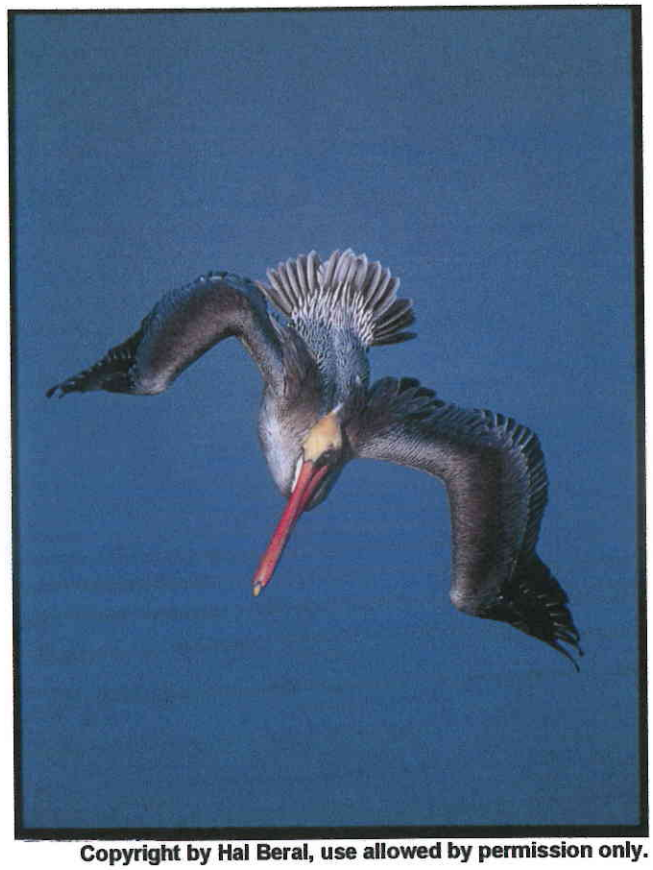
STATUS REVIEW OF CALIFORNIA BROWN PELICAN

Report to the California Fish and Game Commission

December 2007



California Department of Fish and Game
The Resources Agency
State of California

State of California
The Resources Agency
Department of Fish and Game

STATUS REVIEW OF CALIFORNIA BROWN PELICAN (*Pelecanus occidentalis californicus*) IN CALIFORNIA

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Nongame Wildlife Program Report 2007- 04

December 2007

Suggested Citation for this report:

Burkett, E. E., R. J. Logsdon, and K. M. Fien. 2007. Report to the California Fish and Game Commission: Status Review of California Brown Pelican (*Pelicanus occidentalis californicus*) in California. Calif. Dept. of Fish and Game, Wildlife Branch, Nongame Wildlife Program Report 2007-04. 26pp.+ appendices.

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Executive Summary

Status Review of the California Brown Pelican in California (*Pelecanus occidentalis californicus*) Report to the Fish and Game Commission

December 20, 2007

In response to a petition received by the Fish and Game Commission (Commission) on May 26, 2006, the Department of Fish and Game (Department) recommends that the Commission delist the California Brown Pelican (*Pelecanus occidentalis californicus)* (brown pelican) under the California Endangered Species Act (CESA). The Department also recommends that management and conservation actions, and periodic monitoring continue.

The proposed delisting of the brown pelican is different from any delisting previously considered and presents a somewhat unique circumstance given the fact that the brown pelican is also a "fully protected species", pursuant to Fish and Game Code (FGC) section 3511(b)(2). Therefore, whether or not the species is listed pursuant to CESA, the legal prohibition on "take" of the species, as defined in FGC Section 86, remains in place.

In making the recommendation to delist the brown pelican pursuant to CESA, the Department relied most heavily on the following: 1) The breeding population size of the brown pelican in the Channel Islands has increased from 1969 to the present, after the banning of DDT, and now exceeds the five-year mean 3,000 pair standard noted in the recovery plan (current Channel Islands population size for 2006 is roughly 8,500 breeding pairs); 2) Brown pelicans have gradually expanded their nesting sites in the Channel Islands to former breeding sites, and numbers on Santa Barbara Island have increased substantially since 2001; 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. Scientists are not sure why brown pelicans in the Channel Islands have lower productivity than brown pelicans elsewhere, but without historic data to compare current rates with, it is unclear if the standard in the recovery plan was set unnaturally high; 4) Relative to the five-year mean standard for fledged young in the recovery plan, brown pelicans at West Anacapa Island have achieved the 2,700 fledgling standard for delisting 9 times from 1997-2005; 5) In spite of known threats (*i.e*., oil spills, human disturbance, starvation events, domoic acid poisoning, fish hook/line mortality), the breeding population of brown pelicans in California has increased substantially; and 6) nesting sites are under generally-protective NPS ownership or management.

There are only 2 current nesting sites for brown pelicans in California, West Anacapa Island and Santa Barbara Island, both within Channel Islands National Park. Currently, the National Park Service (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. There is not a firm date for when the new plan will be available for public review; it may not be in place for another 1-2 years. The NPS proposes to keep West and Middle Anacapa islands closed to public access. They will also continue to manage Santa Barbara Island to protect nesting pelicans, though they are considering installing blinds for educational/interpretive purposes. However, until the new draft GMP is completed, the level of protection that may be provided to brown pelicans cannot be definitively described.

Additional management recommendations include: 1) Maintain the existing NPS closure to human access on West Anacapa Island, and maintain existing NPS access restrictions on Middle Anacapa Island; 2) Manage Santa Barbara Island and Sutil Island to maintain a brown pelican nesting colony; 3) Maintain the brown pelican fledgling area on the north side of West Anacapa Island; 4) Maintain Fully Protected Species status given only 2 current brown pelican nesting sites in California, vulnerability to oil spills, and vulnerability to human disturbance at both nest and roost sites; 5) Roost sites for brown pelicans need to be protected from disturbance during the breeding and non-breeding seasons; and 6) The Department will continue to work with U.S. Fish and Wildlife Service, Channel Islands National Park, Channel Islands National Marine Sanctuary, Bureau of Land Management, researchers, and others to develop a monitoring plan for brown pelicans to help ensure nesting population persistence in California.

Brown pelicans have rebounded from the negative effects of DDT, but their nesting sites and roosting sites need protection from disturbance. When brown pelicans are flushed from their nests by human disturbance activities, their eggs become vulnerable to avian predators, and colony reproductive output could be markedly affected, and complete colony failure could occur with repeated disturbance.

Status Review of the California Brown Pelican in California
(*Pelecanus occidentalis californicus*)
Report to the Fish and Game Commission

December 20, 2007

Introduction

Petition History

On May 26, 2006, the Fish and Game Commission (Commission) received a petition from The Endangered Species Recovery Council seeking action by the Commission to delist the California brown pelican (*Pelecanus occidentalis californicus*) under provisions of the California Endangered Species Act (CESA; Fish & Game Code, § 2050, *et seq.*). The California brown pelican (brown pelican) is currently listed as endangered under CESA. The brown pelican is also a fully protected species under California Fish and Game Code (FGC) Section 3511. In California, the brown pelican usually nests on two of the Channel Islands in southern California.

The Commission reviewed the petition for completeness, and pursuant to Section 2073 of the FGC, referred the petition to the Department of Fish and Game (Department) on June 5, 2006, for evaluation. The Department had a 90-day period to review the petition and make one of the two following findings:

- Based upon the information contained in the petition, there is sufficient information to indicate that the petitioned action may be warranted, and the petition should be accepted and considered; or
- Based upon the information contained in the petition, there is not sufficient information to indicate that the petitioned action may be warranted, and the petition should be rejected (FGC § 2073.5).

The Department requested a 30-day extension to complete the evaluation and recommendation. At the Commission meeting on August 24, 2006, in Santa Barbara, the Department received the extension for consideration of the petition.

The Department found that the information in the petition was sufficient to indicate the petitioned action may be warranted, and recommended the Commission accept the petition (Petition Evaluation Report, October 3, 2006). At the Commission meeting in Santa Monica on December 7, 2006, the Commission received the Department's petition evaluation report, recommendation, and public testimony, and accepted the petition.

On December 22, 2006, the Commission published a Notice of Findings in the California Regulatory Notice Register declaring the brown pelican a candidate species for delisting, thereby starting the one year status review process.[1]

Department Review

This report, pursuant to FGC Section 2074.6, details the Department's review and recommendations to the Commission regarding the proposed delisting of the brown pelican from endangered status under CESA. The discussion and analysis set forth below is based on the best scientific information available. The Department's recommendation about whether the petitioned action is warranted is also addressed. Further, this status review identifies habitat that may be essential to the continued existence of the species and suggests management activities and other recommendations for the continued recovery of the species.

The Department worked independently and with Commission staff to contact affected and interested parties, invite comment on the petition, and request additional scientific information as required under FGC Section 2074.4. The Department solicited input and assistance from brown pelican experts on September 15, 2006 on the evaluation of the petition. The Commission published a Notice of Receipt of Petition in the California Regulatory Notice Register on September 22, 2006 and requested information relating to the petition to be submitted to the Department. This notice was also mailed to a list of affected landowners, agency staff, and brown pelican experts in September 2006 (see Appendix A). The Department then posted its October 3, 2006 petition evaluation report on its web site on October 28, 2006. The Commission's notice of finding in the December 22, 2006 California Regulatory Notice Register solicited written comments or data. Additionally, there were a number of newspaper articles discussing the petitioned delisting which also served to provide public notice on this subject. Appendix A lists some of the major news articles/press releases that were published regarding the status of brown pelicans, and the pending delisting petitions under both ESA and CESA.

In an attempt to obtain and review the most recent and pertinent available information on brown pelican breeding status in California, Department staff kept in close contact with brown pelican researcher Dr. Frank Gress due to his ongoing

[1] In December 2005, the U.S. Fish and Wildlife Service (USFWS) was also petitioned to delist the brown pelican under the federal Endangered Species Act (ESA). The brown pelican is currently listed as endangered under ESA. In the Federal Register notice of May 24, 2006, the USFWS 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. In February 2007, USFWS completed a 5-year review of the listed distinct population segment of the brown pelican (*Pelecanus occidentalis*). The report recommended delisting (USFWS 2007). A decision and public notice on potential delisting is still pending, but a decision may be reached within the next few months (M. Fris, pers. comm).

monitoring efforts in the Channel Islands. Information collected by and provided to the Department by the scientific community is vital to the completeness of this review. In addition, the Department communicated with 3 brown pelican experts regarding the petition evaluation report and modifications to it for this status review. Specifically, the Department sought input on management recommendations under a scenario where the brown pelican would be delisted. Input received from these 3 experts has been incorporated into this report (the experts are Dr. Dan Anderson, Dr. Frank Gress, and Deborah Jaques). Department staff also corresponded with Kate Faulkner, Chief of Natural Resources Management of Channel Islands National Park to discuss implications of delisting the brown pelican, how the park is currently managed, and the timeline for the new management plan which is currently in the process of being developed. Information from that correspondence has also been incorporated into this report.

Finally, the Commission and Department received a number of letters commenting on the delisting petition and the status of the brown pelican under CESA. These letters are discussed in Appendix B.

Life History

Much of the general life history described in this section is taken from Shields (2002). The brown pelican is a member of the family Pelecanidae, which can be logically broken into two sub-groups of pelicans, those with white adult plumage and those with gray or brown plumage. The brown pelican belongs to this second group.

Characteristics of the pelican family include a large body, very long bill, webbed feet, and a conspicuously large gular pouch. Unique to the brown pelican is its dark plumage, marine habitat, and fishing technique of plunging head first into the water to trap fish in its pouch. Though awkward on land, brown pelicans are strong swimmers and their long wingspan of up to two meters confers great efficiency in flight and soaring.

Brown pelicans can reach an overall length of up to 137 centimeters, with a bill up to 38 centimeters long, and an average mass of 2 to 5 kilograms. Males weigh more than females and generally have a longer bill than females. Juvenile plumage is brown above with white below, and the adult plumage of gray/brown dorsal feathers and black/brown below forms at around three to five years of age. There is no sexual dimorphism in the brown pelican's plumage.

Brown pelicans are colonial breeders. Age of first breeding can be as young as 1-3 years, but they typically begin breeding between their third and fifth years (Johnsgard 1993; Shields 2002). They can obtain a maximum lifespan of about 43 years. There is little known about pelican survival rates according to age group; however, Anderson and Gress (1983) estimated that in California, adult mortality rates average between 12% and 15%, with up to 50% mortality within the first year.

Clutch size can range from 1 to 4 eggs, depending on the age of the breeding female, with an average of 3 eggs for adult pelicans (USFWS 1983; Shields 2002). Young are altricial and may creche when several weeks old. Young pelicans have a low reproductive rate (USFWS 1983), which, in combination with low first-year survival rates, could make it difficult for brown pelican populations to quickly recover from stochastic events. Fledglings extensively travel beyond the nesting colony, and eastern pelicans often exhibit philopatry by returning to the area in which they were born for subsequent breeding (King et al. 1985 and Schreiber and Mock 1988 *in* Shields 2002). Some existing data indicate that California brown pelicans also generally return to their original nesting islands to breed (F. Gress, pers. comm.).

Breeding of brown pelicans is asynchronous, with members of the same cohort reported as breeding at different times of the year (USFWS 1983), and the phenology of breeding can be affected by fluctuations in food supply, most notably, anchovy abundance (Anderson and Gress 1983). The pelican breeding cycle is generally about 18 weeks, with the first 1-2 weeks dedicated to courtship and nest building, about 4 weeks for incubation, and up to 13 weeks for nestling care (USFWS 1983; Schreiber 1979 *in* Shields 2002). In California, breeding can occur as early as December and as late as August, with peak egg-laying periods around March or April, that correspond to an abundance of food supply near the colony. Availability of sufficient food has a major influence on timing of breeding (Anderson et al. 1980, Anderson and Gress 1983). There is very little evidence of pelicans nesting again if the first attempt fails (USFWS 1983, F. Gress, pers. comm.).

Nest sites generally occur on the ground or low shrubbery of steep coastal slopes on small islands, isolated from ground predators and human disturbance; the brown pelicans utilize local vegetation to build nests of sticks, grasses, and other debris each year (USFWS 1983). Incubation initiates after the first egg is laid, and males and females share incubation duties. Abandonment of nests can occur in years of rapid reduction in food availability (USFWS 1983:40).

Brown pelican chicks are naked and altricial and are completely dependent on parental care and protection for the first three to four weeks after hatching (USFWS 1983). In California populations, chicks typically fledge about 13 weeks of age. Both parents feed the young until they fledge, and unsuccessful attempts of the young pelicans feeding themselves account for a high percentage of post-fledging mortality (USFWS 1983).

Brown pelicans are chiefly diurnal, and primarily forage in shallow coastal waters or inland seas with high salinity such as the Salton Sea (Sturm 1998). Roosting and loafing also occur during the day, in groups on sand bars or jetties, or on man-made structures such as piers and docks (Shields 2002). Feathers of brown pelicans are not completely waterproof (Rijke 1970) and therefore they return regularly to roosting sites to dry out and rest.

Preening is used for feather maintenance (for example, to spread oil from the uropygial gland for waterproofing) or for display (Johnsgard 1993). Communication and courtship rituals are done mostly by visual display with little to no vocalizations (Johnsgard 1993).

They mainly catch fish by plunge-diving and may occasionally seize fish that are close to the surface (Shields 2002). Brown pelicans often forage in groups, sometimes with mixed species, and during morning and evening hours (Shields 2002). 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*) (Anderson et al. 1980, Anderson et al. 1982, USFWS 1983). Brown pelicans in the Gulf of California exploit a wider prey base of more than 40 species (D. Anderson, unpubl. data).

Range and Distribution

The range and distribution of the brown pelican in California and Mexico is described and mapped in numerous publications (e.g., USFWS 1983, Shields 2002, Anderson et al. 2007).

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, and including the Gulf of California (Anderson et al. 2007).

The 1983 USFWS 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, F. Gress, pers. comm.).

In California, brown pelicans nest on West Anacapa Island and more recently have become regular breeders on Santa Barbara Island. The historical record is poor, but indicates that after nearly 70 years of absence, the first confirmed brown pelican breeding effort on Santa Barbara Island occurred in 1980 (P. Martin and F. Gress, pers. comm.). Nesting has also occurred on other Channel Islands at times in the past (Prince Island and Santa Cruz Island (Scorpion Rock)), but irregularly (Hunt et al. 1980, USFWS 1983:29). Brown pelicans also nested on East Anacapa Island before the

lighthouse was built; they returned briefly in small numbers in 1999-2000, but have not returned since then (F. Gress, pers. comm.).

They also once nested at Bird Island, near Point Lobos, Monterey County (Grinnell and Miller 1944:51, Baldridge 1973). The last year in which young were seen at this northernmost colony was in 1959. Sporadic nest building activity and some "incubating" birds were noted until 1966. The Monterey Bay area was recognized as important to brown pelicans, particularly during the northward post-breeding dispersal (Baldridge 1973).

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 occur inland at the Salton Sea in southern California and these birds are probably from the Gulf of California (Sturm 1998, F. Gress, pers. comm. *in* USFWS 2005). These highlights regarding brown pelicans at the Salton Sea were provided by F. Gress and D. Anderson, and supplemented by Sturm (1998):

- Small number of breeding attempts in mid-1980s, and small numbers bred in 1996 near the Alamo River which flows into the Salton Sea (first documented nesting in Salton Sea). A major botulism outbreak occurred after the 3 nests were discovered and 1,500 brown pelicans succumbed (Sturm 1998).
- Additional nest attempts occurred on Obsidian Island but failed, perhaps due to human disturbance (D. Anderson, pers. comm.).
- Nesting attempts were also documented in November 1996 (Mullet Island) and March 1997 (rocky islet offshore of Obsidian Butte), but these nests failed (Sturm 1998).
- Several brown pelicans that were treated for botulism at the Salton Sea and released on the California coast were subsequently documented back at the Salton Sea, indicating that brown pelicans have developed site fidelity with the Salton Sea (Sturm 1998).
- Salton Sea now supports a number of non-breeders (largely juvenile and sub-adult birds) during the post-breeding season that far exceeds historical numbers from this area.
- Historical counts recorded a maximum of 105 brown pelicans in August 1972, yet nearby Colorado River Delta was always an important post-breeding roosting area. Currently, as many as 3,000-4,000 brown pelicans are recorded regularly during July and August.
- Salton Sea is not a way station for brown pelicans dispersing to the Pacific coast but is a place where they forage and roost.
- Visitation in the past was a summer or fall occurrence, but now the brown pelican is an established resident species (Sturm 1998).
- Brown pelicans in the Salton Sea are probably not significant to the meta-population, but could be a small range extension producing a new population.

(F. Gress, correspondence to USFWS in October 2005).

Brown pelicans could potentially nest at the Salton Sea, if conditions were suitable (D. Anderson, pers. comm.).

Abundance

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 DDE, the primary metabolic breakdown product of DDT (USFWS 1983 and 2005, Gress 1995). Although populations have recovered substantially from these declines, they show considerable interannual variation in productivity as related to prey availability, disturbance at colonies, and disease outbreaks (Anderson et al. 1980, F. Gress, pers. comm. *in* USFWS 2005). Breeding effort, productivity and survival are lower during El Niño events (Anderson et al. 1982, Anderson et al. 2007).

Historic numbers are difficult to ascertain, but the number of brown pelicans breeding in California has increased since about the mid-1980's, after they recovered from the effects of DDT (F. Gress, pers. comm.).

Population Trend

The Department has reviewed published and unpublished information, and contacted brown pelican experts and knowledgeable agency staff to obtain the most recent population trend information for California. From the information gathered (Shields 2002:35, Gress and Harvey 2004, Gress et al. 2005, Anderson et al. 2007, F. Gress, L. Harvey and P. Martin, unpubl. data), the Department finds sufficient scientific information to indicate population increase has occurred and continues or is at least stable at present, through 2007.

In California during 2006, an unusual year, 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 100 nests) (F. Gress, pers. comm., and P. Capitolo/Department of Fish and Game *in* Anderson et al. 2007:21) (Figure 1). Los Coronados islands in Baja California, another brown pelican nesting site, is also depicted in Figure 1 to indicate its proximity to the Channel Islands.

Nesting on middle Anacapa Island may have occurred in the past (USFWS 1983:26), but until 2006, it has not occurred since intensive 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 large increase from the 97 nests documented in 1980 (USFWS 1983:177), and from the numbers documented in the last few years by NPS biologists (F. Gress and P. Martin, unpubl. data). Santa

Barbara Island has seen a steady increase in brown pelican nesting numbers, especially since 2001 (Table 1).

In 2007, brown pelicans in California nested in their two usual locales: West Anacapa Island and Santa Barbara Island (Figure 2). Thus, at this time, there are only 2 regular breeding sites for brown pelicans in California: West Anacapa Island and Santa Barbara Island.

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 3a). 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 3b). 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). Scientists are not sure why brown pelicans in the Channel Islands have lower productivity than brown pelicans elsewhere, but without historic data to compare current rates with, it is unclear if the standard in the recovery plan was set unnaturally high.

Relative to the five-year mean standard for fledged young in the recovery plan (USFWS 1983:75), brown pelicans at West Anacapa Island have achieved both the 2,100 and 2,700 fledgling standard for downlisting and delisting, respectively, at least 5 times since 1996 (Figure 3c) (Gress and Harvey 2004, L. Harvey and F. Gress, unpubl. data).

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).

If a major oil spill occurred in the Channel Islands during the breeding season, brown pelicans from Mexican colonies would be vital to repopulation of the Channel Islands colonies, and for population recovery to pre-spill levels.

Factors Affecting the Ability of the Population to Survive and Reproduce

The key factor affecting the ability of the population to survive and reproduce was DDT during the late 1960s and early 1970s; that threat has now subsided (Gress 1995).

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.

Threats

Oil Pollution

Shields (2002) 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 2) (S. Hampton, J. Yamamoto, M. Ziccardi, pers. comm.). They can also be affected by smaller spills, or unreported releases, and occasional odd events like vegetable oil spills. It is difficult to fully assess the number of brown pelicans affected by any spill, but for the 1997 M/V Kure/Humboldt Bay oil spill, it was estimated that 6-8 times more brown pelicans were impacted by moderate to heavy oil than the number of oiled pelicans recovered during the response effort (Jaques 1999). Reasons for this discrepancy relative to this particular oil spill are discussed in the report (Jaques 1999).

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. 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.). This estimate does not include the latest oil spill in San Francisco Bay, the Cosco Busan, and as noted in Table 2, smaller spills occur and the

full scale of their impact to brown pelican populations has not been assessed or quantified.

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 4). 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 4), and based on past spills (Table 2). 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 Anderson et al. (1996) that oil pollution constitutes a potential immediate and long-term threat to brown pelicans.

Disturbance of Roosting and Nesting Sites

Disturbance to brown pelicans during nesting and the post-breeding dispersal period is a 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). All known major roost sites in California are not currently tabulated, mapped, or described in one master document, though work is currently underway to further identify and document roost sites in various sections of the state (D. Jaques and H. Carter, pers comm.). Roost documentation for brown pelicans should include the land management entity of each roost site, and any protective management plans or programs for brown pelicans that may be in place.

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. Newly identified brown pelican roost sites need to be documented 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 other brown pelicans. 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 numbers 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

A brown pelican starvation event occurred in 2006 (Department of Fish and Game 2006), and in July 2004 in San Diego, California, where approximately 30 juvenile brown pelicans were taken to wildlife rehabilitation centers.

The number of brown pelicans affected by the threats described above has not been tabulated or quantified at this time (J. Holcomb, pers. comm.). 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). High levels of annual variation in food supply result in high annual variations in brown pelican reproductive performance (Anderson et al. 1982).

Impact of Existing Management Efforts

National Park Service

The only current nesting sites for brown pelicans in California occur on National Park Service (NPS) lands in the Channel Islands of southern California. The founding legislation for Channel Islands National Park specifically mentioned the brown pelican, and the value of the park to their persistence (K. Faulkner, pers. comm.).

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, and it is expected that the new plan will not be finalized and in place for another 1-2 years (K. Faulkner, pers. comm.).

The NPS proposes to keep West and Middle Anacapa closed to public access. They will also propose to continue managing Santa Barbara Island to protect nesting pelicans, though they are considering installing blinds for educational/interpretive purposes. At this time, visitors can access Santa Barbara Island without any type of permit from NPS. Additionally, NPS will propose that all offshore islets remain closed to access (K. Faulkner, pers. comm.). However, until the new draft GMP is completed, the level of protection that may be provided to brown pelicans cannot be definitively 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.

A rat removal program was recently completed on Anacapa Island as part of restoration planning under the American Trader oil spill restoration plan. 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).

Channel Islands National Marine Sanctuary

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. The draft management plan has not yet been finalized.

Bureau of Land Management

In 2005, the Bureau of Land Management (BLM) completed a document entitled "California Coastal National Monument, Resource Management Plan" (CCNM RMP) (Bureau of Land Management 2005). The purpose of the CCNM RMP is to establish guidance, objectives, policies, and management actions for the public lands of the CCNM administered by BLM. The CCNM was established by Presidential Proclamation in 2000 and includes the offshore rocks and islands above mean high tide within 12 nautical miles of the shoreline of the State of California. The proclamation functions to elevate California's offshore lands to a national level of concern, and focuses the primary management vision on the protection of geologic features and habitat for biota, and tasks BLM with the ultimate responsibility for ensuring that protection. Seabird use of the CCNM lands is recognized, and brown pelicans use many of the CCNM rocks, pinnacles and islands as roost sites.

BLM will be required to manage bird populations of the CCNM consistent with the requirements of the Migratory Bird Treaty Act, and other federal and state laws and regulations. The Department shares responsibility for management of the CCNM lands in that the offshore rocks and pinnacles of California are designated Ecological Reserves (Title 14 § 630(b)(83)). BLM will work cooperatively with the Department, USFWS, the California Department of Parks and Recreation, and other agencies and partners to identify rocks and islands in need of management attention. Monitoring priorities on CCNM lands already include seabird use and effects of human activities on important biological resources (BLM 2005:2-58 – 2-59). Monitoring will be integrated with that done by other agencies, and will be carried out in an adaptive management framework.

Marine Protected Areas

Marine Protected Areas (MPAs) were established at certain locations in the Channel Islands in approximately 2004. The ecological reserve designation was removed at that time. MPAs do not encompass all the waters around the Channel Islands where brown pelicans are known to nest, and where they probably forage. Updated maps depicting the current MPAs will soon be posted on the Department's Marine Region web site: http://www.dfg.ca.gov/marine/channel_islands/ci_finalmap.asp

In the petition for delisting the brown pelican under CESA, the petitioners noted the recent establishment of the MPAs in the Channel Islands, and stated these areas will protect important brown pelican foraging habitat from intense fishing. 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. However, 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 foraging behavior will still exist.

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 complement 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.

Special Additional State Protection

A brown pelican fledgling area is designated on the north side of West Anacapa Island (Title 14, § 632 (68)(B)), in order to protect recently fledged young from human disturbance. The section reads as follows:

(68) Anacapa Island Special Closure.

(A) No net or trap may be used in waters less than 20 feet deep off the Anacapa Islands commonly referred to as Anacapa Island.

(B) A brown pelican fledgling area is designated from the mean high tide mark seaward to a water depth of 20 fathoms (120 feet) on the north side of West Anacapa Island between a line extending 000o True off Portuguese Rock (34o 00.91' N. lat. 119o 25.26' W. long.) to a line extending 000o True off the western edge of Frenchy's Cove (34o 00.4' N. lat. 119o 24.6' W. long.), a distance of approximately 4,000 feet. No person except department employees or employees of the National Park Service in the

performance of their official duties shall enter this area during the period January 1 to October 31.

This protected area is also important to minimize human disturbance to nesting brown pelicans at low elevation nearby, and because brown pelican fledglings can be attracted by "chumming" activities of fishermen (F. Gress, pers. comm.).

Federal Endangered Species Act (ESA)

The brown pelican may lose protection under the federal Endangered Species Act (ESA) in the near future because USFWS is considering delisting. The recent 5-Year Review by USFWS of the listed distinct population segment of the brown pelican (*Pelecanus occidentalis*) recommended delisting (USFWS 2007). The USFWS made management recommendations in their 5-Year review document, and their recommendations, along with others noted below, need to be considered. Protection from "take", as defined in ESA, will be lost if the pelican is delisted under ESA.

Removal of the brown pelican from ESA protection would likely render the species ineligible for recovery funding under Section 6 of ESA. Section 6 of ESA addresses cooperative actions between USFWS and the states for recovery of federally-listed threatened and endangered species. Without this funding source, additional funding sources would need to be found for monitoring and management activities to conserve brown pelicans. It is possible, though unknown at this point, if USFWS would commit funds for post-delisting monitoring. The Department and USFWS should work together in this regard.

Fully Protected and Migratory Bird Treaty Act Protection

The brown pelican is protected under the federal Migratory Bird Treaty Act (MBTA), and 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 USFWS and the Department, respectively). Additionally, under MBTA, brown pelican nests are protected during the nesting season as long as eggs or chicks are present. Similarly, FGC Section 3503 makes it generally unlawful to take, possess, or needlessly destroy a bird nest or eggs.

Essential Habitat

Nesting, roosting, and foraging habitat with available prey, and the optimal amount and arrangement of each is essential for brown pelican population viability. Due to high interannual variability in breeding effort based on available prey, management actions by responsible agencies should be directed at maintaining a forage reserve for brown pelicans. Former nesting sites in the Channel Islands should also be considered essential habitat in order to adequately protect them for possible

future breeding efforts, and because some of these sites may be used as roost sites by brown pelicans.

Grinnell and Miller (1944) described brown pelican 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…, and offshore rocks and islands are important roosting and loafing sites (Shields 2002:7).

Management and Conservation Recommendations

The Department provides the Commission with the recommendations set forth below pursuant to FGC Section 2074.6. This FGC section directs the Department to include recommendations for management activities and other recommendations to aid in recovery of the species in its status review. The Department believes the following recommendations highlight a number of actions that would help to conserve the brown pelican as a nesting species in California in perpetuity. These recommendations are consistent with actions to conserve the brown pelican as a fully protected species under the California Wildlife Action Plan (WAP) (http://www.dfg.ca.gov/wildlife/wap/report.html). As a fully protected species, the brown pelican would remain on the Department's Special Animals List and thereby be included in the WAP. Additional recommendations for management will be forthcoming from USFWS during their delisting process.

Interagency coordination should be established and maintained with the goal of protection and enhancement of existing and historic nesting colonies, protection of post-breeding roosting sites, and protection of the marine environment essential to the continued existence of the species.

Additional management recommendations for long-term conservation are outlined below. An interagency working group should be developed to prioritize these recommendations, and to develop additional recommendations if necessary, while recognizing funding limitations that may exist for the Department and others. Non-

governmental organizations should also be included in brown pelican conservation efforts.

The Department should work with USFWS, NPS, NMS, BLM, researchers and others to develop a monitoring plan for brown pelicans to help ensure nesting population persistence in California. A memorandum of understanding (MOU) 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 would be useful in order to help conserve viable nesting populations in California in perpetuity. Given their specialized habitat needs and vulnerability to human disturbance, brown pelicans fit the definition of a "conservation-reliant" species (Scott et al. 2005).

A conservation/partnership MOU could be developed that meets the requirements for a Recovery Management Agreement (RMA) as described in Scott et al. (2005). Some of those requirements include:

- Biological goals tied to a revised recovery plan/management plan.
- Explicit management actions that reflect the risks facing the species.
- Adaptive management strategies that ensure that the RMA is evaluated and revised regularly.
- A defined duration.
- Assurances by the conservation manager of its ability to implement the agreement.

The RMA could be designed to respond effectively to any future significant brown pelican population decline. It could also include the land manager's strategy and commitment to continue periodic monitoring of brown pelican populations, such that any significant population decline is detected in a timely manner.

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). At this time (2007), they are only nesting on two sites in California, and they no longer breed in the Monterey Bay area.

2) Nesting numbers of brown pelicans can fluctuate greatly from year to year based on the abundance and availability of prey species.

3) Brown pelicans are subject to disturbance at roost sites during the non-breeding season.

4) Substantial population setbacks could occur if a large oil spill happened during the nesting season in the Channel Islands area, and if such a spill occurred near the time of a severe El Niño event.

More specific management recommendations include:

- Maintain the existing NPS closure to human access on West Anacapa Island, and maintain existing NPS access restrictions on Middle Anacapa Island.

- Manage Santa Barbara Island and Sutil Island to maintain a brown pelican nesting colony.

- Maintain the brown pelican fledgling area on the north side of West Anacapa Island.

- Maintain Fully Protected Species status given only 2 current brown pelican nesting sites in California, vulnerability of oil spills, and due to vulnerability to human disturbance at both nest and roost sites.

- Manage Channel Island nest sites in conjunction with SCB brown pelican populations, with special attention to Los Coronados Islands.

- Major night roosts for brown pelicans need to be identified and protected.

- Estuarine roost sites should have management plans in place to protect brown pelicans from human disturbance.

- The Department should work with wildlife rehabilitation groups in order to compile information on domoic acid outbreaks, fish hook/line mortality, and starvation events in order to better understand how these mortality factors affect brown pelican population trends.

- The Department and others should continue and expand public education efforts to help conserve brown pelicans at nest and roost sites. Utilize web-based materials, pamphlets, videos, press releases, educational programs with schools, etc.

The following management and research recommendations were provided by Dr. Dan Anderson, with some modifications by E. Burkett:

1. Continued strong conservation and monitoring efforts.

2. Recognize the value of brown pelicans as symbols and indicators of wider ecosystem health, and utilize this natural history aspect to conserve the species and educate managers and the public.

3. Consider the SCB metapopulation in its entirety in all recommendations, even though more focused recommendations may be more specifically tied to the geographic scope of CESA.

4. Conservation of the brown pelican creates excellent partnership opportunities with Mexico.

5. Implement public education at both breeding and roosting sites.

6. Enhance coordination and communication between agencies, land managers, the research community, and the public.

7. Utilize the success of the brown pelican recovery from DDT effects to engage the public in conservation of brown pelicans and other seabirds.

8. Engage the public where feasible in monitoring and managing efforts.

9. Start a breeding colony catalogue and have the information on the web.

Research recommendations and research-related needs (contingent on available funding):

- Agencies should provide support with publication costs for the pelican symposium (from past Pacific Seabird Group meeting).

- Produce a roost-site catalogue for both California and Mexico, and engage students from the USA and Mexico in this effort.

- Study geographic patterns of genetic variation and definitions of management units (sub-populations at this stage). Some samples from known locations are already collected, but a more systematic study is needed.

Regulatory Standard for Delisting or Downlisting

The Commission may elect to delist a species as endangered or threatened, pursuant to California Code of Regulations, Title 14, section 670.1(i)(1)(B), if it "determines that its continued existence is no longer threatened by any one or a combination of the" following factors:

1. Present or threatened modification or destruction of its habitat;
2. Overexploitation;
3. Predation;

4. Competition;
5. Disease; or
6. Other natural occurrences or human-related activities.
   (14 CCR § 670.1(i)(1)(A))

The Commission will base its decision whether to delist on the Department's Status Review, other scientific reports that are submitted and any other public comments and submissions it receives. The Commission may review all of the pertinent information and conclude that listing is still warranted, but at a level different than that recommended by the Department or requested by the petitioners.

Protections Resulting from Listing

It is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat (FGC Section 2052). If the brown pelican remains listed, it will receive protection from unauthorized take under CESA, making the conservation, protection, and enhancement of the brown pelican and its habitat issues of statewide concern. Project proponents will be subject to the prohibitions on take and other proscriptions in CESA that are punishable under State law. The Department may authorize exceptions to the prohibitions in CESA under certain circumstances. Impacts associated with authorizing an activity that will involve take will be minimized and fully mitigated according to State standards. However, regardless of its status under CESA, the brown pelican is a fully-protected species (FGC § 3511) and take authorization is limited to necessary scientific research, including efforts to recover fully protected, threatened or endangered species.

Retaining this species on the endangered list increases the likelihood that state and federal land and resource management agencies will allocate funds and resources towards protection and recovery actions. With limited funding and a large list of threatened, endangered, and special concern species, priority is usually given to species that are listed. Currently, the state can utilize tax check-off funds and USFWS Section 6 funds to conserve brown pelicans. If the pelican were delisted, other funding would have to be secured. As a fully protected species, the brown pelican would remain on the Department's Special Animals List, and in that context may be eligible for State Wildlife Grant (SWG) funds from USFWS. State or private funds would still be needed as a required match to secure federal funds under the SWG program.

Alternatives to the Petitioned Action

Alternatives to the petitioned action include: a) decline to delist/retain endangered status; and b) downlist to threatened.

Retain endangered status

Relative to the regulatory standard for endangered status, the brown pelican does not currently face the same imminent threats as other endangered species with

habitat loss/fragmentation, population decline, and predation as major threats (*e.g.*, marbled murrelets (*Brachyramphus marmoratus*)). Retaining endangered status is problematic under the regulatory standard of endangered given the steady population increase of brown pelicans that has been underway for some time, and given NPS management oversight. If the brown pelican was delisted, and if the population trend suddenly began to decline, they could be petitioned for re-listing under CESA.

Additionally, because the brown pelican is and would remain fully-protected, delisting does not affect protection under the take prohibition in FGC Section 3511 (take is allowed under permit only for scientific research, or for efforts to recover fully-protected, threatened, or endangered species).

Downlist to Threatened

Downlisting to threatened has some merit based on the potential threat of a large oil spill in the Channel Islands during the nesting season, limited nesting sites for brown pelicans in California, vulnerability to disturbance, highly variable nesting effort, and low reproductive rate.

However, because nesting population numbers and productivity of brown pelicans have been increasing in California, and because recent nesting occurred on new and historic sites in 2006 (Middle Anacapa and Prince Island, respectively), it does not appear that even Threatened status is warranted at this time.

In spite of known threats, the breeding population of brown pelicans in California has increased substantially, and productivity has increased. Additionally, nesting sites are under generally-protective NPS ownership or management, and some roost sites have received management attention.

Recommendation on Listing Status

The Department recommends that the Commission delist the brown pelican under CESA. The proposed delisting of brown pelican is different from any delisting previously considered and presents a somewhat unique circumstance given the fact that the brown pelican is also a “fully protected species”, pursuant to Fish and Game Code section 3511(b)(2). Therefore, whether or not the species is listed pursuant to CESA, the legal prohibition on “take” of the species, as defined in FGC Section 86, remains in place and there will be no change in the protections afforded the species pursuant to the Fish and Game Code.

In making the recommendation to delist the brown pelican pursuant to CESA, the Department relied most heavily on the following: 1) The breeding population size of the brown pelican in the Channel Islands has increased from 1969 to the present, after the banning of DDT, and now exceeds the five-year mean 3,000 pair standard noted in the recovery plan (current Channel Islands population size for 2006 is roughly 8,500 breeding pairs); 2) Brown pelicans have gradually expanded their nesting sites in the

Channel Islands to former breeding sites, and numbers on Santa Barbara Island have increased substantially since 2001; 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. In this regard, as noted earlier, scientists are not sure why brown pelicans in the Channel Islands have lower productivity than brown pelicans elsewhere, but without historic data to compare current rates with, it is unclear if the standard in the recovery plan was set unnaturally high; 4) Relative to the five-year mean standard for fledged young in the recovery plan, brown pelicans at West Anacapa Island have achieved the 2,700 fledgling standard for delisting 9 times from 1997-2005; 5) In spite of known threats (*i.e*., oil spills, human disturbance, starvation events, domoic acid poisoning, fish hook/line mortality), the breeding population of brown pelicans in California has increased substantially; and 6) nesting sites are under generally-protective NPS ownership or management.

The Department recommends delisting. The Department also recommends that management and conservation actions, and periodic monitoring continue. As noted in the Recommendations section of this report, the Department should work with USFWS, NPS, NMS, BLM, researchers, and others to develop a monitoring plan for brown pelicans to help ensure nesting population persistence in California. An MOU that addresses brown pelican conservation may be desirable between State and federal entities. This focus is important given that the USFWS California Brown Pelican Recovery Plan is 23 years old, and current statewide management needs have not been formally documented in an updated management plan.

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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.

Ziccardi, Mike. Oiled Wildlife Care Network, Wildlife Health Center, UC Davis, Davis, CA.

Table 1*. Annual mean breeding data for California Brown Pelicans nesting in the Santa Barbara Island area (Santa Barbara and Sutil Islands), California, 1980-2006.[a]

Year [b]	Nest Attempts	Young Fledged	Productivity [c]
1980 [d]	97	77	0.79
1983	21	10	0.48
1985	1050	1515	1.44
1986	1440	615	0.43
1987	840	640	0.76
1988	160	35	0.22
1989	970	620	0.64
1990	225	4	0.02
1991	620	190	0.31
1992	270	22	0.08
1993	515	420	0.82
1994	920	-- [e]	--
1995	1100	-- [e]	--
1996	920	1010	1.10
1997	890	750	0.84
1998	690	600	0.87
1999	810	580	0.72
2000	640	710	1.11
2001	1280	1320	1.03
2002	1050	1080	1.03
2003	780	630	0.81
2004	2040	– [e]	--
2005	1200	– [e]	--
2006	4000	– [e]	--

(a) Data for 1980 from Gress 1981, Gress and Anderson 1983; data for 1983-2006 from NPS unpubl. reports, Gress 1995, Gress and Martin 2000; NPS and F.Gress, unpubl.data.

(b) Continuous studies of Brown Pelican breeding success in the Southern California Bight began in 1969; no nesting was reported on Santa Barbara Island or Sutil Island from 1969 through 1979, nor did nesting occur in 1981-82 and 1984.

(c) Productivity defined as number of young fledged per nest attempt.

(d) In 1980, six nests were built on Sutil Island, located about 0.50 km southwest of Santa Barbara Island; no Brown Pelican nesting has been reported for Sutil Island through 2006.

(e) Productivity data for 1994-1995 and 2004-2006 are not available.

*** Numbers presented in this table are approximate and are subject to refinement (F. Gress and P. Martin, unpublished data).**

Table 2. Number of Brown Pelicans collected 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
Cosco Busan	November 7, 2007	8
Santa Cruz mystery spill event***	November 2007	8

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.

*Number does not include the total estimated injuries or mortalities.

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

***A spill event (or events) of unknown origin that coincided with a red tide event.

Data obtained from Steve Hampton, Department of Fish and Game, Office of Spill Prevention and Response, Sacramento, CA. and Mike Ziccardi, Oiled Wildlife Care Network, Wildlife Health Center, UC Davis, Davis, CA.

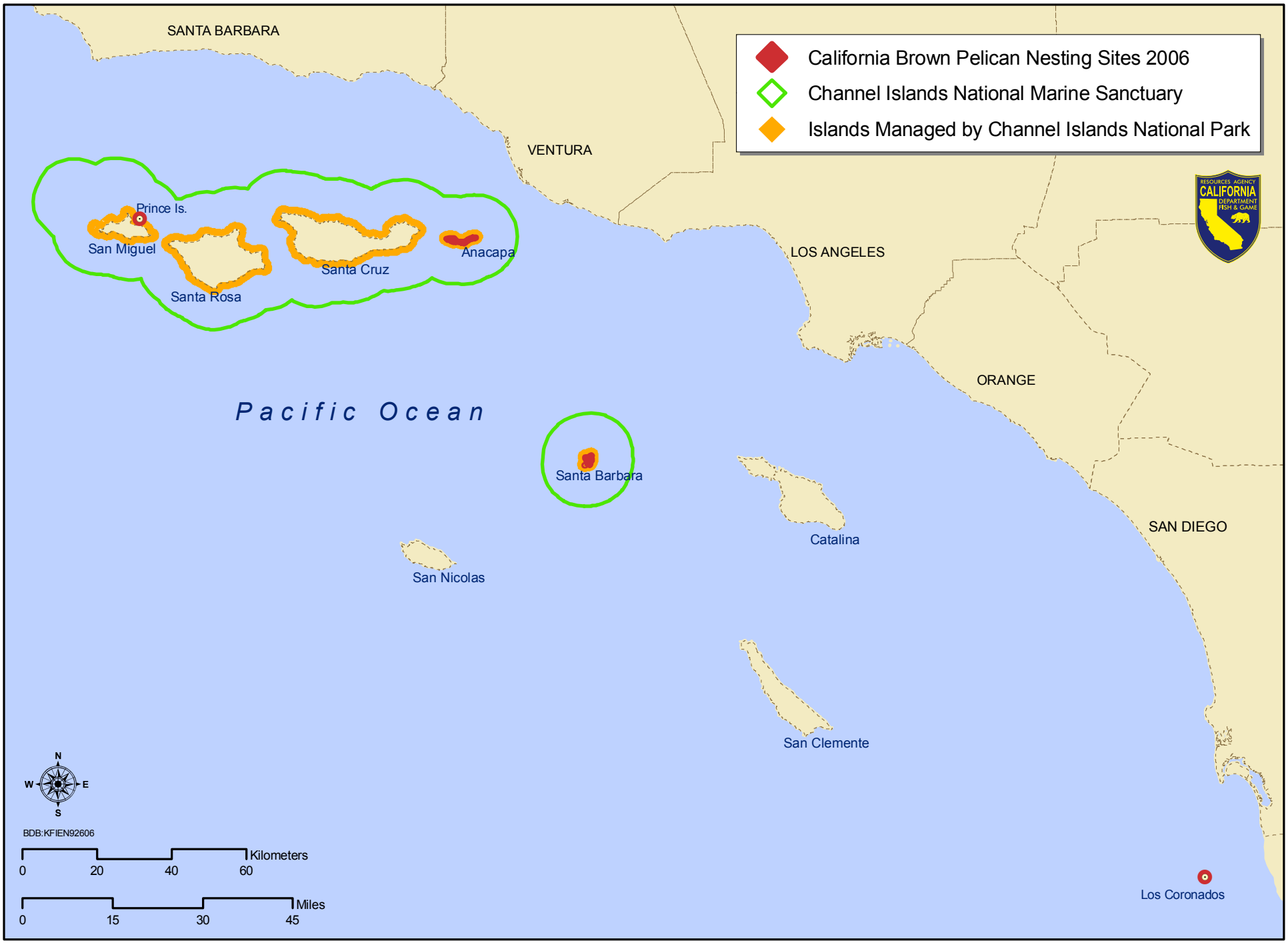

Figure 1. California brown pelican nesting areas in California and northern coastal Baja, Mexico, in 2006.

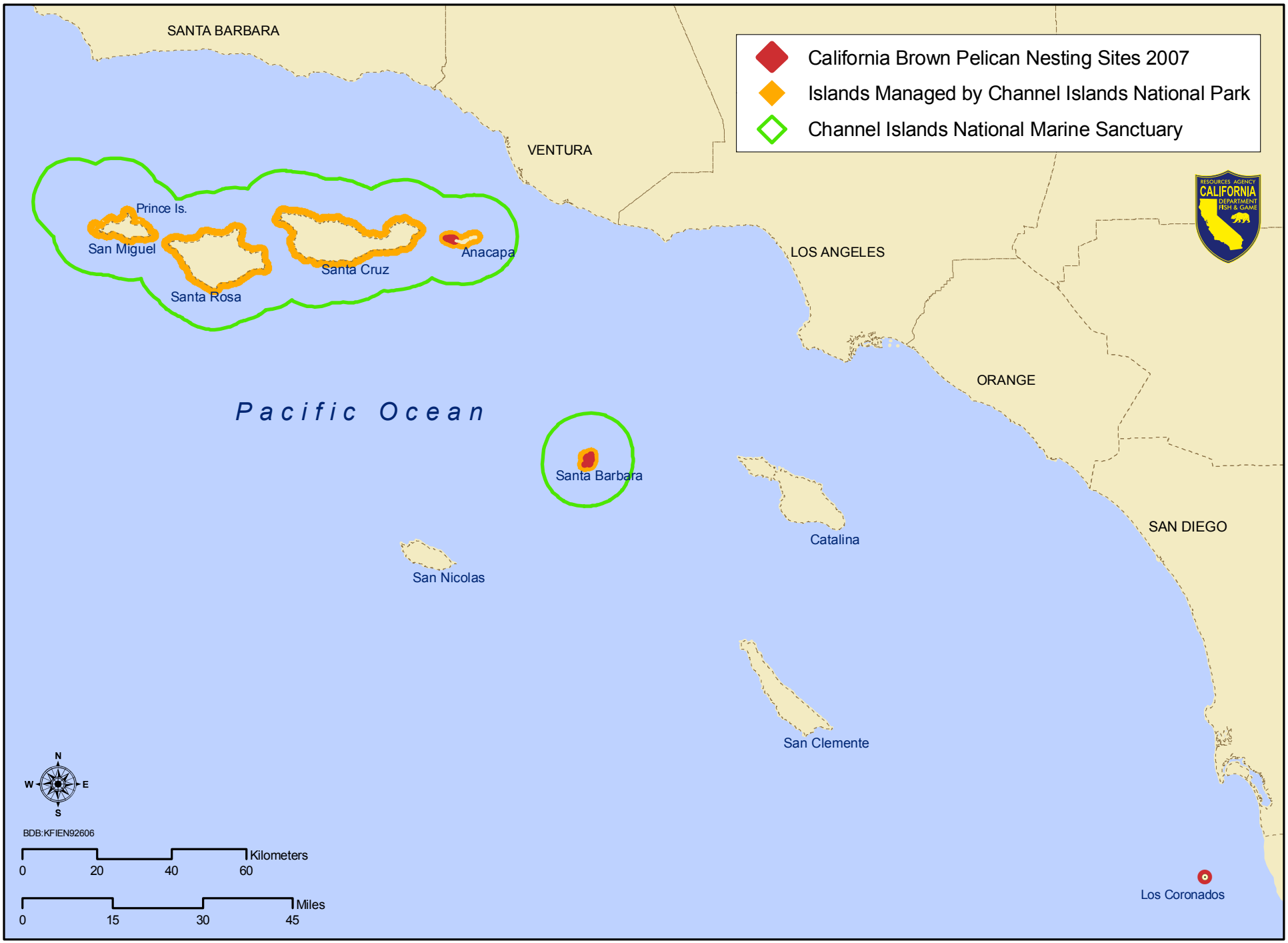

Figure 2. California brown pelican nesting areas in California and northern coastal Baja, Mexico, in 2007.

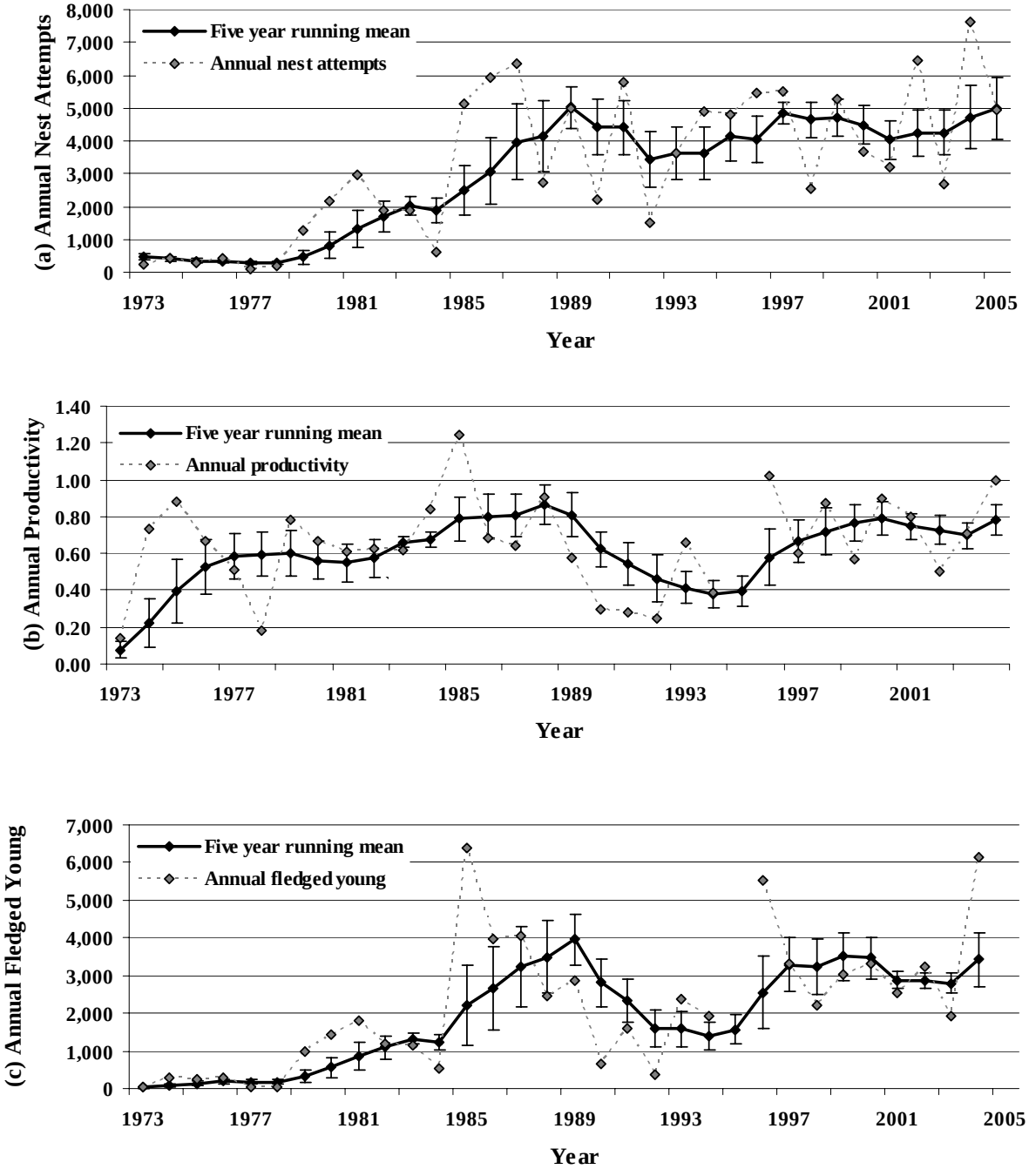

Figure 3. Annual total (dashed line) and five-year mean (solid line) and standard errors of (a) nest attempts, (b) productivity (young fledged per total nest attempt), and (c) young fledged at West Anacapa Island from 1969-2005. (F. Gress and L. Harvey, unpubl. data).

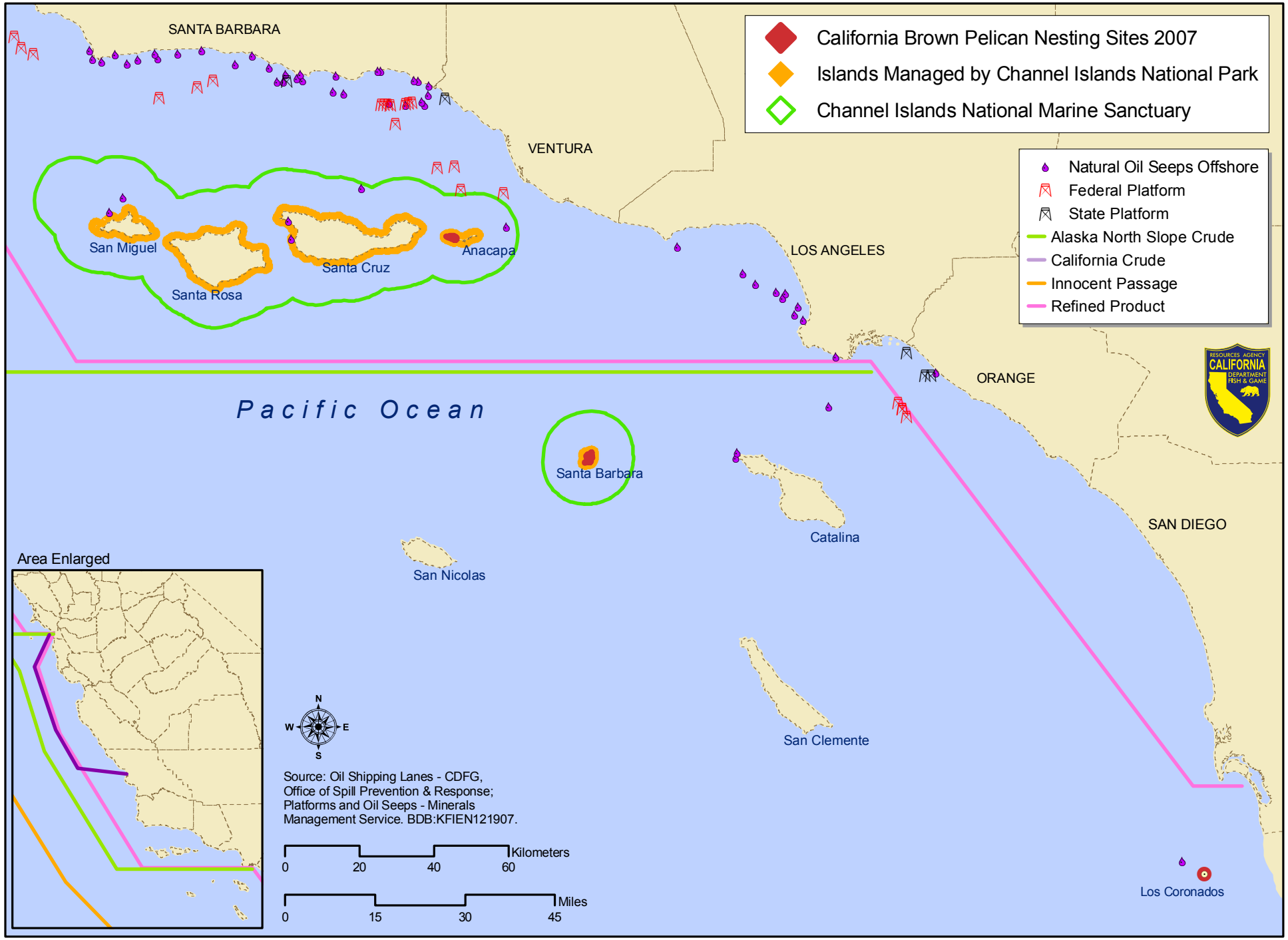

Figure 4. Oil-related activity around Channel Islands National Marine Sanctuary modified from Carter et al. (2000). Note that "Innocent Passage" refers to legal transit through waters that are part of a country's territory.

Appendix A

Public Notification and Solicitation of Data and Comments

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Newspaper Articles and Press Releases Regarding Status of Brown Pelicans

1. More Signs of Return for California Brown Pelicans, June 6, 2006, California Department of Fish and Game, Office of Spill Prevention and Response and University of California, Santa Cruz, News Release.
http://www.dfg.ca.gov/ospr/news/2006nr/brownpelicans-nr-060606.pdf

2. Central California Brown Pelican Deaths Likely from Starvation and Malnutrition. June 20, 2006. California Department of Fish and Game News Release.
http://www.dfg.ca.gov/news/news06/06069.html

3. Pelicans coming back strong: Robust numbers make bird a candidate to come off endangered-species list, By Mike Lee. November 14, 2006, San Diego Union-Tribune.
http://www.signonsandiego.com/uniontrib/20061114/news_1n14pelican.html

4. Disagreement could keep pelican on endangered list, By Mike Lee. January 19, 2007, San Diego Union-Tribune.
http://www.signonsandiego.com/uniontrib/20070119/news_7m19pelican.html.

Appendix B

Summary of Letters Received Regarding Brown Pelican Delisting

A total of 117 letters in response to the State petition during the public review comment period were reviewed as of 12/18/2007. A summary of the letters is provided below. Copies of the letters may be obtained by contacting the Fish and Game Commission (Sharon Tiemann (916) 654-9872).

- Fifty-eight percent (58%) supported delisting the brown pelican.
- Thirty-one percent (31%) opposed delisting the brown pelican.
- Six percent (6%) supported delisting but only with funding for further management and monitoring.
- Five percent (5%) supported downlisting to threatened status.

Therefore, a total of 42% of the letters either opposed or did not fully support delisting the brown pelican.

Ninety-two percent (92%) of the letters were clearly from UC Irvine students, and from the content of the letters, all students appeared to be enrolled in a single undergraduate biodiversity and conservation course at UC Irvine taught by Dr. Peter Bryant. The remainder of the letters, except for 2, also appeared to be from UC Irvine students based on the form and content. It also appeared that a large portion of the student's comments were based on a single article published in the San Diego Union-Tribune on 1/19/2007 by staff writer Mike Lee. One of the letters supporting delisting was received on behalf of Friends of Oceano Dunes.

A copy of a letter from the American Bird Conservancy, addressed to the U.S. Fish and Wildlife Service in regards to the federal delisting, was also received (provided directly by the petitioners and not included in the above tally). This letter supported the delisting of the California brown pelican under ESA, but stated that delisting should be based on sound scientific data and be accompanied with new and existing programs designed to protect the pelicans as well as their roosting and nesting sites.