Chapter 2. Project Description and Alternatives

Project Options Analyzed in the Environmental Document

This chapter describes the proposed project options, status quo options, and a range of alternative project options. The discussion of alternatives focuses on alternatives to the project which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. Of those alternatives, this document examines in detail only the ones that could feasibly attain most of the basic objectives of the project. An ED need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. It is not required to consider alternatives which are infeasible. This document does not consider alternatives whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. The proposed project options and the range of alternatives were developed from various sources including the two advisory groups and input from public meetings. Chapter 1 Section 1 describes the development of the options and alternatives in detail.

Section 1 of the MSFMP describes 19 option categories for management of the market squid fishery based on four components; fishery control rules, restricted access, ecological concerns, and administration. Some of the management option categories, such as the permit fees, monitoring the fishery using egg escapement, port sampling and logbook analyses, and establishment of an advisory committee, do not have any adverse environmental impacts, thus, they are not discussed any further. This chapter describes the 14 remaining option categories associated with the proposed project, the no project alternative (status-quo), and other project alternatives that have a potential to affect the environment (Table 2-1). The 14 option categories have two to eleven options which, when combined with other options categories, will comprise either the proposed project, the no project alternative (status-quo), or other project alternatives. These different options are available to the Commission to manage the market squid fishery. Whether implementation of the MSFMP will result in potentially significant impacts under CEQA is a function of whether implementation of the selected options would cause such impacts. Option designations (letter and number) have been retained in this chapter to reference Section 1 of the MSFMP. A detailed description of the components and the rationale for the different options can be found in Section 1, Chapter 3 of the MSFMP.

In Section 1 of the MSFMP, some status quo options also are the proposed project options (e.g. C.2, D.1, E.1, F.1, G.1). Some of these options are currently regulations, and were put in place until a FMP for market squid could be developed and implementing regulations adopted, at which time certain code sections relating to the squid fishery also become inoperative. Because the Department recommends continuing these existing market squid regulations while adding new restrictions to the fishery, they are part of the MSFMPs proposed or preferred project. However, for

purposes of this analysis, the proposed project only consists of the preferred options that are not status quo. For CEQA analyses, the status quo alternative is considered the "no project" alternative since it represents the "pre-project" baseline or existing environmental conditions. The purpose of analyzing the no project alternative is to allow a comparison of the impacts of approving the proposed project versus the impacts of not approving the proposed project (CCR Title 14§15126.6). CEQA Guidelines (CCR Title 14 §15126) require that this document provide an accurate description of the current environmental conditions (affected environment) and identify any impacts that currently exist with the no project alternative. Furthermore, this document must describe the type of impacts, level of impact, as well as potentially feasible mitigation measures to reduce or avoid such impacts that would occur with the proposed project. It must also include a range of reasonable project alternatives. Tables 2-2 to 2-4 summarize the components and options discussed in this document under the proposed project, the no project alternative and other project alternative options.

TABLE 2-1 COMPONENTS AND OPTIONS ANALYZED IN THE ED

Component	Letter	Option Category
Fishery Control Rules	A	Seasonal statewide catch limitation
	C	Daily trip limits
	D	Weekend closures
	F	Live bait fishery and incidental catch
	G	Gear Restrictions
Restricted Access	H	Limited entry and capacity goals
	I	Initial issuance of market squid fleet permits
	K L M	Transferability of permits for market squid vessels Transferability of permits for market squid brail vessels Transferability of permits for market light boats
	O	Experimental market squid vessel permits
	P	Market squid fishery regional control date
Ecological Concerns	Q	Squid harvest replenishment/general habitat closure areas
	R	Area and time closures to address seabird issues

TABLE 2-2 PROPOSED PROJECT OPTIONS

	Fishery Control Rules
A.2	Statewide seasonal catch of 118,000 tons
	Restricted Access
H.3	Capacity goal for vessels & light boats at 52 permits each, 18 brail permits would be light boats
I.1	Meet specifications for issuance of squid fleet permits (squid vessel, squid brail, squid light boat)
K.3	Transfer vessel permits based on comparable capacity under a "2 for 1" retirement and secure 2 permits to enter the fishery
L.3	Establish full permit transferability of market squid brail permits based on comparable capacity
M.3	Establish full permit transferability for light boats with a "2 for 1" retirement
M.4	Trade "4 for 1" light boat permits for a brail permit
	Ecological Concerns
Q.3	Establish areas closed to squid fishing in all waters north of Pillar Point at any time**
R.4	Establish areas closed to squid vessels using attracting lights; 1 nm closure at Anacapa and Santa Barbara islands from 1 February to 30 September

TABLE 2-3 NO PROJECT ALTERNATIVE (STATUS QUO) OPTIONS	
	Fishery Control Rules
A.5	Statewide seasonal catch of 125,000 tons
C.2	No daily trip limits
D.1	Weekend closures from noon Friday to noon Sunday
F.1	No squid permit for live bait or landing 2 tons/day
G.1	Gear options; maintain shields and/or light wattage regulations
	Restricted Access
H.5	No capacity goal (no limited entry program)
I.2	184 market squid vessel and 41 light boat owners permits, no additional brail permits
K.1	No permit transfers for squid vessels except in major breakdown or loss of vessel
L.1	No permit transfers for brail vessels except in major breakdown or loss of vessel
M.1	No permit transfers for light boats except in major breakdown or loss of vessel
O.3	No experimental market squid vessel permit
P.2	No regional restricted access control date
	Ecological Concerns
Q.1	No specific areas set aside as squid harvest replenishment/general habitat closure areas
R.5	No seabird time and area closures

TABLE 2-4 ALTERNATIVE OPTIONS	
	Fishery Control Rules
A.1	Statewide seasonal catch limit of 80,000 tons
A.3	Regional seasonal catch limit based on multi-year averages
A.4	Statewide seasonal catch limit based on environmental conditions
A.6	No seasonal catch limitation*
A.7	Establish a seasonal catch limitation of between 24,000 -125,000 tons
C.1	Establish daily trip limit between 30-137.8 tons for vessels and 15 tons for brails
D.2	Do not continue weekend closures*
D.3	Maintain statewide weekend closures except in areas of the northern Channel Islands*,**
D.4	Maintain statewide weekend closures and extend range of options north of Point Conception**
F.2	Establish a permit for the taking of squid for live bait
G.2	Remove existing gear options regarding shields and/or light wattage*
G.3	Establish light wattage set between 15,000 and 30,000 watts**
G.4	Modify shields to improve effectiveness**
	Restricted Access
H.1	Capacity goal for vessels and light boats at 10 permits each and 18 brail permits
H.2	Capacity goal for vessels and light boats at 52 permits each and 18 brail permits
H.4	Capacity goal for vessels and light boats at 104 permits each and 18 brail permits
I.3	Issue purchase by any permit-holder in first year of moratorium
I.4	Meet specifications for issuance of squid fleet permits (version 2)
1.5	Do not have a permit program*
K.2	Establish full permit transferability of market squid vessels
L.2	Full transferability of brail permits assuming 15-ton daily trip limit (C1)is adopted
M.2	Establish full permit transferability of market squid light boat permits
O.1	Establish 1-5 experimental market squid vessel transferable permits**
O.2	Establish 1-5 experimental market squid vessel non-transferable permits**
P.1	Establish a market squid fishery regional control date for a future program**

TABLE 2-4 ALTERNATIVE OPTIONS continued	
	Ecological Concerns
Q.2	Close all waters within depths of 100 fathoms around San Nicholas Island
Q.4	Establish areas closed to squid fishing in any waters of the Gulf of Farallons NMS**
Q.5	Establish areas closed to squid fishing 1 nm around the Farallon Islands**
Q.6	Prohibit the take of squid for commercial purposes in District 10**
R.1	Establish areas closed to squid fishing; 1 nm closure at San Miguel, Anacapa, and Santa Barbara islands, from 1 February to 30 September
R.2	Establish areas closed to squid fishing; 1 nm closure at Anacapa and Santa Barbara islands from 1 February to 30 September
R.3	Establish areas closed to squid vessels using attracting lights; 1 nm closure at San Miguel, Anacapa, and Santa Barbara islands, from 1 February to 30 September
R.6	Establish areas closed to squid fishing; 1 nm closure at Farallon Islands from 1 February to 30 September**
R.7	Establish areas closed to squid fishing in all waters of the Gulf of the Farallones NMS from 1 February to 30 September**
R.8	Establish areas closed to squid vessels using attracting lights; 1 nm closure at the Farallon Islands, from 1 February to 30 September**
R.9	Establish areas closed to squid vessels using attracting lights in all waters of the Gulf of the Farallones NMS, from 1 February to 30 September**
R.10	Establish areas that are closed to squid fishing around San Miguel, Anacapa and Santa Barbara islands from 1 February through 30 November**
R.11	Establish areas that are closed to squid fishing around Anacapa and Santa Barbara islands from 1 February through 30 November**

* Not discussed in detail in the ED, refer to Section 5.2
** Options added at the request of the Commission and/or via public comment

2.1 Fishery Control Rules

The fishery control rules provides a protocol for determining sustainable levels of market squid fishing that is enforced through the adoption of specific management tools such as seasonal catch limits, daily trip limits, area closures, time closures, and sustainable levels of egg escapement. These tools are primarily designed to address economic problems associated with excess harvest capacity in open access fisheries. Information regarding the biology of market squid is limited and no reliable estimate of market squid abundance is available. As knowledge increases, management can become less precautionary. The management alternatives proposed by the Department have considered the conditions specific to each region (north and south of Point Conception). Fishery control rule option categories discussed in this document include seasonal catch limitations, daily trip limits, weekend closures, permits for the live bait fishery and incidental catch of market squid, and gear restrictions.

2.1.1 Seasonal Catch Limitation

A seasonal catch limitation does not allow the catch to expand beyond a maximum volume and may provide some stock protection. The maximum sustainable yield (MSY) in a marine fishery is the highest average yield over time that does not result in a continuing reduction in stock abundance, taking into account fluctuations in abundance and environmental variability. However, there is a lack of data adequate to make a mathematical MSY determination for the market squid fishery, making it a data-poor situation. In such cases, NOAA Fisheries guidelines (Restrepo et al. 1998) dictate that a proxy may be used for MSY, and that it is reasonable to use recent average catch from a period when there is no qualitative or quantitative evidence of declining abundance.

El Niño events are an intrinsic part of the California Current and thus, should not be excluded from landings when considering MSY. Historic market squid data indicate that low landing periods correspond with El Niño events when availability of squid to the fishery is greatly reduced. The first fishing season (1999-2000) following the 1997-1998 El Niño event resulted in the highest squid landings on record. Nearly all of the landings were from the southern California fishery (99.7 percent); landings reported from the northern fishery were minimal (0.3 percent). This disparity could not have been predicted given the current understanding of market squid or by utilizing temperature inclusive models.

The ability of the California market squid fishery to support landings of 124,309 short tons (tons) in 1996-1997, followed by a strong El Niño (1997-1998) and then repeat landings of the same magnitude in 1999-2000 and 2000-2001 suggests that the stock is robust enough to withstand these levels of landings. This is likely due to the semiannual lifespan and the presence of several (minimum seven) cohorts throughout the year.

Options for Establishing a Seasonal Catch Limitation

Option A.1: Establish a statewide seasonal catch limitation of 80,000 tons. This seasonal catch limitation is based on the seasonal catch limitation using the 3-year recent average catch from the 1999-2000 to 2001-2002 seasons with the assumption that the stock is below B_{MSY} (average spawning biomass) and above MSST (minimum stock size threshold). This approach uses a multiplier of 0.67. Under this option, a maximum statewide seasonal catch limitation of 80,000 tons would be implemented.

Option A.2 (*proposed action*): Establish a statewide seasonal catch limitation of 118,000 tons. This seasonal catch limitation is based on the recent average catch and the assumption that the stock is above the $B_{MSY.}$ This approach uses a multiplier of 1.0. Under Option A.2, a maximum seasonal catch limitation of 118,000 would be implemented.

Option A.3: Establish regional seasonal catch limitations based on either a multi-year recent average catch for each region with the assumption that the stock is above B_{MSY}. The regions would be north and south of Point Conception.

Option A.4: Establish a statewide seasonal catch limitation based on environmental conditions as recommended by the SRSC: a seasonal harvest of 115,000 tons in a non-El Niño period and a landings cap of 11,000 tons during an El Niño period.

Option A.5 (*status quo*): Establish a statewide seasonal catch limitation of 125,000 tons, a value in close proximity to the highest catch on record.

Option A.6: Do not set a seasonal catch limitation. The SFAC did not support any landings limit. Most fishers and processors opposed the landings limit. There was speculation that the likelihood of repeating a catch of 125,000 tons in a season is unlikely given the implementation of weekend closures. Landings for the 2001-2002 season were 123,411, which was 98.7 percent of the limit.

Option A.7: Establish a seasonal catch limitation of between 24,000 to 125,000 tons (as directed by the Commission, 1 August 2003). The maximum value (125,000 tons) represents the current interim regulation, while the minimum value represents a 6 year average of seasonal landings from the 1997-1998 to 2002-2003 seasons and the assumption that the stock is below the MSST. The primary purpose of this option is to give the Commission greater flexibility in determining a seasonal catch limitation with a level of protection they are comfortable with.

2.1.2 Daily Trip Limits for Vessels Landing Squid

The purpose for implementing daily trip limits for market squid vessels and brail vessels is to prevent change in the general size composition of individual vessels once permits become transferable. There has been a steady increase in daily trip limits for market squid from 1981 to the present time. Establishing daily trip limits for squid fishing

vessels would prevent current vessels from increasing catch volume on a per-trip basis, should market-imposed trip limits be dissolved or technological developments allow for increased efficiency. Daily trip limits will protect the resource through distribution of harvest throughout the season, which may be of extreme importance since the fishery targets spawning squid. When combined with a restricted access program (see below) daily trip limits would serve to disseminate the fishery resulting in reduced fishing effort on specific spawning aggregations and locations.

The current fishery is controlled by market orders. Although there are vessels in the current fleet capable of delivering loads well in excess of 60 tons, there is rarely the opportunity to deliver a vessel's full capacity tons because market-imposed trip limits of 30 tons are routine, although a vessel may deliver to more than one processor daily. Processors set the limit at 30 tons because of limited processing and freezing capacity. Market squid are included as part of the CPS FMP as a monitored-only species. The CPS FMP federal guidelines limit CPS finfish harvest to a approximately 137.8 tons daily trip limit, but the majority of the vessels are well under this volume.

Options for Establishing Daily Trip Limits

Option C.1: Establish a daily trip limit between 30-137.8 tons daily for market squid vessels and 15 tons for brail vessels.

Option C.2 *(status quo/proposed action)*: Do not establish daily trip limits for the market squid fishery.

2.1.3 Weekend Closure

Interim regulations (CCR Title 14 §149), implemented in 2000, prohibit the take of market squid for commercial purposes each week between noon Friday and noon Sunday from Point Conception south to the U.S.-Mexico border. The closure extends an existing squid fishery closure for the same time period north from Point Conception to the California-Oregon border (FGC §8420.5). The weekend closure north of Point Conception has been in effect since 1983 and was put in place to reduce conflict with coastal communities. The regulations affect vessels catching squid and vessels using lights to attract squid, and do not apply to those pursuing squid for live-bait purposes. This precautionary measure was adopted to provide spawning squid at least two consecutive nights each week respite from fishing pressure and to address complaints from coastal communities concerning bright attracting lights used by market squid vessels. Unlike a seasonal quota or closure, this measure spreads the escapement throughout the year, rather than concentrating it during one particular period. Prohibiting fishing activity on weekends also helps alleviate conflict with other interest groups operating in the same areas.

Options for Weekend Closures

Option D.1 (*status quo/proposed action*): Continue closures from noon Friday to noon Sunday from the U.S.-Mexico border to the California-Oregon border.

Option D.2: Do not continue weekend closures.

Option D.3: Maintain existing statewide weekend closures but provide for an exemption in the areas of the northern Channel Islands to allow fishing to continue 7 days per week. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option D.4: Maintain statewide weekend closures and extend the range of closure to include additional days and/or times for areas north of Point Conception. (Project alternative added at the request of the Commission and/or as a result of public comment).

2.1.4 Live Bait Fishery and Incidental Catch of Market Squid

Market squid are an important source of live bait for the California recreational fishing industry. A small volume also is taken by the commercial live bait industry using brail, lampara, or drum seine gear. This fishery is a high value use of squid, supplying bait to valuable recreational fisheries along the West Coast, primarily in southern California. Live bait catch is largely dependent on local availability, and is sold by vessels either at sea or at live bait dealerships in several harbors statewide. Since the sale of live bait in California is not documented in a manner similar to that used for the commercial sale of squid, estimates of tonnage and value are not available. Present market squid regulations do not require a squid permit when fishing for live bait. It is assumed the take of live bait is minor, but because the actual amount of squid taken as live bait is unknown, bait logs would provide information about the impact of this industry on the resource and it is recommended that the current voluntary live bait logs be modified to include market squid.

Current regulations [FGC § 8421(b)] do not require vessels taking or landing market squid for commercial purposes to have a market squid permit if the incidental catch of market squid does not exceed 2 tons in any calendar day. The volume of squid taken in this manner is small and landings of market squid less than or equal to 2 tons has been decreasing since the 1980s.

Options for Live Bait Fishery and Incidental Catch of Market Squid

Option F.1 (*status quo/proposed action*): Continue existing regulations that do not require a squid permit when fishing for live bait. Continue existing regulations that do not require a market squid permit for vessels landing or taking market squid not to exceed 2 tons in a calendar day.

Option F.2: Establish a permit for the taking of market squid as live bait. Continue existing regulations that do not require a market squid permit for vessels landing or taking squid not to exceed 2 tons in a calendar day.

2.1.5 Gear Restrictions

More than 90 percent of the vessels (seiners) that currently participate in the market squid fishery use roundhaul gear (purse seine, drum seine) to catch squid, and light boats are used in tandem with the seiners. A light boat is typically a smaller vessel with several high-powered lights located at various levels around the vessel. The purpose of the lights is to attract and aggregate spawning squid to surface waters. Spawning squid do not appear to have regular spawning locations that they seek out. It is not known what prompts squid to deposit their eggs at certain locations. Furthermore, it is not known if squid show site fidelity, returning to the same spawning site where they hatched. These factors, combined with environmental changes affect where the squid fishery operates at any given time. Some seasons, fishing is concentrated along the coastline while other times it is further offshore at islands.

By the summer of 1999, seabird researchers, the American Trader Trustee Council and the CINPS became concerned about potential effects of attracting lights used by the squid fleet on nesting seabirds at nearby islands. Specifically, their concerns centered on disturbance to the island breeding colonies from high wattage lights and noise from market squid fishing vessels and they requested that the Department take action to prevent potential new impacts on the nesting birds.

It was thought that shielding the high powered lights should block any light that is emitted upward or in a horizontal direction from the bulb. Thus, the Department evaluated the light emitted from one shielded squid fishing vessel with light emissions from one unshielded vessel. Several light measurements were taken from four different distances for the shielded and unshielded fishing vessels and were repeated at different elevations [sea level, 150 ft above sea level (ASL), and 300 ft ASL]. The results indicated that the shielded vessel emitted less light at approximately 1/2 mile offshore compared with an unshielded vessel 1 mile from shore for elevations up to 300 ft ASL. However, seabirds may nest at elevations higher than 300 ft. For example, 85 percent of California brown pelicans nesting at West Anacapa Island nest at elevations greater than 300 ft. Illumination increases with elevation due to reflection and may be a result of the shape of the shield allowing more reflection at higher elevations. Thus, the effectiveness of a shielded boat decreases with elevation. Additionally, there is the issue of multiple boats in one area and the additive effects of lights. Two boats with 30,000 watts are twice as bright as a single boat with 30,000 watts; 10 boats would be 10 times as bright. Thus, several shielded boats within 1/2 mile could be brighter than fewer boats at 1 mile. Squid boats fish closer to shoreline than the minimum distance measured by the Department. The CINPS reported 12 light boats at one time with an average distance of 75 to 450 feet, or less than 1/8 mile from the shoreline. Finally, there is the issue of increased illumination when boats rock.

Because of the inference that lights from the squid fishery interfere with the California brown pelican recovery and population levels of the Xantus's murrelet and ashy storm-petrel, the Department recommended and the Commission adopted a maximum allowable light wattage and specific requirements for orientation and shielding of lights for vessels fishing or lighting for squid. The management measures are: 1) entail the reduction of wattage from any individual vessel to a maximum of 30,000 kilowatts, and 2) require the use of shielding for all vessels commercially fishing or landing squid. These interim regulations went into effect 30 May 2000. At the time the light restrictions were adopted, the Commission asked the Department to report as to effectiveness of the interim measures in a year. Although the Department has attempted to measure the effectiveness of these gear restrictions, a threshold value for light intensity that negatively impacts the breeding success of seabirds has not been determined.

In addition to the potential effects of lights on nesting seabird colonies, the growth of the southern California fishery coincided with complaints from coastal communities about the intensity of the squid vessel lights. Some seasons, fishing is concentrated along the coastline while other times it is farther offshore at islands. The lack of consistency among squid spawning sites from year to year further complicates the issue because many years squid fishing pressure is reduced along the southern California coastline.

However, the shielding and wattage regulations serve to reduce the total amount of light transmitted to coastal communities, specifically the cities of Monterey and Malibu (Los Angeles County). Shielding and wattage restrictions were put in place (May 2000). No complaints from southern California coastal communities about lights from the squid vessels were documented in 2000 and 2001. But in January 2002, the Laguna Beach police received about 40 calls from residents regarding squid fishing in waters less than half a mile offshore. In 2002, fishing activity in Monterey Bay tripled compared with the average for the area. Yet, enforcement received only general complaints from the community about the squid fishing lights at night; enforcement personnel took action against operators with shielding violations (T. Olivas, pers. comm.)

Options for Gear Restrictions

Option G.1: (*status quo/proposed action*): Maintain existing gear restrictions which states that each vessel fishing for squid and lighting for squid will utilize a total of no more than 30,000 watts of light to attract squid at any time and that each vessel fishing for squid or lighting for squid will reduce the light scatter of its fishing operations by shielding the entire filament of each light used to attract squid and orient the illumination directly downward, or provide for the illumination to be completely below the surface of the water.

Option G.2: Remove existing gear options regarding shields and/or wattage.
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Option G.3: Establish gear restrictions that each vessel fishing for squid and lighting for squid will utilize a wattage limitation set at a value between 15,000 to 30,000 watts of

light to attract squid at any time. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option G.4: Establish gear restrictions which states that each vessel fishing for squid and lighting for squid will utilize shielding that will reduce the light scatter of its fishing operations by shielding the entire filament of each light used to attract squid and orient the illumination directly downward, or provide for the illumination to be completely below the surface of the water. (Project alternative added at the request of the Commission and/or as a result of public comment).

2.2 Restricted Access

Restricting access to a fishery has become one of many standard fishery management tools used by public agencies in carrying out their conservation and management responsibilities for publicly held fishery resources. It is the policy of the Department and Commission to design restricted access programs to enhance the State's ability to manage its commercial fishery resources. Restricted access programs should: 1) contribute to sustainable fisheries management by providing a means to match the level of effort in a fishery to the health of the fishery resource and by giving fishery participants a greater stake in maintaining sustainability; 2) provide a mechanism for funding fishery management, research, monitoring, and law enforcement activities; 3) provide long term social and economic benefits to the State and fishery participants; and 4) broaden opportunities for the commercial fishing industry to share management responsibility with the Department. More specifically, the Commission's purposes for restricting access or entry to a fishery are described as: 1) promote sustainable fisheries; 2) provide for an orderly fishery; 3) promote conservation among fishery participants; and 4) maintain the long term economic viability of fisheries. Restricted access programs may be instituted in order to carry out one or more of these purposes in a given fishery. Each option under Restricted Access provides different permitting strategies and results in a different number of vessels anticipated to qualify.

2.2.1 Limited Entry/Capacity Goals

Limiting the number of vessels may be one method of reducing take in order to protect the market squid resource. Even when fishery management specifies catch limits, season length, and gear allowed, fishermen still compete to catch as much as possible in the shortest period of time. Limited entry would reduce the number of vessels but not necessarily the effort as the remaining vessels would compensate for the market demand. Fewer boats in the fleet will result in the fleet becoming more specialized, and these vessels will presumably need to be more productive for squid, resulting in a fleet with minimal excess or latent capacity.

Prior to the 1998-1999 season, the squid fishery was an open access fishery. In 1996, new demand and markets for squid attracted many fishing vessels from other states. This influx of fishing vessels increased competition. Vessels currently participating in the market squid fishery are capable of harvesting more squid than is available under

current or likely future biomass conditions. Available information indicates that market squid vessels permitted in the 2000-2001 season could harvest in excess of 15,000 tons a day operating at maximum efficiency, an amount in excess of the volume of squid likely to be available under the most optimum of conditions.

Establishing limited entry qualifying criteria is a first step in reducing fleet size from the 184 market squid vessels and 41 light boats currently permitted to achieve the selected capacity goal, provided the current number of vessels is in excess of the selected goal.

The brail fleet produces only a small fraction of the overall take of market squid, but it is in the best interest of the fishery to curtail growth of this sector until more information is available by preventing an open-access situation. Market squid brail permits would allow light boats to land squid (> two tons) while lighting for seiners. Additionally, at any time these vessels could develop more efficient methods of operation which could change the overall catch contribution made by this component of the fishery.

Options for Market Squid Fleet Capacity Goal

Option H.1: Establish a capacity goal for market squid vessel permits that produces a highly productive and more specialized fleet. This option assumes that the maximum catch that would ever be possible for each boat is caught on every trip. If the vessel fished a maximum of 130 days per season, 10 vessels operating in this manner could land the maximum seasonal catch. This option would then set the capacity goal for both market squid vessel permits and light boat owner permits at 10 permits each. The capacity goal for market squid brail permits would be 18 permits. The capacity goal for non-transferable market squid vessel permits and market squid brail permits is zero.

Option H.2: Establish a capacity goal for market squid vessel permits that produces a moderately productive and specialized fleet. This option assumes that the maximum catch that each boat made is caught on every trip. If the vessel fished the highest average number of day per season (45), 52 vessels operating in this manner would land the maximum seasonal catch. This option would then set the capacity goal for both market squid vessel permits and light boat owner permits at 52. The capacity goal for market squid brail permits would be 18 permits. The capacity goal for non-transferable market squid vessel permits and non-transferable market squid brail permits is zero.

Option H.3 (*proposed action*): Establish a capacity goal for market squid vessel permits that produces a moderately productive and specialized fleet. This option assumes that the maximum catch that each boat made is caught on every trip. If the vessel fished the highest average number of days per season (45), 52 vessels operating in this manner would land the maximum seasonal catch. This option would then set the capacity goal for both market squid vessel permits and market squid light boat permits at 52 each. Because brail vessels function largely as light boats and the goal of the plan is to match the number of light boats to the number of market squid vessel permits, market squid brail permits would be part of the total light boat capacity goal of 52 vessels. The capacity goal for market squid brail permits as a division of light boat permits would be set at 18 permits. The capacity goal for vessels with light boat owner permits would be

34. The capacity goal for non-transferable market squid vessel permits and non-transferable market squid brail permits is zero.

Option H.4: Establish a capacity goal for market squid vessels that produces a less productive and less specialized fleet, producing a more diverse fleet. This option assumes that the average catch for each boat continues. If the vessel fished a maximum of 45 days per season, 104 vessels operating in this manner would land the maximum seasonal catch. This option would then set the capacity goal for both market squid vessel permits and light boat owner permits at 104 permits. The capacity goal for market squid brail permits would be 18 permits. The capacity goal for non-transferable market squid vessel permits and market squid brail permits is zero.

Option H.5 (*status quo*): Do not establish a capacity goal (no limited entry program). Currently there are 184 market squid vessel permits and 41 squid light boat owner's permits, and no market squid brail permits exist.

2.2.2 Initial Issuance of Market Squid Fleet Permits

California has had a practice of giving preference to vessels of fishermen with past participation when issuing restricted access permits. Among fishermen or vessels with past participation in the squid fishery, preference for permits may be based on factors such as years of participation in the fishery or level of participation (landings). The Commission's policy to determine qualification for an initial permit has three elements. First, the policy for all restricted access fisheries assumes that initiating a restricted access program will not increase the recent level of fishing effort. Second, initial issuance of permits will only be to the current owners of qualifying vessels. Third, in order to meet the needs of a particular fishery, it may be desirable to modify the approach of giving permits only to current owners of qualifying vessels. Currently, the status quo condition has 184 market squid vessel permits and 41 squid light boats owner's permits and no market squid brail permits exist.

Options for Initial Issuance of Market Squid Fleet Permits

Option I.1 (*proposed action*):

- Market squid vessel permit (transferable): a) possession of a current market squid vessel permit and b) a minimum number of landings (50-150 landings) during a specific window period.
- Market squid vessel permit (non-transferable): a) have possessed a California commercial fishing license for at least 20 years, and b) have made at least 33-50 landings of market squid in any one licensed season.
- Market squid brail permit (transferable): a) possession of a current market squid vessel permit and b) a minimum number of landings (5-25 landings) during a specific window period.
- Market squid brail permit (non-transferable): a) have possessed a California commercial fishing license for at least 20 years, and b) have made a minimum of landings (5-25).

- Squid light boat owner's permit (transferable): a) possession of either a current market squid vessel permit or a current market squid light boat permit and b) have submitted one light boat log during a specific window.
- No provisions for non-transferable squid light boat owner's permits are proposed.

Option I.2 (*status quo*): Continue with existing moratorium program (184 market squid vessel permits and 41 squid light boat owner's permits). There would be no issuance of market squid brail permits because that permit does not exist at this time.

Option I.3: Allow permit purchase by any permitholder who held a permit in the first year of the moratorium (301 permits were purchased: 239 market squid vessel permits and 62 squid light boat owner's permits). There would be no market squid brail permits because that permit does not exist at this time.

Option I.4:
- Market squid vessel permit (transferable): a) possession of a current market squid vessel permit and b) a minimal number of market squid landings during a specific window period, OR c) possession of a current market squid vessel permit, and d) have possessed a California commercial fishing license for at least 20 years, and e) have made a minimum number of landings (33-50) in one licensed season (approximately 18 additional vessels qualify).
- There are no provisions for non-transferable market squid vessel permits.
- Market squid brail permit (transferable): a) possession of a current market squid vessel permit and b) a minimal number of landings (5-25) during a specific window period, OR c) have possessed a California commercial fishing license for at least 20 years, and d) have made at least 10 landings of market squid with brail gear in any one licensed season (approximately 15 additional vessels qualify).
- There are no provisions for non-transferable market squid brail permits.
- Squid light boat owner's permit (transferable): a) possession of either a current market squid vessel permit or a current squid light boat owner's permit and b) have submitted one light boat log by 31 December 2000 (64 vessels qualify)
- There are no provisions for non-transferable squid light boat owner's permits.

Option I.5: Do not have a permit program.

2.2.3 Transferability of Market Squid Permits (options K, L, M)

Limited entry permits are affixed to the owner (or corporation) of record of the vessel that qualifies. If there are more permits in the fishery than the capacity goal, transferability provisions can help meet the capacity goal over time while preventing disruption to the fishery. Under the moratorium established for the fishery in 1998, transferability was disallowed except in cases of the permitted vessel being lost, stolen, destroyed or suffering a major mechanical breakdown. Following the Commission's restricted access guidelines transferability of limited entry permits should be allowed provided the provisions assist in attaining the capacity goal. The further away the initial

number of permits are from the capacity goal, the more restrictive the provisions for transferability will need to be to achieve the capacity goal over time. As with initial issuance criteria, options associated with K, L, and M are intended to represent the scope of options available.

Market Squid Vessel Permit Transfer Options

Option K.1 (*status quo*): Do not allow permit transfers except in cases of major mechanical breakdown or loss of the vessel.

Option K.2: Establish full transferability of market squid vessel permits.

Option K.3 (*proposed* action):

- Establish full transferability of market squid vessel permits based on comparable capacity (within 10 percent).
- Establish transferability of market squid vessel permits to a vessel of larger capacity under a "2 for 1" permit retirement – this option will allow vessel owners to increase their vessel capacity by transferring their permit to a replacement boat and surrendering one or two additional permits. Permit holders wishing to increase their current capacity more than 10 percent must acquire another market squid vessel permit and surrender it to the Department for retirement.
- Individuals wishing to gain entry into the fishery must secure two permits: one permit must be surrendered the Department for retirement and one permit for issuance to a vessel that will not increase the fishing capacity (not to exceed a maximum of 10 percent increase). This will allow a reduction in the number of permits. Market squid light boat permits cannot be used to secure a vessel permit.

2.2.4 Market Squid Brail Permit Transfer Options

Option L.1:(*status quo*): Do not allow permit transfers except in cases of major mechanical breakdown or loss of the vessel – this option will allow for more rapid attrition of the fleet, however, it likely will not meet the practical needs of working vessels and can have implications for vessel safety.

Option L.2: Establish full transferability of market squid brail permits – provided a 15-ton daily trip limit for these vessels is implemented, there is no specific reason to restrict transfer of market squid brail permits as they are a minor component of the fleet and do not significantly contribute to the fleet capacity.

Option L.3 (*proposed action*): Establish full transferability of market squid brail permits based on comparable capacity (within 10 percent) – should no daily trip limit be adopted for brail boats, this would be a viable option. This helps to meet the needs of the fleet without significantly increasing capacity as no permits currently exist.

2.2.5 Market Squid Light Boat Permit Transfer Options

Option M.1 (*status quo*): Do not allow permit transfers except in cases of major mechanical breakdown or loss of the vessel – this option will allow for more rapid attrition of the fleet, however, it likely will not meet the practical needs of working vessels and can have implications for vessel safety.

Option M.2: Establish full transferability of squid light boat owner's permits – this would be allowed only if the initial number of permits issued is equal to or less than the capacity goal.

Option M.3 (*proposed action*): Establish full transferability of squid light boat owner's permits with a "2 for 1" permit retirement – this would help to meet the fleets' needs and help to achieve the capacity goal for squid light boat owner's permits.

Option M.4 (*proposed action*): Trade either, two, three, or four squid light boat owner's permits for one market squid brail permit – a light boat may acquire and surrender additional squid light boat owner's permits in exchange for a market squid brail permit.

2.2.6 Experimental Market Squid Vessel Permits

This option would allow the Commission to issue one to five transferable or non-transferable Market Squid Vessel Permits to any individual for placement on any vessel for purposes of developing a squid fishery in areas previously not utilized for squid production. Individuals issued permits pursuant to this Section would be required to adhere to all commercial squid fishing regulations in CCR Title 14 §149, and all terms and conditions for permits defined in CCR Title 14§149.1, excepting initial issuance criteria defined in CCR Title 14 §149.1(c). These permits would count towards the capacity goal. (These alternatives were added at the request of the Commission and/or as a result of public comment).

Option O.1: Establish 1 to 5 experimental market squid vessel transferable permits.

Option O.2: Establish 1 to 5 experimental market squid non-transferable permits.

Option O.3 (*status quo/proposed action*): Do not establish experimental market squid vessel permits.

2.3 Ecological Concerns

The market squid fishery is part of a larger ecosystem that includes the effects of ecological interactions of the project on non-target species and habitat. Harvest replenishment and general habitat closure areas provide for specific areas where no squid fishing can occur. Harvest replenishment areas provide areas of uninterrupted spawning. General habitat closures are intended to prevent squid fishery interactions in areas that have not been traditionally utilized for commercial squid fishing and where there is the potential for interactions with non-target species such as marine mammals, seabirds, sea turtles and fish. In addition, the market squid resource is a significant

forage component in the diets of marine mammals, seabirds, sea turtles, and fish, and these areas will act as forage reserves for many of these species.

2.3.1 Squid Harvest Replenishment/General Habitat Closure Areas

As part of the 1997 Legislation enacted to protect the market squid resource, the Department was directed to determine where there were areas, if any, that should be declared harvest replenishment areas for market squid where the taking of squid would not be permitted. Harvest replenishment areas provide areas of uninterrupted spawning and are similar to Marine Protected Areas (MPA), a tool used to manage and conserve marine resources. Both are sections of the ocean set aside to protect and restore habitats and ecosystems, conserve biological diversity and provide a refuge for sea life. These areas have multiple uses, including providing a buffer for species against the effects of environmental fluctuations and management uncertainties, protecting specific areas or species from overexploitation, or reducing user conflict. Harvest replenishment areas differ from MPAs in that they would only be managed for the commercial market squid fishery.

In October 2002, the Commission designated 12 new MPAs at the northern Channel Islands (three of which replaced existing reserves at Anacapa, Santa Barbara and San Miguel islands). These new MPAs include known commercial squid fishing sites at Santa Barbara, Anacapa, Santa Cruz, and Santa Rosa islands. In addition to the closures at the northern Channel Islands, commercial fishermen are not allowed to fish in state designated ecological reserves using roundhaul nets. Several existing reserves are known to be market squid spawning sites (e.g., Carmel Bay Ecological Reserve, Point Lobos Ecological Reserve, northeast side of Santa Catalina Island and Santa Monica Bay); all serve as harvest replenishment areas for market squid. Additionally, based on the large geographic range (Baja California north to Alaska) of market squid, there is an abundance of areas that are unfished for squid.

General habitat closures are intended to prevent squid fishery interactions in areas that have not been traditionally utilized for commercial squid fishing and where there is the potential for interactions with non-target species such as marine mammals, seabirds, sea turtles, and fish. In addition, the market squid resource is a significant forage component in the diets of marine mammals, seabirds, sea turtles, and fish and these areas will act as forage reserves for many of these species. The MPAs also act as general habitat area closures for they offer protection against bycatch and fishery interactions and function as forage reserves.

In 2003, squid vessels harvested more squid north of the traditional Monterey fishing grounds, in the area between Pigeon Point and Point Reyes, than the prior 12-year average (1990-2002) (see Figure 3-7a-b in Section 1). This disturbed some biologists and other users of the area. The removal of squid biomass in this area was of particular concern because squid are an important prey item for the many marine mammals, seabirds, sea turtles, and fish that utilize this area (which includes the Gulf of the

Farallones National Marine Sanctuary, part of Monterey Bay National Marine Sanctuary, Cordell Bank National Marine Sanctuary, and the Farallon Islands, a National Wildlife Refuge). The Farallon Islands are home to one of the largest and most diverse seabird colonies in the continental U.S., providing nesting habitat for 12 species of marine and coastal birds including the SSC ashy storm-petrel, double-crested cormorant, tufted puffin and rhinoceros auklet. They also provide breeding, pupping and/or haul-out habitat for five species of pinnipeds, including northern elephant seal, northern fur seal, Steller sea lion (which is federally listed as threatened) California sea lion and Pacific harbor seal. The waters in the Gulf of the Farallones are highly productive and are a designated feeding area for the federally endangered humpback and blue whales (NOAA/NOS 2003). The creation of additional harvest replenishment areas and/or general habitat closure areas in waters north of Pillar Point would create forage reserves for fish, seabirds, sea turtles, marine mammals, and other marine species that consume squid. These areas might serve to increase the amount of market squid available as prey to other species although these areas were typically not fished for market squid, not at least prior to 2003. Any possible fish bycatch or seabird, sea turtle, or marine mammal interaction with the fishery would not occur if the areas were closed areas. However, exclusion of squid fishing in closed areas could shift fishing effort to other areas with populations of marine mammals, seabirds, sea turtles, and fish.

Options for Squid Harvest Replenishment /General Habitat Closure Areas

Option Q.1 (*status quo*): Do not set aside specific areas as squid harvest replenishment areas for market squid or general habitat closures.

Option Q.2: Close all waters within depths of 100 fathoms around San Nicholas Island.

Option Q.3 (*proposed action*): Establish areas that are closed to squid fishing in all waters north of Pillar Point at any time. Pillar Point is located approximately 25 miles south of San Francisco, just north of Half Moon Bay. It represents the last major landmark before heading into the mouth of San Francisco Bay. This option would include part of the Monterey Bay National Marine Sanctuary, the Gulf of the Farallones National Marine Sanctuary, Cordell Bank National Marine Sanctuary, and the Farallon Islands, a National Wildlife Refuge. Under this option marine species would be protected from direct and indirect squid fishery interactions in areas that have not been traditionally utilized for commercial squid fishing, general habitat protection. Essentially, this option would make half the state a squid harvest replenishment area (Project alternative added at the request of the Commission and/or as a result of public comment and selected as a preferred option by the Department).

Option Q.4: Establish areas that are closed to squid fishing in any waters of the Gulf of the Farallones National Marine Sanctuary. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option Q.5: Establish areas that are closed to squid fishing in waters extending offshore 1 nautical mile from the mean high water mark of Southeast Farallon Island,

Middle Farallon Island, North Farallon Island and Noon Day Rock. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option Q.6: Prohibit the take of squid for commercial purposes in District 10. (Project alternative added at the request of the Commission and/or as a result of public comment).

2.3.2 Area and Time Closures to Address Seabird Disturbance

The squid fishery has the potential to impact seabirds by the use of bright lights and increased noise which can disrupt nesting and other behaviors. At the Channel Islands, the squid fishery can interact with 14 species of breeding seabirds including the California brown pelican, Xantus's murrelet and the ashy storm-petrel. Brown pelicans are federally and State-listed as endangered and fully protected under FGC §3511. The Xantus's murrelet is in the process of being designated as a threatened species under the CESA. Ashy storm-petrels are classified by the Department and the USFWS as a species of special concern or SSC. The double-crested cormorant, tufted puffin, black storm-petrel, and rhinoceros auklet are also designated as Department SSC (see section 3.9.2 for a definition of SSC). At the Farallon Islands, one of the largest and most diverse seabird colonies in the continental U.S., the squid fishery may interact with 12 species of marine and coastal birds including four SSC, the ashy storm-petrel, double-crested cormorant, tufted puffin and rhinoceros auklet.

Concerns about potential disturbance effects on nesting seabirds on islands adjacent to waters fished by the squid fishery were first raised by seabird researchers, the American Trader Trustee Council, and the CINPS in the spring of 1999. Specifically, their concerns centered on disturbance to the island breeding colonies from high wattage lights and noise from market squid fishing vessels and they requested that the Department take action to prevent potential new impacts on the nesting birds. Three species were the focus of the squid fishery interaction with seabirds: the California brown pelican, ashy storm-petrel, and Xantus's murrelet. Options R.1 through R.4 and R.10 and R.11 address seabird issues associated with the southern market squid fishery.

More recently, concerns about potential disturbance effects on nesting seabirds at the Farallon Islands and adjacent waters were raised by biologists and other users of the area. In 2003, squid vessels harvested more squid north of the traditional Monterey fishing grounds than the prior 12-year average (1990-2002). The ashy storm-petrel was a species of major concern because they have experienced a long-term and sustained decline on the Farallon Islands. Options R.6 through R.9 specifically address seabird issues associated with the northern market squid fishery. [Note: these options were added at the request of the Commission and/or as a result of public comment. The Department's preferred option Q.3, which is a more comprehensive option, also addresses seabird impacts associated with the northern fishery and provides a greater level of protection as Options R.6 through R.9 only include the timeframe from 1 February to 30 September.

Options for Area and Time Closures to Address Seabird Issue

Option R.1: Establish areas that are closed to squid fishing around San Miguel, Anacapa and Santa Barbara islands from 1 February through 30 September. The area closure should be 1 nautical mile from the high water mark for these islands and would exclude the Channel Island MPAs, implemented in April 2003, because no commercial squid fishing is allowed in these areas. The closure would protect 14 seabird species (including one endangered, one candidate/threatened, and five other SSC) during their breeding seasons.

Option R.2: Establish areas that are closed to squid fishing around Anacapa and Santa Barbara islands from 1 February through 30 September. The area closure should be 1 nautical mile from the high water mark for these islands and would exclude the Channel Island MPAs, implemented in April 2003, because no commercial squid fishing is presently allowed in these areas. The closure would protect 12 seabird species (including one endangered, one candidate/threatened, and three other SSC) during their breeding seasons.

Option R.3: Establish areas that are closed to squid fishing using attracting lights around San Miguel, Anacapa and Santa Barbara islands from 1 February through 30 September. The area closure should be 1 nautical mile from the high water mark for these islands and would exclude the Channel Island MPAs, implemented in April 2003, because no commercial squid fishing is presently allowed in these areas. The closure is designed to offset the potential negative impacts of light pollution at seabird rookeries for 14 seabird species (including one endangered, one candidate/threatened, and five other SSC) during their breeding seasons.

Option R.4 *(proposed action):* Establish area and time closure areas for fishing for squid using attracting lights around Anacapa and Santa Barbara islands from 1 February through 30 September. The area closure should be 1 nautical mile from the high water mark for these islands and would exclude the Channel Island MPAs established in 2002 because no commercial squid fishing is presently allowed in these areas. The closure should offset the potential negative impacts of light pollution at seabird rookeries for 12 seabird species (including one endangered, one candidate/threatened, and three other SSC) during their breeding seasons.

Option R.5 (*status quo*): Do not establish area and time closure sites for seabird rookeries protection.

Option R.6: Establish areas that are closed to squid fishing around the Farallon Islands from 1 February through 30 September. The area closure should be 1 nautical mile from the high water mark for these islands. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option R.7: Establish areas that are closed to squid fishing in all waters of the Gulf of the Farallones National Marine Sanctuary from 1 February through 30 September. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option R.8*:* Establish area and time closure areas for fishing for squid using attracting lights around the Farallon Islands from 1 February through 30 September. The area closure should be 1 nautical mile from the high water mark for these islands. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option R.9*:* Establish areas and time closure areas for fishing for squid using attracting lights in all waters of the Gulf of the Farallones National Marine Sanctuary from 1 February through 30 September. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option R.10: Establish areas that are closed to squid fishing around San Miguel, Anacapa and Santa Barbara islands from 1 February through 30 November. The area closure should be 1 nautical mile from the high water mark for these islands and would exclude the Channel Island MPAs, implemented in April 2003, because no commercial squid fishing is allowed in these areas. (Project alternative added at the request of the Commission and/or as a result of public comment).

Option R.11: Establish areas that are closed to squid fishing around Anacapa and Santa Barbara islands from 1 February through 30 November. The area closure should be 1 nautical mile from the high water mark for these islands and would exclude the Channel Island MPAs, implemented in April 2003, because no commercial squid fishing is presently allowed in these areas. (Project alternative added at the request of the Commission and/or as a result of public comment).