State of California
The Resources Agency
Department of Fish and Game

Evaluation of Petition: Request of the Endangered Species Recovery Council to delist the California brown pelican (*Pelecanus occidentalis californicus*) under the California Endangered Species Act

Wildlife Branch
Sacramento, California
October 2006

Evaluation of Petition:
Request of the Endangered Species Recovery Council
to Delist the California Brown Pelican
(*Pelecanus occidentalis californicus*)
under the California Endangered Species Act

October 3, 2006

Introduction

The Endangered Species Recovery Council submitted a petition on May 26, 2006, seeking action by the Fish and Game Commission to delist the California brown pelican (*Pelecanus occidentalis californicus*) under the California Endangered Species Act ("CESA"; Fish & Game Code, § 2050-2116). In California, this subspecies nests on some of the Channel Islands in southern California. The subspecies is currently listed as endangered under CESA. The California brown pelican (brown pelican) is also a fully protected species under Fish and Game Code, § 3511. In December 2005, the U.S. Fish and Wildlife Service (Service) was also petitioned to delist the California brown pelican under the federal Endangered Species Act (ESA). The subspecies is currently listed as endangered under ESA. In the Federal Register notice of May 24, 2006, the Service announced their 90-day finding on the petition, and found that the petition presented substantial scientific or commercial information indicating that the petitioned action may be warranted. A status review was then initiated, and they are required to make a finding as to whether delisting the brown pelican is warranted by December 14, 2006.

This report evaluates the information provided in the CESA petition and includes the Department's recommendation on whether the delisting may be warranted. CESA specifically requires the Department to "evaluate the petition on its face and in relation to other relevant information the Department possesses or receives," and to recommend to the Commission whether the petition contains sufficient information to indicate the petitioned action may be warranted (Fish & Game Code, § 2073.5(a); *see also* Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1)). In accordance with these requirements, this report analyzes and evaluates information contained in the petition and other relevant information known to the Department.

The petition and supporting information provided sufficient scientific information to indicate that the petitioned action, or at least downlisting to threatened, may be warranted. The Department recommends, based upon the information contained in the petition, there is sufficient information to indicate the petitioned action may be warranted, and the petition should be accepted and considered.

Life History

The petition cited the brown pelican monograph (Shields 2002) for life history traits. The Department concurs with the petitioners that the monograph provides an

exhaustive reporting of life history traits. A brief summary of some life history traits is provided below, and is taken primarily from the Service's 2005 Seabird Conservation Plan (USFWS 2005).

Brown pelicans build nests in low shrubbery or on the ground on islands or remote coastal areas. They breed primarily in the spring, but breeding phenology can be quite variable and asynchronous with egg laying starting as early as November and as late as June. Most nesting occurs February-October, but availability of sufficient food has major influence on timing of breeding (Shields 2002:12). They lay 2-4 eggs that require 4.5 weeks for incubation. Normal clutch size for adults is 3 eggs, and 2 eggs for immature pelicans (Shields 2002:15). Young pelicans fledge at approximately 80 days of age. Age of first breeding can be as young as 1-3 years, but 4-7 years is more typical. Both sexes participate in incubation. Maximum recorded age is 43 years. Young are altricial and may creche when several weeks old.

Feathers of brown pelicans are not completely waterproof (Rijke 1970) and therefore they return regularly to roosting sites to dry out and rest. Brown pelicans feed close to shore, primarily in shallow (<150 m depth) waters of estuaries and the continental shelf, usually within 20 km of shore (Briggs et al. 1987, Shields 2002:7). Their diet in the Channel Islands consists almost exclusively of small schooling fish, in particular, northern anchovy (*Engraulis mordax)* and Pacific sardine (*Sardinops sagax*). Brown pelicans in the Gulf of California exploit a wider prey base of more than 40 species (L. Harvey and F. Gress, unpubl. data).

Range and Distribution

The petition summarized the range and distribution of the brown pelican and cited references that provide more detailed information and maps (USFWS 1983, Shields 2002).

The brown pelican is found throughout the temperate and tropical regions of the Americas, along both Atlantic and Pacific coasts. Six subspecies have been recognized. The California brown pelican, *P. o. californicus,* breeds in western North America primarily on islands off southern California and western Mexico, including the Gulf of California.

The Service's 1983 Recovery Plan for the California Brown Pelican identified management units, based somewhat on population similarities. The brown pelicans that breed in the Channel Islands are considered part of the Southern California Bight (SCB) population/management unit, which also includes the islands along the northwest coast of Baja California from the Los Coronados south to Isla San Martin (see map in Gress et al. 2005). These colonies are all influenced by the oceanographic conditions of the California Current (USFWS 1983:8) and some exchange occurs among colonies by the recruitment of new breeders (USFWS 1983:6).

In California, brown pelicans have nested primarily on West Anacapa Island and more recently have become regular breeders on Santa Barbara Island. Nesting has also occurred on other Channel Islands at times, but irregularly (USFWS 1983:29). They

also once nested at Bird Island, near Point Lobos, Monterey County (Grinnell and Miller 1944:51).

In California during 2006, brown pelicans nested on all 3 of the Anacapa Islands, on Santa Barbara Island, and on Prince Island (Figure 1) (F. Gress and L. Harvey, pers. comm.). Los Coronados islands in Baja California, another brown pelican nesting site, is depicted in Figure 1 to indicate its proximity to the Channel Islands.

Large numbers of brown pelicans disperse northward along the Pacific coast after breeding, during the summer and fall, going as far north as British Columbia (Briggs et al. 1987). Brown pelicans also show up inland at the Salton Sea after the breeding season (probably birds from the Gulf of California; F. Gress, pers. comm. *in* USFWS 2005).

Habitat Necessary for Survival

The petition provided a good overview of the kind of habitat necessary for brown pelican survival, including terrestrial and marine environments. Grinnell and Miller (1944) described their habitat as such: "*Typically, the ocean littoral, just outside the surf- line. Rarely strays either inland or far offshore. For nesting, coastal islands of small or moderate size where immunity from attacks of ground-dwelling predators is afforded*".

The recovery plan noted the basic habitat needs of the brown pelican are: 1) A disturbance- and predator-free nesting area; 2) Offshore habitat with an adequate food supply; and 3) Appropriate roosting sites for both resident and migrant pelicans (USFWS 1983:14).

Similar requirements are noted by Shields (2002:6): Usually breeds on small, predator-free coastal islands within 30-50 km of consistent, adequate food supply. Offshore foraging range limited by need for undisturbed, dry nocturnal roosting site. Unable to remain on water > 1 h without becoming waterlogged; returns to shore to roost each night and loaf during the day after foraging. Sand bars, pilings, jetties, breakwaters, mangrove islets, and offshore rocks and islands are important roosting and loafing sites (Shields 2002:7).

Abundance

The petition referred to the Population Trend section where they described numbers of brown pelicans by nesting regions (see Population Trend section, below).
Grinnell and Miller (1944) noted: "*Present throughout the year along our whole seacoast, but not known to breed north of Monterey County. Numbers vary, seasonally and locally; usually abundant south from Monterey Bay*". They also noted: "*The breeding metropolis of the species lies south of the Mexican line*".

North American populations underwent dramatic declines during the 1960s and early 1970s due to eggshell thinning induced by pesticides (USFWS 1983 and 2005). Although populations have recovered substantially from these declines, they continue to show considerable inter-annual variation in productivity as related to prey availability,

disturbance at colonies, and disease outbreaks (F. Gress, pers. comm. *in* USFWS 2005). Breeding effort, productivity and survival are lower during El Niño events.

Population Trend

The petition contains an adequate summary of population trend information for brown pelicans from the Channel Islands to Mexico. The Department has reviewed this information along with supporting information (Shields 2002:35, Gress and Harvey 2004, Gress et al. 2005, L. Harvey and F. Gress, unpubl. data), and we find sufficient scientific information to indicate population increase has occurred and continues at present, through 2006.

In the Channel Islands, for 2006, brown pelicans nested on all 3 of the Anacapa Islands (approximately 4,000-5,000 nests), on Santa Barbara Island (approximately 4,000 nests), and on Prince Island (approximately 43 nests) (F. Gress and P. Capitolo, pers. comm.). Nesting on all 3 of the Anacapa Islands has not been documented before since monitoring began in 1969 (F. Gress, pers. comm.). The nesting that occurred on Prince Island in 2006 was the first documented at that site since 1939 (Department Press Release, June 6, 2006). The large numbers on Santa Barbara Island in 2006 represent a huge increase from the 97 nests documented in 1980 (USFWS 1983:177) and the few hundred pairs documented in the last few years by NPS biologists (F. Gress, pers. comm.).

For West Anacapa Island alone, the number of brown pelican nest attempts has been slowly increasing since a slight dip in the early 1990s (Figure 2a). The 4,000-5,000 pairs represented by the nest attempts at West Anacapa exceeds the 3,000 pair threshold for the entire SCB population noted in the recovery plan (USFWS 1983:74-75). Annual productivity at West Anacapa has reached or exceeded 0.7 a number of times since 1996 (Figure 2b). Productivity now meets or exceeds the five-year mean 0.7 standard noted in the recovery plan for downlisting, however, productivity has rarely achieved the 0.9 five-year mean standard noted in the recovery plan for delisting (USFWS 1983:74-75). Relative to the five-year mean standard for fledged young in the recovery plan (USFWS 1983:75), brown pelicans at West Anacapa have achieved both the 2,100 and 2,700 fledgling standard for downlisting and delisting, respectively, at least 5 times since 1996 (Figure 2c) (Gress and Harvey 2004, L. Harvey and F. Gress, unpubl. data).

The Department needs additional time to work with brown pelican experts and the NPS in order to tabulate definitive population numbers and parameters from the Channel Islands, especially for the last 4 years, and including results from 2006, when population growth and expansion has been most pronounced. Numbers for the Los Coronados colonies should also be compiled, given their proximity to the Channel Islands. While brown pelicans from colonies in Mexico probably contribute to population growth of colonies in California, and vice versa (USFWS 1983:11), CESA does not have jurisdiction over Mexican colonies, thus, under CESA, the Department has emphasized population numbers from California in this report. However, brown pelican breeding colonies outside of California provide comparative information that should be considered when assessing the status and recovery standards and needs for brown

pelicans in California. The recovery plan provides an excellent discussion of the factors to consider relative to managing brown pelicans from the perspective of the SCB (USFWS 1983:10-14). Additionally, brown pelicans can act as a model to enhance cooperation among U.S. and Mexican resource managers interested in the conservation of marine birds and the islands on which they depend (Gress et al. 2005:28).

Factors Affecting the Ability of the Population to Survive and Reproduce

The petition provides sufficient scientific information on some key factors affecting the ability of the population to survive and reproduce (*e.g.*, organochlorine pollution during the late 1960s and early 1970s, El Niño influence on reproductive output, and decadal climatic phenomenon known as the Pacific Decadal Oscillation (PDO) that affects ocean temperatures and prey species). The petition also cites the recovery plan (USFWS 1983) and factors that were considered important to pelican recovery (*e.g.*, existing populations in Mexico be maintained, long-term adequate food supplies and essential nesting, roosting, and offshore habitat throughout the range be protected, and that population size and productivity in the SCB be restored to self-sustaining levels. The recovery plan describes food availability (pages 47-50) and colony disturbance (pages 50-52) as limiting factors for brown pelicans. Commercial and recreational fisheries along with oil development are noted as "Threats to Future Existence" in the recovery plan (pages 53-63). Some of these factors are described in more detail below.

Degree and Immediacy of Threats

The petition did not provide a discussion or rank the various threats to brown pelicans in this section or elsewhere. However, Shields (2002) was cited elsewhere in the petition, and that comprehensive account describes some known threats to brown pelicans. The Department is aware of various threats and a brief overview of some threats considered most important at this time is provided below.

Oil Pollution

The petition did not discuss the potential threat of oil spill impacts to brown pelicans, but did cite Shields (2002) that lists oil spills as a threat to brown pelicans. In fact, Shields (2002) reads as follows: "Highly susceptible to oil spills; breeding, roosting, and foraging sites often near shipping channels with heavy commercial traffic, harbors with refineries and oil-storage facilities, or offshore wells. California colonies near natural oil seeps in Santa Barbara Channel (U.S. Fish Wildl. Serv. 1983)". From the Department's involvement with oil spills in California, brown pelicans are known to be affected (Table 1) (S. Hampton and J. Yamamoto, pers. comm.). They can also be affected by smaller spills, or unreported releases, and occasional odd events like vegetable oil spills. Brown pelicans are considered a nearshore species, but most oil spills in California, other than American Trader, have occurred offshore where brown pelicans are less likely to be harmed. However, as noted in the petition (page 7), impacts to brown pelicans have occurred from some spills (*e.g.*, Luckenbach) offshore, and restoration plans have correspondingly provided for brown pelican conservation actions. Restoration planning would occur for brown pelicans injured by future spills even if the

brown pelican was delisted under CESA because restoration planning is commensurate with injury to natural resources regardless of listed status.

The 1969 Santa Barbara oil spill event (Platform A blowout) was poorly documented, and the search effort was not well organized. Thus, impacts to brown pelicans are not known. It was not until after the 1969 event that the beginning of studies on the effects of oil on seabirds began. In the last 20 years, it is estimated that approximately 500 - 1,000 brown pelicans have been affected by oil spills in California (S. Hampton, pers. comm.).

The Department considers it probable that another spill will occur in the Channel Islands area, given the volume of vessel traffic, military activities, and the existence of numerous oil platforms (Figure 3). Because oil spills can occur due to accidents, it is difficult to predict when the next spill event might occur.

The potential for oil spill impacts to brown pelicans is striking, based on the number of oil-related facilities near the Channel Islands and the shipping lanes (Figure 3), and based on past spills (Table 1). If a spill event occurred in the Channel Islands during the brown pelican breeding season, there could be serious damage to locally breeding brown pelicans, depending on the size and trajectory of the spill. Brown pelicans could also be harmed by spills outside of the nesting season, and outside of California as the birds disperse northward post-breeding. The Department concurs with Shields (2002) that oil pollution constitutes a potential threat to brown pelicans.

Disturbance of Roosting and Nesting Sites

There was little information in the petition on disturbance to brown pelicans during nesting and the post breeding dispersal period, but the Department is aware of several publications and studies that identify this threat (USFWS 1983:50-52, Jaques and Anderson 1988, Jaques and Strong 2002, Jaques and Strong 2003, Shields 2002:25-26, and Capitolo et al. 2002). The petition stated: "*...much of its roosting habitat is protected...*", but known major roosts in California were not tabulated, mapped, described, or quantified.

The Department needs time to work with land owners and managers, researchers, and others to discern what level of protection currently exists at known brown pelican roost sites. Oil spill restoration plans have provided some protection for roost sites, and public information materials have been developed to help avoid disturbance of brown pelicans. These efforts at public education and outreach need to be enhanced and maintained. New pelican roost sites need to be indentified and protected.

Energy expenditures can escalate as brown pelicans are repeatedly flushed from roost sites. Provision of quality roost sites where gaps exist should have a positive influence on brown pelican energy budgets by reducing the energetic costs of foraging, commuting, migrating, and responding to human disturbances (Jaques and Strong 2003). Energetic cost of flushing and its impact on survival and fecundity are unknown (Shields 2002:25).

The following discussion is taken from Shields (2002:25): Disturbance of breeding colony may result in greatly reduced reproductive success. Eggs or small nestlings are sometimes crushed or knocked from the nest when the parent bird flushes in panic. Unattended eggs and small nestlings are susceptible to predators and hyperthermia. Larger, more mobile young displaced from nests may starve if unable to return or become entangled in vegetation and die, sometimes killed by conspecifics. Human disturbance caused colony abandonment at a site in Costa Rica. Repeated visits may result in permanent abandonment of colony site, as occurred at Isla San Martin, Mexico. Additional discussion on problems associated with disturbance of nesting brown pelicans is found in the recovery plan (USFWS 1983:50-52).

Domoic Acid Poisoning

In September 1991, in the Santa Cruz area, brown pelican mortality was first documented from domoic acid poisoning (Work et al. 1993). Domoic acid (DA) was detected in stomach contents of sick and dead pelicans and cormorants, as well as in the flesh and viscera of northern anchovies, and in plankton samples dominated by *Pseudonitzchia australis*. Large number of *P. australis* cells where found in the stomach of both pelicans and anchovies. It appears that the anchovies obtained the toxin through grazing of *P. australis*. This discovery was the first documentation of DA poisoning outside of Atlantic Canada. Forty-three brown pelican carcasses were collected from 15-18 September. Both adults and immature pelicans were collected, with a predominance of males (17male:7female).

Additional DA outbreaks have occurred in California since 1991, but seabird mortality or sickness is not easily compiled due to the number of wildlife rehabilitation facilities along the California coast. The DA outbreaks are sometimes spotty, thus, significant effects on brown pelican population levels may not occur. DA poisoning is currently being investigated further by researchers in California.

Fish Hook and Line Mortality and Injury

It is well known that brown pelicans can be injured or die after becoming wrapped up in fishing tackle. The problem was so severe in 2001 in Santa Cruz, that special signage was created for the Santa Cruz Pier and part of the pier was closed to fishing. The International Bird Rescue Research Center in Fairfield had to appeal for extra funds to help feed recuperating brown pelicans. One-hundred pelicans came through in August 2001. Anchovies were swarming near the pier at that time, creating a troublesome mix of anglers and brown pelicans. There are also isolated instances of entanglement that occur, and if the pelicans are not rescued, they can die when the line is wrapped in such a way as to interfere or completely hinder foraging activity. As with DA poisoning, significant effects on brown pelican population levels may not occur, but, the problem has not been rigorously quantified.

Food Availability/Starvation/Low Prey Abundance Years

Currently, there is a pelican starvation event in progress (Department of Fish and Game 2006). Such an event was also documented in July 2004 in San Diego, California,

where approximately 30 juvenile brown pelicans were taken in to wildlife rehabilitation centers.

The number of brown pelicans affected by the three threats described above has not been tabulated or quantified at this time (J. Holcomb, pers. comm.). The Department should work with the wildlife rehabilitation groups in order to compile this information. It is difficult at times to distinguish the reason why a brown pelican was brought into a rehabilitation facility, and the birds may come into a facility with one or more problems being operative (*e.g.*, fish hook/line complications and starvation).

Lastly, the potential for commercial fishing effects on brown pelican prey abundance has been studied in the past and is currently under further study (F. Gress and L. Harvey, unpubl. data). The Department will be involved in the review of the latest information once it becomes available, and the results will be helpful in determining brown pelican status and management needs.

Impact of Existing Management Efforts

Under the "Kind of Habitat Necessary for Survival" section, the petition notes the recent establishment of a "fishing exclusion zone" in State waters around the Channel Islands. The petition states these areas will protect important brown pelican foraging habitat from intense fishing. These areas are known as Marine Protected Areas (MPAs), and they do not encompass all the waters around the Channel Islands where the brown pelicans are known to nest, and where they probably forage. Maps depicting the current MPAs can be viewed at: http://www.dfg.ca.gov/mrd/mlpa/maps.html.

The Department believes that MPAs will not provide direct protection to pelagic fish species like sardines and anchovies that brown pelicans prey on. In specific locations, however, MPAs may help protect foraging interactions between brown pelicans and their prey. By removing fishing from areas where prey may congregate and if feeding occurs in a small area, the brown pelican would presumably benefit by having less disruption of their foraging behavior.

The State of California MPAs at the Channel Islands are one and the same as the NOAA National Marine Sanctuary (NMS) recently proposed MPAs. The only difference is that the NMS proposal would complete the state/federal proposal by extending the State MPAs further offshore. This extension would probably not have any impact on brown pelican breeding and roosting, but could conceivably protect the feeding interaction as noted above.

Even if MPAs were established around an entire island, the benefit to brown pelicans may not be substantial. Unless all boating activity is prohibited, in particular sea kayaking and non-consumptive diving, the potential disruption to behavior will still exist. Additionally, the level of protection that an island-wide closure would provide to populations of brown pelican prey species has not been analyzed.

The petition notes that existing management has been very successful, partly as a result of seabird colonies now being a part of State or federal reserves and refuges.

However, the petition does not describe existing management practices by the NPS under any existing management plans. Currently, the NPS is engaged in the process of updating their management plan for the Channel Islands. The current General Management Plan (GMP) was completed in 1985. At this time, there is not a firm date for when the new plan will be available for public review. The NPS proposes to keep West and Middle Anacapa closed to public access. They will also continue to manage Santa Barbara Island to protect nesting pelicans. Additionally, NPS will propose that all offshore islets remain closed to access (K. Faulkner, pers. comm.). Until the new draft GMP is completed, and until the Department and the public review and comment on the plan, the level of protection that may be provided to brown pelicans cannot be described.

In the marine environment, NPS has authority to manage some geological and cultural resources out to 1 nautical mile around the islands. They do not have authority to manage marine resources. The Channel Islands National Marine Sanctuary (CINMS) has authority to manage some geological and cultural resources and water quality out to 6 nautical miles around the islands. But, like NPS, the CINMS does not have authority to manage marine resources within State waters.

In May 2006, the CINMS sent out a Draft Management Plan and Draft Environmental Impact Statement (DMP/DEIS) for public review and comment. The Department notes that the DMP/DEIS contained proposed actions to protect seabirds from disturbance by aircraft overflights, and to prohibit take or possession of seabirds. However, there were no proposed regulations regarding *disturbance* of seabirds by vessels.

Under the "Kind of Habitat Necessary for Survival" section, the petition mentioned the rat removal program that was recently completed on Anacapa Island, and noted that rat removal should aid the brown pelican as well as other species. While the Department supported the rat removal program and recognized the potential benefit to seabirds other than pelicans, we understand that rats are not known to prey on brown pelican chicks or eggs, and there is no evidence or observation that rats can cause a brown pelican to leave its nest (Gress and Harvey 2004).

A brown pelican fledgling area is designated on the north side of West Anacapa Island Title 14, § 632(52)(B), in order to protect recently fledged young from human disturbance. The section reads as follows: "*No person except Department employees or employees of the NPS in the performance of their official duties shall enter this area during the period January 1 to October 31*".

Suggestions for Future Management

The petition provided no suggestions for future management, but noted that the brown pelican is protected under the federal Migratory Bird Treaty Act (MBTA), and that it is also a Fully Protected species under Fish and Game Code § 3511. Both of these statutes protect brown pelicans from take, except under very limited conditions by special permit (usually restricted to scientific research activities as approved by the Service or the Department, respectively). However, neither of these protections contain a provision to protect brown pelicans from *disturbance or harassment* situations that

could potentially cause injury to the species short of take. Additionally, under MBTA, brown pelican nests are protected during the nesting season as long as eggs or chicks are present. Fish and Game Code § 3503 similarly provides protection against needless destruction of nests and eggs.

The Department needs to work with the Service, NPS, NMS, researchers and others to identify and prioritize future management needs for brown pelicans. A memorandum of understanding that addresses brown pelican conservation may be desirable between State and federal entities. This focus is important given that the California Brown Pelican Recovery Plan is 23 years old, and given that the new Channel Islands Management Plan will be general in nature. The formation of a brown pelican working group may be desirable in order to help conserve a viable nesting population of this subspecies in California in perpetuity.

Future management of brown pelicans needs to take into account: 1) Brown pelicans breeding in California are at the northern edge of their breeding range and have limited nesting opportunities (predator-free and disturbance-free islands); 2) Brown pelican numbers can fluctuate greatly based on prey populations; 3) Brown pelicans are subject to disturbance at roost sites during the non-breeding season; and 4) Substantial population setbacks could occur if a large oil spill happened during the nesting season, and if such a spill occurred near the time of a severe El Niño event. Continued and expanded public education efforts will also be necessary to help conserve brown pelicans.

Availability and Sources of Information

The petition included the following elements, and was supplemented by information provided by the petitioners:

- Additional reference material on brown pelicans and other seabirds.
- Estimated breeding population size (Tables 1 and 2 in the petition).
- Discussion of Recovery Plan goals.
- Literature cited.

In evaluating the petition, the Department utilized information from knowledgeable Department staff, published and unpublished information, and communication with brown pelican experts.

The petition and supporting information utilized for this report are available through the following address and telephone contact: Department of Fish and Game, Wildlife Branch, Attn: Esther Burkett, 1416 Ninth Street, Sacramento, CA, 95814, telephone (916) 654-4273.

Detailed Distribution Map

The petition did not include a detailed distribution map for brown pelican nest sites in California, but cited references containing such information that the Department reviewed (Shields 2002, USFWS 1983).

Summary of the Evaluation of the Petition

The petition and supporting information provided sufficient scientific information to indicate that the petitioned action, or at least downlisting to threatened, may be warranted.

In making this determination from the petition and supporting information, the Department relied most heavily on the following: 1) The breeding population size of the brown pelican in the Channel Islands has increased dramatically from 1969 to the present, and now exceeds the five-year mean 3,000 pair standard noted in the recovery plan (current Channel Islands population size is roughly 5,000 pairs); 2) Brown pelicans have gradually expanded their nesting sites in the Channel Islands to former or new breeding sites and numbers on Santa Barbara Island have increased substantially; 3) Productivity has increased to 0.7 and now meets or exceeds the five-year mean 0.7 standard noted in the recovery plan for downlisting, however, productivity has rarely achieved the 0.9 standard noted in the recovery plan for delisting; and 4) Though the petition did not provide a detailed analysis of known threats to the brown pelican in California, it cited a monograph on brown pelicans that described some known threats (Shields 2002). In spite of these threats (*e.g.*, oil spills, human disturbance, domoic acid poisoning, fish hook/line mortality), the breeding population of brown pelicans in California has increased substantially, and productivity has increased.

The Department needs additional time to work with brown pelican experts and the NPS in order to tabulate definitive population numbers and parameters from the Channel Islands, especially for the last 4 years, and including results from 2006, when population growth and expansion has been most pronounced. While brown pelicans from colonies in Mexico probably contribute to population growth of colonies in California, and vice versa (USFWS 1983:11), CESA does not have jurisdiction over Mexican colonies, thus, under CESA, the Department would concentrate any further evaluation of downlisting or delisting of brown pelicans based on population parameters from the Channel Islands. However, brown pelican breeding colonies outside of California provide comparative information that should be considered.

The Department recognizes that the standards for downlisting and delisting that were set in the 1983 recovery plan were based on the best available scientific information available at that time. Since 23 years have now elapsed, the Department notes that the petition provides an opportunity for an intensive evaluation of brown pelican status in California.

Literature Cited

Briggs, K.T., W.B. Tyler, D.B. Lewis and D.R. Carlson. 1987. Bird communities at sea off California: 1975-1983. Studies in Avian Biol. No. 11. 74 pp.

Capitolo, P.J. H.R. Carter, and T.W. Keeney. 2002. Roosting patterns of Brown Pelicans at Mugu Lagoon in June-October 2001. Unpublished report, Humboldt State

University, Department of Wildlife, Arcata, California; and Naval Base Ventura County, Natural Resources Management Office, Point Mugu, California.

Department of Fish and Game and University of California, Santa Cruz. 2006. More Signs of Return for California Brown Pelicans. News Release, June 6, 2006. 2pp.

Department of Fish and Game. 2006. Central California Brown Pelican Deaths Likely from Starvation and Malnutrition. News Release, June 20, 2006. 1pp.

Gress, F. and A.L. Harvey. 2004. Reproductive performance of brown pelicans at West Anacapa Island, California, in 2003. Unpublished report. California Institute of Environmental Studies, 3408 Whaler Ave., Davis, CA. 95616 (prepared for American Trader Trustee Council). 25 pp.

Gress, F., E. Palacios, A.L. Harvey, L. Alfaro, D.W. Anderson, and E. González. 2005. Status of brown pelicans and three species of cormorants in the Mexican portion of the Southern California Bight, 2002-2003. Unpublished report. California Institute of Environmental Studies, Davis, CA. U.S.A. (prepared for U.S. Geological Survey). 46 pp.

Grinnell, J. and A. Miller. 1944. The Distribution of the Birds of California. Pacific Coast Avifauna Number 27, Cooper Ornithological Club, Berkeley, California.

Jaques, D.L. and D.W. Anderson. 1988. Brown Pelican use of the Moss Landing Wildlife Management Area: roosting behavior, habitat use, and interactions with humans. Unpublished report. Calif. Dept. of Fish and Game, Wildlife Management Division, Sacramento, CA. 58 pp.

Rijke, A.M. 1970. Wettability and phylogenetic development of feather structure in water birds. J. Exp. Biol. 52:469-479.

Shields, M. 2002. Brown Pelican (*Pelecanus occidentalis*). *In* The Birds of North America, No. 609 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington D.C.

U.S. Fish and Wildlife Service. 1983. California Brown Pelican Recovery Plan. Prepared by F. Gress and D.W. Anderson. U.S. Fish Wildl. Serv., Portland, OR.

U.S. Fish and Wildlife Service. 2005. Seabird Conservation Plan: Pacific Region, Portland, OR.

Work, T. M., B. Barr, A. M. Beale, L. Fritz, M. A. Quilliam, J. L. C. Wright. 1993. Epidemiology of domoic acid poisoning in Brown Pelicans (P*elecanus occidentalis*) and Brandt's cormorants (*Phalacrocorax penicillatus*) in California. Journal of Zoo and Wildlife Medicine 24 (1): 54-62.

Personal Communications Utilized by the Department for this Report

Capitolo, Phil. University of California Santa Cruz, Santa Cruz, CA.

Faulkner, Kate. Channel Islands National Park, Ventura, CA.

Gress, Franklin. California Institute of Environmental Studies, Davis, CA.

Harvey, Laurie. California Institute of Environmental Studies, Davis, CA.

Hampton, Steve. California Dept. of Fish and Game, Office of Spill Prevention and Response, Sacramento, CA.

Holcomb, Jay. International Bird Rescue Research Center. Cordelia, CA.

Ugoretz, John. California Dept. of Fish and Game, Marine Region. Monterey, CA.

Yamamoto, Julie. California Dept. of Fish and Game, Office of Spill Prevention and Response, Sacramento, CA.

Table 1. Impacts to California Brown Pelicans from oil spills in California since 1984.

Spill	Date	Number collected (live & dead)
American Trader	February 7, 1990	185
Sammi Superstar	January 1991	25*
Avila I	August 3, 1992	11
McGrath	December 25, 1993	no data
Luckenbach (other periods)	1990-2001	9+
Cape Mohican	October 28, 1996	25
Torch/Platform Irene	September 28, 1997	2
Kure	November 5, 1997	5
Luckenbach 1997-98	winter 97-98	21
Command	September 26, 1998	10
Stuyvesant	September 6, 1999	2
Luckenbach 2001-03	winters 01-03	11

Note: Some oiled Brown Pelicans are occasionally recovered associated with smaller spills or unreported releases. No Brown Pelicans were found or estimated killed in the Puerto Rican oil spill of November 1984, and the Apex Houston oil spill of February 1986.

* International Bird Rescue Research Center notes 56 brown pelicans were treated during the time of this spill.

Data compiled by Steve Hampton, Department of Fish and Game, Office of Spill Prevention and Response, Sacramento, CA.

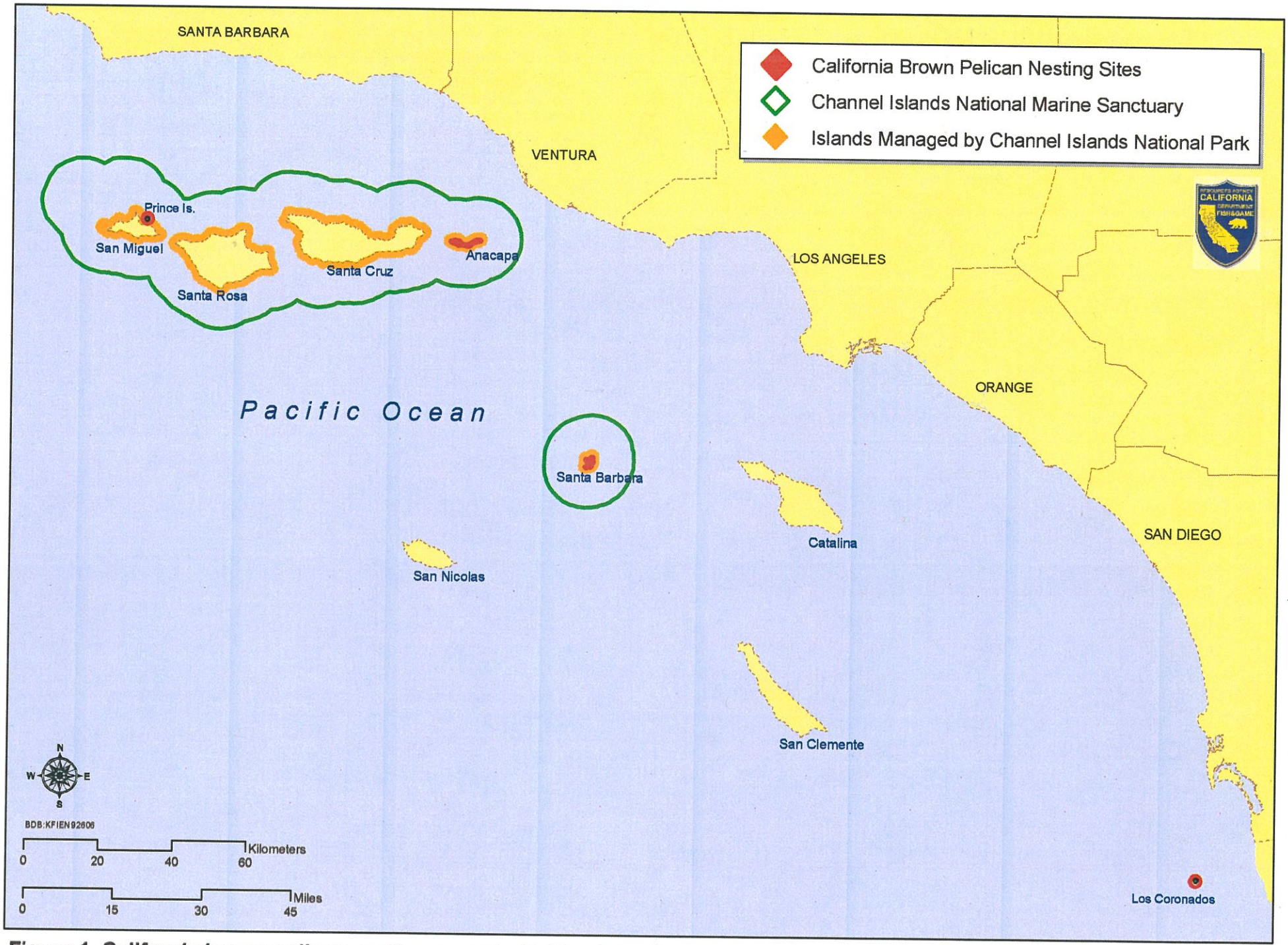
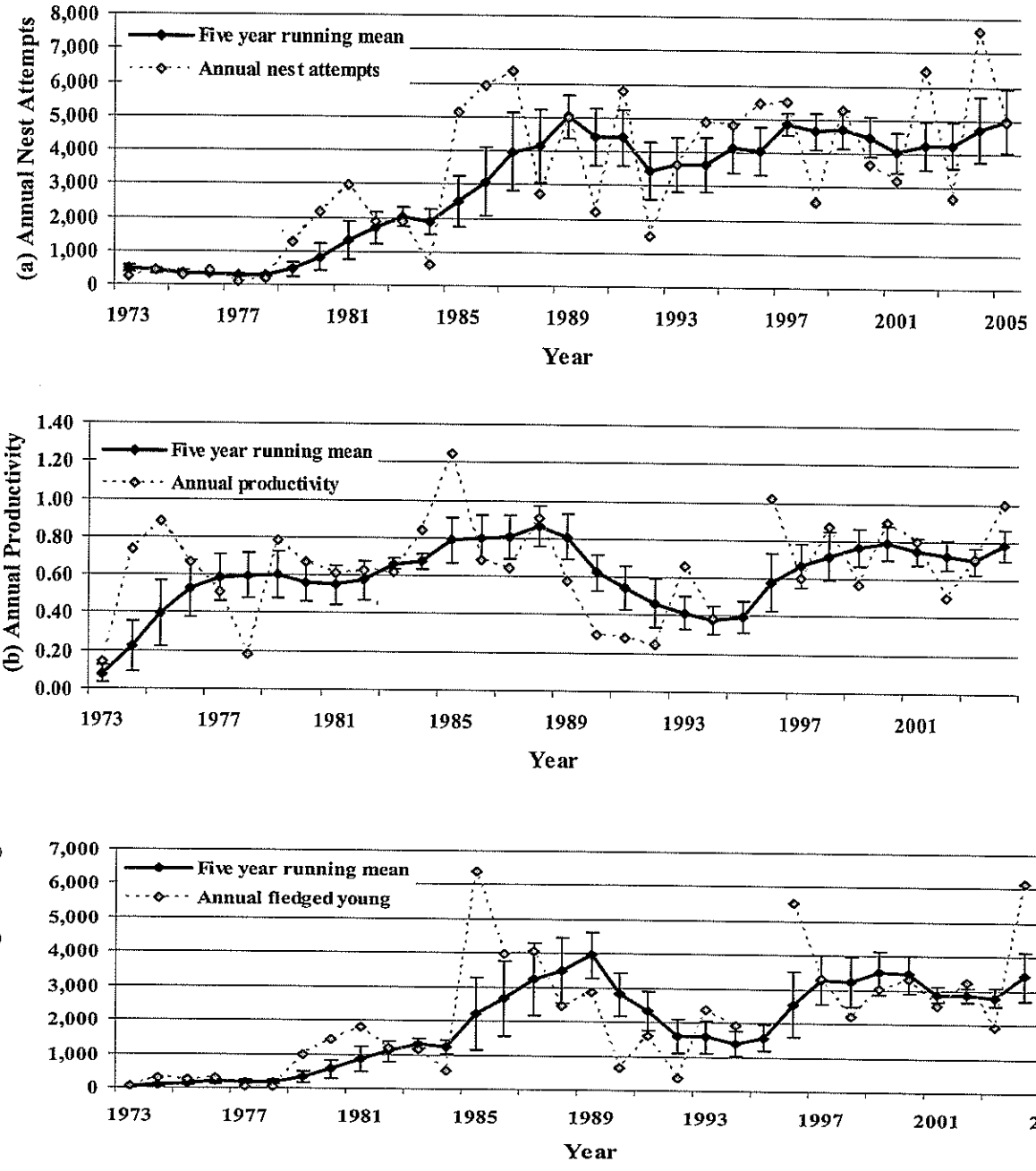


Figure 1. California brown pelican nesting areas in California and northern coastal Baja, Mexico, in 2006.

Figure 2. Annual total (dashed line) and five-year mean (solid line), and standard errors of (a) nest attempts, (b) productivity (young fledged per total nest attempt), and (c) young fledged at West Anacapa Island from 1969-2005. (L. Harvey and F. Gress, unpubl. data).



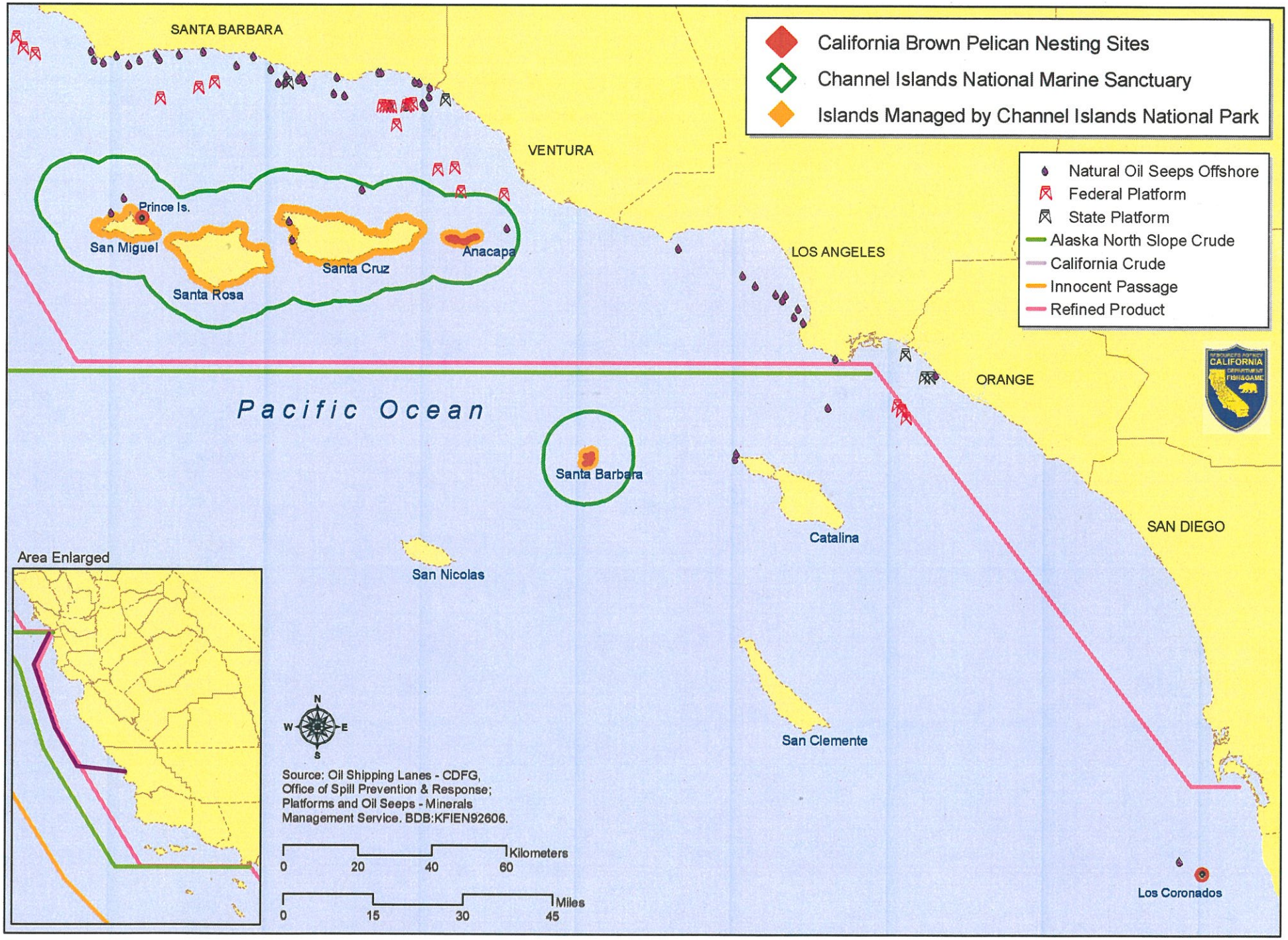


Figure 3. Oil-related activity around Channel Islands National Marine Sanctuary modified from Carter et al. (2000). Note that "Innocent Passage" refers to legal transit through waters that are part of a country's territory.