

## 2.0 THE ALTERNATIVES

At its March 1990 meeting, the Council announced four tentative alternatives which it would examine during consideration of Amendment 6 to the Pacific coast groundfish FMP: (1) status quo; (2) intensified management trends (gear restrictions, increasingly restrictive trip limits and seasons, multiple openings or quarterly/monthly quotas); (3) license limited entry; and (4) ITQs. Public comment on these alternatives was solicited. During discussions at the April 1990 meeting, it was decided that status quo and intensified management trends were the same. The final set of alternatives specified for the analysis were (1) status quo, (2) license limited entry, and (3) ITQs.

### 2.1 Description of the Alternatives

#### 2.1.1 Status Quo

This description of status quo management includes a listing of the regulations allowable under the framework FMP (Amendment 4). On an annual basis, the Council determines allowable harvests, sets quotas and harvest guidelines, and establishes trip limits, seasons and other basic conservation measures which are expected to achieve the quotas and harvest guidelines. A description of past management actions taken under Amendments 3 and 4 of the current FMP is included in Chapter 5 and illustrates a trend toward increasingly restrictive regulations.

The Framework FMP. Routine Council management measures (Section 6.2.1 of the groundfish FMP) include:

- trip landings and frequency limits for specific commercial gears and species:
  - Widow Rockfish – All Gear
  - Sebastes Complex – All Gear
  - Boccacio – All Gear
  - Yellowtail Rockfish – All Gear
  - Deepwater Complex – All Gear
  - Thornyhead – All Gear
  - Dover Sole – All Gear
  - Sablefish (Including Size Limits) – Trawl Gear
  - Sablefish – Non-trawl Gear,
  - Pacific Ocean Perch – All Gear, and
  
- recreational bag and size limits for lingcod and rockfish.

Gear regulations, reporting requirements, season/time closures, harvest guidelines and quotas are also used on a regular basis. Changes to routine management measures may be made during one Council meeting. Additionally, under framework procedures<sup>1/</sup> established by Amendment 4, the Council may

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1/ The framework procedures section specifies a process that the Council must follow in making management decisions. These procedures involve the preparation of analytical documents, public notice of the Council's intent to address the issue and opportunity for public comment. Acting under the framework procedure of the FMP, the Council and Secretary of Commerce may only take actions which are within the scope of those specified in the FMP (listed in this paragraph). Other kinds of fishery management measures require amendment of the FMP.

recommend through a two meeting process that any of the following common fishery management measures be employed in manners in which they have not been routinely used in the West Coast groundfish fishery:

- gear limitations (mesh size limits, codend specifications, legal gear definitions, marking requirements and other gear specifications as necessary),
- trip landing limits (including by-catch limits) and trip frequency limit,
- size limits,
- harvest guidelines (target harvest levels) and quotas,
- season, time and area (or subarea) closures,
- cessation of directed fishing (foreign, domestic or both) on the identified species or species group with appropriate allowances for incidental harvest of that species or species group,
- observer coverage,
- reporting requirements,
- permits (other than limited entry permits), and
- other necessary measures.

The process for deciding to use a nonroutine management measure requires analyses specified in the framework procedures be developed and disseminated for public comment. In addition to the types of regulations described above, direct allocation to gear groups may also be accomplished through the framework procedures established under Amendment 4. Direct allocation actions require more detailed analyses than other management actions.

#### 2.1.2 License Limited Entry

The following is a brief summary of the license limitation alternative which includes only the most basic characteristics of the program. A more detailed summary is included as part of the executive summary to the appendix to this document. There are a number of specific provisions in the license limitation alternative which are not included in this document that will be significant to individual circumstances. It is important to directly consult the license limitation program document in determining how the license limitation alternative might apply to individuals in specific situations. Chapter 3 of this document explains the rationale for specific provisions of the adopted program and covers alternative provisions which were considered and rejected.

The adopted license limitation program, when combined with the current management system, controls the capacity of the fishery segment covered by the program in four main ways: (1) number of vessels, (2) gear used by the vessels, (3) length of the vessel, and (4) trip size and frequency limits (primarily trawl).

The program is based on a federal permit. The fishery will be divided into limited and open access segments. Vessels using groundfish trawl, longline or fishpot gear may qualify for limited entry permits. These vessels land over 90 percent of the catch. Rather than issuing a separate permit for each gear that vessel qualifies for, a single permit would be issued and endorsed for each gear that meets the qualifying requirements (Figure 2-1). Vessels using all other gear (exempted gears) would not be required to have a permit to continue to fish for groundfish. Additionally, vessels making small landings with longline or fishpot gear would be allowed to fish in the open access segment. Other management measures, such as trip limits, would be used to control the open access segment of the fleet. The management goal for this segment of the fleet would be to provide year-round fishing opportunity.

There are a number of different kinds of endorsements that may be issued for each gear (Table 2-1). "A" endorsements are primarily intended for those vessels with a significant involvement in the fishery during the July 11, 1984 to August 1, 1988 window period (vessels which meet the MLRs). They are transferable with the permit and valid for all Council-managed groundfish fisheries. There is no specified time limit on the endorsements; i.e., they will remain valid until the groundfish FMP is amended to change the nature of the permit system. The Council sent two MLR options out with the draft supplemental EIS in January 1991. After reviewing public comment, the Council drafted an intermediate option which was analyzed and distributed for public comment in July 1991. This intermediate MLR option was adopted when the license limitation alternative was adopted in September 1991.

The current owner of a vessel which met the MLRs between **July 11, 1984 and August 1, 1988 (the window)** may qualify for an "A" gear endorsement. The MLRs are as follows.

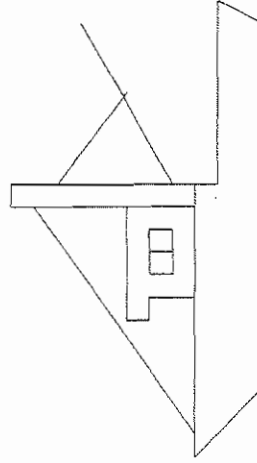
Adopted MLR:

- |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trawl    | At least 9 days in which over 500 pounds of any groundfish species caught with groundfish trawl gear except Pacific whiting are landed or delivered, or 450 mt of landings or deliveries of any groundfish species caught with groundfish trawl gear except Pacific whiting, or 17 days in which over 500 pounds of Pacific whiting caught with groundfish trawl gear are landed or delivered, or 3,750 mt of landings or deliveries of Pacific whiting caught with groundfish trawl gear. |
| Longline | At least 6 days in which over 500 pounds of any groundfish species caught with longline gear are landed or delivered, or 37.5 mt of landings or deliveries of any groundfish species caught with longline gear.                                                                                                                                                                                                                                                                            |
| Fishpot  | At least 5 days in which over 500 pounds of any groundfish species caught with fishpot gear are landed or delivered, or 150 mt of landings or deliveries of any groundfish species caught with fishpot gear.                                                                                                                                                                                                                                                                               |

MLR options sent out for public review:

Vessel ID Number: 29999999

**WEST COAST GROUNDFISH  
LIMITED ENTRY PERMIT**



Vessel Owner: Clarence Jones

Vessel: F/V Coastline

Size Endorsement: 45 Feet (Length Overall)

Gear Endorsement: "A" - Trawl

"B" - Pot - 29999999 - Expires January 1, 1997

Figure 2-1. Example LE permit.

Table 2-1. Summary of characteristics of the LE permit gear endorsements.<sup>1/</sup>

Type of Gear Endorsement <sup>2/</sup>	Endorsement Characteristics				
	Nature of Issuance Criteria	"Transferable" <sup>3/</sup>	Duration	Species	Upgradable
"A"	Vessel meets MLRs during the window period, <sup>4/</sup> upgrade from provisional "A" endorsement, or certified fleet. <sup>5/</sup>	Yes	No Specified Limit	All Species	No
Provisional "A"	Conversion/construction/purchase/replacement <sup>6/</sup> prohibited gear.	No	Three Year Maximum <sup>7/</sup>	All Species	Yes
"B"	Vessel does not meet MLRs but has 3 or more days of over 500 pound landings prior to August 1, 1988.	No	Expires December 31, 1996 <sup>8/</sup>	All Species	No
Designated Species "B"	Seniority/first come/lottery (when harvesting capacity committed to domestic processors by vessels holding other types of endorsements is less than acceptable biological catch or an apportionment to total allowable level of foreign fishing would otherwise be required.)	No	One Year Maximum	Specified Species	No

<sup>1/</sup> This table summarizes the characteristics of various kinds of gear endorsements. It should be used only as a guide to understanding the endorsements. There may be details important to individual circumstances which are not included in the summary table.

<sup>2/</sup> All gear endorsements may be issued for groundfish trawl, longline or fishpot gear, depending on which gear is used to meet issuing criteria.

<sup>3/</sup> Endorsements are not separable from the master permit. A "transferable" endorsement generally remains valid when the master permit is transferred. When a vessel is totally lost, transfer of endorsements which would not otherwise be transferable may be allowed.

<sup>4/</sup> The qualifying window period is July 11, 1984 through August 1, 1988.

<sup>5/</sup> Small fleets under local jurisdiction limited entry programs may be incorporated under this federal program if they meet certain criteria. Such local limited entry programs must be in existence as of July 11, 1991.

<sup>6/</sup> As used here "replacement" references only the special circumstance where a qualifying vessel was replaced with a larger vessel and permit rights transferred prior to September 30, 1990.

<sup>7/</sup> Expires in the first year in which the upgrade criteria are not met.

<sup>8/</sup> Or on transfer of the vessel to a new owner.

Option 1 (Low MLR) The MLR for all limited entry gears is one pound or more (one landing or delivery) of groundfish.

Options 2 (High MLR)

- |          |                                                                                                                                                                             |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trawl    | At least 18 days or 900 mt of landings or deliveries of any groundfish species except Pacific whiting, or 34 days or 7,500 mt of landings or deliveries of Pacific whiting. |
| Longline | At least 11 days or 75 mt of landings or deliveries of any groundfish species.                                                                                              |
| Fishpot  | At least 10 days or 300 mt of landings or deliveries of any groundfish species.                                                                                             |

*Provisional "A" endorsements* are primarily intended for those persons who are making large investments in order to enter the fishery at significant levels, but did not have full opportunity to meet the qualifying requirements established for the four-year window period. Through means of the provisional "A" endorsement, the Council requires that such vessels develop a history of landings in order to demonstrate intent to enter the fishery. Included among potential recipients are vessels that were under construction or conversion during some part of the window period. When the draft supplemental EIS was sent out in January 1991, the Council requested comment on the criteria which would be used to determine whether a vessel was under conversion. The Council requested public comment on the value it should use in determining whether a vessel owner had made sufficient financial investment in a conversion to warrant consideration as a vessel under conversion and indicated it was considering a range of \$20,000 to \$50,000. In response to public comment, \$10,000 was set as the threshold amount for determining whether a vessel should qualify the owner for an endorsement. When construction or conversion of these vessels is completed, the owners will have three years in which they must fish at an annual rate that is approximately equal to the annual average required for vessels receiving full "A" endorsements (most vessels will have already had to meet this requirement by the time endorsements are issued). After completion of these three years of fishing, the provisional "A" endorsements may be upgraded to "A" endorsements. Provisional "A" endorsements are valid for all Council-managed groundfish fisheries, but are not transferable.

*"B" endorsements* are intended for vessels that had some low level of activity in the fishery but did not meet the landing requirements for vessels receiving "A" endorsements. These vessels had a very low level of dependence on the fishery. The "B" endorsements provide a three-year adjustment period during which time holders of the "B" endorsements may either make arrangements to stay in the fishery through the purchase of a permit with an "A" endorsement, or make other adjustments to the limited entry program. "B" endorsements are valid for all Council-managed groundfish fisheries, but are not transferable.

*Designated species "B" endorsements* are intended for vessels that want to harvest potentially underutilized species. These endorsements would only be issued when the commitments of "A", provisional "A" and "B" endorsement holders to harvest for domestic processors are not sufficient to take the entire allowable harvest. The endorsements issued would be valid for one year and only for delivery to domestic processors; however, if necessary to prevent an apportionment to TALFF, the

endorsements issued may be valid for delivery to foreign processors. Designated species "B" endorsements are valid only for the species they are issued for and are not transferable. For instances in which controversy arises over the issuance of endorsements, an appeals process is provided in which the Council may act as an advisory review board to NMFS.

In addition to gear endorsements, all permits will be endorsed for the length overall of the vessel for which the permit is originally issued. The length endorsement is not expected to place an immediate limit on increases of vessel harvest capacity, but will constrain growth in vessel harvest capacity and place an ultimate upper bounds on the amount of capacity which can be used with a particular vessel. Under a trip limit management regime, there will be little incentive to expand the trip capacity of the vessel (catch capacity for a given trip). Also, where trip limits for a species include a frequency limit, there is little incentive to expand capacity for harvesting the species in terms of the speed with which trips may be taken. There is an expectation that a future permit buy-back program or the development of individual quotas may further rationalize the fishery and reduce harvest capacity once the license limitation system is in place.

### 2.1.3 ITQs

The Council directed the committee overseeing the drafting of this amendment to develop some detail for an ITQ program to be considered as an alternative to the license limitation program. The committee developed some basic elements of a program but recommended that the specifics be considered only as an example. This section contains the rationale for the Council's decision not to expend resources in the full development of an ITQ alternative at this time and the example of a possible ITQ system developed by the Council's oversight committee.

#### 2.1.3.1 Rationale for Not Fully Developing a Detailed Amendment Alternative on a Comprehensive ITQ System

The license limitation alternative of Amendment 6 is a step toward controlling the capacity of the most powerful gears in the fishery. The comparable ITQ alternative to this license limitation system would be an ITQ system covering all, or nearly all, of the species for which the Council has established measures to control the rate of harvest. A comprehensive system does not need to cover every species in the FMP. However, to establish an ITQ system for only a few species would leave effort in a substantial portion of the fishery uncontrolled. The Council has determined that the Pacific coast groundfish fishery is not suitable for **immediate** implementation of a comprehensive groundfish ITQ system. Rejection of a comprehensive ITQ system at this time does not imply rejection of an ITQ system for selected species, nor does it imply rejection of the idea that a comprehensive ITQ system may eventually be developed. The following is a discussion of the major reasons for rejecting ITQs as a viable alternative to the Amendment 6 license limitation plan at this time.

Enforcement and Monitoring. Enforcement is a critical consideration in the design of any ITQ program. Following the discussion of Muse and Schelle (1989), enforcement problems fall into two categories: (1) smuggling, underreporting and misreporting and (2) dumping and highgrading.

Smuggling, Underreporting and Misreporting. ITQ systems may be undermined if individuals are able to catch and sell fish through unreported black market channels without using ITQs. The geography of the fishery has an important role in determining the severity of these problems. When domestic markets are large relative to export markets, there is greater difficulty in detection of

cheating. Large numbers of buyers, markets close to the fishery, numerous locations to land product and the presence of major urban areas are all factors which contribute to evasion of an ITQ system. Muse and Schelle found successful programs despite the presence of many of these factors. All these factors are present in the West Coast fisheries. Additionally, dockside sales, unlicensed buyers and area specific quotas might further complicate the enforcement problems for the West Coast groundfish fishery. In successful programs, the methods of monitoring involve reports by buyers and sellers that can be linked to create a clear audit trail. These methods would be complex and costly to establish and conduct for the West Coast groundfish fishery. For example, in 1990, there were 3,500 licensed fish buyers on the West Coast (while a small proportion of these licensed buyers purchase groundfish from fishermen, this number indicates the number of individuals who may be operating in fish marketing channels that need to be monitored); the Council was able to identify 122 groundfish processors for its 1989 limited entry survey; in 1988, 2,656 vessels harvested groundfish; groundfish are currently landed in about 90 ports; over 500 separate port codes are listed in the PacFIN research database documentation indicating possible landing or fish transfer points identified by the state fisheries departments; and most of the coast is easily accessible from a highway system on which product can be trucked to any location in the U.S. State enforcement systems, in place to monitor payment of landing taxes, might be used to enforce an ITQ system. In Oregon, such a system is needed to monitor a \$.001 per pound landing tax. With an ITQ system in place, the cheating incentive would be much greater as the amount to be gained would be the total per pound profit from the landing. Development and implementation of an adequate monitoring system may require significant, additional enforcement effort. In addition to problems of total cost and complexity, monitoring programs would rely on state resources which have been in critically short supply in recent years. Crises in the California budget have recently threatened its ability to process fish tickets. Monitoring procedures would have to be given consistent and high priority by the states in order to be effective. Maintenance of such a program may well mean reducing state enforcement in other areas. If one state were unable to maintain the necessary enforcement, the whole system could collapse. Inability to provide adequate enforcement has been cited as a reason for massive cheating and collapse in some ITQ programs.

Dumping of Overages and Highgrading. Fisherman may dump excess catch for which they have inadequate or no ITQs causing unreported discard mortality. Highgrading is another source of unreported discard mortality because ITQs do not create property rights for a particular fish, fishermen sort their catches discarding less valuable individual fish thereby increasing the price per pound received and amount of revenue generated for a given amount of ITQ. The multispecies nature of the West Coast groundfish fishery creates particular problems for the fishermen trying to determine the combination of ITQs necessary to cover their catch. Limited ability to properly predict species ratios will result in incentive to discard by-catch for which no ITQ is held. Incentives for discarding by-catch will increase toward the end of the season as the availability of ITQs for inseason transfers decreases. Muse and Schelle discuss the difficulty of obtaining information on illegal dumping and highgrading. This lack of information would also adversely affect stock assessments. Some programs have developed incentives to encourage fishermen to land overages. One solution suggested is an onboard observer program. Such a program is currently under consideration by the Council, however, a number of difficulties arise when scientific observers are asked to collect enforcement information. Additionally, for the multitude of small vessels in the groundfish fishery, this would be a difficult and expensive program to implement.

Conservation Concerns. Failure in enforcement and monitoring could potentially result in the failure of the Council to achieve its highest priority goal, conservation of the resource. Unreported catch



could result in exceeding ABCs and may adversely impact estimates of the ABC in succeeding years. The stakes in terms of potential lost production in the West Coast groundfish fishery are high. These stakes increase when the costs of developing a comprehensive ITQ program are considered.

Other Concerns. In addition to the enforcement and monitoring problems, the LEC had a number of other sociological concerns. From case studies examined, it appeared that an ITQ system would disrupt the traditional industry structure which promotes the sharing of resource benefits among a large number of people involved in small businesses and family owned operations. The likely result of ITQs appeared to be the accumulation of fishing rights in the hands of a few holders. Direct or indirect foreign ownership of ITQs was also of concern.

Summary. The design of an ITQ system which would result in smoothly functioning markets, generate minimum opportunity for cheating and incentive for discards, and address social concerns would take a great deal of careful planning. Incentives for cheating and the possibilities for inadvertent creation of incentive for significant discards (possibly equal to or greater than that which occurs under restrictive trip limits) creates a high probability for regulatory failure. Monitoring programs to cover the entire West Coast would be costly, and stable and adequate funding from the states is uncertain. Numerous approaches have been suggested to reduce the incentives for discards, however, given the lack of experience with an ITQ system, there is a significant amount of uncertainty about the degree of discards which could result from such a program. Considering the potential problems which may be encountered in a comprehensive ITQ system, and the Council's lack of experience with ITQs, it seems that immediately jumping into the development of a complex ITQ system covering the entire fishery would be time and resource consuming, have a low probability of success, and likely have higher than necessary costs. Experience with ITQ systems for one or two species would greatly aid the development of an effective multispecies system.

Implementation of an ITQ or license limitation system are not mutually exclusive alternatives. While immediate and comprehensive implementation may be inadvisable, the committee responsible for developing the draft amendment has recommended that the Council not be biased against consideration of gradual implementation of ITQs. ITQ systems might be developed for one or two species, adding more species as experience is gained with by-catch, discard and enforcement problems. Over time, a comprehensive ITQ system might be developed.

#### 2.1.3.2 Outline of an ITQ Alternative

The following example of some of the key elements in an ITQ system is framed as an alternative to license limited entry for the entire groundfish fishery. Notes are made (*in italicized text*) on how some of the elements might be specified differently for a system based on only a few species. The example should not bias the reviewers toward or away from an ITQ system designed to cover only a few of the groundfish species or a comprehensive program which may be phased in over a period of time.

#### Scope of the Fishing Activity to be Restricted.

##### Types of Fishing.

- Non-Indian, commercial only.

### Geographic Extent.

- All Pacific coast shoreside and at-sea landings of the covered species would be included under the ITQ system.
- Some ITQs may be restricted to certain INPFC harvest areas (wherever there are currently differences in trip limits or separate ABCs or OYs).
- Owners of ITQs would be put on notice that use of any ITQ may be restricted to certain INPFC areas if the Council decides it is necessary.

### Fishing Gear Types.

- ITQs would be required for catch of groundfish with any legal groundfish gear.
- ITQs would not be specific to a particular legal groundfish gear. (This would allow the market place to resolve intergear allocation problems.)

*(When applied to a single species, ITQs may or may not be specific to a type of legal groundfish gear.)*

### Species.

- Included species:
  - Pacific whiting, lingcod, sablefish
  - widow rockfish, yellowtail rockfish, sebastes (boccaccio, canary, chilipepper, and all other rockfish except widow, yellowtail and shortbelly)
  - Dover sole, English sole, petrale sole, other flatfish
  - jack mackerel, shortbelly rockfish
  - all other groundfish except Pacific ocean perch

*(Certain species may be selected initially and others added over time, eventually phasing in a complete ITQ system for the groundfish fishery. However, such a program would not be an immediate alternative to license limitation.)*

- Species not covered: Pacific ocean perch
- Vessels would be allowed to land up to some amount of groundfish species (to be specified) in one day without any ITQ. Of this amount, not more than U pounds may be species V, not more than W pounds may be species X, not more than Y pounds may be species Z, etc.

### Basis for Initial Allocation.

- ITQs would be issued to current vessel owners who owned, or held a charter lease for a vessel during a qualifying window (recent years). The amount of ITQ issued would be based on the share of total harvest during the window while it was owned or chartered by the individual. More

recent landings would be given greater weight in determination of the amount of ITQ to be issued.

- Past Participants: To receive an initial allocation of ITQs, a person must be an owner or lessee of a U.S. fishing vessel which took part in the West Coast groundfish fishery in the 365 days prior to issuance of quota (hardships which prevented participation would be considered).
- New Entrants: Owners of recently constructed vessels would receive a share equivalent to the average share received for similar size vessels on the basis of the most recent year of the qualifying period.

*(If a license limitation system were already in place, the individuals to whom ITQs would be issued could be defined as the group of current permit holders.)*

#### ITQ Characteristics.

- An ITQ would be a share of the OY or ABC for each species. The amount of catch an ITQ represents would vary yearly as the OY or ABC varies from year to year. (With such a structure, there would be no need for a ITQ buy-back program.)
- ITQs would be species, stock or species/stock complex specific. Where appropriate for biological or community impact reasons, ITQs may be restricted to certain geographic areas.

#### Transferability.

- ITQs would be fully transferable.

#### Duration.

- ITQs would be valid until an amendment to the FMP specified otherwise.

#### Enforcement.

- Vessel owners would need to have the ITQs before landing the fish (or in the case of offshore processors, before making their weekly reports).

#### Problems.

- How to prevent discarding fish for which vessels do not have ITQs (e.g., a vessel owner fishes the deepwater complex, but rather than acquiring arrowtooth flounder ITQs, the vessel owner discards all arrowtooth flounder).
- How to prevent highgrading; i.e., discarding smaller or less valuable individual fish from the catch (this is also a problem under the current trip limit system).
- How to minimize incentive for fish smuggling; nonreporting of landings. (Arguments have been made that this may not be significantly different from incentives for smuggling under trip quotas or frequency limits).

- How to prevent circumventing any maximum poundage limit (landings under a certain amount would not require ITQs) by delivering to several processors in a single day and misreporting landings.

#### Possible Solutions.

- Severe penalties for not landing any ITQ species caught and circumventing the use of ITQs by attempting to avoid detection of landings.
- Require certain combinations of ITQs be held whenever certain species are caught.
- Extensive monitoring and enforcement.

#### 2.2 How the Alternatives Address Overcapacity

The following discussion outlines how each of the three general alternatives might address the overcapacity problem. The specifics of each alternative are discussed in Section 2.1

As discussed in Section 1.2, the presence of excess fleet capacity creates or accentuates several problems the Council faces in its attempt to achieve the goals and objectives it has adopted for the fishery. As the capacity of the fleet increases, species yielding high rates of economic return become increasingly subject to targeting, which may lead to overfishing. In order to protect the resource, management measures, such as quotas, are implemented. If harvest capacity continues to increase due to the fisheries profitability, increased fleet harvest rates reduce the amount of time required to reach these quotas.

In an effort to meet its objectives within the context of an "open access" fishery, the Council has traditionally relied upon trip landing and frequency limits as well as quotas and closures. The effect of such restrictions is to reduce utilization of the full harvest capacity of many vessels in the fleet. For instance, a restriction limiting vessels to 1 delivery of no more than 50,000 pounds per week would reduce the usable capacity of any vessel capable of delivering more than 50,000 pounds in a week or in a single delivery. A vessel capable of landing 80,000 pounds in 1 week-long trip, for example, would have its usable capacity cut by 30,000 pounds a week. The effects of such restrictions are not limited to large vessels. This limit would also reduce the usable capacity of vessels needing more than 1 trip to land as much as 50,000 pounds in 1 week. A vessel with a 10,000 pound hold, but capable of making 5 trips per week, would find its usable capacity cut by 40,000 pounds per week with this trip limit.

Quotas and closures also reduce usable vessel capacity. Capacity is the ability of a vessel to harvest some amount of fish over a period of time. If the period of time is one year, then a closure prior to the end of the year reduces usable capacity. Similarly, quarterly quotas and closures prior to the end of the quarter would reduce usable vessel capacity.

Assuming that the trip limit or quota and closure approach is generally effective in restricting the usable capacity of many individual vessels, reliance on trip limits does not prevent **fleet** capacity from expanding (and thus harvest rates from increasing) through the entry of additional vessels into the fishery. If fleet capacity continues to expand, or if stocks begin to decline, progressively lower trip

limits and earlier closures are usually implemented in an effort to restore a lower level of usable fleet capacity (harvest rate).

Through limiting the effectiveness of increases in vessel fishing power, the use of trip limits may succeed in preserving some desirable aspects of the fishery, such as season length, and closures may help to conserve the fish resources, but neither of these tools places a check on increases in fleet harvesting capacity that occur with the entry of new vessels. As fishery revenues are shared among more vessels and regulations impose higher costs on participants, the nonfish resources utilized in prosecution of the fishery are not conserved, resulting in a dissipation of potential fishery profits (net benefits). Clearly, for any management regime to have a chance of meeting the economic/utilization objectives set forth by the Council, it must effectively limit all potential sources of increase in fleet capacity. Additionally, the use of trip limits and closures may lead to significant discard and conservation problems (by-catch during closures, catch in excess of trip limits and highgrading all lead to unreported fishing mortality). Trip limits may also provide incentives for the employment of vessels which are not optimally sized for efficient harvest.

Two general alternatives to status quo management have been suggested to help meet Council management goals and objectives. The first involves the implementation of direct limits on the number of vessels allowed to participate in the fishery. Depending on the manner and extent that licenses for the fishery are limited, effective containment of fleet capacity may also require the continued presence of measures, such as trip limits, which are designed to reduce the impacts of increases in the productivity of individual vessels. As mentioned above, status quo management may control the usable harvest capacity of individual vessels, but fails to control the number of active vessels. A license limitation system in combination with some use of status quo management measures may overcome that shortfall. The primary focus of Amendment 6 is a plan which would limit licenses for the West Coast groundfish fishery.

Although licenses and trip limits together may appear to reach the root of the excess capacity problem, they do not. The underlying cause of this continuing tendency to introduce more capacity than necessary into the fishery is the "olympic system"<sup>2/</sup> under which most of the fishery is currently managed.<sup>3/</sup> Under this system, there is a lack of clearly assigned "property" rights (or fishing "privileges") for the harvesting of the resource. A lack of property rights creates a situation in which all fishermen together bear the costs (lost opportunity to harvest) from the harvest activities of any given fisherman. Thus, the incentive under the open access system is to harvest as many fish as possible as fast as possible; i.e., to increase capacity. When property rights are assigned, the costs borne by the fisherman are closer to the actual costs of the fisherman's activity. For example, if a fisherman were given the right (or privilege) to harvest a set amount of fish within a given period of time (an individual quota), then the harvest of some part of the quota would reduce his harvest opportunity within the period by an identical amount; i.e., the fisherman would bear the full cost in terms of the reduction of his/her future harvest opportunities. In a situation where the rights to harvest a certain amount of fish have been assigned, the fisherman would tailor the vessel's capacity to that appropriate to the fisheries in which it engages. In this way, the overcapacity problem is solved not through direct regulation, but rather by creating the economic incentive for fishermen to tailor their capacity to the amount of quota available. At the same time the assignment of ITQs does

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2/ An "olympic system" is one in which the catch quota goes to whomever harvests it first.

3/ Trip frequency limits reduce the importance of speed of catch for the particular species to which the limit applies.

not result in a complete emulation of private property rights. For example, when a fisherman highgrades catch to optimize the value of his/her ITQ, the cost of the adverse effect on the resource caused by the highgrading is borne by all fishermen.

To further illustrate the difference between a management system in which property (use) rights are assigned to a public resource and one in which they are not, it may be useful to consider briefly the harvesting of timber on public lands. Under existing management, companies are assigned the right to harvest a given amount of timber from a particular area based upon the company's bid; however, for the purposes of this discussion, they could just as easily be given the right for free based upon their history of cutting. A company has an incentive to maximize the profits it earns from each block of trees. Implicit in this calculation are issues such as log quality, use of the most efficient combination of labor and capital, and the flow of product to the processing site. If the U.S. Forest Service employed an olympic approach instead of this system, they might establish a quota for how many board-feet could be cut from an area, set a starting date at which time cutting could commence, and then attempt to close the logging season when the target was attained. One would expect to see more congestion and equipment in the logging areas; less attention paid to maintaining the quality of logs and a faster-paced cutting process; with greater hazard to participants. Each of these problems has its counterpart in the groundfish fishery.

Section 2.1 contained a more detailed description of the three alternatives which have been identified; status quo, license limited entry and ITQs. While each of the alternatives (including status quo) addresses the overcapacity problem to differing degrees, each also creates other problems which must be considered in determining which alternative best addresses the overcapacity problem along with other fishery goals and objectives. The assessment of these alternatives is contained in the following chapters.