plan amendment. Rather, the purpose of the Groundfish Strategic Plan is to guide the future management of the Groundfish Fishery, including development of Plan amendments, regulations, and other implementation actions as needed.

Ad-Hoc Groundfish Strategic Plan Committee Members

Robert Alverson, Fishing Vessel Owners Association
Phil Anderson, Washington Department of Fish & Wildlife
Ralph Brown, Commercial Fisherman
Neal Coenen, Oregon Department of Fish & Wildlife
Bob Fletcher, Sportfishing Association of California
Dave Hanson, Committee Chair, Pacific States Marine Fisheries Commission
Bill Robinson, National Marine Fisheries Service
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A. Context and Need for Strategic Planning in the Groundfish Fishery

The Pacific Fishery Management Council (Council) formed the Groundfish Strategic Planning Committee because it needed an advisory group that could work outside of the hectic Council meetings to craft a long-term vision for the future of groundfish fisheries and groundfish management. Several groundfish stocks are severely depleted and need strong protective management to rebuild. Commercial and recreational discards are not monitored, and those discards have unknown effects on the health of groundfish stocks. There is little information about the effects of fishing and non-fishing activities on groundfish habitat. Scientific efforts to assess the status of groundfish stocks, life histories, and habitat needs have been grossly underfunded.

The groundfish resource is cannot support the number of vessels now catching and landing groundfish. There are over 2,000 licensed West Coast commercial fishers, and many thousands of sport fishers. To bring harvest capacity in line with resource productivity, the number of vessels in most fishery sectors will have to be reduced by at least 50%. Coastal ports have significant shoreside infrastructures to support this once-prosperous industry, such as processing plants, boat yards, machine shops, marine supply stores, motels, and restaurants. Fishing fleet overcapitalization has been a major factor in fish stock depletion, and the industry and coastal communities are facing an economic and social crisis.

This strategic plan is intended to provide guidance for groundfish management in 2001 and beyond. It is intended to be a resource for Council efforts to rebuild depleted stocks and maintain healthy stocks. And, it is intended to guide Council efforts to reduce the size of the fishing fleet to a level that is both biologically sustainable for the resource and economically sustainable for the fishing fleet.

The Committee expects that, to be effective, this strategic plan will have to address the difficult issues of: reducing fishing capacity, setting more responsible harvest rates, making allocation decisions, meeting scientific needs, protecting habitat, and improving the Council management processes. This planning work will take place during a time when fishery restrictions will be used to rebuild overfished stocks. These conditions provide the clearest evidence of the need for a longer-term vision and road map for the future of groundfish management.

The Committee designed a process and schedule to get key information, identify specific problems and develop a range of solutions. The Committee has developed a draft strategic plan document for Council and public review that:

- Recommends new management goals and objectives;
- Initiates new groundfish plan amendments for the 2001 management cycle;
- Outlines detailed actions for Council work plans and a schedule of priorities for the next 3-5 years; and
- Develops specific recommendations for other entities to address that will complement the Council's needed management changes; such recommendations may propose changes in law, calls for budget support, and expectations for improving coordination between industry, government and educational institutions.

B. Vision For The Future Of The Groundfish Fishery

The Strategic Plan's vision for the future of the groundfish fishery assumes that the Plan's recommended actions are fully implemented with passage of sufficient time for the anticipated benefits to have been fully realized. The Plan's drafters recognize that the transition to this future will require major changes in the structure and operation of the fishery, which will certainly have short-term adverse effects on current participants. The plan envisions that fishery management decisions are based on sound scientific data and analysis and an open and fair Council process.

1. The Fishery

We envision a future where Pacific groundfish stocks will be healthy, resilient, and where substantial progress has been made rebuilding overfished stocks. Harvest policies will result in total fishery removals that are consistent with the long-term sustainability of the resource. The fishing industry will be substantially reduced in numbers and harvest capacity will be reduced to a level that is in balance with the economic value of the available resource. Those remaining in the fishery will operate in an environment that is diverse, stable, market-driven, profitable, and adaptive over a range of ocean conditions and stock sizes.

Unlimited or open access to the groundfish fishery will no longer exist because current open access participants will be brought into the limited entry program and the number of participants reduced to those who are most dependent on and committed to the fishery.

Whenever possible, management approaches will create incentives for fishers to operate in ways that are consistent with management goals and objectives.

Allocation disputes will be resolved and all harvest sectors will believe they were treated fairly, including those non-groundfish fisheries where groundfish is an unavoidable incidental catch. Discarded bycatch by all gear groups will be minimal and quantified.

Fishery regulations will be less complex and more easily enforced. Council management may be simplified by removing some species from the FMP through delegation or deferral to state management.

Essential groundfish habitat will be adequately protected and adverse effects from all groundfish fishing gears will be reduced to minimal levels. Marine reserves, or no take zones, will provide a base level of protection as an insurance policy to reduce the risks of uncertain science and long stock

rebuilding periods.

The improved operating conditions and profitability for those remaining in the fishery will allow participants to accept responsibility for a portion of the cost of effective science and management, including an at-sea observer program, that is commensurate with the level of benefits associated with exclusive access to the fishery.

Finally, the Council will have full access to all fishery management tools and will use them to provide protection for and reasonable access to groundfish stocks.

2. The Science

The basis for future management of the groundfish fishery relies to a very large degree on the availability of good science. West Coast groundfish science will meet national and international standards, be accepted as credible and will be understood by the all stakeholders. Scientific data collection will be a collaborative process involving partnerships between federal, state, and tribal agencies, the fishing industry, and academia, and may include contributions from private foundations.

Data collection and monitoring programs will provide stock assessments with acceptable levels of uncertainty for use by the Council's scientific, management, and advisory committees. Scientific data collected from the fishery will provide the capability to accurately assess the effects of current and potential fishery management measures on groundfish stocks and fishery participants. Finally, scientific tools will have been developed to provide stock assessments throughout the distribution of the various groundfish stocks geographic ranges incorporating the variability and effects of ocean regime shifts.

3. The Council

Future Council activities will be characterized as open to all stakeholders, inclusive of all views, credible and interactive. Council actions will be documented and easily understood and developed with meaningful involvement by the public, including environmental, commercial and recreational representatives. Council decisions will be documented with readily available explanation and analysis of the underlying biological and socio-economic considerations. Council advisory entities will work together to contribute advice and expertise that results in recommendations that are accepted by stakeholders. Regulations development will be simplified and streamlined. Regulations will be generally stable over multi-year periods, but there will be flexibility to respond quickly when changes are needed.

C. Consequences of Inaction

There is another vision from that presented above. The Council could continue attempting to manage an overcapitalized fleet in the face of declining resource abundance and the necessity to meet stock rebuilding requirements. This will most certainly result in shorter fishing seasons, smaller trip limits, higher discard rates, and the continuous inability to accurately account for fishery-related mortalities. Many fishers will not be able to meet their basic financial responsibilities and will be

forced from the fishery by a feeling of futility or bankruptcy. The Council and participating agencies will be overwhelmed by the need to implement short term fixes to long term problems with little or no chance to focus on the underlying problems of the fishery or to develop a long term management strategy.

To avoid this other vision of the future, the Council will have to act swiftly and soon. The Council has a choice in charting the future of the groundfish fishery. Decisions that the Council makes now will have profound effects for years to come.

II. The Strategic Plan "What Will We Do To Get There?"

A. Groundfish Fishery Management

1. Overall Fishery Management Concerns

Strategic Plan Goal For Management Policies

To adopt understandable, enforceable, and stable regulations that, to the greatest extent possible, meet the FMP's goals and objectives and the requirements of the Magnuson-Stevens Act.

Management Policies Recommendations

These recommendations assume that the objective of maintaining year-round harvesting and processing opportunity remains the Council's highest social and economic priority. In that case, it is imperative that Recommendation 1 for capacity reduction be implemented as rapidly as possible. If substantial harvest capacity reductions are not possible or are delayed, the Council must consider several of the alternative strategies for restructuring the fishery to restrict access by some portion of the fishing fleet for major periods.

In the event that none of the recommended measures or alternatives are viable or effective, the Council may have to shorten the annual fishing season. The Strategic Planning Committee cannot emphasize strongly enough the need for some level of observer coverage to evaluate the effectiveness of different management strategies.

1. Develop an implementation plan to reduce capacity initially by at least 50% in each sector. However, the capacity reduction goal will not be fully realized until capacity has been reduced to a level that is in balance with the economic value of the resource and those remaining in the fishery are able to operate profitably and flexibly. The implementation plan should take into account the need to implement other Plan recommendations (i.e., allocations, nearshore rockfish delegation) prior to or at the same time as capacity reduction. Reducing capacity will relieve the need to adopt management policies that are both inefficient and ineffective at achieving the FMP's goals and objectives. By better matching fleet capacity to resource availability, the regulatory structure will become more stable, resulting in regulations that are more enforceable.

2. Explore the use of higher landing limits or other incentives to encourage fisherman to fish

with bycatch friendly fishing gear or to fish in areas where bycatch is less likely.

3. Make the necessary allocation decisions so that fishery participants in each sector can plan on a specific share of future OY's. Allocations may be outright percentages or a framework with criteria that specify how the allocation changes as resource availability changes.

4. Consider delegating or deferring nearshore rockfish and other groundfish species, such as scorpionfish, greenling, and cabezon, to the States.

5. All commercial fisheries should be limited through state and/or federal license or permit programs.

2. Harvest Policies

Strategic Plan Goal for Harvest Policies

To establish an allowable level of catch that prevents overfishing while achieving optimum yield based on best available science.

Harvest Policies Recommendations

1. In consideration of the uncertainties in the estimation of ABCs, set optimum yields (OYs) lower than the ABC, manage the fishery to a fixed OY(s), and close the fisheries when the OY is reached.

2. Harvest levels must be increasingly precautionary when less biological information is available, and particularly if monitoring programs fail to provide reliable estimates of total fishery-related mortality. Consider a hierarchal approach, where increased levels of conservatism would be required based on the specific quantity and quality of biological and fisheries information that is available.

3. For unassessed stocks, set precautionary harvest levels based on simple parameters such as a fixed proportion of the mean catch or survey abundance, or as a function of the lowest rate allowed for an assessed stock.

4. To protect weak stocks harvested in multi-species fisheries, adopt a policy requiring closure of the fishery when the ABC or OY of the weak stock has been taken. In setting the OYs, determine whether benefit/cost considerations might justify overfishing a particular weak stock under the mixed-stock exception in the National Standard Guidelines. Do not knowingly allow harvest rates that drive the stock below the level defined in the FMP as "overfished" or to a condition warranting listing under the ESA.

5. Without an international agreement on setting and sharing the total allowable catch for trans-boundary stocks, the Council should conserve that portion of the stock within the geographic range of its authority.

3. Capacity Reduction

Strategic Plan Goal for Capacity Reduction

To have a level of harvest capacity in the fishery that is appropriate for a sustainable harvest and low discard rates, and which results in a fishery that is diverse, stable, and profitable. This reduced capacity should lead to more effective management for many other fishery problems. For the short term, adjust harvest capacity to a level consistent with the allowable harvest levels for the 2000 fishing year, under the assumption that stock rebuilding will require reduced harvests for at least the next two decades. Maintaining a year-round fishery may not be a short-term priority.

Capacity Reduction Recommendations

The highest priority for reducing capacity is Recommendation #1 from the Management Policy section. That recommendation is to develop an implementation plan to reduce capacity initially by at least 50% in each sector. As noted earlier, the capacity reduction goal will not be fully realized until capacity has been reduced to a level that is in balance with the economic value of the resource and those remaining in the fishery are able to operate profitably and flexibly. In designing capacity reduction, the Council should consider fleet structure, profile, and diversity, with a goal of maintaining a mix of small and large vessels.

The capacity reduction plan should take into account the need to implement other strategic plan recommendations (i.e., allocations, nearshore rockfish delegation) prior to or at the same time as capacity reduction. Reducing capacity will relieve the need to adopt management policies that are both inefficient and ineffective at achieving the FMP's goals and objectives. By better matching fleet capacity to resource availability, the regulatory structure will become more stable, resulting in regulations that are more enforceable.

These capacity reduction recommendations include both the short and long-term and transitional elements discussed below, such as license-limitation (for the targeted open access fishery), permit stacking, and IFQs either individually or in combination with a vessel buyback program.

Short to Intermediate Term

1. Separate the current open access fishery into a sector that directly targets groundfish and a sector that lands groundfish as bycatch in non-groundfish fisheries. Require current open access vessels that directly target groundfish to obtain a federal limited entry permit (B permit) based on historical landings and current participation. Minimum landing requirements for a federal permit should reflect significant dependence on the fishery. Consider developing and implementing a voluntary permit stacking program for the B permit. Require a federal permit ("C" permit) to land groundfish taken incidentally in non-groundfish fisheries.

2. Divide the current open access allocation into separate allocations for the "B" and "C" permit holders and manage each sector to stay within its allocation each year.

3. Consider using historical landings only from 1994-1999 and recent participation from either 1998 or 1999 for initially qualifying B permit holders.

4. For the limited entry fixed gear fishery, immediately develop and implement a voluntary permit stacking program with the intent of transitioning to an IFQ program to provide for a multiple month season. The Permit Stacking allowance should be implemented prior to the 2001 regular sablefish season. Stacked permits should **NOT** allow increased access to the daily sablefish trip limit. Simultaneously, develop an IFQ system for fixed-gear sablefish for implementation in 2002. If Congress continues to prohibit IFQ programs, consider making the permit-stacking program mandatory.

5. For the limited entry trawl fleet, immediately develop and implement a voluntary permit-stacking program that links each permit with a cumulative period landing limit with the intent to transition to an IFQ program. The first, or base permit should be entitled to a full period landing limit, while each stacked permit should entitle the vessel to additional landing limits on a discounted basis as one alternative. Another alternative is to have the full period landing limit the same for all permits. If Congress continues to prohibit IFQ programs, consider making the permit-stacking program mandatory.

6. To prevent future overcapacity in the whiting fishery, consider developing and implementing a whiting species endorsement that restricts future participation in the whiting fishery to vessels registered to a permit with a whiting endorsement. Qualification for a whiting endorsement should be based on a permit's whiting landings since 1994 when the current limited entry program began. Consider setting a threshold quantity of whiting above which a whiting endorsement is required for a landing. Individual landings below the threshold would not require an endorsement.

7. Pursue a buyback program to remove latent capacity.

Intermediate to Long Term

8. Develop of a comprehensive IFQ program for the limited entry trawl fishery, or in the alternative, a mandatory permit-stacking program.

9. Consider establishing a rockfish endorsement for the limited entry fixed gear fleet and open access (B permit) fleet. Qualifying criteria would be based on historical landings and recent participation.

10. Consider access limitation for commercial passenger fishing vessels. (This program may be better managed by the states.)

4. Allocation of Groundfish Resources

Strategic Plan Goal for Allocation

To distribute the harvestable surplus among competing interests in a way that resolves allocation

issues on a long-term basis.

Allocation Recommendations

General Allocation Principles

1. All fishing sectors and gear types will contribute to achieving conservation goals (no sector will be held harmless). The fair and equitable standard will be applied to all allocation decisions but is not interpreted to mean exactly proportional impacts or benefits.

2. Non-groundfish fisheries that take groundfish incidentally should receive only the minimal groundfish allocations needed to efficiently harvest their target (non-groundfish) species. To determine the amount of allocation required, identify the economic values and benefits associated with the non-groundfish species. Directed fishery harvest of some groundfish may need to be restricted to incidental levels to maintain the non-groundfish fishery. Consider gear modification in the non-groundfish fishery to minimize its incidental harvest.

3. Modify directed rockfish gears, as needed, to improve their ability to target healthy groundfish species and avoid or reduce mortality of weak groundfish species.

4. When information on total removals by gear type becomes available, consider discards in all allocations between sectors and/or gear types. Each sector will then receive adjustments for discard before allocation shares are distributed.

5. Fairly distribute community economic impacts and the benefits and costs of allocation coast-wide. Allocations should attempt to avoid concentration and assure reasonable access to nearby resources. Consider the diversity of local and regional fisheries, community dependency on marine resources and processing capacity, and infrastructure in allocation decisions.

6. Consider impacts to habitat and recovery of overfished stocks or endangered species (dependent on affected habitats) when making allocation changes.

7. Allocation decisions should consider and attempt to minimize transfer of effort into other fishery sectors, particularly for state managed fisheries (crab and shrimp).

8. Allocation decisions will: (a) consider ability to meet increased administrative or management costs; and (b) be made if reasonably accurate in-season quota monitoring or annual catch accounting has been established or can be assured to be established and be effective.

9. As the tribe(s) expand their participation in groundfish fisheries, allocations of certain groundfish species may have to be specified for tribal use. In such cases, the Council should ask the affected parties to U.S. v. Washington to convene and develop an allocation recommendation.

Area Management as Related to Allocation

10. Structure allocations considering both the north-south geographic *and* nearshore, shelf and slope distributions of species and their accessibility by various sectors and gears.

11. In addressing recreational/commercial rockfish allocation issues, use the following fishery priorities by species group: for nearshore rockfish, states may recommend a recreational preference, with any excess to be made available for commercial use; for shelf rockfish, the Council may set a recreational preference only on a species-by-species basis; and for slope rockfish, commercial allocation.

12. Licenses, endorsements or quotas established through management or capacity reduction measures may be limited to specific areas through exclusive area registrations and consider port landing requirements.

5. Observer Program for Quantifying Bycatch, Total Catch, and Total Fishery-Related Mortality

Strategic Plan Goal for an Observer Program

To quantify the amount and species of fish caught by the various gears in the groundfish fishery and account for total fishery-related removals.

Observer Program Recommendations

1. Immediately implement an at-sea groundfish observer program, with determination of total groundfish catch and mortality as the first priority, consistent with established Council priorities.

2. Consider the following options to fund an observer program:

a) Seek federal/state funding;

b) Continue to support legislative change to provide authority to collect fees from the fishing fleet to support the observer program;

c) If federal/state or industry funding is not available, make individual vessels responsible for providing some level of observer coverage as a condition of participation in the fishery.

3. Even with limited funding, both trawl and non-trawl fleets should have some meaningful, but not necessarily the same, level of observer coverage. Determine which harvesting sector(s) will receive the initial observers.

4. Consider alternative monitoring approaches that augment an observer program, including logbooks and video.

5. When an effective observer program has been established, a full retention strategy may be considered to reduce discard and improve biological information collection.

6. As a secondary priority, an observer program should collect additional data for stock assessments. For example, the North Pacific Council requires its observers to dedicate a small portion of the working day to taking otoliths and length measurements, in order to supplement information on the age and size distribution of particular species.

6. Marine Reserves as a Groundfish Management Tool

Strategic Plan Goal for Marine Reserves

To use marine reserves as a fishery management tool that contributes to groundfish conservation and management goals, has measurable effects, and is integrated with other fishery management approaches.

Marine Reserves Recommendations

1. Adopt marine reserves as a fishery management tool for Pacific groundfish and proceed with implementation, as appropriate.

2. Identify the specific objectives that marine reserves are expected to meet.

3. Develop siting and design criteria, including the size of the reserve, that will meet specified marine reserve objectives. Analyze options for establishing reserves that include nearshore, shelf, and slope habitat.

4. Adopt final siting criteria, including reserve size and location, and proceed with implementation and evaluation as quickly as possible, to ensure compatibility with other management changes.

5. Direct the Scientific and Statistical Committee to recommend new methodologies for continued stock assessments and for establishing harvest levels outside the reserves following the implementation of reserves.

7. Groundfish Habitat

Strategic Plan Goal for Pacific Groundfish Habitat

To protect, maintain, and/or recover those habitats necessary for healthy fish populations and the productivity of those habitats.

Pacific Groundfish Habitat Recommendations

1. Consider regulatory changes (including incentive systems) that result in modification or elimination of fishing gears or fishing practices that are determined to adversely affect EFH

areas of concern such as nearshore and shelf rock-reef habitats.

2. Develop and implement gear performance standards for hook and line, pot, set gillnet, and trawl to increase gear selectivity, protect habitat, and/or decrease ghost fishing by lost gear.

3. Promote scientific research on the effects of fishing gear on various habitats.

4. Promote research to modify existing gear and practices to provide practical, economically viable alternatives to fishing gear that adversely affects habitats.

5. Identify habitats necessary for healthy fish populations and identify locations of those habitats.

B. Science, Data Collection, Monitoring, and Analysis

Strategic Plan Goal for Science, Data Collection, Monitoring, and Analysis

To provide comprehensive, objective, reproducible, and credible information in an understandable and timely manner to meet our conservation and management objectives.

Science Recommendations

1. Prioritize stock assessments for suspected "weak stocks" in mixed-stock fisheries.

2. Create cooperative partnerships between state, federal, private foundations, and other private entities to collect and analyze the scientific data needed to manage groundfish.

3. Promote improved mutual understanding, communication and credibility between the fishing industry and scientists through increased communication and collaboration, including at-sea ride-alongs.

4. Develop methods for incorporating fisher observations into stock assessment and monitoring programs, including employing commercial fishing vessels to conduct cooperative resource surveys and to collect other scientific data.

5. Implement the Council's draft West Coast Fisheries Economic Data Plan.

6. Ensure that economists and social scientists are adequately included on Council plan teams and ad hoc committees where appropriate, to ensure that all dimensions of management issues, options, and solutions are well reflected in their input to the Council.

7. Hold an annual or bi-annual meeting of U.S./Canada and/or U.S./Mexico stock assessment scientists to plan upcoming (preferably joint) assessments of transboundary stocks. The U.S./Canada portion of this recommendation could be conducted under the umbrella of the existing U.S./Canada Groundfish Technical Subcommittee.

8. Meet annually with National Marine Fisheries Service's Northwest and Southwest Regions and Science Centers and the Pacific States Marine Fisheries Commission to integrate the Council's data and research needs into NOAA's budget process.

9. Meet with the states and NMFS to develop a joint multi-year research and data collection/analysis plan for west coast groundfish.

10. Direct scientific efforts to measure the changes in groundfish productivity due to ocean environmental changes.

11. Obtain a dedicated research vessel(s) to perform annual surveys and collect other data needed to manage the coastwide groundfish under Council jurisdiction.

C. Council Process and Effective Public Involvement During and Beyond the Transition

Strategic Plan Goals for Council Process

- *To establish and maintain a management process that is transparent, participatory, understandable, accessible, consistent, effective, credible, and adaptable;*

- *To provide a public forum that can respond in a timely way to the needs of the resource and to the communities and individuals who depend on them; and*

- *To establish a long-term view with clear, measurable goals and objectives.*

Council Process Recommendations

1. Encourage long term thinking so the Council can suggest creative solutions to Congress and NMFS during the Magnuson-Stevens Act reauthorization process.

2. Establish a performance evaluation committee to periodically and critically review progress made towards Council goals and objectives. The committee should also analyze improvements needed in Council procedures to maintain efficiency.

3. Update goals and objectives in the FMP to incorporate the strategic plan's vision and goals. These updated goals and objectives should: (a) be measurable, (b) have minimal conflicts, and (c) be clearly prioritized wherever possible.

4. Continue to routinely update its mailing lists and ensure that they contain commercial and recreational fishing associations, conservation and environmental groups, commercial licensed fishers for groundfish and other fishery species, local port offices, media contacts, and community-based organizations.

5. More effectively use newsletters, web page displays, public forums, news releases, and public service announcements to improve public participation in Council activities and decisions.

6. Make draft agendas available earlier to the local media from fishing communities, highlighting key issues.

7. Sponsor workshops to explain the Council process, its role and responsibility relative to fishery management, the roles of its committees and advisory entities, and the various opportunities for public involvement. Workshops should be held by the Council and state agencies in local port communities.

III. "How Will We Measure Success?" Implementing and Updating the Strategic Plan

A. Proposed Implementation Process

Implementing the Strategic Plan Recommendations

1. At the September 2000 Council meeting, the Council adopts the Final Groundfish Strategic Plan document (per revisions incorporated after the summer public comment phase).

2. The Council directs the formation of a "Groundfish Strategic Plan Implementation Oversight Committee" which should be composed of Council members, some of which will have been members of the Strategic Plan Development Committee, to ensure continuity and an effective transition to implementation.

3. At its discretion, the Implementation Oversight Committee may establish small implementation development teams to develop specific alternative(s) for implementing elements of the Strategic Plan. Implementation development teams will be comprised of Council subpanel, management team, and committee members from the GMT, GAP, SSC, EC, and members of the public as deemed necessary by the Implementation Oversight Committee.

4. The Implementation Oversight Committee works at direction of the Council and is tasked with making recommendations regarding implementation of the strategic plan.

5. The Implementation Oversight Committee **goals** should include: (a) effective transition to the implementation phase, (b) ensuring the plan is implemented in a timely fashion, and (c) whenever possible, doing so in a fashion that provides for constituent acceptance and buy-in.

6. At the direction of the Council, the Implementation Oversight Committee will develop recommended schedules for carrying out all components of the strategic plan.

7. The Implementation Oversight Committee will develop recommendations for all components of the strategic plan that can be developed further: (a) directly by the Council, (b) via advisory entity assignments, or (c) through formation and use of a implementation development team approach, e.g., capacity reduction implementation development team(s), which would handle all of the complexities of addressing the implementation of capacity

reduction. For example, there might be four teams – with industry representatives from trawl, fixed gear, open access with groundfish target, and open access with non-groundfish target. Each of these teams will also have a representative from the Implementation Oversight Committee, with a charge to develop a plan and product by "x" date. The Implementation Oversight Committee considers the work of the implementation development teams and develops the final recommendations for the Council. Clarification, input, and technical support will be available to all teams with "on-call" availability from Council staff, states, NMFS staff and General Counsel, etc.

8. It will be important to consider current conditions in the groundfish fishery, including the effects of recent changes in resource status, fishery management, and the environment, as part of the strategic plan implementation process.

B. Measuring Success

Options for Updating the Groundfish Strategic Plan Document

A good strategic plan is rigid enough to have clearly-stated, expected results but also flexible enough to modify when evaluation indicates change is necessary. The Council wishes to maximize the value of the time, energy, and money invested in its strategic plan by regularly evaluating the plan's effectiveness and initiating changes as deemed necessary to enhance success. The Council also recognizes that periodic review provides plan continuity for Council members and staff, and promotes public awareness.

Updating The Strategic Plan Recommendations

The Council should schedule a routine review every five years. If a Council member determines that a review should occur more frequently, the member could seek to have the review placed on the Council agenda in the same manner that other actions are placed on the agenda. When the review takes place, the Council should follow the standard Council meeting process and take written and oral public comment, and involve the appropriate advisory entities.

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The Pacific Fishery Management Council (Council) formed the Groundfish Strategic Planning Committee because it needed an advisory group that could work outside of the hectic Council meetings to craft a long-term vision for the future of groundfish fisheries and groundfish management. Several groundfish stocks are severely depleted and need strong protective management to rebuild. Commercial and recreational discards are not monitored, and those discards have unknown effects on the health of groundfish stocks. There is little information about the effects of fishing and non-fishing activities on groundfish habitat. Scientific efforts to assess the status of groundfish stocks, life histories, and habitat needs have been grossly underfunded.

The groundfish resource is cannot support the number of vessels now catching and landing groundfish. There are over 2,000 licensed West Coast commercial fishers, and many thousands of sport fishers. To bring harvest capacity in line with resource productivity, the number of vessels in most fishery sectors will have to be reduced by at least 50%. Coastal ports have significant shoreside infrastructures to support this once-prosperous industry, such as processing plants, boat yards, machine shops, marine supply stores, motels, and restaurants. Fishing fleet overcapitalization has been a major factor in fish stock depletion, and the industry and coastal communities are facing an economic and social crisis.

This strategic plan is intended to provide guidance for groundfish management in 2001 and beyond. It is intended to be a resource for Council efforts to rebuild depleted stocks and maintain healthy stocks. And, it is intended to guide Council efforts to reduce the size of the fishing fleet to a level that is both biologically sustainable for the resource and economically sustainable for the fishing fleet.

1. Fishery Overview

The Pacific coast groundfish fishery is very complex. There are 82 different species managed under the fishery management plan (FMP), and these stocks support a wide range of commercial and sport fishing interests. Commercial fisheries are divided into three primary sectors (limited entry trawl, limited entry fixed gear, open access), and each of the three coastal states has different interests within each sector. The intensity of the sport fisheries varies by port along the coast and differs regionally according to the species mixes that they catch.

Groundfish are harvested in multi-species complexes, meaning that several different groundfish species may be caught together at the same time. Commercial groundfish fishing vessels use a variety of gear types and fishing strategies. For example, pot gear is used to target sablefish, and hook-and-line gear to target sablefish, rockfish, and lingcod. Various types of trawl gear are used

to target particular species mixes: bottom trawl for deepwater slope species, such as Dover sole, thornyheads, sablefish, and arrowtooth flounder; roller trawl for bottom rockfishes; mud gear for nearshore mixed flatfishes; and midwater trawl for widow rockfish and Pacific whiting. Non-whiting groundfish is usually harvested by catcher boats delivering to shoreside processing plants. Whiting is harvested by catcher boats delivering to mothership processors and to shore-based processors, and by catcher-processors. Groundfish are also harvested incidentally in non-groundfish fisheries, most notably the trawl fisheries for pink shrimp, spot/ridgeback prawns, California halibut, and sea cucumber.

Groundfish are also harvested by marine sport anglers fishing from docks and piers, beaches, and private or charter boats. Commercial passenger fishing vessels and private boats take the majority of the recreational harvest, consisting mainly of nearshore rockfish species and lingcod. Recreational fisheries participation is strongest in California.

In addition to these non-tribal fisheries, members of the Makah, Quileute, Hoh, and Quinault tribes participate in commercial, as well as ceremonial and subsistence fisheries for groundfish off the Washington coast. Participants in tribal commercial fisheries use similar gear and fishing strategies to those of non-tribal fishers operating off Washington. Tribal commercial groundfish fisheries focus on sablefish, lingcod, and rockfish, and the Makah Tribe has been participating in the whiting fishery since 1996.

2. Trends in the West Coast Commercial Groundfish Fishery

During the late 1970s and early 1980s, West Coast groundfish landings increased rapidly, reaching about 116,000 metric tons (mt) in 1982. For the next few years, landings remained around 90,000 to 100,000 mt annually, supported by large rockfish and flatfish catches. At that time, the government was encouraging expansion of the U.S. commercial fishing industry through loan guarantees and other programs. The nation's foremost fishery legislation, the 1976 Fishery Conservation and Management Act set goals to build a U.S. fishing industry that would quickly move foreign fleets out of U.S. waters, and to increase U.S. fish processing capacity to handle all of the fish caught by U.S. boats. During the late 1970s and early 1980s, recreational fisheries were shifting some of their effort away from dwindling salmon resources towards abundant nearshore rockfish and lingcod resources.

Between 1983 and 1999, West Coast commercial shoreside ex-vessel revenues from landings of groundfish decreased by 47% from $100.2 million to $52.9 million (in 1999 dollars). This revenue decline occurred in spite of a concurrent 12% increase in aggregate commercial shoreside groundfish landings from 108,500 mt to 121,500 mt. The decline was particularly severe for *Sebastes* rockfish and flatfish, which annually accounted for 50%-60% of non-whiting groundfish revenues. Between 1983-1999, *Sebastes* landings fell by 78% and *Sebastes* revenues by 69%; flatfish landings fell by 41% and flatfish revenues by 73%.

3. Reducing Cumulative Landing Limits

The Pacific Fishery Management Council has a long-standing goal to maintain fishing opportunities twelve months a year. To accomplish this, each vessel is limited to landing specified poundages

during different periods, called cumulative landing limits. Annual harvest quotas (optimum yield, or OY) have declined significantly in recent years due to declining stocks and new Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requirements to prevent overfishing and to rebuild overfished stocks. Groundfish fishers have also improved their vessels over time to fish ever more efficiently.

The Council has had to reduce harvest to meet Magnuson-Stevens Act requirements and slow down the rate of landings so as to not exceed overall OYs. Between lower groundfish stock sizes, more precautionary management, and a more efficient fishing fleet, individual vessel limits have declined by a proportionately greater amount than the annual harvest limits. For example, for rockfish in the northern area, landing limits in the limited entry fishery have been reduced from 120,000 pounds per month in the mid-1980s to 13,000 pounds per month in 2000. For *Sebastes* in the southern region, vessel limits that were 100,000 pounds in the early 1990s are now 22,000 pounds for 2000.

Limits for the Dover sole, thornyheads, and trawl-caught sablefish (DTS) complex have been reduced from 110,000 pounds per month in the early 1990s to 27,000 pounds for 2000. The limited entry fixed gear sablefish season, which was year-round in the early 1980s, has been reduced to 6-9 days in recent years. This fishery (with its regular and mop-up components and its three-tiered structure) has also become more complex to administer.

In the open access fishery, monthly-equivalent *Sebastes* limits have fallen from 35,000-40,000 pounds during 1994-1998 to about 5,000 pounds during 1999-2000. Recreational fishing opportunities have also been reduced throughout the coast, with both season closures and reduced bag limits for important species.

4. Overcapitalization and Its Effects on the Fishery

In response to shrinking profits and declining harvest levels, the Council implemented a limited entry program for the commercial groundfish fishery in 1994. Most people would argue this program did not go far enough and that too many vessels were granted permits. Of the vessels that initially qualified for a limited entry permit, 245 held fixed gear endorsements and 384 held trawl endorsements. Currently, the limited entry fleet includes 236 fixed gear endorsements, 264 trawl endorsements held by catcher boats, and 10 trawl endorsements held by trawl catcher-processor vessels. No trawl catcher-processors qualified for the initial issuance of limited entry permits, so they had to buy permits from groundfish catcher vessels in order to participate in the whiting fishery after 1993. Because each permit has a vessel length endorsement, and catcher processors are much larger than traditional trawl vessels, each catcher-processor had to buy and combine several permits to participate in the fishery. The reduction in the number of trawl permits due to the catcher-processor buy-up has been the only significant change in the groundfish fleet configuration since the 1994 inception of limited entry.

Potential harvest capacity includes both unused (or "latent") and in-use capacity. Although limited entry has likely had the effect of "freezing" potential harvest capacity at its 1994 level, the low eligibility requirements for limited entry assured that even vessels with marginal involvement in the fishery were eligible for a permit. As a result, a significant proportion of the harvest capacity initially admitted into the limited entry program consisted of latent capacity. Many of these permits

were later transferred to vessels that now actively participate in the fishery, leading to the overcapitalization that has been exacerbated by the acute harvest restrictions of recent years.

Current capital utilization rates are quite low for all sectors of the commercial groundfish fishery. Analysts estimate that 9% of the limited entry fixed gear vessels could harvest all of their sablefish allocation and 12% of the vessels could harvest the non-sablefish components of the fishery. For the trawl fishery, only about 27%-41% of the current fishing capacity is needed to catch and deliver the shore side harvest, and 6%-13% of the open access vessels could take that groundfish allocation.

5. Biological and Regulatory Factors Affecting the Fishery

The decline in non-whiting groundfish landings experienced in the early 1990s has accelerated in recent years, as increasingly restrictive management measures have been adopted in response to new scientific information and new statutory requirements. In 1998, the Council adopted a lower harvest rate for rockfish on the basis of scientific information suggesting those stocks are less productive than previously believed. In 1999, in order to comply with provisions of the Sustainable Fisheries Act (SFA), the Council adopted a default harvest rate policy that set stringent rebuilding requirements for "overfished" stocks.

Formal rebuilding plans were initiated in 2000 for lingcod, bocaccio, and Pacific ocean perch, and will be initiated in 2001 for canary rockfish and cowcod; additional species may be declared overfished in the near future. In 2000, the Council reduced the harvest rates for shortspine thornyhead and for widow rockfish, based on new scientific evidence that previous harvest policies for these species had been too liberal given stock productivity. The Council has reviewed new scientific information that indicates productivity of West Coast groundfish is unusually low relative to other groundfish stocks worldwide, which suggests that harvest rates should be further reduced. Declining abundance trends observed for many West Coast groundfish stocks indicate that historic harvest rates have been too aggressive. Adoption of lower harvest rates would result in further landing and revenue reductions.

Some of this low productivity, at least in recent years, may be because of changing ocean conditions. Around 1976, there was a change in the temperature of the Pacific Ocean; scientists refer to this change as a regime shift. Ocean temperatures increased and, on average, have remained warmer since 1976. This temperature shift affected ocean biological productivity, reducing food supplies and causing some species to migrate to new areas. Tropical and subtropical species, such as marlin, appeared off Washington and Oregon, where they had not been observed before. A series of strong El Niños (short-term climate shifts) occurred along the West Coast. Washington and Oregon salmon stocks began a long decline. Plankton abundances changed, sometimes declining to very low levels.

However, there is growing evidence that the ocean may be shifting back to a cooler condition. If this proves true, it is likely that reproduction of many important groundfish species could respond favorably and the population declines may be halted. However, due to the depressed status of many groundfish stocks, the long periods required to rebuild overfished stocks, and the possibility of further OY reductions in the near future, allowable non-whiting harvests are likely to remain restricted for many years to come.

6. Need for Groundfish Strategic Planning

The economic hardship and uncertainty experienced by the industry is intensifying competition among fishery sectors for access to the resource. Individual fishers, communities, and competing groups have become more polarized and information needs have increased. Protecting groundfish stocks while ensuring that the burden of conservation measures is distributed equitably among sectors of the fishery is becoming increasingly difficult. Even if groundfish OYs were to increase significantly (an unlikely scenario), latent capacity would likely enter the fishery at any sign of improved fishing opportunities. The current problems associated with low landings limits, short seasons, and complex regulations will not go away unless latent capacity is permanently removed from the fishery.

The Council has responded to these problems by trying to deal with individual issues on an ad-hoc basis. This short-term approach has essentially become crisis management.

Participants in the West Coast Groundfish fishery are aware of the wide range of difficulties in the fisheries and their management. Traditional target stock resources have declined, competition for limited resources has increased, and information and management needs have grown. Future goals and directions have been questioned and become uncertain. Recent changes to the national standards for fishery management have created new management requirements for the Council.

For these reasons, the Council decided to start a strategic planning process to look beyond the short term and crisis management approach to setting seasons and catch limits and created an Ad-Hoc Pacific Groundfish Fishery Strategic Plan Development Committee. The Committee has developed a strategic plan that addresses future fishery conditions and recommends new management actions.

The Committee expects that, to be effective, this strategic plan will have to address the difficult issues of: reducing fishing capacity, setting more responsible harvest rates, making allocation decisions, meeting scientific needs, protecting habitat, and improving the Council management processes. This planning work will take place during a time when fishery restrictions will be used to rebuild overfished stocks. These conditions provide the clearest evidence of the need for a longer-term vision and road map for the future of groundfish management.

The Committee designed a process and schedule to get key information, identify specific problems and develop a range of solutions. The Committee has developed a draft strategic plan document for Council and public review that:

- Recommends new management goals and objectives;
- Initiates new groundfish plan amendments for the 2001 management cycle;
- Outlines detailed actions for Council work plans and a schedule of priorities for the next 3-5 years; and
- Develops specific recommendations for other entities to address that will complement the Council's needed management changes; such recommendations may propose changes in law, calls for budget support, and expectations for improving coordination between industry, government and educational institutions.

B. Vision For The Future Of The Groundfish Fishery

The Strategic Plan's vision for the future of the groundfish fishery assumes that the Plan's recommended actions are fully implemented with passage of sufficient time for the anticipated benefits to have been fully realized. The Plan's drafters recognize that the transition to this future will require major changes in the structure and operation of the fishery, which will certainly have short-term adverse effects on current participants. The plan envisions that fishery management decisions are based on sound scientific data and analysis and an open and fair Council process.

1. The Fishery

We envision a future where Pacific groundfish stocks will be healthy, resilient, and where substantial progress has been made rebuilding overfished stocks. Harvest policies will result in total fishery removals that are consistent with the long-term sustainability of the resource. The fishing industry will be substantially reduced in numbers and harvest capacity will be reduced to a level that is in balance with the economic value of the available resource. Those remaining in the fishery will operate in an environment that is diverse, stable, market-driven, profitable, and adaptive over a range of ocean conditions and stock sizes.

Unlimited or open access to the groundfish fishery will no longer exist because current open access participants will be brought into the limited entry program and the number of participants reduced to those who are most dependent on and committed to the fishery.

Whenever possible, management approaches will create incentives for fishers to operate in ways that are consistent with management goals and objectives.

Allocation disputes will be resolved and all harvest sectors will believe they were treated fairly, including those non-groundfish fisheries where groundfish is an unavoidable incidental catch. Discarded bycatch by all gear groups will be minimal and quantified.

Fishery regulations will be less complex and more easily enforced. Council management may be simplified by removing some species from the FMP through delegation or deferral to state management.

Essential groundfish habitat will be adequately protected and adverse effects from all groundfish fishing gears will be reduced to minimal levels. Marine reserves, or no take zones, will provide a base level of protection as an insurance policy to reduce the risks of uncertain science and long stock rebuilding periods.

The improved operating conditions and profitability for those remaining in the fishery will allow participants to accept responsibility for a portion of the cost of effective science and management, including an at-sea observer program, that is commensurate with the level of benefits associated with exclusive access to the fishery.

Finally, the Council will have full access to all fishery management tools and will use them to provide protection for and reasonable access to groundfish stocks.

2. The Science

The basis for future management of the groundfish fishery relies to a very large degree on the availability of good science. West Coast groundfish science will meet national and international standards, be accepted as credible and will be understood by the all stakeholders. Scientific data collection will be a collaborative process involving partnerships between federal, state, and tribal agencies, the fishing industry, and academia, and may include contributions from private foundations.

Data collection and monitoring programs will provide stock assessments with acceptable levels of uncertainty for use by the Council's scientific, management, and advisory committees. Scientific data collected from the fishery will provide the capability to accurately assess the effects of current and potential fishery management measures on groundfish stocks and fishery participants. Finally, scientific tools will have been developed to provide stock assessments throughout the distribution of the various groundfish stocks geographic ranges incorporating the variability and effects of ocean regime shifts.

3. The Council

Future Council activities will be characterized as open to all stakeholders, inclusive of all views, credible and interactive. Council actions will be documented and easily understood and developed with meaningful involvement by the public, including environmental, commercial and recreational representatives. Council decisions will be documented with readily available explanation and analysis of the underlying biological and socio-economic considerations. Council advisory entities will work together to contribute advice and expertise that results in recommendations that are accepted by stakeholders. Regulations development will be simplified and streamlined. Regulations will be generally stable over multi-year periods, but there will be flexibility to respond quickly when changes are needed.

C. Consequences of Inaction

There is another vision from that presented above. The Council could continue attempting to manage an overcapitalized fleet in the face of declining resource abundance and the necessity to meet stock rebuilding requirements. This will most certainly result in shorter fishing seasons, smaller trip limits, higher discard rates, and the continuous inability to accurately account for fishery-related mortalities. Many fishers will not be able to meet their basic financial responsibilities and will be forced from the fishery by a feeling of futility or bankruptcy. The Council and participating agencies will be overwhelmed by the need to implement short term fixes to long term problems with little or no chance to focus on the underlying problems of the fishery or to develop a long term management strategy.

To avoid this other vision of the future, the Council will have to act swiftly and soon. The Council has a choice in charting the future of the groundfish fishery. Decisions that the Council makes now will have profound effects for years to come.

Section II. A
The Groundfish Strategic Plan

"What Will We Do To Get There?"

Groundfish Fishery Management

Management Policies
Harvest Policies
Capacity Reduction Allocation
Observer Issues
Marine Reserves
Groundfish Habitat

II. The Strategic Plan "What Will We Do To Get There?"

A. Groundfish Fishery Management

This section, "A. Groundfish Fishery Management," deals with six areas of fishery management policy: harvest policies, overcapacity, catch allocation, observer issues, habitat issues, and marine reserves. Each policy area is explored below with a problem statement (a), a strategic plan goal (b), a discussion of issues/options/alternatives (c), and our recommendations (d). The problem statement explains why we are exploring each policy problem, and the goal briefly states what we think the Council should work towards in each policy area. In issues/options/alternatives, we detail some of the ideas that we discussed in trying to solve the policy problems and meeting the strategic planning goals. Finally, we sort through the options described and boil them down to recommendations for Council action.

1. Overall Fishery Management Concerns

(a) Problem Statement

This initial discussion of overall management concerns looks at: whether the Council has met its goals and objectives for groundfish management, if those goals are still realistic, and how to incorporate the goals into future groundfish management policies. Although the groundfish FMP's goals and objectives address many aspects of the fishery and fishing communities, the objectives that appear more than any others to be the basis for the current regulatory structure are to: (1) Prevent overfishing; (2) Reduce or minimize bycatch; and (3) Maintain year round harvesting and processing opportunities.

The goal of maintaining year round harvesting and processing opportunities has had the greatest influence by far on the development of the current regulatory structure, in particular for the commercial non-whiting groundfish fisheries. This goal of maintaining as much fishing opportunity as possible throughout the year has dominated the regulatory structure for the recreational fisheries as well. Consequently, the Council has chosen to regulate the flow of landings with trip or cumulative period landing limits, to stretch them throughout the year. The most common use of these limits in the commercial groundfish fishery is one- or two- month cumulative landing limits. Under these limits, vessels may make as many individual fishing trips as they need during a period and are bound only by the species or species complex cumulative landing limit for the entire period.

When there was less harvest capacity in the fishery, allowable harvests were greater, and markets for some stocks less developed. During this period, trip and cumulative period landing limit management may have been relatively effective at meeting each of the FMP's principal goals and objectives. Lack of an observer program, however, makes it impossible to know whether bycatch was minimal. Over the last decade, trip- and cumulative landing limit management has become far less effective in meeting the FMP's goals and the Magnuson-Stevens Act requirements. Allowable harvests have been reduced significantly because of declining stocks, a better understanding of stock productivity, and the need to meet Magnuson-Stevens Act requirements to prevent overfishing and rebuild overfished stocks. Lack of adequate data to support stock assessments has contributed to uncertainty in those assessments, which has resulted in the need to be even more precautionary in

setting allowable harvest limits.

At the same time, harvesting capacity has increased and new markets have emerged for previously lightly used stocks such as nearshore rockfish. All of these factors combined have led to a need for drastic reductions in cumulative period landing limits. Although unverified due to lack of observers, there is virtual certainty among fishery managers and the fishing industry that reduced landing limits have resulted in increased bycatch, confounding the Council's efforts to prevent overfishing.

Maintaining recreational fishing opportunity for depleted stocks such as lingcod and bocaccio has also put downward pressure on commercial landing limits, further exacerbating bycatch. The need to be even more precautionary in setting annual OYs is both a consequence and a contributor to this downward spiral of allowable harvests.

(b) Strategic Plan Goal For Management Policies

To adopt understandable, enforceable, and stable regulations that, to the greatest extent possible, meet the FMP's goals and objectives and the requirements of the Magnuson-Stevens Act.

(c) Issues/Options/Alternatives

1. How Can the Council Make the Regulatory Structure More Stable, Understandable and Enforceable, and Better Meet the FMP's Goals and Objectives and the Magnuson-Stevens Act Requirements?

Groundfish regulations have become increasingly complex and difficult to understand and enforce. Managers are trying to provide access to healthy stocks while protecting depressed stocks, and provide fair access for different segments of the industry (gear types, fishing strategies, open access/limited entry, recreational/commercial) that require different types of regulations. Managers also make geographic divisions to manage more precisely in matching the species composition and availability in different areas. All of these competing considerations result in regulations that can be confusing and difficult to enforce, and which reduce fleet flexibility and efficiency.

Alternative strategies to prevent overfishing and reduce or minimize bycatch include: shorten the fishing season from a year round fishery but keep the landing limit structure, or keep the year round fishing opportunity but eliminate the landing limit structure. Both of these strategies would need to meet Magnuson-Stevens Act requirements to minimize bycatch and prevent overfishing by doing away with the need for restrictive landing limits.

Management options include:

(i) Options to shorten the fishing season range from the extreme of a wide open, very short derby fishery with no landing limits to a six to eight month fishery with higher landing limits and presumably less bycatch. Although the Groundfish Management Team could project how much higher landing limits might be under this option, without observer data they could not project bycatch reduction benefits compared to the current system.

(ii) Significantly reduce capacity in both the limited entry and open access fleets. In the short term, combine either a voluntary or mandatory permit stacking option with a shortened season to further increase the total landing limit per vessel per period.

(iii) Develop and implement an Individual Fishing Quota (IFQ) program. Under an IFQ system, each quota holder can plan to harvest their quota shares at any time of the year. The fishery would still be managed to an overall OY to prevent overfishing. Bycatch associated with cumulative landing limits would be eliminated, although there might be some bycatch from high grading by fishers seeking to maximize the value of their IFQ. Requiring full catch retention and observer coverage may eliminate high grading. There are IFQ options and recommendations in the capacity reduction section, below.

(iv) Divide the fishing year into segments (thirds, quarters, sixths, etc.,) and limit the number of fishing periods during which each vessel would be allowed to make groundfish landings. This would allow a year round product flow through processing plants, with higher vessel limits per period, and a reduced number of overall landing limits.

(v) To the extent that either landing limits or the actual harvest of healthy species are constrained by the need to protect and rebuild depressed stocks, use higher landing limits as an incentive to fish with bycatch-friendly fishing gear or to fish in areas where bycatch is less likely. For the 2000 fishery, emergency measures provided higher trawl trip limits for vessels using small footrope gear or mid-water trawl gear.

2. What are Some Strategies that Could Bring More Stability to the Fishery?

The Council could decide on specific allocations between commercial and recreational fisheries and between the various sectors of the commercial fishery. Without specific allocations to the various sectors of the fishery, fishery participants cannot anticipate and plan for the share of the overall harvest they will be allowed to access. Instead, as the availability of different species declines, access will be determined in the annual management process, with de facto allocation outcomes that may change significantly from year to year. By making allocation decisions up front and long-term, fishery participants could have a longer and more certain planning horizon. Implementing an IFQ program, where each participant essentially has his own allocation, would allow fishers to plan for themselves how to take their harvest in the most cost effective and profitable manner.

3. What are Some Strategies for Increasing Enforcement Effectiveness and Reducing Complexity?

Keep the regulations as simple as possible. Acknowledge that more fine-tuning (micro-management) usually results in more complexity and less flexibility.

Review the scope of the management unit, particularly with respect to nearshore rockfish management. Consider delegating or deferring to the states management of nearshore rockfish species that reside in and are harvested primarily within state waters. Increasingly, the Council has been asked to adopt complex regulations designed to respond to the particular needs of communities in specific geographic locations. Most of these requests relate to very small vessels accessing local

rockfish stocks and marketing them within the area. The Council is not well equipped to evaluate these requests and accommodating them increases the complexity of the regulations. In addition, the Council and NMFS are not well suited to assess the biological requirements of many of these local populations, to assess the social and economic issues associated with them, or to monitor localized fisheries.

(d) Management Policies Recommendations

These recommendations assume that the objective of maintaining year-round harvesting and processing opportunity remains the Council's highest social and economic priority. In that case, it is imperative that Recommendation 1 for capacity reduction be implemented as rapidly as possible. If substantial harvest capacity reductions are not possible or are delayed, the Council must consider several of the alternative strategies for restructuring the fishery to restrict access by some portion of the fishing fleet for major periods.

In the event that none of the recommended measures or alternatives are viable or effective, the Council may have to shorten the annual fishing season. The Strategic Planning Committee cannot emphasize strongly enough the need for some level of observer coverage to evaluate the effectiveness of different management strategies.

1. Develop an implementation plan to reduce capacity initially by at least 50% in each sector. However, the capacity reduction goal will not be fully realized until capacity has been reduced to a level that is in balance with the economic value of the resource and those remaining in the fishery are able to operate profitably and flexibly. The implementation plan should take into account the need to implement other Plan recommendations (i.e., allocations, nearshore rockfish delegation) prior to or at the same time as capacity reduction. Reducing capacity will relieve the need to adopt management policies that are both inefficient and ineffective at achieving the FMP's goals and objectives. By better matching fleet capacity to resource availability, the regulatory structure will become more stable, resulting in regulations that are more enforceable.

2. Explore the use of higher landing limits or other incentives to encourage fisherman to fish with bycatch friendly fishing gear or to fish in areas where bycatch is less likely.

3. Make the necessary allocation decisions so that fishery participants in each sector can plan on a specific share of future OY's. Allocations may be outright percentages or a framework with criteria that specify how the allocation changes as resource availability changes.

4. Consider delegating or deferring nearshore rockfish and other groundfish species, such as scorpionfish, greenling, and cabezon, to the States.

5. All commercial fisheries should be limited through state and/or federal license or permit programs.

2. Harvest Policies

(a) Problem Statement

The Magnuson-Stevens Act defines "overfishing" as "a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce maximum sustainable yield on a continuing basis." This definition, coupled with the Magnuson-Stevens Act requirement to prevent overfishing, places strong emphasis on maximum sustainable yield (MSY) as a harvest policy goal for fishery management councils. Calculating MSY, however, requires that the analyst make many assumptions to deal with uncertain data inputs and incalculable environmental forces. For the foreseeable future, scientists will not have the technology or information needed to calculate the "true" MSY of any Council-managed stock, which means that all MSYs that the Council works with will be estimates (or "proxies") of varying degrees of accuracy. In setting its harvest policies, the Council needs ways to deal with error that go beyond the strictly mathematical framework of MSY.

There are 82 different stocks managed under the groundfish FMP and these stocks are highly varied in life histories, habitat needs, and response to fishing pressure. Many of these species have not had stock assessments, which has resulted in a high degree of uncertainty in determining MSYs for these species. The Council and its participating agencies do not have the personnel or funds to assess all 82 species on a regular and frequent basis. One of the Council's more difficult management challenges is the expectation that we will continue to operate without the information needed to set precise MSYs.

Errors in estimating allowable harvest can grow out of errors initially made in estimating three critical quantities: current biomass, long-term exploitation rate, and total fishery related mortalities. To estimate these quantities and a proxy MSY, scientists need, at a minimum: 1) a natural mortality rate, 2) weight-at-age, 3) fishery selectivity-at-age, 4) proportion mature-at-age, and 5) an assumed fishing mortality rate. Weight-at-age and maturity-at-age can be estimated with relatively low error; they usually do not change dramatically from year to year (although they may change over time) and so are unlikely to lead to significant errors in the estimation process. Continual catch monitoring is essential to assure precision.

Natural mortality (M) and fishery selectivity may change annually, with natural mortality largely dependant on unmeasured factors like environmental change. Given the existing tools, there is little or no opportunity for scientists to measure the annual change in natural mortality. Proxy MSY calculations are highly sensitive to changes in natural mortality. Prudent management should consider the uncertainty in natural mortality, and managers should be aware of the resource management implications of natural mortality assumptions.

Fishery selectivity-at-age can be highly variable, particularly for fast growing, short-lived species. For slower growing species, age selectivity is likely to be more stable. Proxy MSY estimates are highly sensitive to age selectivity because it is directly tied to total mortality. Lack of age sampling data and changing allocations for each gear type increases the opportunity for errors. Stabilizing allocations and uninterrupted sampling of the age structure from each gear type can reduce risk of error.

At a minimum, precautionary management should acknowledge the variability in the accuracy of estimated biomass. In setting harvest policies, the Council should be provided with estimates of biomass abundance under alternative harvest and recruitment scenarios. Council policies should have a high (80%) probability that stock abundance will not decline below the Council's target levels. Accounting for discard and other unknown fishery induced mortalities mandates that managers adopt conservative harvest guidelines. Typically, the largest single missing catch item is discarded catch. Expected discards should always be deducted from the maximum total allowable catch, as a safeguard against uncounted fishing mortality. Direct, at-sea fishery monitoring is needed to more precisely estimate discard rates.

Given the uncertainty in the estimation of total allowable catch, the Council should employ reasonable safeguards by setting harvest guidelines below the Allowable Biological Catch (ABC). A management strategy that sets harvest guidelines lower than the acceptable level of biological catch, coupled with managing fisheries to a fixed harvest guideline and closing fisheries when the harvest quota is met, will give greater assurance of long term sustainable fisheries.

(b) Strategic Plan Goal for Harvest Policies

To establish an allowable level of catch that prevents overfishing while achieving optimum yield based on best available science.

(c) Issues/Options/Alternatives

1. How Do We Establish Harvest Policies in the Absence of Adequate Science?

For stocks with limited demographic information, the Council should create a hierarchical approach to setting harvest levels. Under this approach, the less information there is about a stock and its appropriate harvest level, the more conservative the Council would be in setting harvest rules for that stock. If fishers believe that they are losing harvest opportunities, this strategy may provide an incentive for the industry to share in government efforts and burden in getting more detailed information. Management agencies should prioritize data collection efforts to gather demographic information for as many fish stocks as possible. Ironically, the single greatest bottleneck for improving demographic data is in age determination, an information base that can be gathered shoreside.

An example of a hierarchical approach for setting harvest allowances based on available biological information is one that is used by the North Pacific Fishery Management Council (NPFMC). The NPFMC has classified demographic data into 6 tiers based on available information: 1) reliable estimates of biomass, B_{MSY}, and a probability density function for F_{MSY} (i.e., known spawner-recruit function and stochastic estimate of MSY); 2) Reliable estimate of biomass, B_{MSY}, F_{MSY}, $F_{35\%}$,, and $F_{40\%}$; 3) reliable estimate of biomass, $B_{40\%}$, $F_{35\%}$, and $F_{40\%}$; 4) reliable estimate of biomass, $F_{35\%}$,, and $F_{40\%}$; 5) reliable point estimate of biomass and natural mortality; and 6) reliable catch history (for a fixed interval 1978-1995). Harvest allowances are increasingly precautionary as the biological information base decreases.

2. How Do We Reconcile Wide Variability in Biomass Estimates and Lack of Information on Total Mortalities?

Our inability to monitor at-sea discards is a major impediment to improving demographic information about stock condition. As a rule, for age-structured model estimates of stock abundance, biomass is proportional to catch. This means that if catch is underestimated (such as when discards are not fully accounted for), biomass will be underestimated; and conversely if discard is overestimated, the biomass will be overestimated.

When making adjustments to a trip limit to keep the total catch within the harvest quota, the Council must be aware that such adjustments may cause an increase in the discard rate. In such cases, a precautionary adjustment to discard rates should be made to ensure that the harvest quota is not exceeded.

While including improved catch data in age-structured models will result in more accurate estimates of stock abundance, it may not affect the precision of the biomass estimate. Wide confidence intervals on estimates of total abundance will continue to be common in stock assessments. To improve precision in abundance estimates would require substantially increasing the number of age samples drawn from the fishery. This dilemma is exacerbated because as stocks decline and the need for precise abundance estimates is most acute, the opportunity to collect samples diminishes.

3. How Do We Set Harvest Policies for Unassessed Stocks?

There are actually few stocks for which there are no demographic data of any kind. Typically, we have some measure of catch, and/or a measure of abundance, although it may be highly imprecise and from fishery independent surveys. Alternatively, the harvest policy could be a function of peak or median catch over some interval. If the natural mortality rate for the species is unknown, it can be inferred from rates associated with similar species.

Applying the lowest rate for a known species to a similar, unassessed species would be an appropriate precautionary response. For example, the Gulf of Alaska Fisheries Management Plan sets the allowable catch for "other species" at 5% of the ABC for all assessed species. If the fishery demonstrates an ability to target a previously unassessed species, the North Pacific Council is obliged to get the demographic data needed to set a more meaningful allowable harvest level.

4. How Can We Protect Weak Stocks While Harvesting Healthy Stocks?

The only apparent method of protecting weak stocks in a mixed stock fishery is to limit overall harvest to the quantity produced by the weak stock. This is the so-called weak-stock management principle. If management allows full harvest of the more productive stocks, it must acknowledge that co-occurring weak stocks will likely be overharvested (i.e., harvested at a rate exceeding F_{MSY} or its proxy.) The maximum exploitation rate that can be allowed for a weak stock is the level of fishing mortality that drives the stock to: 1) a level above the FMP definition of overfishing, or 2) a level that is above a listing threshold as defined by the Endangered Species Act (ESA). The former assures that the overfishing restrictions of the Magnuson-Stevens Act will not be violated; the latter protects against violation of the ESA.

Weak stocks in a mixed stock fishery constrain the fishery's allowable level of production. If the fishery's potential effect on the weak stock is estimated to drive that stock below one of the two thresholds listed above, and the catch is unavoidable, the target fishery should be closed. Harvesters should be encouraged to conduct experimental fisheries with alternative gears that selectively harvest the desired productive species while minimizing bycatch of the weak stock. Observer coverage or other scientific monitoring would be needed to verify the results of the experiment. Subsequent fisheries using selective fishing practices should continue to be monitored with observers to assure that bycatch of the weak stock remains within estimated levels. The Council cannot protect weak stocks from overharvest without requiring the monitoring of total catch and a willingness to close fisheries when incidental catch of the weak stock have been taken.

5. How Do We Rebuild Overfished Stocks as Quickly as Possible While Providing Economic Opportunity to the Industry?

Options for rebuilding rates are limited by Magnuson-Stevens Act requirements; therefore, the Council may not be able to manage for the minimum impact on the fishing industry when implementing a rebuilding plan. The Council should always aggressively avoid allowing a stock to become overfished. Once a stock is in an overfished condition and a rebuilding plan is developed, the Council must weigh, within the parameters required of rebuilding an overfished stock, the cost of forgone catch against the benefits of recovery. In making such a determination, the Council would need an economic simulation of the results of different rebuilding time frames.

6. How Do We Set Harvest Polices for Transboundary Stocks in the Absence of an International Allocation Agreement?

One alternative the Council has used to manage a transboundary stock is to estimate the proportion of the total stock biomass within the U.S. EEZ and manage domestic harvest accordingly. The success of this method assumes that the other nation agrees with the estimated distribution of stock biomass and behaves similarly. If total biomass distribution is unknown, allocation can be based on the ratio of historic catch. When the sum of the catch from both nations routinely exceeds the total allowable catch for the transboundary stock, one nation could unilaterally assume the entire burden of conservation by anticipating the other nation's removals, and reducing its allowable catch accordingly. While such behavior is consistent with a precautionary approach to management, the typical response of each nation is to harvest at a level consistent with their political position, which is usually not at a rate predicted to achieve MSY. The nations could allow their fisheries managers to set transboundary allocations informally, in effect, volunteering to abide by a non-binding agreement without the benefit of formal nation-to-nation agreements. Since it is always in the interest of the citizens of each nation to agree that both parties will conserve a limited resource, negotiated allocations are preferred.

To be effective, collaboration with Canada and Mexico in assessing transboundary stocks requires a commitment from the U.S. State Department for implementation, and the reality is that groundfish have had little attention when general trade negotiations take place with other nations. On the technical level, scientists from respective countries can share data, compare assessments, or conduct joint assessments. Negotiation and implementation of harvest sharing regimes, however, can only be accomplished through bilateral negotiations from representatives of the respective nations.

7. Summary of Options and Alternative Strategies for Harvest Policies

Selecting an allowable level of catch for any stock is largely a policy decision. There is no magic scientific formula that tells a manager precisely how many fish to allow in the catch even when the manager possesses perfect knowledge about the fished population. Harvest level choice is directly linked to the manager's policy objectives. The Council must use the maximum sustainable yield concept directed by the Magnuson-Stevens Act in defining its harvest policies. Harvest strategies that result in continued declines of multiple stocks must be reversed. Failure to account for all fishing induced mortality (landed catch + discard) is a fundamentally flawed management practice. Management strategies that encourage regulatory discards with no discard monitoring program are also fundamentally flawed.

The Council should strive to distribute fishing effort proportionately to the distribution of the fished biomass. It should set harvest guidelines to recover the surplus production of assessed stocks only. Where fishing effort is high and local catch rates excessive, the harvest policy should not allow harvest guideline transfers from other areas to artificially support the excessive harvest. Given a host of uncertainties in biomass estimation, the appropriate choice of exploitation rates, and the imprecision of accurately accounting for fishery related mortalities, the harvest policy should require that harvest guidelines be set lower than the ABC. The Council should consider an engineer's approach when choosing harvest rates. Design the harvest policy to withstand 2 or 3 times the maximum stress expected on the resource. Let scientists advise the Council with their best estimates of the appropriate rate of exploitation, then fish at a lower level until you see a steady increase in stock biomass. Only then should there be an incremental increase in exploitation toward the scientifically advised harvest rate.

(d) Harvest Policies Recommendations

1. In consideration of the uncertainties in the estimation of ABCs, set optimum yields (OYs) lower than the ABC, manage the fishery to a fixed OY(s), and close the fisheries when the OY is reached.

2. Harvest levels must be increasingly precautionary when less biological information is available, and particularly if monitoring programs fail to provide reliable estimates of total fishery-related mortality. Consider a hierarchal approach, where increased levels of conservatism would be required based on the specific quantity and quality of biological and fisheries information that is available.

3. For unassessed stocks, set precautionary harvest levels based on simple parameters such as a fixed proportion of the mean catch or survey abundance, or as a function of the lowest rate allowed for an assessed stock.

4. To protect weak stocks harvested in multi-species fisheries, adopt a policy requiring closure of the fishery when the ABC or OY of the weak stock has been taken. In setting the OYs, determine whether benefit/cost considerations might justify overfishing a particular weak stock under the mixed-stock exception in the National Standard Guidelines. Do not

knowingly allow harvest rates that drive the stock below the level defined in the FMP as "overfished" or to a condition warranting listing under the ESA.

5. Without an international agreement on setting and sharing the total allowable catch for trans-boundary stocks, the Council should conserve that portion of the stock within the geographic range of its authority.

3. Capacity Reduction

(a) Problem Statement

Overcapacity in the groundfish fishery is at the base of many other problems in the fishery. Overcapitalization often drives fisheries management choices and undermines the effectiveness of management changes. The groundfish fishery has been managed for many years with trip limits and cumulative period landing limits in order to allow the fishery to operate year round. To reduce management-induced discards, trip limits have been replaced by cumulative period landings limits with the time periods for the limits increasing over time. As OYs have declined, so have the cumulative landing limits. With lower landing limits and higher gear efficiency, the opportunities for discards have increased. The fixed gear sablefish season has been shortened from months to days, and increasingly elaborate measures have been adopted to prevent the sablefish OY from being exceeded. Small landing limits and short seasons are exacerbating the economic inefficiencies resulting from too many boats chasing too few fish.

According to the Scientific and Statistical Committee (SSC): "The 1994 limited entry program was not sufficiently restrictive to address the overcapitalization that existed at the time of the program's inception. Moreover, the gap between harvest capacity and groundfish OYs that existed in 1994 has widened as stocks continue their downward decline, new scientific information has become available clarifying the extent and gravity of this decline, and OYs have been reduced to unprecedented low levels."

Due to political, economic, and biological complexities of West Coast groundfish management, there has been little progress in reducing harvest capacity. These complexities have stalled efforts to develop an industry-funded buyback program for the limited entry trawl fishery and have suspended indefinitely Council efforts to develop an IFQ program for the limited entry fixed gear fleet.

Allowing an open access fishery with a total absence of limits on capacity has also become a serious management problem. Decreased participation in non-groundfish fisheries such as salmon, improved prices for some groundfish species like sablefish, and the development of the live rockfish fishery have transformed the open access fishery from a primarily bycatch fishery with a small directed-fishery component, to a much larger fishery with many more participants relying on the fishery for large portions of their annual incomes.

Reducing capacity in the fishery is fundamentally necessary to reducing overfishing, minimizing bycatch and improving the economic outlook for the West Coast fishing industry. Capacity reduction should not be seen as just another type of management measure. Capacity reduction must be a key element of any plan to ensure management effectiveness and economic viability of the west-

coast groundfish fishery. Without significant groundfish capacity reduction, the Council will continue to find it difficult, if not impossible, to achieve many of the conservation and economic objectives of the Groundfish FMP.

(b) Strategic Plan Goal for Capacity Reduction

To have a level of harvest capacity in the fishery that is appropriate for a sustainable harvest and low discard rates, and which results in a fishery that is diverse, stable, and profitable. This reduced capacity should lead to more effective management for many other fishery problems. For the short term, adjust harvest capacity to a level consistent with the allowable harvest levels for the 2000 fishing year, under the assumption that stock rebuilding will require reduced harvests for at least the next two decades. Maintaining a year-round fishery may not be a short-term priority.

(c) Issues/Options/Alternatives

1. How Much Capacity Reduction is Necessary?

Measuring fleet overcapacity involves comparing potential harvest capacity with the amount of fish actually available for harvest. While potential capacity may not have changed significantly since the introduction of the 1994 limited entry program, available harvest has declined in recent years and fewer boats are needed to catch that available harvest. The SSC has calculated a measure of overcapacity called the "current capital utilization rate," which describes the percentage of boats in the current fleet needed to harvest the groundfish available in 2000. The SSC has calculated this "current capital utilization rate" for several different fishery sectors.

To make these calculations, the SSC sorted the vessels in each sector, within each year from 1984 through 1992, in descending order of their total annual and cumulative groundfish landings. To determine the number of vessels needed in each year to fully harvest the available groundfish in 2000, the SSC counted down the vessel list from more to less productive vessels. Once the SSC had counted vessels with enough capacity to take the 2000 groundfish harvest, that number of vessels was calculated as a percentage of the total number of vessels in the fishery sector to get the "current capital utilization rate." They used 1984-1992 for this comparison because groundfish harvests were much less restricted in those earlier years than now, and catches from those years seemed to be a better indicator of what vessels were capable of catching.

The current capital utilization rates for various fishery sectors are as follows:

Limited Entry Fixed Gear
- Sablefish- 9%
- Non-Sablefish groundfish - 10%

Limited Entry Trawl Gear
- Shoreside whiting - 37 vessels that represent the current number of vessels landing whiting shoreside
- Non-whiting groundfish - 26% to 40%

Open Access - 6% to 13%.

These estimates are not meant as recommendations for fleet reduction targets, but to illustrate the high degree of current overcapacity. The Council would need to set a fleet reduction target only if it uses regulatory mechanisms like further license limitations to get that reduction. If the reduction methods rely mainly on market-based permit consolidation or IFQs, then market forces will balance capacity according to the available resource.

It is clear from the figures above that we need a fleet reduction goal of at least 50% of the current number of vessels. Depending on the reduction methods used, it may not be possible to get a full 50% reduction. In addition, eliminating 50% of lower producing vessels may not sufficiently reduce fleet capacity. This should not discourage the Council from moving forward with capacity reduction, as any capacity reduction is better for the fishery than none at all. However, capacity reduction will not be deemed fully successful until capacity has been reduced to a level that is in balance with the economic value of the resource and those remaining in the fishery are able to operate profitably and flexibly.

2. What Approach Should Be Taken to Adjust Capacity and Regulate Overcapacity?

Although overcapacity can be defined in various ways, the simplest way to regulate overcapacity is by controlling the number of fishing vessels and/or limited entry permits. Strategies for reducing capacity fall into three general categories: market-based programs, regulatory solutions, and vessel or permit buyback programs. The most practical way to reduce capacity throughout the fishery is likely some combination of these three strategies. Capacity in certain sectors of the groundfish fishery might also be reduced or otherwise redistributed more appropriately to the distribution of harvestable fish stocks, through limiting participation to either specific geographic areas or to certain species through species endorsements.

Market-based programs - Market-based programs rely on the creation of a unit of fishing capacity, a unit of a fishing privilege such as a limited-entry license, or an Individual Quota that can be bought and sold on the open market. Fishery participants that want to increase either their total harvest capacity or the proportion of their existing capacity that they can use, would purchase capacity from fishery participants willing to sell. Capacity reduction would occur through consolidation into a smaller number of fishery participants. Market-based capacity reduction include IFQs, the consolidation of fishing permits (permit stacking), or some form of private cooperative.

Three commonly cited benefits of market-based strategies is that the cost of capacity reduction is borne primarily by the fishery participants themselves; that the optimum balance between the harvestable resource and potential harvesting capacity is determined by market forces, rather than by regulation; and that those leaving the fishery receive fair compensation.

Regulatory Solutions - Regulatory solutions include establishing or redefining qualifying criteria for continued participation in the fishery; restrictions on a vessel's physical ability to harvest, such as tonnage, hold capacity, length, horsepower; or, restrictions on fishing gear, such as net size. Regulatory solutions often involve difficult decisions, such as imposing minimum landing requirements, which can eliminate current participants from the fishery with little or no

compensation. Most regulatory solutions, therefore, are very controversial and the Council is likely to find it difficult to reach consensus on measures severe enough to accomplish meaningful capacity reduction. The Council must also ensure that regulatory solutions do not have unintended effects like increasing bycatch. Finally, regulatory solutions in the groundfish fishery that do not directly remove participants could increase inefficiencies to the level that some participants could no longer afford to remain in the fishery.

Vessel or Permit Buyback - Buyback programs are commonly either government funded or industry funded, or some combination of both. Buyback programs can expend a considerable amount of money removing latent effort from a fishery before the buyout results in real capacity reduction. However, as with market-based programs, buyback programs ensure that those leaving the fishery receive compensation. The difference is in the source of the compensation, and the receipt of the benefit. With a market system, an individual pays for the capacity reduction and receives the benefit (i.e., additional IFQ or harvest amount). With a buyback, the government or industry as a whole pays for the capacity reduction and the benefit accrues to the remaining industry as a whole.

3. What are Options to Reduce Capacity in the Limited Entry Fishery (A Permits) ?

A) Further reduce harvest capacity by redefining qualifying criteria (minimum landing requirements) for continued participation in the limited entry fishery.

This would eliminate some current permit holders whose landings do not meet the new, more restrictive landing requirements. Under this option, permit holders would not receive any compensation as they would under an IFQ, buyback or mandatory permit stacking program. If the Council reduces the number of "A" permits by this method, it must use this method either in advance of or simultaneously with a permit stacking program, to avoid the potential for industry to pay to stack permits that are later eliminated. The Council might also phase out non-qualifying permits over several years to allow vessel owners time to either acquire a qualifying permit or exit the fishery.

B) Immediately develop and implement a permit-stacking program for the limited entry fixed-gear and trawl fisheries.

Permit stacking would allow vessels holding multiple limited entry permits to harvest multiple cumulative limits. This type of program may alleviate the problem of discards associated with low cumulative limits by allowing a vessel to harvest multiple cumulative limits that, taken together, would be more appropriate to that vessel's capacity. Permit stacking could also allow harvest capacity reduction by serving as an industry-funded buyback without government backing.

Since permit stacking will likely result in the transfer of permits from less active vessels to the more active vessels that are better able to take advantage of an additional cumulative limit, the cumulative limit per permit will probably have to be reduced to ensure that overall harvests continue to remain within the OYs. Thus permit holders who do not stack will be placed at a disadvantage relative to their current situation. Vessels owners who already hold multiple permits will be able to stack without additional cost.

Permit stacking may be *voluntary* or *mandatory*. For voluntary stacking to be successful at reducing capacity and discards, a significant number of vessels must choose to stack permits. Given the difficulty of predicting the number of vessels that will choose to stack, the success of a voluntary stacking program in achieving a target fleet size is highly uncertain. Under mandatory stacking, each permit holder will be required to have more than one permit to participate in the limited entry fishery, thereby providing much greater certainty of achieving a target fleet size than voluntary stacking. To ease the financial burden associated with mandatory stacking, the Council might set a phase-in period for complying with this requirement.

Permit stacking could be a transitional step to an IFQ program. Not only could permit stacking reduce the universe eligible for initial quota share allocation, it can serve as a basis for the initial quota share allocation. For example, in the fixed-gear sablefish fishery, one option for initial quota share allocation could be based on the current three-tier system.

C) Develop and Implement an IFQ Program

IFQ programs involve the allocation of shares of the total OY among individual fishery participants. Other capacity reduction approaches (limited entry, buyback, and permit stacking) restrict inputs in terms of the number of vessels that can participate in the fishery. IFQ's, on the other hand, regulate access to output by setting the total poundage that each quota holder is eligible to harvest. Because IFQ's can be disassociated from fishing vessels, debates often occur over who is eligible to receive an initial quota allocation. Recipients could include not only harvesters, but also other types of fishery participants (e.g., processors, crew members). The initial allocation of IFQ's is typically intense and contentious. However, once allocation is complete, quota holders generally have a sense of "ownership" in the long-term sustainability of the IFQ resource and in the fishery management process. Given the personal financial stake that quota holders have in stock assessment results, IFQ's may also increase public pressure for more precise stock assessments.

<u>*Certainty and Autonomy*</u> Because quota share holders are guaranteed opportunity to harvest a share of the total OY at the beginning of the season, they are in a much better position to set the pace of their own fishing than limited entry permit holders, who are required to stop fishing once OYs become fully harvested. Rather than focusing on maximizing their catch (as derby fishery participants do), IFQ holders instead focus on maximizing the value of their harvest. Strategies to increase value (e.g., careful handling of catch, timing of harvest and on-board processing) may result in higher ex-vessel prices. The incentive to enhance the value of quota shares may also increase the likelihood of discarding and high grading, although present trip limits likely also cause this effect.

Quota share holders can time their groundfish harvests to maximize their opportunities in other fisheries. Thus IFQ's may have spillover effects on other fisheries similar to permit buyback programs. While effects on other fisheries is a legitimate concern, some of this displacement would occur anyway as the long term nature of current groundfish harvest restrictions causes attrition among current fishery participants.

IFQ programs typically require a more detailed and different type of monitoring and enforcement than other types of capacity reduction approaches. The amount of quota held by each individual, as well as transfers of quota among individuals, must be carefully monitored. Monitoring becomes

significantly more complicated when IFQ's are used in multi-species fisheries, in which separate quotas are designated for separate species. In such cases, species composition must be checked on a landing-by-landing basis in order to ensure that each individual IFQ holder is not exceeding his individual species quotas. For such reasons, IFQ's may be better suited to single species fisheries (e.g., whiting, sablefish) than multi-species groundfish activities.

Transferability To the extent that IFQ's are transferable, they tend to allow industry adaptation to changing fishery circumstances better than other types of capacity reduction. For instance, as OYs decline in an IFQ fishery, the poundage available to each individual quota holder also automatically decreases. This creates an incentive for quota share transfers and consolidation until shares become sufficiently concentrated to be economically viable for the smaller number fishery participants. Conversely, as OYs increase and the poundage available to each quota holder increases, quota share transfers will allow fishery participation to expand to include a larger number of quota share holders.

IFQ programs often include restrictions on the maximum amount of quota share that may be held by an individual, or that ensure a particular quota allocation among different fishery sectors by prohibiting quota transfers across sectors. However, to the extent that the Council is willing to allow quota transfers across gear types and geographic areas, there would be fewer allocation issues over the long term, as allocation adjustments would instead happen through quota transfers in the market.

Consistency with Other Strategies Capacity reduction programs like permit stacking and buybacks can be consistent with IFQ programs. Should Congress lift the IFQ moratorium, latent capacity removal may be a desirable precursor to IFQs, to help ensure that the initial IFQ allocations go to active fishery participants. However, justifying a lenient permit stacking or buyback program on the basis that it is merely an intermediate step toward IFQs (rather than as an ultimate end in itself) poses the risk of ending up with an inadequate permit stacking/buyback program if IFQs are not actually implemented.

D) Consider limiting participation by registering limited entry A permits exclusively to specific geographic areas.

Options include: (a) determining the optimum number of vessels desired in a particular area, perhaps based on landing history in that area, and issuing limited entry permits exclusively for each area; or (b) an exclusive area registration concept that would require a vessel operator to choose its area of operation preseason. It is not clear that exclusive registration would contribute to capacity reduction.

E) Consider limiting participation in different fishing strategy sectors of the groundfish fishery by issuing specific species or strategy endorsements based on qualifying criteria.

Species endorsements would be issued based on historical landings, with a requirement for recent participation. Some potential endorsements include:

(i) Limited entry rockfish including former open access vessels that qualify for new B endorsements;
(ii) Whiting endorsements with possible subdivision between shoreside and at-sea sectors;
(iii) Nearshore flatfish;

(iv) Deep-water complex;
(v) Pelagic or mid-water trawl; or
(vi) Nearshore rockfish (versus shelf or slope).

In the event the Council adopts additional endorsements, consideration should be given whether to allow the transfer of endorsements separately from permits.

4. What are Some Options to Reduce Capacity in the Open Access Fishery Directly Targeting Groundfish?

A) Reduce the number of participants in the open access sector by requiring a federal limited entry permit for the directed take and commercial landing of groundfish.

Permit eligibility would depend upon meeting minimum landing requirements based on historical catches and recent participation in directed groundfish harvest. This option would create a separate permit ("B" Permit) within the current limited entry system for open access vessels that have historically targeted groundfish. As a general objective, the Council may want to reduce capacity in the open access fishery to a level that reflects the Council's original intent of accommodating bycatch in non-groundfish fisheries as well as very limited direct groundfish harvests.

The objective in selecting a particular quantity or frequency of landings for a minimum landing requirement should be to identify those fishery participants who are economically most dependent on and committed to a particular fishery. Theoretically, those who are less dependent and committed should fall below the minimum-landing requirement. The Council may consider a number of different options for a minimum-landing requirement. For example, one option for consideration could be the landing of 1,000 lbs. or more of groundfish in a directed fishery in any qualifying year.

B) Continue to provide for groundfish bycatch in non-groundfish fisheries by creating a third permit classification called a C permit.

The C permit would be required for landing groundfish as bycatch from non-groundfish fisheries such as pink shrimp, salmon, sea cucumber, California halibut, and spot prawn fisheries. The number of permits would not be limited, but NMFS would charge a fee for each permit to cover costs of administering the program.

C) Divide the current open access allocation into B and C permit allocations.

The Council may wish to impose landing limits to stay within the C permit allocation and limit groundfish landed to less than 50% of the total landing to ensure that groundfish landings are incidental.

D) Use strategies discussed above for capacity reduction in the limited entry fishery, such as: establish rockfish species endorsements for B permit holders, to be issued based on historical landings of rockfish with a requirement for recent participation; and, consider limiting participation by registering B permits exclusively to specific geographic areas.

These capacity reduction strategies are discussed above for the limited entry fishery and could also be applied to the open access fishery to reduce capacity below initial B permit thresholds.

5. What are Some Options for Developing and Implementing of a Limited Entry Vessel and/or Permit Buyback Program with Disaster Assistance Funding or Other Funding Sources?

Buyback programs may be government funded or industry funded, and may apply to permits alone or to both vessels and permits. Because vessel owners generally require less compensation to be bought out of a single fishery than to forgo fishing altogether, a given sum of money can achieve a larger reduction in fleet size if buyback is limited to a single fishery such as the groundfish fishery. Thus industry funded programs tend to be fishery-specific, to achieve the maximum reduction in capacity for the individuals financing the buyback. Government funded programs may have some potential for buying back vessels as well as permits, thereby allaying concerns regarding spillover effects on other fisheries. However, vessel buyback requires a substantial amount of funding and resolution of many complex issues in order to be successful.

One potential source for a government funded buyback is disaster relief. However, we do not know whether such funding will be made available for West Coast groundfish, or if such funding is provided, whether funds will be great enough for a buyback. Disaster relief requires Congressional appropriation, with 25% matching funds to be provided by states or other non-federal entities. About a half dozen requests for such relief have been made for fisheries across the U.S., and there is no guarantee that West Coast groundfish will be a priority.

The business plan for the trawl buyback proposal is now outdated. Given the recent precipitous decline in groundfish OYs, the original target of a 30% reduction in fleet size may no longer be adequate to ensure an economically viable trawl fishery. Moreover, given the long-term nature of OY reductions, it is not likely that the industry can afford to underwrite a buyback program unless it is clear that permit prices will drop to reflect the lower OYs. Similarly, the willingness of government to guarantee a buyback program will likely have to await more definitive information regarding permit prices.

(d) Capacity Reduction Recommendations

The highest priority for reducing capacity is Recommendation #1 from the Management Policy section. That recommendation is to develop an implementation plan to reduce capacity initially by at least 50% in each sector. As noted earlier, the capacity reduction goal will not be fully realized until capacity has been reduced to a level that is in balance with the economic value of the resource and those remaining in the fishery are able to operate profitably and flexibly. In designing capacity reduction, the Council should consider fleet structure, profile, and diversity, with a goal of maintaining a mix of small and large vessels.

The capacity reduction plan should take into account the need to implement other strategic plan recommendations (i.e., allocations, nearshore rockfish delegation) prior to or at the same time as capacity reduction. Reducing capacity will relieve the need to adopt management policies that are both inefficient and ineffective at achieving the FMP's goals and objectives. By better matching

fleet capacity to resource availability, the regulatory structure will become more stable, resulting in regulations that are more enforceable.

These capacity reduction recommendations include both the short and long-term and transitional elements discussed below, such as license-limitation (for the targeted open access fishery), permit stacking, and IFQs either individually or in combination with a vessel buyback program.

Short to Intermediate Term

1. Separate the current open access fishery into a sector that directly targets groundfish and a sector that lands groundfish as bycatch in non-groundfish fisheries. Require current open access vessels that directly target groundfish to obtain a federal limited entry permit (B permit) based on historical landings and current participation. Minimum landing requirements for a federal permit should reflect significant dependence on the fishery. Consider developing and implementing a voluntary permit stacking program for the B permit. Require a federal permit ("C" permit) to land groundfish taken incidentally in non-groundfish fisheries.

2. Divide the current open access allocation into separate allocations for the "B" and "C" permit holders and manage each sector to stay within its allocation each year.

3. Consider using historical landings only from 1994-1999 and recent participation from either 1998 or 1999 for initially qualifying B permit holders.

4. For the limited entry fixed gear fishery, immediately develop and implement a voluntary permit stacking program with the intent of transitioning to an IFQ program to provide for a multiple month season. The Permit Stacking allowance should be implemented prior to the 2001 regular sablefish season. Stacked permits should **NOT** allow increased access to the daily sablefish trip limit. Simultaneously, develop an IFQ system for fixed-gear sablefish for implementation in 2002. If Congress continues to prohibit IFQ programs, consider making the permit-stacking program mandatory.

5. For the limited entry trawl fleet, immediately develop and implement a voluntary permit-stacking program that links each permit with a cumulative period landing limit with the intent to transition to an IFQ program. The first, or base permit should be entitled to a full period landing limit, while each stacked permit should entitle the vessel to additional landing limits on a discounted basis as one alternative. Another alternative is to have the full period landing limit the same for all permits. If Congress continues to prohibit IFQ programs, consider making the permit-stacking program mandatory.

6. To prevent future overcapacity in the whiting fishery, consider developing and implementing a whiting species endorsement that restricts future participation in the whiting fishery to vessels registered to a permit with a whiting endorsement. Qualification for a whiting endorsement should be based on a permit's whiting landings since 1994 when the current limited entry program began. Consider setting a threshold quantity of whiting above which a whiting endorsement is required for a landing. Individual landings below the

threshold would not require an endorsement.

7. Pursue a buyback program to remove latent capacity.

Intermediate to Long Term

8. Develop of a comprehensive IFQ program for the limited entry trawl fishery, or in the alternative, a mandatory permit-stacking program.

9. Consider establishing a rockfish endorsement for the limited entry fixed gear fleet and open access (B permit) fleet. Qualifying criteria would be based on historical landings and recent participation.

10. Consider access limitation for commercial passenger fishing vessels. (This program may be better managed by the states.)

4. Allocation of Groundfish Resources

(a) Problem Statement

Prior to and during early FMP implementation, first adopted in 1982, there were no harvest share allocations to various fisheries and/or gears. Expected harvest amounts were set and the various fisheries regulated to stay within those amounts. This was possible, in part, because fish stock abundance was at first thought to be sufficient to keep inter-fishery and/or gear conflicts low. The 1990 FMP Amendment 4 (at S.6.1.9 Allocation) states that "Most fishery management measures allocate fishery resources to some degree because they invariably affect access to the resource by different fishery sectors by different amounts. These allocative impacts, if not the intentional purpose of the management measure, are considered to be indirect, or unintentional, allocations. Direct allocation occurs when numerical quotas, harvest guidelines, or other management measures are established with the specific intent of affecting a particular group's access to the fishery resource."

Since 1990, as harvest capacity increased and fish abundance decreased, conflict and demands for resource share allocation has increased. The following table shows the major fishery sectors (Limited Entry, Open Access, and Recreational) presently addressed by the Council and the wide variety of fisheries and gears involved.

Major Fishery Sectors and Gear Types[1]

	Trawl & Other Net	Fixed Gear, Hook & Line
Commercial Limited Entry	Directed Bottom Mid-water Whiting Nearshore Flatfish	Directed Pot Longline
Commercial Open Access	Directed Set Gillnet Incidental Trammel Net Set Gillnet Trawl Shrimp California Halibut Cucumber Prawn	Directed Pot or Trap* Longline Vertical Bottom Drifted (fly gear) Hook and Line* Stick* Dingle Bar Incidental Prawn/Pot or Trap Salmon Troll *Live Fish Fishery
Recreational		Shore Based Private Boat Commercial Passenger Vessel (Charter)

Allocation issues are often the most contentious subjects addressed by the Council because allocation outcomes produce winners and losers. These outcomes inevitably lead to change in the fishing fleet and may threaten the economic viability of some fishery participants. Some allocations are direct, with specific percentages of the resources reserved for each party to the allocation. Some allocations, like that between the recreational and commercial fisheries, are the result of Council policies that indirectly allocate resources. The Council's recreational harvest policy has been to subtract the expected recreational harvest share from the coast wide ABCs, and then dividing the remaining harvestable surplus between commercial fisheries. During periods of higher abundance for most recreationally important stocks, this off-the-top accounting did not significantly affect commercial harvest levels.

Direct allocation decisions must be made through a three-meeting Council process to allow the Council to fully consider the alternatives and comments from its advisory entities and the public. There have been several direct allocations in the FMP's history, including: the 1990 commercial trawl/fixed gear sablefish allocation; the 1988-1994 limited entry program implementation and limited entry/open access allocation; the 1993 whiting onshore/offshore allocation; and, the 1996-1997 limited entry, fixed gear sablefish endorsement and three-tier program allocation.

[1] In this table, "directed" gears means the target species are Council-managed groundfish and "incidental" means the gear may capture groundfish, but has non-groundfish species as a target. No distinction is made for the recreational fishery.

(b) Strategic Plan Goal for Allocation

To distribute the harvestable surplus among competing interests in a way that resolves allocation issues on a long-term basis.

(c) Issues/Options/Alternatives

1. What are the Current and Emerging Allocation Decisions Related to Declining Stocks, Rebuilding Plans, and Assemblage Management?

In 1997, new stock assessments of several important groundfish species indicated a need for immediate and substantial harvest reductions. For 1998, the Council adopted harvest levels for six species that were the lowest on record, clearly signaling that the West Coast groundfish fishery would face serious disruption and economic pressure. Lingcod and bocaccio were among the declining stocks, and are key species widely used by both the commercial and recreational sectors. Their overfished status created immediate allocation issues, which were made more urgent by the Magnuson-Stevens Act requirement for rebuilding plans.

Concurrently, the trawl industry had begun to work on a permit buyback program to reduce capacity. The program was to rely on a federal loan for initial financing, with a self-funded surcharge to repay the loan. Trawlers asked for catch allocation between the commercial limited entry trawl and fixed gear sectors to establish a collateral base for the trawl sector to meet loan payments. The Council responded by establishing an *ad hoc* allocation committee charged with developing options for allocating lingcod, bocaccio, and other rockfish between the commercial and recreational sectors, and between gear groups within the commercial sector.

That committee's work on allocation strategies was partially shaped by Magnuson-Stevens Act standards for rebuilding plans. The Act requires that the burden of conservation measures be distributed fairly and equitably among all sectors of a fishery. With resource declines expected for additional stocks and with the expectation of additional species being declared overfished, that committee also recommended the species in the following table for early allocation consideration, even though the trawl buyback program no longer appeared viable.

Species	**Priority Allocation**		**Distribution**
	Rec-Comm	Fixed Gear- Trawl	
Lingcod	A	A/B	NS/SH
Bocaccio	A	A/B	NS/SH
Thornyheads	C	B	SH/SL
Yellowtail	B	B	NS/SH
Canary	B	B	NS/SH
Shortraker	C	B	SH/SL
Rougheye	C	B	SH/SL
Yelloweye	B	B	NS/SH
Black Rockfish	A	B	NS
Blue Rockfish	A	B	NS
Kelp Greenling	A	B	NS

China Rockfish	A	B	NS
Copper Rockfish	A	B	NS
Vermilion	A	B	NS
Quillback	A	B	NS
Chilipepper	A	B	NS
Other Rockfish Group*	B	B	NS/SH/SL

Priority Levels
A = deviation from status quo may be considered
B = status quo allocation, with status quo defined as 1995-1997 average catch distribution between sectors
C = no allocation at this time

Distribution
NS = Nearshore (< 50 fathoms)
SH = Shelf
SL = Slope

* Other Rockfish include all other rockfish managed in the FMP: Aurora, Bank, Black and Yellow, Blackgill, Bronze spotted, Brown, Calico, California Scorpionfish, Cowcod, Darkblotched, Dusky, Flag, Gopher, Grass, Greenblotched, Greenspotted, Greenstriped, Harlequin, Honeycomb, Kelp, Mexican, Olive, Pink, Redbanded, Redstripe, Rosethorn, Rosy, Sharpchin, Shortbelly, Silvergray, Speckled, Splitnose, Squarespot, Starry, Stripetail, Tiger, Treefish, Widow, and Yellowmouth. The committee recommends that all these species be allocated as a group. When one particular species becomes a concern, it may be broken out of the group and allocated separately.

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For 2000, the Council adopted a new rockfish strategy that separated the major rockfish stocks from the *Sebastes* complex and divided the remaining species into assemblages associated with nearshore waters, the continental shelf, and deepwater slope areas. The respective allowable catches were also subdivided by geographic area. These strategies, accompanied by trawl gear restrictions, were designed to reduce catch of depleted species while maintaining harvest opportunities for abundant stocks. However, the strategy also has some *de facto* allocation consequences and sets up additional allocation conflicts.

Some trawl sector vessels that specialized primarily in shelf fisheries have essentially lost those opportunities. In other cases, particularly the open access fisheries in nearshore areas, harvest amounts are drastically reduced because harvest levels are no longer spread across an aggregate catch level for the entire *Sebastes* complex.

Treaty Indian fishers increased their participation in the West Coast groundfish fishery in the early 1990's. Specifically, the tribal longline fleet increased its sablefish harvest, leading to the Council establishing a tribal set-aside of 10% of the sablefish harvest guideline. The Council also works with the tribes in setting harvest limits for tribal fishers targeting certain rockfish species. The Makah Tribe entered the Pacific whiting fishery in 1996. The tribal whiting fishery is allocated a specific proportion of the U.S. harvest guideline. The Council needs to be prepared to address additional future tribal interest in existing or new groundfish fisheries.

2. What are Some of the Allocation Considerations for Geographic Management and Species-Specific Management?

Because the Council already uses area-specific landings limit management and may wish to address

area-specific capacity reduction in the future, there are several geographic distribution issues to consider in crafting allocations:

North-South and Coastwide Distribution Considerations

- Species distribution
- Traditional reliance on fishing grounds and species
- State recreational fishery preferences
- Weather and oceanographic conditions
- Port distribution
- Management and enforcement needs, and legal constraints (such as tribal allocations)
- Subdivision of groundfish statistical areas to support area allocation of harvest amounts

The Council may also wish to allocate by nearshore, shelf, and slope species groups. The respective coastal states should address commercial and recreational allocation issues in a timely manner, particularly when there is a preference for recreational use. Similar to the approaches developed for salmon and halibut, each state would be responsible for involving its constituents in a process of option development, review, and action by the Council.

3. What are the Future Allocation Pressures Facing the Council?

Many of the recent changes in harvest levels are likely to be permanent in nature until rebuilding of overfished stocks occurs. In addition, emerging policy revision of the precautionary harvest rates for "unassessed" rockfish species will likely further reduce resource availability by 15-25%, possibly affecting various fishery sectors in dramatic ways, depending on the geographic distribution of these species and how they have been represented in historical landings. Still over the horizon are the possible allocative influences that may result if marine reserves or no-take zones are created and reduce fishery opportunities.

With all of the expected near-term changes, the Council may wish to address emerging conditions with some of its past approaches to resource allocation. The Council may also find that without overall capacity reduction, *status quo* allocations would result in a broad-based fishery failure.

Finally, even with capacity reduction, allocation will likely be necessary to support capacity management mechanisms such as permit stacking, IFQs or fishing cooperatives. Only an allocation of resources and shares to fisheries and/or gears will attach expected future economic value that can be gauged by market mechanisms, thus allowing the exchange of fishing privileges.

(d) Allocation Recommendations

General Allocation Principles

1. All fishing sectors and gear types will contribute to achieving conservation goals (no sector will be held harmless). The fair and equitable standard will be applied to all allocation decisions but is not interpreted to mean exactly proportional impacts or benefits.

2. Non-groundfish fisheries that take groundfish incidentally should receive only the minimal groundfish allocations needed to efficiently harvest their target (non-groundfish) species. To determine the amount of allocation required, identify the economic values and benefits associated with the non-groundfish species. Directed fishery harvest of some groundfish may need to be restricted to incidental levels to maintain the non-groundfish fishery. Consider gear modification in the non-groundfish fishery to minimize its incidental harvest.

3. Modify directed rockfish gears, as needed, to improve their ability to target healthy groundfish species and avoid or reduce mortality of weak groundfish species.

4. When information on total removals by gear type becomes available, consider discards in all allocations between sectors and/or gear types. Each sector will then receive adjustments for discard before allocation shares are distributed.

5. Fairly distribute community economic impacts and the benefits and costs of allocation coast-wide. Allocations should attempt to avoid concentration and assure reasonable access to nearby resources. Consider the diversity of local and regional fisheries, community dependency on marine resources and processing capacity, and infrastructure in allocation decisions.

6. Consider impacts to habitat and recovery of overfished stocks or endangered species (dependent on affected habitats) when making allocation changes.

7. Allocation decisions should consider and attempt to minimize transfer of effort into other fishery sectors, particularly for state managed fisheries (crab and shrimp).

8. Allocation decisions will: (a) consider ability to meet increased administrative or management costs; and (b) be made if reasonably accurate in-season quota monitoring or annual catch accounting has been established or can be assured to be established and be effective.

9. As the tribe(s) expand their participation in groundfish fisheries, allocations of certain groundfish species may have to be specified for tribal use. In such cases, the Council should ask the affected parties to U.S. v. Washington to convene and develop an allocation recommendation.

Area Management as Related to Allocation

10. Structure allocations considering both the north-south geographic *and* nearshore, shelf and slope distributions of species and their accessibility by various sectors and gears.

11. In addressing recreational/commercial rockfish allocation issues, use the following fishery priorities by species group: for nearshore rockfish, states may recommend a recreational preference, with any excess to be made available for commercial use; for shelf rockfish, the Council may set a recreational preference only on a species-by-species basis;

and for slope rockfish, commercial allocation.

12. Licenses, endorsements or quotas established through management or capacity reduction measures may be limited to specific areas through exclusive area registrations and consider port landing requirements.

5. Observer Program for Quantifying Bycatch, Total Catch, and Total Fishery-Related Mortality

(a) Problem Statement

An essential component of effective, science-based fishery management is the documentation and quantification of bycatch, total catch, and total fishery-related mortality. The Magnuson-Stevens Act requires councils to quantify bycatch and to take steps to minimize bycatch. At-sea observations are necessary to quantify bycatch and to fully account for total catch, which includes landings plus discards. Fish that are caught at sea and are discarded dead, cannot be observed by shoreside sampling programs. This is especially troublesome in multi-species fisheries where: (1) fishery management measures are typically designed to protect weak stocks and may preclude retention of a particular species, (2) management approaches such as trip limits are used to maintain year-round fishing opportunities, or (3) market restrictions result in some species having little or no value.

Total catch is an important component in groundfish stock assessments. An inability to account for discarded catch and mortality can significantly affect the accuracy, precision, and variability of biomass estimates. When information on total removals is incomplete, management uncertainty increases and results in a more conservative approach to setting harvest levels. In addition, fishery parameters such as selectivity and mortality may change, but without a method for accounting for total catch, it is difficult to make appropriate adjustments.

The lack of an observer program has long been identified as a critical missing piece in Pacific groundfish fishery management. This lack contributes to uncertainty in stock assessments and rebuilding plans and has undermined the credibility of management decisions. Perceptions about different bycatch and discard rates among various sectors and gears have contributed to conflict and contentious allocation issues. Because information about gear-specific discard rates is limited, assumed discard rates have been applied to all sectors. Incentives for selective fishing gear that minimizes bycatch and discards are also difficult to implement because they cannot be effectively evaluated.

The Council has expressed the need for a comprehensive observer program for many years. It has consistently voted to pursue an at-sea observer program, as it has recognized the importance of documenting total groundfish removals. Limited research and a voluntary program implemented by the Oregon Trawl Commission have demonstrated that the amount of bycatch and subsequent economic and regulatory discards are likely substantially underestimated for some species. The lack of funding has been a primary obstacle to the Council's efforts to implement a comprehensive observer plan.

(b) Strategic Plan Goal for an Observer Program

To quantify the amount and species of fish caught by the various gears in the groundfish fishery and account for total fishery-related removals.

(c) Issues/Options/Alternatives

1. What Constitutes an Adequate Observer Program?

Several factors will affect both the design and the implementation of an observer program. The trawl fleet harvests the vast majority of available groundfish. Changing trip limits during the calendar year will require a much higher level of observations to reliably estimate removals. Fishing behavior may change when an observer is on board, which would require more or longer periods of observation. Small vessel size and limited crew space may not allow a substantial number of vessels to carry an observer, particularly in the fixed gear limited entry fleet, the open access fleet and the recreational fishery. The Council will only gain the data needed to design an adequate observer program by implementing a pilot program, and modifying it as more questions are answered.

Observer programs have two major components: (1) data collection and (2) program management. The latter includes observer training, data management, and data reporting as well as administration. The Council has previously developed a pilot observer program that envisioned three to four port coordinators along the West Coast who would supervise and place observers on vessels. Observers would be placed in selected ports and directed to specific segments of the fleet. Limited funding would likely necessitate that the program concentrate on a specific gear type or geographical area, to collect data sufficient for management purposes. This type of staggered system would allow the Council to collect reliable data, but would require many years to cover all of the various segments of the groundfish fishery.

2. How Could an Observer Program be Adequately Funded?

Numerous participants in the Council process tried unsuccessfully to secure federal funding in the Fiscal Year 2000 appropriations. Competing interests for limited federal dollars for West Coast fisheries, which are already inadequately funded, will continue to make it difficult to secure adequate federal appropriations.

The Council does not have the legal authority to tax the fishing industry to fund an observer program. Although the Council has voted to pursue this authority during the last two reauthorizations of the Magnuson-Stevens Act, Congress has not responded positively to these requests. The reduced availability of groundfish will not provide sufficient funding, even through a 2% vessel tax to fund an adequate program. The fishing industry also may not support the effort to gain the required authority, making Congressional action unlikely.

The Council could prepare a plan that would make it mandatory for vessels to carry an observer for some percentage of their fishing operations, thereby requiring individual vessel owners to pay the entire cost of the observer on their vessel. This would likely cause a severe reduction in the number of vessels that could afford to fish. The $300 to $400 per day cost for observers would make a large

number of fishing operations uneconomical, causing disruption to the economies of coastal communities. Thus, it is likely that a combination of federal and private funding will be required to implement an adequate observer program.

(d) Observer Program Recommendations

1. Immediately implement an at-sea groundfish observer program, with determination of total groundfish catch and mortality as the first priority, consistent with established Council priorities.

2. Consider the following options to fund an observer program:

a) Seek federal/state funding;

b) Continue to support legislative change to provide authority to collect fees from the fishing fleet to support the observer program;

c) If federal/state or industry funding is not available, make individual vessels responsible for providing some level of observer coverage as a condition of participation in the fishery.

3. Even with limited funding, both trawl and non-trawl fleets should have some meaningful, but not necessarily the same, level of observer coverage. Determine which harvesting sector(s) will receive the initial observers.

4. Consider alternative monitoring approaches that augment an observer program, including logbooks and video.

5. When an effective observer program has been established, a full retention strategy may be considered to reduce discard and improve biological information collection.

6. As a secondary priority, an observer program should collect additional data for stock assessments. For example, the North Pacific Council requires its observers to dedicate a small portion of the working day to taking otoliths and length measurements, in order to supplement information on the age and size distribution of particular species.

6. Marine Reserves as a Groundfish Management Tool

(a) Problem Statement

Traditional fishery management approaches alone have not been successful in protecting and sustaining many Pacific groundfish species. Groundfish management faces numerous challenges, including several overfished stocks, a high level of uncertainty about the status of most of the remaining groundfish stocks, several species that co-occur in complex assemblages, and the apparent low productivity of many Pacific coast groundfish species in general. Rebuilding overfished stocks and adequately assessing other groundfish stocks will certainly take many years, and possibly

decades, to accomplish.

Marine reserves have been promoted in state, federal, and international fishery management arenas as a management tool that has the potential to enhance fish populations and help sustain fisheries. Marine reserves may be particularly beneficial for species that have been overfished, or species that reach great ages or sizes or are generally sedentary, all of which apply to many Pacific groundfish species. Reserves may also be considered as insurance against uncertainty in fisheries management and natural variability in the marine environment.

The Council has set up a two-stage process to consider marine reserves in an integrated approach to sustain healthy marine ecosystems and more effectively manage the Pacific groundfish fishery. The first phase is a conceptual evaluation of reserves that will conclude with the Council's decision on whether marine reserves have a role in groundfish management. If the Council chooses to use marine reserves, options for the siting and design of specific marine reserves will be developed in the second phase.

Implementing marine reserves would likely affect many other management measures addressed in this strategic plan, including capacity reduction, allocation issues, harvest policies, and habitat. Implementing marine reserves must proceed in conjunction with these other management measures, to maximize their benefits and minimize the effects of their implementation.

(b) Strategic Plan Goal for Marine Reserves

To use marine reserves as a fishery management tool that contributes to groundfish conservation and management goals, has measurable effects, and is integrated with other fishery management approaches.

(c) Issues/Options/Alternatives

1. What Role Might Marine Reserves Play in Achieving Our Management Goals?

Marine reserves can enhance fish populations by: increasing fish abundance, size, and age composition; protecting spawning stocks and habitats; providing multi-species protection; preserving and maintaining the natural diversity of unique habitats; and providing undisturbed reference sites for the evaluation of the effects of human activities and natural environmental changes on marine ecosystems. Marine reserves may also be useful to guard against scientific uncertainty in fishery management, provide increased protection to certain depleted species, and accelerate the rebuilding process for depleted species. Sedentary, long lived species such as lingcod and Pacific ocean perch would likely receive the greatest benefits from marine reserves, although several criteria, including the size of the reserve, are also significant in determining which species will benefit from reserves.

Several species of groundfish (including lingcod, cowcod, Pacific ocean perch, bocaccio, and canary rockfish) have been designated as overfished, and other species that have not been assessed may be overfished as well. The most relevant evidence of marine reserves serving to rebuild groundfish populations is that of the large area closures off New England, which were accompanied by overall harvest reductions. Examples of smaller reserves (not more than 4 square kilometers) include a 6-

year closure in the San Juan Islands that resulted in a tripling of large lingcod abundance compared with fished areas, and a 30-year closure in Puget Sound that has allowed rockfish density to increase by a factor of about 30 and egg production by factors of 20 (lingcod) and 55 (rockfish).

In Howe Sound, British Columbia, 5-year closures resulted in a tripling of lingcod abundance and a doubling of egg production, and in Monterey Bay in California, a 13-year closure resulted in about a doubling of fish abundance and an approximate 7-fold increase in rockfish egg production. The portion of a population that is protected from fishery selection will live longer, grow larger, and produce more young over their lifetimes. For rebuilding purposes, the effects on biomass outside the reserve will depend on the biology and behavior of the species, the size of the area set aside in reserves, and the harvest management outside the reserve.

The size of marine reserves designed to rebuild groundfish populations depends on the species and its degree of mobility. More mobile species may require a larger closed area than less mobile slope rockfish. Whether a network of marine reserves, or a single marine reserve, the closed area should be large enough to reduce edge effects from fishing activity just outside of the reserve.

Because marine reserves can protect a fraction of the exploitable stock from fishing, this portion of the exploitable biomass should be removed when calculating an ABC. Following this policy would diminish the total allowable harvest and the fishery would be constrained to a harvest guideline commensurate with the size of the accessible exploitable stock.

Recent information about Pacific groundfish status and productivity has increased uncertainty in groundfish management. Marine reserves can provide a buffer of biomass as insurance against uncertainties associated with stock assessments, harvest strategies and limited information. However, reserves are subject to uncertainties of their own regarding the nature, magnitude, and timing of stock benefits and the potential for stock benefits within the reserve to translate into fishery benefits outside the reserve.

Marine reserves can prevent the physical alteration of the ocean bottom that may result from fishing activities, help guard against unknown adverse effects of fishing on habitat, and serve as control areas for scientific studies of those effects.

The NMFS triennial trawl data series may by affected by marine reserves. If reserves are included in the assessment areas, an adjustment in the biomass available for harvest may be appropriate. Normal assessment sampling in a reserve area may have effects on the time series and stock assessment results. Adjustments may be necessary to account for reserve effects.

Reserve concepts still remain largely untested. In particular, their effectiveness in fisheries management and enhancement of fishery yields outside reserve boundaries is poorly evaluated and understood. This is primarily because there are no long-term marine reserves of adequate size that have been designed and evaluated to test these potential benefits and their contribution to enhancement of fish populations and sustainable fisheries. The effects and design of marine reserves will largely depend on the goals and objectives they are intended to meet.

2. How Do We Measure the Potential Effects of Marine Reserves in Achieving our Conservation and Management Goals?

Marine reserves have the potential to achieve a number of conservation and management goals, such as enhancing fish stocks, preventing overfishing and protecting essential fish habitat. The effectiveness of reserves in achieving each of these goals must be evaluated relative to the status quo. Good baseline information collected before or at the time the reserve is implemented and post-implementation studies of reserves are necessary. Knowledge of fishing effort prior to reserve implementation, as well as control areas before and after reserve implementation, will also be important for conclusive interpretation of results. Evaluation will need to address various issues, including annual variation in target species, adequate sample sizes, and the likely time lag between the establishment of reserves and measurable effects. It may take many years or decades to see effects. There is substantial risk in improperly evaluating reserve effectiveness, which could have costly policy implications. Negative impacts could ensue if inadequate monitoring and evaluation found that reserves are effective when they actually are ineffective, or finding reserves are ineffective when they are actually effective.

The cost of monitoring reserves is difficult to evaluate and will primarily depend on reserve design, including the number and size of reserves, and the number of significant habitat types included in the reserves. Planned and ongoing habitat and stock assessment efforts could be modified for use in reserve evaluation.

Reserves are not a panacea. Many of the potential difficulties of status quo management also apply to reserves. Both status quo management measures and reserves may have adverse short-term economic effects on the industry. Just as status quo measures may generate spillover effects on other fisheries, reserves may also create spillover effects as vessels are displaced from the reserve area. Just as status quo measures often have different effects on different sectors of the fishery, decisions regarding the size and location of a reserve and the types of activities excluded from the reserve will also have allocative implications. Since reserves will supplement rather than completely replace status quo management, it is important to consider how the two approaches might be coordinated and the implications of each approach for the other.

(d) Marine Reserves Recommendations

1. Adopt marine reserves as a fishery management tool for Pacific groundfish and proceed with implementation, as appropriate.

2. Identify the specific objectives that marine reserves are expected to meet.

3. Develop siting and design criteria, including the size of the reserve, that will meet specified marine reserve objectives. Analyze options for establishing reserves that include nearshore, shelf, and slope habitat.

4. Adopt final siting criteria, including reserve size and location, and proceed with implementation and evaluation as quickly as possible, to ensure compatibility with other management changes.

5. Direct the Scientific and Statistical Committee to recommend new methodologies for continued stock assessments and for establishing harvest levels outside the reserves following the implementation of reserves.

7. Groundfish Habitat

(a) Problem Statement

The Magnuson-Stevens Act requires councils to include descriptions of Essential Fish Habitat (EFH) in all FMPs. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The definition of EFH may include habitat for an individual species or an assemblage of species, whichever is appropriate to the FMP. The Magnuson-Stevens Act also requires councils to identify any fishing activities that may adversely affect EFH and, where fishing-related adverse effects are identified, FMPs must include management measures that minimize those adverse effects, to the extent practicable.

The Pacific coast groundfish FMP manages 82 species that inhabit a large and ecologically diverse area. Research on the life histories and habitats of these species varies in completeness, so while some species are well studied, there is relatively little information on others.

Pacific coast groundfish species occur throughout the exclusive economic zone (EEZ) and occupy diverse habitats at all life stages. Some species are widely dispersed during certain life stages, particularly those with pelagic eggs and larvae, and the EFH for these species/stages is correspondingly large. Other species during all or part of their life stages may inhabit somewhat small EFHs, such as that of many adult nearshore rockfishes that show strong affinities to a particular location. As a consequence of the large number of species and their diverse habitat associations, the entire EEZ becomes EFH when all of the individual EFHs are combined.

(b) Strategic Plan Goal for Pacific Groundfish Habitat

To protect, maintain, and/or recover those habitats necessary for healthy fish populations and the productivity of those habitats.

(c) Issues/Options/Alternatives

1. Where Do We Find Essential Fish Habitat Information?

A background resource document that provides extensive descriptions of EFH for each life stage of the FMP species has been developed and appended to the FMP. This document includes life history descriptions, lists of data sets, and GIS maps of the distribution of species life stages, as available. For each life stage, tables of known habitat associations, life history traits, reproductive traits, and EFH information levels are also provided. Data on West Coast groundfish are not readily available to evaluate the extent of areas most commonly used by these species in each life stage; however, depth range data for adults of many species are available.

2. How Do We Minimize Adverse Effects of Fishing and Non-Fishing Activities on Habitat and Its Productivity to the Extent Practicable?

In an ecosystem, living organisms interact with each other as well as with their physical surroundings. For some groundfish species, the physical environment provides shelter from predatory animals and serves as spawning, nursery, rearing, foraging, and migratory grounds. Juvenile fish, in particular, rely on refuge holes and rocky areas to avoid predation. Therefore, when assessing the effects of fishing gear on fish habitat, it is essential to consider the effects on both the physical and the living components of the habitat.

Groundfish habitat is affected by both non-fishing and fishing practices. Some non-fishing threats to groundfish habitat include: pollution, erosion of coastal wetlands, destruction of coral reefs, and entrainment of eggs and larvae into pumps, power plants, etc. However, the Council's jurisdiction includes only fishing gear and practices that directly affect groundfish habitat, including gear such as trawls, dredges, and lost or discarded nets, pots, and lines. Fishing gear and practices can degrade complex habitats such as reefs, rocky outcrops, and rock piles, harming the plants and animals that live there. Many studies indicate that less complex habitat areas result in fewer numbers and less diverse populations of fish.

For the most part, the use of gear that does not touch the bottom (e.g., mid-water trawl) does not have as significant an effect as gear that does come in contact with the bottom (e.g., bottom trawl, longline, pot, and set gillnet). Longline, and other types of hook and line gear, may disrupt rocks, coral, kelp, and other objects on the bottom that serve as important habitat for groundfish species. Line gear also may break and remain on the bottom where it can entangle marine life. Damage to habitat from pot or trap gear can also occur if the pot is dragged across the bottom as the gear is retrieved, particularly if the fishing effort is in rocky regions and more complex habitats.

Numerous studies on trawled areas indicate that when trawl nets and the associated gear comes in contact with the bottom, the gear has a significant adverse effect on the bottom habitat and communities. Bottom trawls can substantially alter ecosystems by suspending sediments, destroying benthic organisms, and damaging complex habitats, and altering habitat sediment structure. By increasing the turbidity in benthic habitats, bottom trawl gear may indirectly smother suspension feeders and injure or kill larvae.

Advances in technology have increased the potential of bottom trawl gear to damage groundfish habitat. Fishers are now able to access rocky reef substrates not previously fished by using synthetic net material coupled with the use of larger bobbins and rollers.

Lost or discarded fishing gear can also have an adverse effect on habitat. Ghost fishing occurs when gear is lost or abandoned; yet it continues to entangle and kill fish. Ghost fishing can have significant long-term negative effects on habitat and living resources, particularly when the lost gear is netting or pot gear made of long-lasting polyethylene.

(d) Pacific Groundfish Habitat Recommendations

1. Consider regulatory changes (including incentive systems) that result in modification or elimination of fishing gears or fishing practices that are determined to adversely affect EFH areas of concern such as nearshore and shelf rock-reef habitats.

2. Develop and implement gear performance standards for hook and line, pot, set gillnet, and trawl to increase gear selectivity, protect habitat, and/or decrease ghost fishing by lost gear.

3. Promote scientific research on the effects of fishing gear on various habitats.

4. Promote research to modify existing gear and practices to provide practical, economically viable alternatives to fishing gear that adversely affects habitats.

5. Identify habitats necessary for healthy fish populations and identify locations of those habitats.

Section II. B
The Groundfish Strategic Plan

"What Will We Do To Get There?"

Science, Data Collection, Monitoring and Analysis

Resource Assessments
F_{MSY} Proxies
Collaborative Science
Best Available Science
Data Collection
Monitoring
Fisheries Economic Data

B. Science, Data Collection, Monitoring, and Analysis

(a) Problem Statement

The foundation for good fisheries management is good science. Although the Magnuson-Stevens Act requires the use of the "best available science," the perceived quality of the scientific basis for management has a direct bearing on the Council's management policies and their acceptance by the fishing community and the public. The greater the uncertainty in the accuracy of stock assessments, the more precautionary management policies must be to assure that stocks are not overfished. The building blocks for good fisheries science include data collection, analytical evaluation, interpretation of results, and application for management. The most important of these for the Pacific groundfish fishery, and the one most lacking, is basic data collection from both fishery independent and fishery dependent sources. Fishery dependent data is data collected during normal fishing activity.

Resource surveys provide the most basic information for stock assessments. Resource surveys for Pacific groundfish are too infrequent and lacking in geographic scope to adequately assess and track trends in abundance for assessed groundfish stocks. A secondary, but no less important problem, is the small number of groundfish stocks that are actually assessed. The FMP has fisheries management authority over 82 species of groundfish, yet only about a dozen are fully assessed, and those only once every three years. Although the assessed species comprise the majority of the total catch, unassessed species are caught in a species complex mixture or as incidental catch. Due to lack of knowledge on sustainable harvest levels for these unassessed species, the Council must use a precautionary approach for the harvest of species complex mixtures to ensure that stocks are not overfished. Generally, the higher the degree of scientific uncertainty, the greater the amount of precautionary harvest restrictions are needed and the greater the cost to the fishing industry in terms of potentially lost harvest.

The second major need for basic scientific data is in fisheries dependent data collection, particularly for total fishery removals. Without an at-sea observer program, scientists and fishery managers have little confidence in their knowledge of the impact of the fishery on the stocks and stock complexes, and little ability to evaluate the effects of current regulations or of potential new regulations. This lack of confidence spills over to the fishing industry, who in turn have less and less confidence in the decisions of the Council, which results in increased controversy, divisiveness among the fishing industry, and loss of Council credibility.

Thus, the real problem is how to improve the quantity and quality of the scientific data collection that forms the basis for Pacific groundfish management. Fiscal constraints now and in the future will require increasing amounts of creativity and collaboration between the federal government, coastal state and tribal resource agencies, academic institutions, private foundations, and the fishing industry to make the most effective use of their scientific data collection capabilities.

(b) Strategic Plan Goal for Science, Data Collection, Monitoring, and Analysis

To provide comprehensive, objective, reproducible, and credible information in an understandable and timely manner to meet our conservation and management objectives.

(c) Issues/Options/Alternatives

1. (a) How do we effectively assess 82 species? (b) How do we account for wide variability in biomass estimates and lack of information on total mortalities? (c) How do we get the information needed to understand influences of environmental variability on fish stock productivity?

It is unlikely that we will have the financial and human resources needed to collect the data to assess all 82 species with the same level of quantitative rigor, which means that managers will need to prioritize and use the available resources wisely. Species that make up the majority of the total removals have received the most attention in the past because of their economic importance to the industry, and the potential for being overfished. Equally important from a resource management perspective are the species that contribute relatively minor proportions of the catch that are not individually assessed, and which are often taken as bycatch or in species complex mixtures, (e.g. *Sebastes*). To protect the species in this category we need to identify the weakest species/stocks of the complex and assess them with enough rigor to set optimum yields that will prevent overfishing. A species like yelloweye rockfish (*Sebastes ruberrimus*) is an example of a very long-lived, unproductive rockfish that co-exists with assemblages of other more productive rockfish.

Fishery independent surveys are vital to providing a description of the relative abundance of different ages of fish within each species' population. These age-structured assessments provide us with estimates of a stock's future availability to the fisheries. Some uncertainty in groundfish stock assessment comes from the wide variety of precision and bias in fishery independent data sets. The best way to reduce that variability and the resultant uncertainty is to have a reliable data collection platform that is used for annual groundfish surveys, and that is separate from and not influenced by fishing activities. A vessel dedicated to collecting scientific information required to manage West Coast groundfish is a critical need if the Council is going to manage the fishery successfully.

Several studies provide compelling evidence that there are strong links between variations in Pacific Northwest coastal marine fishery production and large-scale variability in forces of the physical environment. These links have been most strongly established for salmon, crustaceans, and coastal pelagic species; relatively little research has been done on West Coast groundfish resources. Scientists need to acquire additional information on the effects that changes in ocean environmental conditions have on groundfish recruitment and productivity.

2. What Are the Appropriate F_{MSY} Proxies?

The Council's 40-10 harvest policy was adopted in 1999 as part of Amendment 11 to the FMP. This biomass-based policy was developed in response to Magnuson-Stevens Act requirements. The two key inputs to the control rule are estimates of: (1) current stock size relative to the unfished condition of the stock and (2) the fishing mortality rate that produces Maximum Sustainable Yield (F_{MSY}). Outputs of the policy are the Allowable Biological Catch (ABC) and Optimum Yield (OY). Thus, errors in estimating F_{MSY} directly affect the setting of groundfish ABCs and OYs.

Due to the statistical difficulty of accurately estimating F_{MSY} directly from short time series of spawner-recruit data, the Council has for many years used proxy estimates of F_{MSY}, including

especially $F_{35\%}$. This particular surrogate is based on theoretical work that has shown, over a range of plausible productivity states, that harvesting at an $F_{35\%}$ rate would be expected to produce a large fraction of MSY (i.e., 75%). However, subsequent theoretical work and other focused studies of West Coast groundfish productivity have questioned whether that rate is appropriate, not only for rockfishes (*Sebastes* spp.), but also more generally for groundfish species other than flatfish.

One key element to describing fish stock productivity is to estimate the number of spawning adults in a population for a given year, and the number of offspring each adult is expected to produce that will eventually survive and mature to a size large enough to be taken in the fishery (called the spawner-recruit relationship). Describing inter-generational relationships is like trying to hit a moving target, because the relationships are shifting all the time in response to environmental and other changes. Imprecise stock productivity estimates result in uncertainty in setting important management reference points, including F_{MSY}, the level of stock biomass that produces MSY (B_{MSY}), and the size of the stock in the absence of fishing (B_0). Given the widespread difficulty of estimating these quantities, it is unrealistic to believe that there will be statistically accurate estimates of F_{MSY} for specific stocks of West Coast groundfish in the near future. The best that can be hoped for is imprecise but unbiased estimates of spawner-recruit parameters and that these, along with a precautionary approach, can be used to establish management reference points that achieve near-MSY performance while adequately protecting groundfish stocks from overfishing.

3. (a) How Do We Increase the Resources Directed to Research and Data Collection for West Coast Groundfish? (b) How Can We Improve Science With Limited Resources and Increasing Demands? (c) Can We Maximize the Amount of Information Available to Management Through Collaboration, and If So, How?

The only apparent way to increase federal funding is if all of the primary fishery related and environmental interest groups unite in support of a common funding initiative. Fractured efforts to get additional funding for West Coast groundfish will most certainly fail.

Absent increases in federal or state funding for groundfish management, the only source for additional governmental funds and scientific staff for West Coast groundfish research and data collection is through re-prioritizing resources within existing federal and state programs. To be successful, these entities must set up new partnerships that are not constrained by geographical boundaries and form a single groundfish program that addresses the highest priorities for groundfish resource surveys, assessments, age reading, and potentially fishery monitoring efforts. Dedicated leadership from each entity will be required to overcome bureaucratic barriers to collaboration. These partnerships must include all programs of the NMFS regional offices and science centers and state agencies.

In addition to governmental partnerships, collaboration with non-governmental entities may also be beneficial. Effective collaboration requires that the participants share common objectives. If the shared objective can be defined as getting useful and scientifically defensible information for groundfish fishery management, then it is possible to have meaningful partnerships between agencies, academia, the fishing industry, private foundations, and non-profit organizations.

4. How Do We Improve On the "Best Available Science"?

Councils and NMFS base fishery management decisions on these building blocks for scientific understanding: data collection, analytical data evaluation, interpretation of results, and application of information for management decisions. "Best available science" refers to the quality of science in this process of collection, analysis, interpretation and application. Having high quality data for fishery science requires that responsible agencies and entities have long-term data collection plans with: 1) established priorities, 2) sampling designs that incorporate statistical properties of data, 3) documented sampling protocols, 4) funded sampling programs, 5) data base management, and 6) experienced personnel. High quality analysis and interpretation requires a team of knowledgeable and highly skilled researchers with experience in the disciplines of fishery biology, economics, marine ecology, statistical and quantitative analysis, population dynamics, and computer science.

Team members must be able to work in an environment free from the political influences of the agency leadership, managers, constituents, and user groups. The Council then must have access to a team of scientists knowledgeable in Council management issues who can draw on available scientific information to prepare evaluations of management alternatives to write understandable decision documents. There should be periodic review by knowledgeable and independent (if possible) peers at each step of the process. Development of a coast-wide prioritized collection plan, funded sampling programs, and the coordination of collaborative teams of analysts will improve the "available science".

5. What are the Parts of An Effective Fishery-Monitoring Program?

The objectives of monitoring include: 1) quantifying total catch to document total fishery-caused mortality, and 2) biological sampling of the catch to document the sex, size, age, and maturity of the fish caught. To be effective, a groundfish fishery-monitoring plan should cover the full coast wide distribution of the fisheries and should involve both an at-sea and a shoreside component to reflect the biological composition of the retained catch as well as the catch discarded at-sea. Fishery monitoring information is a key element in groundfish stock assessments.

Information should be collected and made available in a timely manner for incorporation into stock assessments and monitoring programs, particularly for stocks under a rebuilding plan. Trained individuals using a statistically valid sampling plan should collect fishery-monitoring information. The plan should be designed and applied according to the scientific method. The proper sampling design must be implemented to assure that the data collected are statistically representative at acceptable levels of sampling uncertainty.

6. (a) What Data Do We Need to Collect; How and Who Will Collect It? (b) If All the Needed Data Cannot Be Collected, What are the Priorities? (c) How Can We Utilize Industry in Collecting Scientific Information? (d) How Can We Incorporate Qualitative Data?

On a biennial basis, the Council updates its comprehensive "Research and Data Needs" document, which includes a prioritized list of biological, social, and economic data needs for the groundfish fishery. Groundfish items are prioritized under the categories: 1) Fishery Monitoring and Data Collection, 2) Resource Assessment Surveys, 3) Fishery and Productivity Parameters, 4) Stock

Assessment Modeling, and 5) Habitat. This list should be updated and reprioritized to reflect the current state of crisis in the groundfish fishery.

There is a role for industry in the collection of scientific information whenever collaborative projects can be structured in a way to collect information according to the scientific method. Industry can also provide in-kind support such as: 1) providing vessels for at-sea research or surveys, or 2) money to hire professional scientists as consultants to tackle specialized projects. Fishers also have a wealth of knowledge acquired from personal observations accumulated over many years while working at sea. One way this valuable, subjective information can be translated into objective, reproducible scientific information is when fisher's observations are used to design pilot studies to collect initial data on sampling variability.

This information can then be used in the statistical design of larger scale studies by providing valuable insights on how to reduce the variance (uncertainty) on parameter estimates. For example, fishers possess subjective knowledge on bottom type and fish distribution that can be used to establish pilot study level survey stratifications. The principals of random sampling can then be applied to the pilot study sites to evaluate improved stratifications in the design of larger scale federal or state survey efforts.

7. How Can We Better Collect, Analyze, and Use Economic and Social Information?

In 1998, the Council led an effort to develop a West Coast Fisheries Economic Data Plan. That plan provides a framework for depicting the relationships among different types of economic data collections and a systematic approach for addressing short and long-term economic data needs. That plan also mobilizes and coordinates the collection and use of economic information. Someone who is familiar with regulatory requirements for economic analysis should be assigned to and held accountable for implementing the plan. This person would coordinate with other West Coast economists in: 1) prioritizing economic data needs, 2) devising ways to modify or augment existing data bases to be more useful for economic analysis, 3) seeking out economic data collection and funding opportunities, 4) ensuring that the design and content of future economic data collections address Council needs, and 5) periodically updating the Economic Data Plan.

The shortage of economists has meant that even existing databases (e.g., PacFIN) are not used to their full potential. Additional economists are needed to help develop and evaluate management options, to ensure that SAFE documents provide adequate and meaningful economic information, to monitor the economic health of Council-managed fisheries and to provide economic input on various Council issues. Economists should be adequately represented on the Council's Plan Teams and on ad hoc Council committees where appropriate. We particularly need an economist with recreational fishery expertise.

Additional data management support will enhance productivity of the economists we have now. Frequently, the data summarizations needed for economic analysis are more time-consuming than the analysis itself. The expertise of economists who already work with or for the Council could be used more efficiently and effectively if someone were specifically assigned to work with them to provide timely, customized data summarizations.

Although sometimes called upon to conduct "social impact analysis" or evaluation of "community effects," economists have little training in these areas. We must make a concerted effort to determine the data and analytical requirements and the types of expertise needed to properly conduct such analyses.

(d) Science Recommendations

1. Prioritize stock assessments for suspected "weak stocks" in mixed-stock fisheries.

2. Create cooperative partnerships between state, federal, private foundations, and other private entities to collect and analyze the scientific data needed to manage groundfish.

3. Promote improved mutual understanding, communication and credibility between the fishing industry and scientists through increased communication and collaboration, including at-sea ride-alongs.

4. Develop methods for incorporating fisher observations into stock assessment and monitoring programs, including employing commercial fishing vessels to conduct cooperative resource surveys and to collect other scientific data.

5. Implement the Council's draft West Coast Fisheries Economic Data Plan.

6. Ensure that economists and social scientists are adequately included on Council plan teams and ad hoc committees where appropriate, to ensure that all dimensions of management issues, options, and solutions are well reflected in their input to the Council.

7. Hold an annual or bi-annual meeting of U.S./Canada and/or U.S./Mexico stock assessment scientists to plan upcoming (preferably joint) assessments of transboundary stocks. The U.S./Canada portion of this recommendation could be conducted under the umbrella of the existing U.S./Canada Groundfish Technical Subcommittee.

8. Meet annually with National Marine Fisheries Service's Northwest and Southwest Regions and Science Centers and the Pacific States Marine Fisheries Commission to integrate the Council's data and research needs into NOAA's budget process.

9. Meet with the states and NMFS to develop a joint multi-year research and data collection/analysis plan for west coast groundfish.

10. Direct scientific efforts to measure the changes in groundfish productivity due to ocean environmental changes.

11. Obtain a dedicated research vessel(s) to perform annual surveys and collect other data needed to manage the coastwide groundfish under Council jurisdiction.

Section II. C
The Groundfish Strategic Plan

"What Will We Do To Get There?"

Council Process and
Effective Public Involvement
During and Beyond the Transition

Laws and Regulations
Meaningful Goals and Objectives
Using Advisory Entities
Building Trust and Credibility
Monitoring Management Effectiveness
Public Outreach and Stakeholder Involvement

C. Council Process and Effective Public Involvement During and Beyond the Transition

(a) Problem Statement

The Pacific Fishery Management Council is guided and constrained by federal law. The main statute is the Magnuson-Stevens Act, which created the councils and sets standards and procedures for the councils. The Council's actions result in federal regulations, which are governed by additional procedural laws, most importantly the Administrative Procedure Act (APA), the National Environmental Policy Act (NEPA), and the Regulatory Flexibility Act (RFA). In the Council process, these administrative laws ensure that the Council considers the potential effects of its actions before making recommendations on federal regulations.

The interplay of these laws imposes a complex regulatory process on the Council that in some cases is duplicative of Magnuson-Stevens Act requirements. The Council, like other entities that operate with federal funding, may not lobby Congress. However, Congress regularly asks councils for suggestions on legislation, particularly during the routine reauthorization process for the Magnuson-Stevens Act.

To meet the provisions of the Magnuson-Stevens Act, including providing for meaningful public involvement, the Council generally uses a two-meeting decision making process, i.e. alternatives for a proposed action are identified at one meeting, the alternatives are provided to the public for review and comment, and the Council considers final action at the next meeting. The challenge in this procedure is ensuring that the public is aware of the Council process, is informed about the proposed action and its potential impacts, and has a readily available avenue to provide the Council with their comments.

Historically, the Council groundfish management process provided adequate time to establish annual harvest regulations, allocation amendments and, periodically, management plans. In 1995 and 1996, the operating environment for the fisheries and the Council changed significantly. First, each new round of assessments seemed to predict new declines. Second, the science itself and modeling were questioned along with the adequacy of databases. Finally, Congress created new precautionary requirements for management, significantly raising performance expectations.

These conditions accelerated the current groundfish fishery crisis. The Council is confronting a larger array of issues of greater complexity than ever before, and issues develop at a far faster rate than they can be addressed. Participants are frustrated with the process as well as with the perceived lack of stability or predictability in the fishery. The fundamental trust and credibility relationship between industry, the public, and management is strained and the process is not serving its intended purposes.

(b) Strategic Plan Goals for Council Process

- *To establish and maintain a management process that is transparent, participatory, understandable, accessible, consistent, effective, credible, and adaptable;*

- *To provide a public forum that can respond in a timely way to the needs of the resource and to the communities and individuals who depend on them; and*

- *To establish a long-term view with clear, measurable goals and objectives.*

(c) Issues/Options/Alternatives

1. What Additions or Changes to Laws and Regulations Would Assist the Council in Making Progress in Achieving Its Objectives?

The Council is on record supporting several amendments to the Magnuson-Stevens Act that would provide needed management authority. In particular, the Council has supported authorization to establish individual quota programs and to collect fees to pay for an observer program (or for direct federal funding). These two additions would go a long way towards accomplishing the goals of improved information, reduced bycatch, and allowing the market to take care of many necessary changes. The Council has also supported increased funding both for itself and for NMFS. In addition, the Council might support authority for community quotas in future Magnuson-Stevens Act amendments if these seem beneficial to West Coast fisheries.

The federal tax code could be changed to provide incentives for fishers to retire their permits and vessels. The various federal incentives for fishers to increase their capital investments in vessels, gear, permits, etc., (e.g., Capital Construction Fund) could be revised to allow transfer of that capital to other uses.

Federal buyback/fleet restructuring legislation and funding would provide a means for proceeding quickly with fleet reduction.

2. How Can the Council Ensure Effective Congressional Interaction?

The Council is routinely asked to comment on relevant pieces of legislation. Council chairmen meet regularly and develop positions in response to Congressional requests. The Pacific Council could have a committee (such as a Legislative Overview Committee) and/or a member identified so that, when a request is received, the Council is already prepared with a timely, considered response. As the Council increases its interactions, and the quality of its presentations, it may receive more requests for information. As the Council identifies non-standard tools to assist in fishery management, it could also write up proposals for the periodic Magnuson-Stevens Act reauthorization process. The Legislative Overview Committee could also be asked to think creatively about Council needs for future fishery management tools.

3. Should the Magnuson-Stevens Act be Changed to Reduce Management Requirements and Complexity?

This question has been around since the early days of the Fishery Conservation and Management Act. For example, councils pushed for exclusion from NEPA requirements so that environmental assessments and environmental impact statements would not be necessary for all FMPs and regulations. This is because the Magnuson-Stevens Act contains the same basic requirements for

identifying alternatives and considering the impacts of the alternatives, and NEPA primarily imposes additional procedures. The RFA is designed to ensure that federal regulations do not cause a significant economic harm to small entities. Analyses required by the RFA are also required by the Magnuson-Stevens Act.

Councils have also argued for exemption from the Paperwork Reduction Act (PRA), which is designed to reduce the record keeping and reporting required of individuals. There is a conflict between protecting fishers from keeping and reporting information, and the need for this data to ensure that the Council makes informed management decisions. Over the past 25 years, there have been multiple attempts to streamline legislative requirements with only minimal improvements. There is a tension between requiring additional analysis and process to ensure appropriate information for the decisions, and being able to act with adequate speed and flexibility to manage fisheries in an appropriate and timely manner. The fundamental question is whether the public would be better served with changes to basic rules.

During the next Magnuson-Stevens Act reauthorization process the Council could recommend that actions under the Magnuson-Stevens Act be exempt from NEPA and the Regulatory Flexibility Act because the relevant issues are already covered under the Magnuson-Stevens Act itself.

4. How Can the Council Minimize Conflicting Goals and Objectives, Improve Balance Between Goals and Objectives, and Adopt Goals and Objectives That are Meaningful, Operational, and Measurable?

The Council should set up a clear, prioritized hierarchy such that no goal or objective is allowed to compromise achieving another ranked higher in that hierarchy. The hierarchy may include a division between required and desirable goals. Any new goal or objective adopted by the Council would be carefully considered and placed on the prioritized list.

A second alternative to addressing conflicting goals and objectives is to consciously balance the attainment of each by considering and weighing them against the National Standards and other applicable statutory requirements.

There is always a balance between establishing a comprehensive list of ***all*** the goals and objectives that might be associated with any given undertaking, and simultaneously attempting to achieve that list; the broader the list, the greater the difficulty in achieving all elements within it.

Whether a goal is achieved, or to what degree it is in conflict with other goals, can only be determined if it is measurable. Qualifying phrases such as "to the extent practicable" or abstract measurements such as "minimize," or "maximize" only increase the difficulty in resolving conflict between competing goals and objectives. As an example, consider the difference between "minimize discard to the extent practicable" and "reduce discard by 30 percent." The lack of guidance provided by unmeasurable objectives is even more dramatic when they are weighed against conflicting goals, which also include abstract terms like "minimize," "maximize" or "to the extent practicable." Whenever possible, the Council should adopt goals and objectives with measurable criteria.

5. How Should the Council Monitor Management Effectiveness?

If the Council has established goals and objectives with measurable outcomes, management effectiveness could be assessed by simply measuring the degree of attainment for those goals and objectives. Sustaining the resource that supports the fishery that the Council manages is one obvious measure. Realistically, the complexity of groundfish management will likely make direct measurement of effectiveness difficult for the foreseeable future.

6. How Can the Council Clarify the Roles and Responsibilities of the Groundfish Advisory Committees and Teams, and Build Trust Between Advisory Entities?

The Council needs to specifically address what it expects from each of its advisory groups. Considerable attention has recently been given to the issue of separating science from management. The Council could facilitate this separation by more clearly defining where it receives scientific advice versus where it receives management advice. To the extent that the Council can clearly identify the specific product or perspective it desires from an advisory body, the more effective that body could be in delivering the desired product.

As harvest opportunities decrease, demands on the information supporting management increase, and resource allocation becomes increasingly necessary. These changes result in increased conflict between and among public interest sectors. The Council needs to determine how it will receive conflicting advice from its advisory entities. Minority statements from advisory groups could be encouraged. Specific votes on issues, perhaps recorded by affiliation within the industry advisory body, could also be provided to the Council.

As harvest opportunities become increasingly constrained, the Council should ensure that it is receiving the perspectives from regionally-oriented constituencies. Expense and meeting management constraints probably preclude expanding advisory groups to fully represent all unique interest groups, but the Council should seek input from industry, the environmental community, and management on the extent to which the current advisory groups provide the broad-based, comprehensive advice the Council requires. The Council may wish to explore a more formal process to allow members of interest groups an opportunity to communicate with those representing them on Council advisory bodies.

7. (a) How Can the Council Get Sufficient Support for a Sustainable Fishery from All Stakeholders? (b) How Does the Council Gain Public Acceptance that Sustainable Fisheries and Resource Conservation Can Co-Exist?

The Council must first lay out its view of a sustainable fishery, which should come naturally from the vision statement. Sustainability is a foundation stone of the Magnuson-Stevens Act, and recreational, commercial, and environmental representatives speak in support of the concept. The Council should clearly describe the various elements and the necessary balance: productive resources, prosperous industries, diverse recreational opportunities, vibrant communities, etc. To get philosophical buy-in, this message must be clearly, consistently and frequently stated at Council meetings, in newsletters, at hearings, and other venues.

8. Who Are the Stakeholders That Are Affected By and Interested in the Actions of the Council, What is Their Role, and Who Represents Their Interests?

Currently, the Council engages stakeholders through Council meetings, public hearings on FMP amendments, and membership on committees and panels such as the Groundfish Advisory Subpanel, Habitat Steering Group, and other advisory entities. Others express their interests via phone calls and letters to Council members and the Council office. Council committee membership changes every two years and nominations are solicited from organizations and individuals. The number of seats and their designations are also reviewed from time to time to better reflect the population of interested stakeholders.

The fishery resources under the Council's jurisdiction belong to the country as a whole and the Council is charged with managing the resources to obtain the maximum/optimum benefit. Under this view, every U.S. citizen is a stakeholder. Constituency representative groups include, among others: commercial and recreational fishers, Indian tribal fisheries, fish processors, and those who support fishing activities including associated business owners, representatives from surrounding fishing communities and environmental organizations. There is also a constituency of non-consumptive users such as scuba divers, pleasure boaters, surfers, beachcombers, bird watchers, and others who have a stake in the aesthetic qualities of the marine environment and fish resources. These groups may be represented by local or national organizations. The Council maintains a mailing list of individuals, commercial and recreational fishing organizations, commercial enterprises, environmental, and other interested organizations, as well as others identified as interested and affected stakeholders.

9. How Can the Council Help Inform and Educate the Public as Well as Provide for Effective Public Outreach?

The Council by itself cannot inform and educate the public. This will require cooperation among the Council, NMFS, the various state agencies, fishing groups (both recreational and commercial), and environmental organizations. The Council currently distributes five newsletters each year, numerous meeting notices and announcements, and various documents relating to proposed regulation changes. The Council's newsletter summarizes its major actions, decisions, and events. The Council staff maintains a mailing list of over 4,200 individuals and organizations. Newsletters are mailed to approximately 2,700 individuals plus additional media, libraries, and organizations. Over 1,000 addresses receive mailings specific to groundfish issues. Each of these lists is updated regularly, typically at least once each week. Major Council documents and newsletters are posted on the Council website. One measure of current outreach is the number of visits to the website: recently, there have been over 42,000 hits per month. The Council can also help by holding meetings at multiple locations, improving its website and website links.

The state representatives on the Council need to recognize their individual roles and responsibilities to their respective constituents. Public outreach is one role of each individual Council member. State representatives can develop mailing lists of license holders, update web pages to include Council information, establish advisory groups, and host public meetings. All of these tools will help increase communication and help facilitate understanding of the Council and its process.

10. How Can the Council Minimize Adverse Economic Effects and Take Into Account the Needs of Fishing Communities When Making Council Management Decisions?

Economic effects on individual fishing participants, companies, and communities in recent years have been substantial due to declining stocks and overcapacity. Social and economic impacts will continue until the industry comes into equilibrium with resource availability and stocks stabilize at productive and sustainable levels. A major restructuring of the industry and coastal communities is inevitable, and the Council and federal government can provide much needed direction for the necessary changes.

A strategic approach for this restructuring would include the Council taking a leadership role in the "transition to sustainability" through capacity reduction and open access fleet restructuring, so that the industry is stable, diverse, market driven, and profitable, regardless of environmental and stock variability. The help of state and federal governments can facilitate the necessary change and ease the trauma through public assistance, training, and tax relief.

The Council staff has been preparing a baseline document that describes coastal communities, categorizes commercial vessels by the combinations of species they land, identifies participation in recreational fishing, and fish processing. This information may be useful in better tuning fishery management decisions. Identification of classes or groups of vessels that operate similarly will help the Council predict and understand regulatory effects. Finally, the Council may receive more comprehensive user viewpoints and public comments about the needs of fishing communities, as well as the potential impacts of Council decisions, by improving public outreach.

(d) Council Process Recommendations

1. Encourage long term thinking so the Council can suggest creative solutions to Congress and NMFS during the Magnuson-Stevens Act reauthorization process.

2. Establish a performance evaluation committee to periodically and critically review progress made towards Council goals and objectives. The committee should also analyze improvements needed in Council procedures to maintain efficiency.

3. Update goals and objectives in the FMP to incorporate the strategic plan's vision and goals. These updated goals and objectives should: (a) be measurable, (b) have minimal conflicts, and (c) be clearly prioritized wherever possible.

4. Continue to routinely update its mailing lists and ensure that they contain commercial and recreational fishing associations, conservation and environmental groups, commercial licensed fishers for groundfish and other fishery species, local port offices, media contacts, and community-based organizations.

5. More effectively use newsletters, web page displays, public forums, news releases, and public service announcements to improve public participation in Council activities and decisions.

6. Make draft agendas available earlier to the local media from fishing communities, highlighting key issues.

7. Sponsor workshops to explain the Council process, its role and responsibility relative to fishery management, the roles of its committees and advisory entities, and the various opportunities for public involvement. Workshops should be held by the Council and state agencies in local port communities.

Section III
The Groundfish Strategic Plan

"How Will We Measure Success?"

Implementing and Updating The Strategic Plan Document During and Beyond the Transition

Proposed Implementation Process Options for Updating the Strategic Plan

III. "How Will We Measure Success?" Implementing and Updating the Strategic Plan

A. Proposed Implementation Process

1. A Recommended Approach for Implementing the Groundfish Strategic Plan Document

(a) Background

The following proposal would be used to ensure effective implementation of the Groundfish Strategic Plan *after* the Pacific Fishery Management Council adopts it as a final strategic plan document.

The Ad-Hoc Groundfish Strategic Plan Development Committee discussed various ways to implement the Groundfish Strategic Plan and considered the usual Council direction to the advisory entities, the formation of a number of kinds of committees, and combinations of different approaches for effective implementation as well as measuring progress and success. After significant discussion, the group agreed to the following recommendations to the Council for a strategic plan implementation approach.

(b) Implementing the Strategic Plan Recommendations

1. At the September 2000 Council meeting, the Council adopts the Final Groundfish Strategic Plan document (per revisions incorporated after the summer public comment phase).

2. The Council directs the formation of a "Groundfish Strategic Plan Implementation Oversight Committee" which should be composed of Council members, some of which will have been members of the Strategic Plan Development Committee, to ensure continuity and an effective transition to implementation.

3. At its discretion, the Implementation Oversight Committee may establish small implementation development teams to develop specific alternative(s) for implementing elements of the Strategic Plan. Implementation development teams will be comprised of Council subpanel, management team, and committee members from the GMT, GAP, SSC, EC, and members of the public as deemed necessary by the Implementation Oversight Committee.

4. The Implementation Oversight Committee works at direction of the Council and is tasked with making recommendations regarding implementation of the strategic plan.

5. The Implementation Oversight Committee **goals** should include: (a) effective transition to the implementation phase, (b) ensuring the plan is implemented in a timely fashion, and (c) whenever possible, doing so in a fashion that provides for constituent acceptance and buy-in.

6. At the direction of the Council, the Implementation Oversight Committee will develop recommended schedules for carrying out all components of the strategic plan.

7. The Implementation Oversight Committee will develop recommendations for all components of the strategic plan that can be developed further: (a) directly by the Council, (b) via advisory entity assignments, or (c) through formation and use of a implementation development team approach, e.g., capacity reduction implementation development team(s), which would handle all of the complexities of addressing the implementation of capacity reduction. For example, there might be four teams – with industry representatives from trawl, fixed gear, open access with groundfish target, and open access with non-groundfish target. Each of these teams will also have a representative from the Implementation Oversight Committee, with a charge to develop a plan and product by "x" date. The Implementation Oversight Committee considers the work of the implementation development teams and develops the final recommendations for the Council. Clarification, input, and technical support will be available to all teams with "on-call" availability from Council staff, states, NMFS staff and General Counsel, etc.

8. It will be important to consider current conditions in the groundfish fishery, including the effects of recent changes in resource status, fishery management, and the environment, as part of the strategic plan implementation process.

B. Measuring Success

1. Options for Updating the Groundfish Strategic Plan Document

(a) Background

A good strategic plan is rigid enough to have clearly-stated, expected results but also flexible enough to modify when evaluation indicates change is necessary. The Council wishes to maximize the value of the time, energy, and money invested in its strategic plan by regularly evaluating the plan's effectiveness and initiating changes as deemed necessary to enhance success. The Council also recognizes that periodic review provides plan continuity for Council members and staff, and promotes public awareness.

However, this strategic plan is a complex document that was drafted to cover the long term, and thorough, frequent review would take a significant amount of the Council's limited time. If review is too frequent, the energies of the Council may be diverted to trying to re-argue existing policy choices rather than to implementing the plan, thereby detracting from the goal of moving through the transition period to a more stable fishery.

Council review would be a formal process for assessing success and progress in implementation of the strategic plan and for determining whether the plan should be modified. Even if a formal review is not scheduled, the Council, as always, has the option of placing plan review on its agenda if it determines it is necessary. For example, the Council could schedule a review of the plan needs to account for changes to the Magnuson-Stevens Act, or if other new information develops that affects the plan.

(b) Options for Timing of Review

Option 1 – The Council would review the plan annually.
Option 2 – The Council would review the plan every two years.
Option 3 – The Council would review the plan every five years.

(c) Options for the Review Process

Option 1 – The Council would review the plan, with public participation, as part of a Council meeting. The public would have notice of the upcoming review, would have the opportunity to provide written comment to the Council, and would have the opportunity to provide comment to the Council during the meeting at which the review takes place. Advisory entities would have input through the standard Council meeting format. If the Council determines that action is necessary, it will initiate the necessary process.

Option 2 – This option includes the activities described in Option 1, but in addition, the Council would hold hearings along the coast to allow in-person testimony from interested parties.

(d) Updating The Strategic Plan Recommendations

The Council should schedule a routine review every five years (Option b3). If a Council member determines that a review should occur more frequently, the member could seek to have the review placed on the Council agenda in the same manner that other actions are placed on the agenda. When the review takes place, the Council should follow the standard Council meeting process and take written and oral public comment, and involve the appropriate advisory entities (Option c1).

Section IV
The Groundfish Strategic Plan

APPENDICES[2]

Overcapacity Report Executive Memorandum
Strategic Plan Timeline and Schedule
Acronym and Abbreviation List

[2] See Council staff for further information on these documents

APPENDIX A: Scientific and Statistical Committee's Economic Subcommittee Overcapacity Report – Executive Summary Memo with reference to the Executive Summary and full report.

EXECUTIVE MEMORANDUM

Date: March 16, 2000
To: Pacific Fisheries Management Council (PFMC)
From: Economic Subcommittee – B Scientific and Statistical Committee (SSC)
Regarding: Report on Overcapitalization in the West Coast Groundfish Fishery

Attached is our report titled *Overcapitalization in the West Coast Groundfish Fishery: Background, Issues and Solutions*. At the November1999 PFMC meeting, amid SSC discussions regarding the severity of the overcapitalization problem in the groundfish fishery, the SSC Economic Subcommittee volunteered to author a report on the topic. With Council support, the Subcommittee held a two day public workshop on January 13-14, 2000 in Portland to discuss capacity reduction issues and strategies. In addition to Subcommittee members, meeting participants included economists from the NMFS Northwest Region, industry representatives and various members of the Council Family.

The report was designed with three primary objectives: (1) describe and evaluate capacity trends and status of the West coast groundfish fishery, (2) review alternative programs for reducing and managing fishing capacity, and (3) evaluate a range of alternatives for reducing West coast groundfish capacity. The report is intended to provide input to the Council as it develops short and long run plans for improving management of the West coast groundfish fishery. The key findings (which are discussed more fully in Section IV. E of the report) are highlighted below.

Overcapitalization is the single most serious problem facing the West coast groundfish fishery. The effectiveness of traditional management measures (e.g., landings limits, seasons) in ensuring that discards are minimized and that a reasonable economic livelihood can be made from the groundfish fishery has been seriously eroded in recent years. Given that OYs are unlikely to increase any time soon, the only viable option for reducing overcapitalization is to reduce potential harvest capacity.

The problems associated with overcapacity will not be resolved by waiting for vessels to leave the fishery. The extremely high amount of latent (i.e., unutilized) capacity present in the fishery means that a significant amount of effort is available for mobilization at any sign of improved fishing opportunities. The current problems associated with low landings limits, short seasons and complex and contentious management will not go away unless the Council takes deliberate action to permanently remove latent capacity from the fishery.

There are no quick or easy fixes for the problems caused by excess capacity. Eliminating excess capacity will be complex, costly and time consuming, regardless of which capacity reduction approach or combination of approaches is used. However, the status quo is also complex, costly and time consuming, and provides no solution to excess capacity and its associated problems.

The Council should take immediate action to develop stringent capacity reduction programs for

all sectors of the West coast groundfish fishery. Given the current moratorium on IFQs and the complexities of designing an IFQ system, IFQs are best viewed as a long term management strategy for West coast groundfish. Other potential solutions, including limited entry for the open access fishery and buyouts and/or permit stacking for the limited entry fishery, should be explored immediately.

As a first step, the Council should establish clear goals and objectives for capacity reduction in each fishery sector. Goals and objectives have a direct bearing on the design of the capacity reduction program and the measures used to monitor program success.

Long term allocation decisions must be made to ensure that capacity reduction represents an acceptable financial risk to those who will pay for it. All capacity reduction approaches require that someone (industry, government or both) bear the financial risks associated with harvest, market and regulatory uncertainties. Allocation of groundfish OYs among fishery sectors (including recreation) will alleviate a major component of that risk.

Spillover effects on other fisheries should not deter the Council from addressing overcapitalization in the groundfish fishery. While scrapping of vessels is highly desirable, it is not clear whether it will be affordable. If vessels are not scrapped, it will be important that the capacity reduction program include design features that discourage spillover to the extent possible. Some spillover, however, will be inevitable, regardless of which capacity reduction approach is adopted (including the status quo). In any case, the groundfish fishery should not be held hostage to inadequate capacity regulation in other fisheries.

An ad hoc committee should be assigned to develop and evaluate a "straw man" capacity reduction options for the Council. The committee could explore any number of management options. For instance, the committee could evaluate alternative mandatory permit stacking schemes in terms of their effects on harvest capacity and the landings limit per permit. The committee could analyze the effect of alternative limited entry criteria on the open access fleet. The committee could evaluate the feasibility of obtaining funding for a buyout and how much capacity could be bought out with different levels of funding. ***Council input regarding its capacity reduction objectives and which of the broad range of capacity reduction approaches it is interested in pursuing will be essential for focusing the committee's efforts. Industry involvement will be critical to the success of this endeavor.***

APPENDIX B: Pacific Groundfish Fishery Strategic Plan Process Timeline and Schedule

SEPTEMBER 1999		OCTOBER 1999		NOVEMBER 1999		DECEMBER 1999	
DATE	TASK	DATE	TASK	DATE	TASK	DATE	TASK
13-16	Facilitator conducts convening meetings with PFMC and Council Committee members	14	Convening summary document to Committee	1-5	Council meeting: provide update and status report on proposed framework; receive guidance and direction	14-15	Meeting to continue preparation of draft Strategic Plan, including brainstorming a range of options for addressing issues
17	Ad-Hoc Committee meets to review convening process	18-19	Committee meeting to discuss results of convening process and begin developing strategic plan framework		Committee meeting to begin preparation of draft Strategic Plan; discuss issues, key questions, obstacles and barriers		

JANUARY 2000		FEBRUARY 2000		MARCH 2000		APRIL 2000	
DATE	TASK	DATE	TASK	DATE	TASK	DATE	TASK
17-18	Committee meeting to review, discuss, and revise proposed options and strategies	14-16	Committee meeting to continue development of proposed range of strategies; start to bring together the overall draft framework	6-10	Brief update at Council meeting	3-7	Update and Status Report at Council meeting.
				21	Conference call to discuss strategies and prepare for April meeting	18-19	Committee meeting to finalize proposed range of options and strategies; review overall draft plan

MAY 2000		JUNE 2000		JULY 2000		AUGUST 2000	
DATE	TASK	DATE	TASK	DATE	TASK	DATE	TASK
22-24	Committee meeting	14-15	Committee meeting		Conduct public involvement activities to encourage broad constituent review and comment of draft strategic plan		Conduct public involvement activities to encourage broad constituent review and comment of draft strategic plan
		26-30	Request Council approval of Draft Strategic Plan (Council advisory review and comment)				Committee meeting for review of comments; revise and finalize strategic plan
			Release for public review and comment				

SEPTEMBER 2000		OCTOBER 2000		NOVEMBER 2000		DECEMBER 2000	
DATE	TASK	DATE	TASK	DATE	TASK	DATE	TASK
11-15	Seek final Council approval for Strategic Plan		Begin Strategic Plan Implementation Activities		Tasks to be determined		Tasks to be determined

APPENDIX C: Acronyms and Abbreviations List

ABC	Acceptable Biological Catch
CDFG	California Department of Fish and Game
CDQ	Community Development Quota
Council	Pacific Fishery Management Council
DTS	Dover sole/thornyhead/trawl-caught sablefish complex
EA	Environmental Assessment
EC	Enforcement Consultants
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FMA	Fishery Management Area
FMP	Fishery Management Plan
GAP	Groundfish Advisory Subpanel
GIS	Geographic Information System
GMT	Groundfish Management Team
HAPC	Habitat Areas of Particular Concern
IFQ	Individual Fishing Quota
IQ	Individual Quota
IRFA	Initial Regulatory Flexibility Analysis
ITQ	Individual Transferable Quota
LE	Limited Entry
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MMPA	Marine Mammal Protection Act
MSY	Maximum Sustainable Yield
mt	Metric Ton
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NMFS NWR	National Marine Fisheries Service Northwest Region
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
OA	Open Access
ODFW	Oregon Department of Fish and Wildlife
OY	Optimum Yield
PacFIN	Pacific Coast Fisheries Information Network
POP	Pacific ocean perch
PRA	Paperwork Reduction Act
PSMFC	Pacific States Marine Fisheries Commission
RecFIN	Recreational Fishery Information Network
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
Secretary	Secretary of Commerce
SFA	Sustainable Fisheries Act
SSC	Scientific and Statistical Committee
SWFSC	Southwest Fisheries Science Center (NMFS)
TAC	Total Allowable Catch
WDFW	Washington Department of Fish and Wildlife