

## STAFF SUMMARY FOR OCTOBER 14, 2021

**25. PACIFIC LEATHERBACK SEA TURTLE****Today's Item****Information** ☐**Action** ☒

Consider the petition, DFW's status review report, and comments received to determine whether listing Pacific leatherback sea turtle (*Dermochelys coriacea*) as threatened or endangered under the California Endangered Species Act (CESA) is warranted.

**Summary of Previous/Future Actions**

- |   |   |
|---|---|
| • Received petition   | Jan 23, 2020                                |
| • Transmitted petition to DFW                                   | Feb 3, 2020                                 |
| • Published notice of receipt of petition                       | Feb 14, 2020                                |
| • Public receipt of petition                                    | Feb 21, 2020; Sacramento                    |
| • Received DFW's 90-day evaluation report                       | Jun 24-25, 2020; Webinar/Teleconference     |
| • Determined listing may be warranted                           | Aug 19-20, 2020; Webinar/Teleconference     |
| • Received DFW's status report                                  | Aug 18, 2021; Webinar/Teleconference        |
| • <b>Today take action to determine if listing is warranted</b> | <b>Oct 14, 2021; Webinar/Teleconference</b> |
| • Adopt findings  | TBD   |

**Background**

A petition to list Pacific leatherback sea turtle as endangered under CESA was submitted to FGC by the Center for Biological Diversity and the Turtle Island Restoration Network on Jan 23, 2020. On Feb 3, 2020, FGC staff transmitted the petition to DFW for review. A notice of receipt of petition was published in the California Regulatory Notice Register on Feb 14, 2020. At its Aug 2020 meeting, FGC determined that the petitioned action may be warranted pursuant to Section 2074.2 of the California Fish and Game Code. FGC subsequently provided notice regarding Pacific leatherback's protected candidate species status, which prompted DFW's status review of the species.

At FGC's Aug 18, 2021 meeting, FGC formally received DFW's completed status review report (exhibits 1 and 2). The report represents DFW's final written review of the status of Pacific leatherback sea turtle and delineates each of the categories of information required for a petition, evaluates the sufficiency of the available scientific information for each of the required components, and incorporates additional relevant information that DFW possessed or received during its review. Based on the information provided, possessed, or received, DFW concluded that the petitioned action to list Pacific leatherback sea turtle as an endangered species is warranted.

At today's meeting, FGC may consider the petition, DFW's written evaluation and status review report, written and oral comments received, and the remainder of the administrative record, to determine if listing is warranted. Findings will be adopted at a future meeting.

## STAFF SUMMARY FOR OCTOBER 14, 2021

**Significant Public Comments**

1. A commenter supports DFW's recommendation to list Pacific leatherback sea turtle as an endangered species, stating that listing the species is a step toward recovery (Exhibit 4).
2. A non-governmental organization submitted a letter signed by 2155 Californians supporting listing Pacific leatherback sea turtle as endangered under CESA, and cites the need to prioritize monitoring and research efforts (Exhibit 5).

**Recommendation**

**FGC staff:** Determine that listing Pacific leatherback sea turtle as endangered is warranted, as recommended by DFW.

**DFW:** List Pacific leatherback sea turtle as endangered under CESA.

**Exhibits**

1. [DFW memo, received Jul 20, 2021](#)
2. [DFW status review report, received Jul 20, 2021](#)
3. [DFW presentation](#)
4. [Email from Robert Rutkowski, received Aug 16, 2021](#)
5. [Letter from Oceana, on behalf of 2,155 California residents, received Sep 30, 2021](#)

**Motion**

Moved by \_\_\_\_\_ and seconded by \_\_\_\_\_ that that the Commission, pursuant to Section 2075.5 of the California Fish and Game Code, finds the information contained in the petition to list the Pacific leatherback sea turtle, and the other information in the record before the Commission, **warrants** listing Pacific leatherback sea turtle as an endangered species under the California Endangered Species Act. (Note: findings will be adopted at a future meeting.)

**or**

Moved by \_\_\_\_\_ and seconded by \_\_\_\_\_ that the Commission, pursuant to Section 2075.5 of the California Fish and Game Code, finds that the information contained in the petition and other information before the Commission, **does not warrant** listing Pacific leatherback sea turtle as an endangered species under the California Endangered Species Act. (Note: findings will be adopted at a future meeting.)

## Memorandum

Date: July 1, 2021

To: Melissa Miller-Henson  
Executive Director  
Fish and Game Commission

From: Charlton H. Bonham  
Director

Subject: **California Endangered Species Act Status Review for Pacific Leatherback Sea Turtle (*Dermochelys coriacea*)**

The California Department of Fish and Wildlife (Department) has completed its Status Review for Pacific leatherback sea turtle (leatherback, *Dermochelys coriacea*) (Status Review) under the California Endangered Species Act (CESA; Fish and Game Code section 2050 et seq.). The California Fish and Game Commission (Commission) published the Notice of Candidacy Findings on September 4, 2020, directing the Department to prepare a Status Review.

Pursuant to Fish and Game Code section 2074.6, this report contains the Department's review of the best scientific information available to the Department on the status of leatherback and serves as the basis for the Department's recommendation to the Commission on whether to list leatherback as a threatened or endangered species under CESA.

If you have any questions or need additional information, please contact Mr. John Ugoretz, Environmental Program Manager, Marine Region, at (562) 338-3068 or by email at [john.ugoretz@wildlife.ca.gov](mailto:john.ugoretz@wildlife.ca.gov).

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State of California  
Natural Resources Agency  
Department of Fish and Wildlife

REPORT TO THE FISH AND GAME COMMISSION

## **A Status Review of Pacific Leatherback Sea Turtle (*Dermochelys coriacea*) in California**



Pacific Leatherback Sea Turtle, *Dermochelys coriacea*. (Photo Credit: Dane McDermott, CDFW)

California Department of Fish and Wildlife  
Marine Region

July 2021



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## List of Acronyms

CCA	Central California
CCE	California Current Ecosystem
CCR	California Code of Regulations
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
cm	Centimeters
CPUE	Catch Per Unit Effort
DGN	Drift Gillnet
DPS	Distinct Population Segment
EAC	East Australian Current
EEP	Equatorial Eastern Pacific
ESA	Endangered Species Act
FR	Federal Register
IND	Indonesian Sea
KE	Kuroshio Extension
mtDNA	Mitochondrial Deoxyribonucleic Acid
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
PCB	Polychlorinated Biphenyls
PNG	Papua New Guinea
POCTRT	Pacific Offshore Cetacean Reduction Team
RAMP	Risk Assessment and Mitigation Program
SCS	South China Sea
SI	Solomon Islands
TAS	Tasman Front
USFWS	United States Fish and Wildlife Service
WCPFC	Western and Central Pacific Fisheries Commission

## Executive Summary

This report contains the results of the California Department of Fish and Wildlife's (Department's) status review of the Pacific leatherback sea turtle (*Dermochelys coriacea*), including independent peer review of the report by scientists with relevant expertise. This status review contains the most current information available on the Pacific leatherback sea turtle and serves as a basis for the Department's recommendation to the California Fish and Game Commission (Commission) on whether to list the species as threatened or endangered under the California Endangered Species Act. The Center for Biological Diversity submitted a "Petition to list the Pacific leatherback sea turtle (*Dermochelys coriacea*) as an endangered species under the California Endangered Species Act" (Petition) to the Commission on January 23, 2020. At its scheduled public meeting on August 19, 2020, the Commission considered the Petition and, based in part on the Department's Petition Evaluation and recommendation, found that sufficient information existed to indicate the petitioned action may be warranted and accepted the Petition for consideration. Upon publication of the Commission's notice of findings, the Pacific leatherback sea turtle was designated a candidate species on September 4, 2020.

Leatherback sea turtles are the largest turtle species in the world. Pacific leatherback sea turtles are comprised of two subpopulations based on their distribution, biological and genetic characteristics: The East Pacific and the West Pacific. Individuals from the western Pacific population originate from nesting beaches in Indonesia, Papua New Guinea, and the Solomon Islands. A component of this population migrates across the Pacific Ocean to forage off the central and



northern U.S. west coast, including the Central California Coast. Eastern Pacific leatherbacks nest along the Pacific coast of the Americas, primarily in Mexico and Costa Rica, and forage throughout coastal and pelagic habitats of the southeastern Pacific Ocean.

Results of extensive monitoring and satellite tracking studies indicates that the Pacific leatherback sea turtle population has declined at all nesting beaches in the western and eastern Pacific and California foraging habitats within the last 30 years. Several factors such as nesting habitat degradation and destruction, harvest of adult turtles and eggs at nesting beaches, predation of eggs at nesting beaches, fisheries bycatch, marine debris, vessel strikes, natural disasters, and climate change threaten the continued existence of the species. Pacific leatherback sea turtle subpopulations (east and west) account for two of the seven federally recognized subpopulations. All subpopulations exhibit genetic discontinuity representative of marked separation from one another and can be considered nearly independent from each other. As such, the loss of all or a significant portion of the Pacific leatherback sea turtle population would result in a significant gap in the species' global nesting range and would significantly reduce the overall genetic diversity of the species. On an individual subpopulation level, the West Pacific subpopulation is recognized by some organizations as endangered and is also susceptible to the threats listed above.

The scientific information available indicates that Pacific leatherback sea turtles are in danger of becoming extinct due to one or more causes. However, it should be

noted that many threats are only present and significant outside of California (and the United States).

The West Pacific subpopulation is the only leatherback sea turtle population known to forage in waters off the U.S. west coast, including California. As such, information provided in this status review, unless stated otherwise, will focus on the western Pacific component of the Pacific population (i.e., West Pacific population).

Successful recovery of the West Pacific population found foraging off California will require Pacific-wide measures and international coordination and cooperation from multiple nations.

The scientific information available to the Department indicates that Pacific leatherback sea turtle are in danger of becoming extinct in all or a significant portion of its range. Based on the evaluations in this report, the Department recommends that the Commission find that the petitioned action to list the Pacific leatherback sea turtle as an endangered species is warranted. Also included in this report is the Department's identification of habitat essential to the continued existence of the species, and suggestions regarding management activities and other actions that may benefit the species.

## **1. Regulatory Process**

### **1.1. Petition Evaluation Process**

A Petition to list the Pacific leatherback sea turtle as endangered (Petition) pursuant to the California Endangered Species Act (CESA) was submitted to the Fish and Game Commission (Commission) on January 23, 2020 by the Center for Biological Diversity and Turtle Island Restoration Network. The Commission referred the Petition to the California Department of Fish and Wildlife (Department) for evaluation on February 3, 2020, in accordance with Fish and Game Code Section 2073 and published a formal notice of receipt of the petition on February 14, 2020 (California Regulatory Notice Register (Notice Register) 2020, No. 7-Z, p. 243). On February 7, 2020, the Department requested a 30-day extension of the 90-day Petition evaluation period. The Commission approved the extension request at its February 21, 2020 meeting. A petition to list or delist a species under CESA must include “information regarding the population trend, range, distribution, abundance, and life history of a species, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, the impact of existing management efforts, suggestions for future management, and the availability and sources of information. The petition shall also include information regarding the kind of habitat necessary for species survival, a detailed distribution map, and any other factors that the petitioner deems relevant.” (Fish & G. Code, § 2072.3.)

On June 2, 2020, the Department provided the Commission with its evaluation of the Petition<sup>1</sup> to assist the Commission in making a determination as to whether the petitioned action may be warranted based on the sufficiency of scientific information (Fish & G. Code, §§ 2073.5, 2074.2; Cal. Code Regs., tit. 14, § 670.1, subds. (d) & (e)). The Department recommended that the Commission accept the Petition.

At its scheduled public meeting on August 19, 2020, held online due to the COVID-19 pandemic, the Commission considered the Petition, the Department's petition evaluation and recommendation, and comments received. The Commission found that sufficient information existed to indicate the petitioned action may be warranted and accepted the Petition for consideration. Upon publication of the Commission's Notice of Findings on September 4, 2020, the Pacific leatherback sea turtle was designated a candidate species (Notice Register 2020, No. 36-Z, p. 1220).

## **1.2. Status Review Overview**

The Commission's action designating the Pacific leatherback sea turtle as a candidate species triggered the Department's process for conducting a status review to inform the Commission's decision on whether listing the species is warranted. This status review is not intended to be an exhaustive review of all published scientific literature relevant to the Pacific leatherback sea turtle; rather, it is intended to summarize the key points from the best scientific information available relevant to the status of the species, with much of the information adopted from the recently

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<sup>1</sup> Evaluation of a Petition from the Center for Biological Diversity and Turtle Island Restoration Network to List Pacific Leatherback Sea Turtle (*Dermochelys coriacea*) as Endangered Under the California Endangered Species Act. May 2020.

published NMFS and USFWS (2020) global status review. This status review, based on the best scientific information available to the Department, is informed by independent peer review by scientists with expertise relevant to the Pacific leatherback sea turtle, and is intended to provide the Commission with the most current information on the Pacific leatherback sea turtle and to serve as the basis for the Department's recommendation to the Commission on whether the petitioned action is warranted. The status review also identifies habitat that may be essential to the continued existence of the species and provides management recommendations for recovery of the species (Fish & G. Code, § 2074.6). Receipt of this report is to be placed on the agenda for the next available meeting of the Commission after delivery. At that time, the report will be made available to the public for a 30-day public comment period prior to the Commission taking any action on the petition.

### **1.3. Federal Endangered Species Act Listing Status**

The leatherback sea turtle is listed as endangered under the federal Endangered Species Act (ESA). As such, it is illegal to/attempt to "...harass, harm, pursue, hunt, kill, or trap" leatherback sea turtles in the United States (35 Federal Register (FR) 8491). The National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) jointly administer the ESA and share jurisdiction of sea turtles. A 2013 NMFS and USFWS 5-year review of the species recommended conducting a status review to evaluate the population by applying the Policy Regarding the Recognition of Distinct Vertebrate Population Segments (DPSs) under the ESA (i.e., DPS Policy; 61 FR 4722; February 7, 1996; NMFS and USFWS 2013). On September 20, 2017, the Blue Water Fisherman's Association petitioned NMFS and

USFWS to identify the Northwest Atlantic leatherback sea turtle population as a DPS and to list it as threatened under the ESA (82 FR 57565). On December 6, 2017, NMFS and the USFWS (the Services) published a 90-day positive finding in the Federal Register (82 FR 57565) and announced a full (global) status review of the species would be conducted in response to the petition and as recommended in the 5-year review of the species. This global status review, published August 10, 2020 (85 FR 48332), identified seven leatherback populations that met the discreteness and significance criteria of the DPS Policy. However, all populations met the definition of an endangered species under the ESA because they are in danger of extinction throughout all of their ranges. Therefore, the Services concluded that disaggregating the global listing into seven endangered DPSs was not warranted and would be inconsistent with Congressional guidance to recognize DPSs “sparingly.” Disaggregating the listing would also bring about significant logistical complications without any meaningful corresponding conservation benefit. As a result, the current global listing of the species remained in effect. While there were no changes to the global listing of the leatherback turtle or the protections that it receives under the ESA, the Services recognized seven global populations:

1. Northwest Atlantic
2. Southwest Atlantic
3. Southeast Atlantic
4. Southwest Indian
5. Northeast Indian
6. East Pacific
7. West Pacific

## **2. Biology**

### **2.1. Species Description**

The leatherback sea turtle is the largest turtle species in the world and the fourth largest living reptile (McClain et al. 2015). Adults weigh an average of 453 kilograms (1,000 pounds) with the carapace length commonly exceeding 1.5 meters (4.9 feet) (McClain et al. 2015, Davenport et al. 2011). The skin covered carapace is predominantly black with pale spotting. (Figure 1; NMFS & USFWS 1998). The carapace is lined with seven longitudinal ridges, notably white in hatchlings, that taper posteriorly to a blunt point (Pritchard 2015). The underside is often mottled with white to pinkish to black coloration, and the degree of pigmentation is variable (NMFS & USFWS 1998). Leatherback hatchlings, in addition to their white longitudinal ridges, have a mottled underside and are covered with small polygonal bead-like scales (Figure 1). Unlike other sea turtle species, leatherback sea turtles have clawless flippers, with proportionally longer front flippers that span up to 2.7 meters (8.9 feet) wide in adults (NMFS & USFWS 1998). Leatherback sea turtles also have pointed tooth-like cusps in their upper jaw that, in addition to backward pointing keratinized papillae in the mouth and throat, aid in the capture and ingestion of gelatinous prey (Pritchard 2015).



**Figure 1.** Adult (left) and hatchling (right) leatherback sea turtle. From Center for Biological Diversity and Turtle Island Restoration Network 2020.

## 2.2. Taxonomy

Leatherback sea turtles are the last surviving species of the taxonomic family *Dermochelyidae* (NMFS & USFWS 1998). The species name *coriacea* was first used by Vandelli in 1761 and adopted by Linnaeus in 1776. The species name describes the unique leathery texture and scaleless skin of adults (NMFS & USFWS 1998). All other sea turtles belong to the family *Cheloniidae* and are characterized with bony carapaces that are plated with horny scutes. Leatherback sea turtles diverged from other sea turtles 100 to 150 million years ago (Zangerl 1980, Duchene et al. 2012, Pritchard 2015, Evers and Benson 2018). The species is recognized as follows:

Kingdom: Animalia

Phylum: Chordata

Class: Reptilia

Order: Testudines

Family: Dermochelyidae

Genus: *Dermochelys*



Species: *Dermochelys coriacea*

Common name: leatherback sea turtle

### **2.3. Genetics**

Leatherback sea turtles exhibit a shallow phylogeny as shown through mitochondrial deoxyribonucleic acid (mtDNA) analysis (Dutton et al. 1999). Significant extirpation events during the early Pleistocene glaciation likely reduced the species to a single lineage for the basis of current populations (Dutton et al 1999, Dutton 2004, Dutton et al. 2013). Unlike other sea turtle species which each have multiple mtDNA lineages, the genetic structure of leatherback sea turtles shows an expansion from a single mtDNA lineage approximately 0.17 million years ago (Bowen and Karl 1997, Dutton et al. 1996, Dutton et al. 1999, Duschene et al. 2012). Consequently, shared haplotypes between leatherback populations are most likely a result of common ancient ancestry rather than from gene flow through interbreeding (NMFS & USFWS 2020). As mentioned in section 1.3, all seven federally recognized subpopulations are discrete, exhibit genetic discontinuity representative of marked separation from one another, and each is significant to the global population (Wallace et al. 2010, NMFS and USFWS 2020). As such, each subpopulation can be considered nearly independent from other subpopulations. Any loss of one or more subpopulations would result in a significant gap in the global nesting range and reduce the overall genetic diversity of the species (NMFS and USFWS 2020).

In the Pacific Ocean, the two populations that exist are the West Pacific population and East Pacific population. Analysis of mtDNA showed a significant genetic differentiation between East Pacific population nesting sites (Mexico, Costa Rica)

and West Pacific population nesting sites (Solomon Islands, Indonesia, Papua New Guinea), verifying the discreteness between the two populations (Barragan et al. 1998, Dutton et al. 1999, Dutton et al. 2000b, Dutton et al. 2005, Dutton et al. 2006, Dutton et al. 2007). Though the East Pacific and West Pacific populations are genetically different, the two populations overlap in their marine foraging areas. Genetic analysis of leatherback sea turtles caught in longline and gillnet fisheries off Peru and Chili show approximately 15% of the leatherback sea turtles caught were from the West Pacific population (Donoso and Dutton 2010). The two populations, however, are reproductively isolated as mating occurs off nesting beaches and not at foraging sites.

The West Pacific population is the only leatherback sea turtle population known to forage in waters off the U.S. west coast, including California (NMFS & USFWS 2020). As such, henceforth information provided in this status review, unless stated otherwise, will focus on the western Pacific population of leatherback sea turtles (West Pacific population).

#### **2.4. Range and Current Distribution**

The range for the West Pacific population extends throughout the Pacific Ocean, with specific coastal and pelagic areas serving as important foraging and migratory habitats (NMFS & USFWS 2020). The NMFS and USFWS 2020 global status review defined the West Pacific population with the following boundaries: south of 71° N, north of 47° S, east of 120° E, and west of 117.124° W (Figure 2, NMFS and USFWS 2020). West Pacific leatherback sea turtles spend between 45 and 78 percent of the year foraging and migrating through at least 32 nations, including but not limited to:

Indonesia, Papua New Guinea, Solomon Islands, Philippines, Malaysia, Vietnam, Japan, Palau, Micronesia, Marshall Islands, Northern Mariana Islands, Guam, Fiji, Vanuatu, Australia, New Caledonia, New Zealand, Line Islands, Kiribati, and the United States (Harrison et al. 2018). Foraging occurs in seven ecoregions: South China/Sulu and Sulawesi Seas, Indonesian Seas, East Australian Current Extension, Tasman Front, Kuroshio Extension of the Central North Pacific, equatorial Eastern Pacific, and the California Current Ecosystem (Benson et al. 2011). Migratory and foraging behavior is complex as shown through satellite tracking of post-nesting West Pacific leatherback sea turtles (Figure 3, Benson et al. 2011).

Western Pacific leatherback sea turtles originate and nest in at least 28 different beaches located in Indonesia, Papua New Guinea, Solomon Islands, and Vanuatu (Dutton et al. 2007). Approximately 50 to 75% of nesting activity occurs at two beaches, Jamursba-Medi and Wermon, on the north coast of Bird's Head Peninsula located in West Papua, Indonesia (NMFS & USFWS 2020, Tapilatu et al. 2013).

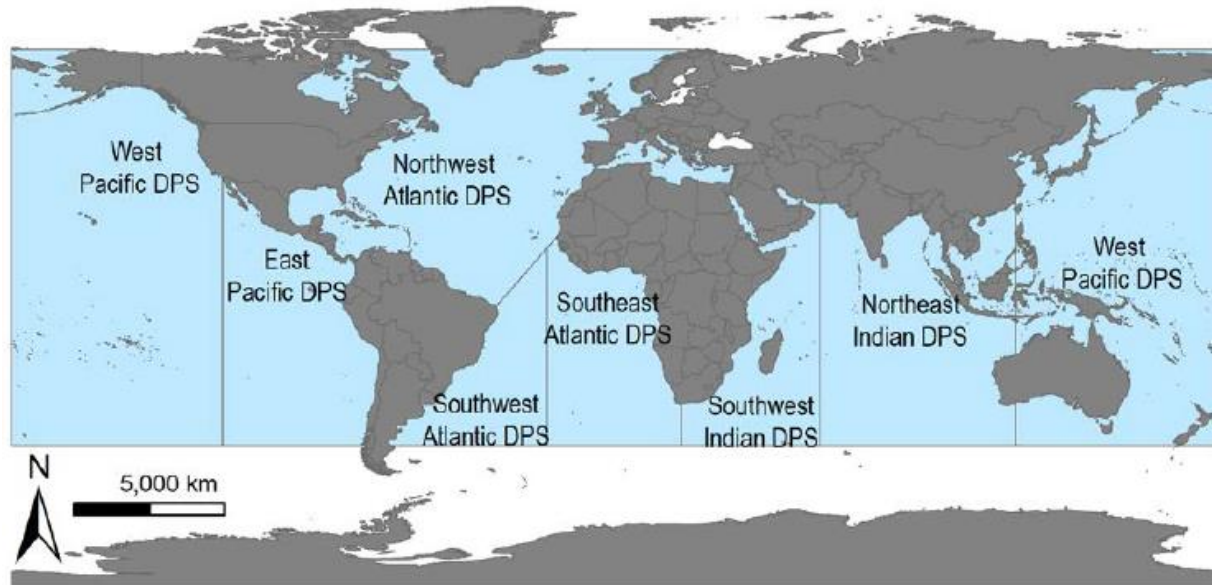
West Pacific leatherback sea turtles nest year-round but exhibit a bimodal peak nesting pattern which determines their migratory behavior and marine habitat use. A proportion of females nest between November and January (winter nesting females) while others will nest between May and November (summer nesting females) (Benson et al. 2007a, Benson et al. 2007b, Dutton et al 2007).

Individuals exhibit site fidelity to specific foraging grounds which is likely the result of an individual's nesting season and post hatchling dispersal pattern (Gasper et al. 2012, Gasper and Lalire 2017, Harrison et al. 2018, Benson et al 2018). Winter nesting females from Papua New Guinea, Indonesia, and Solomon Islands migrate

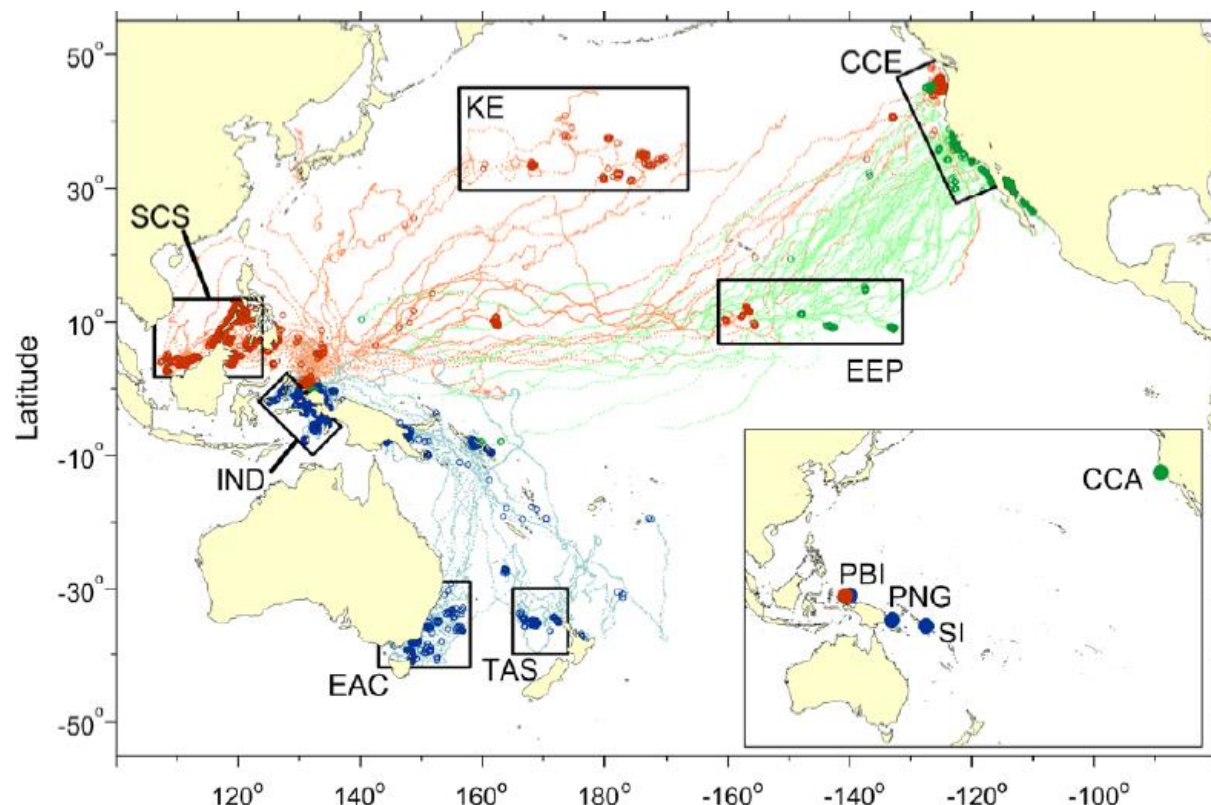
towards southern hemisphere temperate and tropical foraging areas in the Tasman Sea, East Australian Current, southwestern Pacific Ocean, and waters off South America (NMFS & USFWS 2020). Winter nesting females from Indonesia may also migrate westward to nearby Indonesian seas (Halmahera, Cerum, and Banda Seas). Summer nesting females from Indonesia, Solomon Islands, and likely Papua New Guinea can migrate in three predominant directions: northwestward toward the Sulawesi, Sulu, and South China Seas, northeastward along equatorial currents and then northward toward the west coast of North America, or northward into the Kuroshio Current Extension (Benson et al 2011, NMFS & USFWS 2020).

Within California, leatherback sea turtles are observed predominantly during mid-summer through late Fall (July - November), when adults and sub adults of both sexes forage in the eastern North Pacific, primarily off the coasts of California, Oregon, and Washington (Benson et al. 2007, 2011). Approximately 38-57% of summer nesting West Pacific leatherback sea turtles take advantage of food availability during the seasonal upwelling that occurs in the California Current Ecosystem (Benson et al., 2011; Seminoff et al., 2012; Lontoh 2014). Specifically, Monterey Bay, California was identified as a potential leatherback sea turtle “hot spot”, with sightings reported by recreational boaters, researchers, and whale watching operators (Benson et al. 2007b). Though the West Pacific population forages off California waters, leatherback sea turtles are not known to nest or come ashore in California (Benson et al. 2007b, Benson et al. 2011). Neritic (near coastal overlying the continental shelf) waters off central California is the only foraging ground that has been regularly monitored since 1990 (Peterson et al. 2006, Benson

et al. 2007a, Benson et al. 2020). Individuals in this foraging region migrate to the West Pacific nesting grounds during the breeding season every 2-6 years (Lontoh 2014).



**Figure 2.** Leatherback sea turtle subpopulation boundary map. From NMFS and USFWS 2020.



**Figure 3.** Movement of West Pacific leatherback sea turtles through satellite tracking from nests or foraging areas. Large circles represent foraging behavior. Smaller/lighter circles represent migratory routes. Red indicates summer nesting females. Blue indicates winter nesting females. Green indicates central California tagging. PBI = Papua Barat, Indonesia, PNG = Papua New Guinea, SI = Solomon Islands, CCA = central California. Black boxes represent ecoregions for which habitat associations were quantitatively examined: SCS = South China, Sulu and Sulawesi Seas, IND = Indonesian Seas, EAC = East Australia Current Extension, TAS = Tasman Front, KE = Kuroshio Extension, EEP = equatorial eastern Pacific, and CCE = California Current Ecosystem. From Benson et al. 2011.

## 2.5. Life History

Leatherback sea turtles are a highly migratory species that spend most of their life migrating and foraging at sea (Benson et al. 2007a, NMFS & USFWS 2020). Little is known of their life history at sea due to their complex migrating and foraging behavior, multiple life stages, and difficulty in locating and capturing leatherback sea turtles at sea. The NMFS and USFWS 2020 global status review described four life stages: egg, hatchling, immature (juvenile and subadults), and adult.

Leatherback sea turtle eggs are the heaviest among reptiles, weighing 71.8 to 84.3 grams (0.15 to 0.19 pounds; Eckert et al. 2012). Female leatherback sea turtles typically have a clutch size of 20 to 100 eggs per nest, with larger females laying larger clutch sizes (Eckert et al. 2012, Rostal 2015). Eggs are deposited in a subsurface nest chamber located approximately 70 centimeters (cm, 28 inches) below the sand (Billes and Fretey 2001). Similar to other sea turtles, temperature during egg incubation plays a critical role in sex determination (Binckley et al. 1998). Warmer egg temperatures during the second trimester of development results in a female skewed sex ratio, with embryonic death occurring at temperatures exceeding 32° Celsius (Mrosovsky et al. 1984, Hawkes et al. 2007). Hatchlings emerge after approximately two months of incubation within the nest chamber (Eckert et al. 2015).

Hatchlings emerge with a straight carapace length between 55 and 65 millimeters (2 to 2.5 inches, NMFS and USFWS 2020). Guided by the light differential between the land on the beach and bright ocean horizon, hatchlings will crawl immediately toward the sea (Hall 1987, Wyneken and Salmon 1992, Eckert et al. 2012). Little is known about hatchling dispersal patterns once hatchlings enter the ocean. In vitro studies suggest leatherback hatchlings will swim up to 24 hours away from land and enter a diel swimming pattern characterized by a 15 to 45% decrease in nighttime swimming (Eckert et al. 2012). Gaspar et al. (2012) hypothesized leatherback hatchlings enter an initial period of passive drift, followed by active swimming to warmer latitudes or higher latitudes. Swimming during this stage is accomplished through the synchronized beating of the fore flippers as the rear limbs make no contribution to propulsion (Davenport 1987). By two- to eight-weeks of age, leatherback hatchlings

begin to forage exclusively on gelatinous prey, a diet that remains the same in later life stages (Salmon et al. 2004).

Immature leatherback sea turtles, characterized by curved carapace length of less than 100 cm (40 inches), are rarely encountered. As a result, little is known about immature leatherback biology. However, existing data shows sightings of leatherback sea turtles with a curved carapace length under 100 cm (40 inches) were documented in exclusively warm, tropical waters (Eckert 2002). In addition, leatherback sea turtles grow at a faster rate compared with other sea turtles, a possible result of the presence of blood vessels running through the cartilaginous ends of the bones (Rhodin et al. 1996, Jones et al. 2011). Distribution of leatherback sea turtles in the immature life stage is likely determined by the distribution and abundance of their preferred gelatinous prey (Eckert et al. 2012). Based on simulated modeling of oceanic currents and habitat-driven movements, Gaspar and Lalire (2017) hypothesize that juveniles migrating across the Pacific may reach sexual maturity after 15 years, the mean age at which turtles reach the California ecoregion.

Adult leatherback sea turtles become sexually mature at approximately 17-19 years of age at an average curved carapace length of 129 cm (51 inches, Jones et al. 2011, Avens et al. 2020, NMFS and USFWS 2020). Adults use bathymetric and possibly geomagnetic cues to undergo long migrations back to nesting regions (Morreale et al. 1996, Gaspar et al. 2006, Shillinger et al. 2008). Analyses of genetic markers indicate Pacific leatherback sea turtles exhibit some natal homing/philopatry behavior (Dutton et al. 1999, Dutton et al. 2013b, Jenson et al. 2013). Nesting



females have been observed to return to the same natal region but not exclusively the same beach (Dutton et al. 1999, Dutton et al. 2007, Dutton et al. 2013b).

## **2.6. Reproduction**

Some reproductive information for the West Pacific population is lacking. Therefore, information from other leatherback populations is summarized in this section.

Females mate with multiple males, most likely in nearby waters off nesting beaches (Godfrey and Barreto 1998, Crim et al. 2002, James et al. 2005a, James et al 2005b, Rostal 2015, Figgner et al. 2012, Stewart and Dutton 2011, Stewart and Dutton 2014). As a result, multiple paternity has been observed within a single nest (Curtis 1998, Dutton and Davis 1998, Rieder et al. 1998, Dutton et al. 2000, Crim et al. 2002, Stewart and Dutton 2011, Stewart and Dutton 2014). Sperm competition and sperm storage likely occur (Dutton et al. 2000, Stewart and Dutton 2011). Pacific leatherback sea turtles average 5.5 clutches per season (Tapilatu et al. 2013), with an interval of seven to 15 days between nests (Eckert et al. 2012). As described in Eckert et al. 2012, the nesting process involves the following actions:

1. Emergence from the sea through steep approach or strong wave action to minimize crawl distance.
2. Selection of a nesting site above the tide line but below vegetation.
3. Removal of dry loose sand using front flippers and digging of nest chamber by hind flippers.
4. Laying of eggs and shelled albumen globs.
5. Filling of nest chamber by scooping and compacting sand with hind flippers.

6. Covering and concealing nest by displacing loose sand over a wide area over the nest.
7. Returning to sea using the light differential between land and ocean horizon.

Adults return to their foraging grounds after the nesting season. The remigration interval, or time needed to acquire enough resources for migration and egg production (also considered the time between nesting seasons for individual females) is, on average, two to six years (Lontoh 2014, Eckert 2015). Oceanographic conditions, climate conditions, and primary productivity directly influence prey availability, which likely impacts the remigration interval (Hays 2000, Rivalan et al. 2005, Wallace et al. 2006a, Saba et al. 2008, Reina et al. 2009, Saba et al. 2015).

## **2.7. Foraging Ecology**

Eckert et al. (2012) and Jones and Seminoff (2013) summarized previous studies identifying leatherback sea turtle diet that concluded leatherback sea turtles primarily feed on gelatinous prey such as jellyfish (Cnidaria), tunicates (Tunicata/Urochordata), and ctenophores (Ctenophora). Pelagic medusa are preferred prey, though other organisms and plastics may be opportunistically or accidentally consumed. As gelatinous prey have low energy content per unit wet mass, leatherback sea turtles must consume large quantities of prey to meet metabolic demands (Heaslip et al. 2012, Jones et al. 2012, Wallace et al. 2018). Leatherback sea turtles likely align foraging behavior with prey availability/distribution to maximize caloric intake (Sherill-Mix et al. 2007). As a result, leatherback sea turtles forage in a variety of marine ecosystems and within a wide range of the water column. Leatherback sea turtles dive in excess of 1,200

meters (3,937 feet), though most are recorded diving between 50 to 200 meters (164 to 656 feet) (Houghton et al. 2006).

Benson et al. (2007b, 2020) documented a positive relationship between leatherback sea turtle abundance in the neritic waters off California and the average annual Northern Oscillation Index, an index of climate variability associated with El Niño and La Niña events (Schwing et al. 2002). Favorable upwelling along the California coast occurs in years with positive Northern Oscillation Index values, resulting in phytoplankton and zooplankton production (including jellyfish). As a result, leatherback sea turtles forage on dense aggregations of jellyfish, primarily Pacific sea nettles (*Chrysaora fuscescens*) in the summer and fall months in nearshore regions off central California (Benson et al. 2007b, 2020, Hetherington et al. 2019).

### **3. Habitat Essential for the Continued Existence of the Species**

Based on the best available science, habitat essential for the continued existence of the West Pacific leatherback population, and for sea turtles in general, includes quality foraging areas, safe migratory routes, and nesting grounds. The waters off the coasts of California, Oregon, and Washington within the California Current Ecosystem represent an important foraging habitat for the West Pacific leatherback turtle population (Benson et al. 2007b, Harris et al. 2011, NMFS and USFW 1998). Significant numbers of leatherback sea turtles have been documented foraging on the abundant aggregations of jellyfish between Point Conception and Cape Mendocino between July and October, a time when the California Current Ecosystem exhibits stronger seasonal upwelling (Huyer 1983, Benson et al. 2007b, Benson et al. 2020). In 2001, the Pacific Leatherback Conservation area was established to reduce Pacific leatherback mortality by prohibiting drift gillnet fishing between August 15 and November 15. In 2012, in effort to protect leatherback biological resources (jellyfish prey), the federal government identified California's offshore waters between the shoreline following the line of extreme low water and the 3000-meter (9,843 feet) isobath from Point Arguello to Point Arena as Pacific leatherback critical habitat (70 FR 4170; January 26, 2012).

West Pacific leatherback sea turtles have also been documented to migrate and forage throughout Southeast Asia, including the coastal waters of the Philippines, Malaysia, and Indonesia (Benson et al. 2007a, Benson et al. 2011). Several studies have documented West Pacific leatherback sea turtles around the northeast and southeast coasts of Palawan Island, Philippines. Similarly, West Pacific leatherback

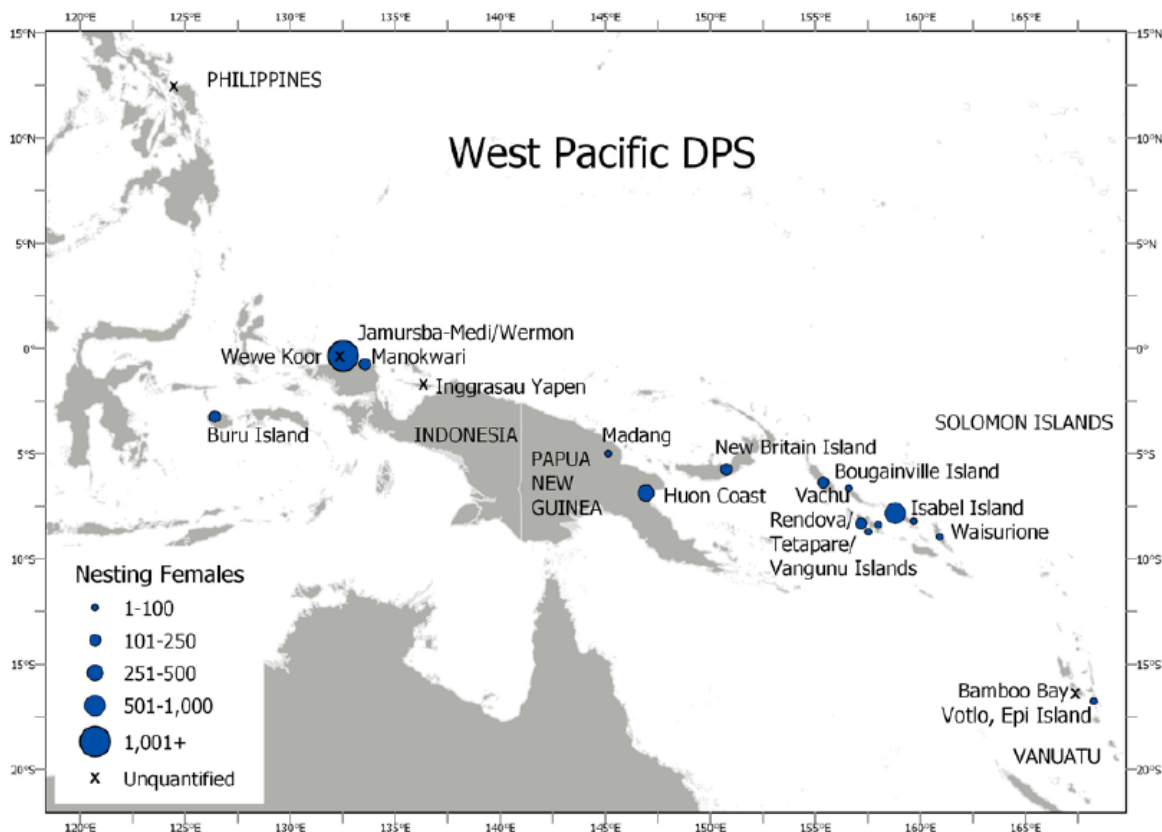
sea turtle sightings in the Philippines and Maluku region of Indonesia in the Kei Islands were linked with large jellyfish aggregations (Benson et al. 2007b, MRF 2010, Benson et al. 2011). As described in section 2.7, leatherback sea turtles maximize caloric intake of gelatinous prey by aligning foraging behavior with prey availability and distribution. Starbird et al. (1993) documented the occurrence of leatherback sea turtles off California to a sea surface temperature of 15-16° Celsius during late summer and early fall.

West Pacific leatherback sea turtles utilize several areas as migratory routes (Figure 3). As described in section 2.4, migratory and foraging areas differ depending on the nesting season (Benson et al. 2007a, Benson et al. 2007b, Benson et al. 2011, Harrison et al. 2018). Once West Pacific leatherback sea turtles reach foraging habitats, individuals may remain in the foraging area for many months (Benson et al. 2011). Migration and foraging strategies are believed to vary based on nesting season, likely due to prevailing offshore currents and seasonal monsoon-related effects experienced as hatchlings (Gaspar *et al.* 2012). The lack of crossover among seasonal nesting populations suggests that leatherback turtles develop fidelity for specific foraging regions likely based on juvenile dispersal patterns (Benson *et al.* 2011; Gaspar *et al.* 2012; Gaspar and Lalire 2017). Oceanic currents help to structure the spatial and temporal distribution of juveniles which lead them to foraging and developmental habitats (e.g., the North Pacific Transition Zone); they undertake seasonal migrations seeking favorable oceanic habitats/temperatures and abundant foraging resources, such as the central California ecoregion (Gaspar and Lalire 2017).

Stable isotopes, linked to particular foraging regions, confirm nesting season fidelity to specific foraging regions (Seminoff *et al.* 2012, Lontoh 2014). For example, approximately 30 to 60 percent of Jamursba-Medi summer nesting females (n=78 in 2007 and 2010) foraged in waters off California (Seminoff *et al.* 2012). Lontoh (2014) sampled additional Jamursba-Medi nesting turtles in 2011 resulting in a sample size of 207 leatherback turtles, demonstrating that the foraging ground composition differed between nesting seasons. Stable isotope analysis combined with satellite telemetry found that animals sampled in 2010 foraged largely within the North East Pacific Ocean and North Pacific Transition Zone (proportions of 48 and 38 percent, respectively), whereas the South China Sea was dominant in 2011 (43 percent) with other animals (roughly 30 percent each) utilizing the North Pacific Transition Zone and North East Pacific Ocean (Lontoh 2014; Seminoff *et al.* 2012). Once in their foraging habitats, West Pacific leatherback turtles do not appear to undertake systematic seasonal movements, and some individuals may remain virtually ‘stationary’ for many months, including those in the central California ecoregion and adjacent to the Kei Islands, Indonesia, which was occupied year-round (Benson *et al.* 2011).

All nesting sites for the West Pacific population are critical for the continued existence of the species. As described in section 2.4, West Pacific leatherback sea turtles nest in Indonesia, Papua New Guinea, Solomon Islands, and Vanuatu and share haplotype frequencies (Figure 4; NMFS and USFWS 2020). The nesting beaches in the West Pacific are typically associated with deep water approaches and strong waves. Nesting females prefer to nest on unobstructed, mildly sloped,

coarse-grained sand, along continental shores free of rocks, coral, or other abrasive obstructions (NMFS and USFWS 1998, Eckert et al. 2012). The greatest threats to leatherback sea turtle marine and terrestrial habitats are those relating to the direct take (harvest) of eggs and turtles (juveniles and adults), predation by dogs (domestic and feral) and pigs (primarily), bycatch in pelagic and coastal fisheries, marine debris, pollution, ship strikes, coastal development, and beach erosion resulting from sea level rise (NMFS & USFWS 2020).



**Figure 4.** Nesting sites of the West Pacific DPS. The size of the circle represents the index of female abundance based on the best available data. "X" indicates nesting was documented, or suspected, but not quantified. (From NMFS and USFWS 2020).

## **4. Abundance and Population Trends**

### **4.1. Population Trend**

In the Pacific Ocean, the West Pacific leatherback sea turtle population has declined at all major nesting beaches. It is estimated that within the last 30 years, the population has undergone an overall 95% decline (NMFS and USFWS 2020; Chan and Liew 1996, Tapilatu et al. 2013). Nesting activity has significantly declined at the primary index beaches of Jamursba-Medi and Wermon located on the north coast of Bird's Head Peninsula in West Papua, Indonesia, where 50 to 75% of West Pacific leatherback sea turtle nesting activity occurs (Tapilatu et al. 2013, NMFS and USFWS 2020). Between 1984 and 2011, the number of nesting females at Jamursba-Medi declined by 78.3% (Tapilatu et al. 2013). A similar observation was documented at Wermon between 2002 and 2011, where the number of nesting females declined by 62.8% (Tapilatu et al. 2013). As a result, Tapilatu et al. (2013) calculated a combined 5.9% annual decline from the two beaches, and the recent global population assessment estimated a 5.7% annual rate of decline (NMFS and USFWS 2020).

Recent analysis of population trends in the California foraging areas show a similar pattern of decline. The neritic waters off California are the only West Pacific leatherback foraging ground that has been monitored (Peterson et al. 2006, Benson et al. 2007a). Approximately 38-57% of summer nesting West Pacific leatherback sea turtles, mainly from Indonesia, use the central California foraging area during the summer and fall. Utilizing aerial survey data from 1990 to 2017, Benson et al. (2020) estimated an annual 5.6% decline of foraging West Pacific leatherback sea turtles off



central California. The study concluded the decline was not attributed to habitat conditions as the study documented no deterioration of foraging habitat or prey abundance (Benson et al. 2020). The study noted Northern Oscillation Index values and sea nettle (i.e. leatherback prey) catch per unit effort (CPUE) were variable between 1990 and 2017, but not enough to influence West Pacific leatherback sea turtle occurrence in the area. It is likely the decline observed in the central California foraging area is linked to the estimated 5.7% and 5.9% annual decline of West Pacific nesting beaches described above. The study attributes the West Pacific leatherback population decline to multiple anthropogenic causes such as fishery bycatch of juvenile and adult turtles, harvesting of eggs at nesting beaches, habitat degradation at nesting beaches, and climate variability (Benson et al. 2020).

#### **4.2. Abundance**

The most recent estimate of the total index of nesting female abundance of the West Pacific population is 1,277 females (NMFS and USFWS 2020). The number represented an index of nesting female abundance rather than actual nesting female abundance because the review only included recent data (as of 2014) and data from nesting beaches that were consistently monitored. As a result, only nesting data from Jamursba-Medi and Wermon in Indonesia were used. Nesting activity from other beaches in Indonesia, Papua New Guinea, Solomon Islands, or Vanuatu were not consistently or recently monitored during the required timeframe and therefore were not included in the calculation. However, nests from these beaches may account for 25% to 50% of total nests for the West Pacific population (NMFS and USFWS 2020). As a result, actual nesting female abundance may be higher. In 2013, Tapilatu et al.

(2013) estimated the total number of mature turtles utilizing Jamursba-Medi and Wermon, including males, to be 1,438 Pacific leatherback sea turtles. Given the decline in nesting abundance described above, the estimate provided in the 2020 NMFS and USFWS global status review were consistent with past estimates and current trends (NMFS and USFWS 2020).

Foraging abundance in central California displayed similar patterns. Benson et al. (2007b) estimated an annual average of 140 West Pacific leatherback sea turtles foraging in central California waters using aerial survey data from 1990 to 2003, although there was substantial interannual variability. In a subsequent analysis of central California aerial survey data that spanned 28 years, Benson et al. (2020) presented a revised average annual abundance estimate of 128 leatherback turtles during 1990-2003, and a new average annual abundance estimate of 55 turtles during 2004-2017. During the course of their 28-year study, from 1990 to 2017, an overall population decline of 80% was documented (-5.6% annual rate of decline).

Though all studies conclude the West Pacific leatherback sea turtle population is declining, several factors lead to substantial uncertainty in abundance estimates for the West Pacific population. Outside of nesting beaches of Jamursba-Medi and Wermon, monitoring of nesting activity is inconsistent, opportunistic, and/or spatially limited (NMFS and USFWS 2020). Nesting beaches are often difficult to access and far from adjacent towns and cities, making it difficult to implement standardized monitoring programs. Cultural and economic influences impact the effectiveness of monitoring programs as they often rely on community support and financial incentives (Kinch 2006). Lastly, records from sporadically monitored nesting beaches

are confounded by changes in names, location descriptions, and jurisdictional boundaries over the last three decades (NMFS and USFWS 2020). Despite the uncertainty caused by the above factors, research and analysis show West Pacific leatherback sea turtle abundances at nesting beaches and foraging grounds are declining. The Department concludes that West Pacific leatherback sea turtle abundance continues to decline throughout the entirety of its range and within the species range in California.

## **5. Factors affecting the Ability to Survive and Reproduce**

### **5.1. Destruction, Modification, Curtailment of Nesting Habitat**

Based on review of the best available science, the destruction or modification of habitats outside California described in section 3.0 is a threat to the West Pacific population. Beach erosion and/or ocean inundation (e.g., sea level rise) negatively impact nesting habitat, whether as a result of natural occurrences or related to climate change. High energy beaches, such as the nesting beaches in the West Pacific, are subject to beach erosion during naturally occurring seasonal patterns. In Indonesia, the monsoon season beginning in September has been documented to remove entire beaches at Jamursba-Medi, making the beach unsuitable for nesting (Hitipeuw et al. 2007). In the 2003-2004 nesting season, 80% of marked nests at Jamursba-Medi were washed away before hatching (Hitipeuw et al. 2007). A similar threat occurs at Wermon, with 23% and 26% of nests lost due to beach inundation during the 2003-2004 and 2008-2009 nesting seasons, respectively (NMFS and USFWS 2020). Beach erosion at less consistently monitored beaches in Papua New Guinea and Vanuatu has also been documented, with low hatching success in years with turbulent water activity caused by storms, floods, and high tides (Petro et al. 2007, Pilcher 2008, WSB 2016 referenced in NMFS and USFWS 2020).

Recently, management and conservation programs have relocated erosion-prone nests to improve hatching success. Relocation of nests that are likely to succumb to beach erosion or inundation has been documented in Indonesia, Papua New Guinea, and Solomon Islands (NMFS and USFWS 2020). However, the relocation of nests is project (and funding) dependent, and therefore not a consistent mitigation

measure. At Wermon during the 2017-2018 nesting season, “at risk” nests were unable to be relocated due to lack of access provided by beach owners, resulting in all but three nests being washed away (NMFS and USFWS 2020). In Papua New Guinea, 47% and 41% of nests were relocated during the 2011-2012 nesting season and 2009-2010 nesting season, respectively (Pilcher 2012). Relocation of “at risk” nests remains an ongoing and necessary management strategy for the West Pacific population. Though it can be argued that leatherbacks have evolved to deal with changes in beach habitats, as reflected by the turtle’s long existence on earth and their ability to sustain some (unquantified) nest loss, it is unknown if leatherback life history plasticity can respond adequately to the pace at which leatherback habitat is being destroyed or modified (NMFS and USFWS 2020, Bryan Wallace, Duke University, pers. comm., 2020). Any threat that reduces the productivity of the population, including the loss of nests and nesting females, is detrimental to the population. Increases in the occurrence of storms and other high-water events will exacerbate the problem. Therefore, the destruction and modification of nesting habitat has been documented to adversely impact the West Pacific population (NMFS and USFWS 2013, Bellagio Sea Turtle Conservation Initiative 2008).

## **5.2. Legal and Illegal Take**

The NMFS and USFWS 2020 global status review concluded the primary threat to the West Pacific population is the legal and illegal harvest of turtles at nesting beaches and in their foraging habitats. Additionally, the take of leatherback sea turtles and their eggs occurs in all four countries where the West Pacific population nests and is well documented (Bellagio Sea Turtle Conservation Initiative 2008, Jino

et al. 2018, Kinch 2009, Petro et al. 2007, Suarez and Starbird 1996, Tiwari et al. 2013a, NMFS and USFWS 2013, Tapilatu et al. 2017, NMFS and USFWS 2020). In Indonesia, leatherback turtle and egg take at Jamursba-Medi and Wermon has been eliminated since the enactment of the monitoring program in 1993 (Hitipeuw et al. 2007). However, recent surveys show leatherback turtle eggs are harvested from other Indonesian beaches and sold in local markets. Between 2016 and 2017 at Buru Island, Indonesia, it is estimated three to five nesting females were killed and approximately 114 of 203 leatherback nests were harvested (WWF 2018). It is estimated that three to five females are killed annually at Buru Island (USFW and NMFS 2020). The killing of leatherback turtles (juveniles and adults) in the Kei Islands foraging habitat is also an ongoing threat to the population (NMFS and USFWS 2020). Prior information on the local tradition of hunting Pacific leatherbacks in the Kei Islands suggested up to 100 adult leatherbacks are killed annually (Kinan 2005). Similarly, in Papua New Guinea, leatherback sea turtles have been protected since 1976, but illegal take of turtles and eggs continues throughout the country due to lack of enforcement and long-standing community-based traditions (Bellagio Sea Turtle Conservation Initiative 2008). Kinch (2009) documented the taking of 21 nesting females in Bougainville Island, Papua New Guinea. From 2008 to 2013, a conservation measure providing financial rewards to locals for non-harvest of eggs and turtles increased hatchling emergence success by 60% (Pilcher 2013 referenced in NMFS and USFWS 2020). However, egg and turtle harvest resumed when the program ended in 2013 (NMFS and USFWS 2020). Egg and turtle harvest have also been well documented in Vanuatu and the Solomon Islands despite similar

conservation efforts (NMFS and USFWS 2020). In 2011 at Isabel Island, Solomon Islands, nearly all the eggs in 315 leatherback nests were taken (USFWS and NMFS 2020). On Vangunu Island, Solomon Islands, Jino et al. (2018) found that approximately 10-20 nesting females are taken annually.

Harvest of West Pacific leatherback eggs and turtles remains a major threat to the population. Though regulatory mechanisms exist in all four nations where the population nests, the laws are rarely enforced. Lack of community buy-in and conservation funding combined with the continued practice of traditional customs has made mitigation from the threat of harvest difficult (Kinch 2006, Gjersten and Pakiding 2012, Von Essen et al. 2014). Though the exact number of West Pacific leatherbacks removed from the population via harvest is unquantified, the removal of West Pacific leatherback turtles and eggs reduces both abundance and productivity (NMFS and USFWS 2020). The taking of female turtles directly removes reproductive individuals from the population, reducing the overall reproductive potential of the population. Similarly, egg harvest reduces future population recruitment. Given the declining abundance and population trends described in section 4.0, the continued harvest of leatherback turtles and eggs in the West Pacific adversely impacts the population.

### **5.3. Disease and Predation**

All species of turtles have the potential to develop disease and cancers, but due to a generalized immune system and other adaptations, disease is a relatively rare occurrence and has not been well documented or studied in West Pacific

leatherbacks (USFWS and NMFS 2020). Disease is not currently considered a significant threat or concern to the population.

Predation of leatherback sea turtle eggs is a well-documented threat to the West Pacific population. Nest predation by feral pigs, feral dogs, and monitor lizards (*Varanus salvator*) occurs at many beaches in Indonesia, Papua New Guinea, and Solomon Islands (Bellagio Sea Turtle Conservation Initiative, 2008; NMFS and USFWS 2020). For example, between June and July of 2005, 29.3% of nests were destroyed by pigs at Jamursba-Medi (Tapilatu and Tiwari 2007). At Wermon, 21% of nests were lost to predation during the 2004-2005 nesting season (Wurlianty and Hitipeuw 2005). In Papua New Guinea, predation by village dogs is a significant threat to nests. All nests laid during the 2003-2004 and 2004-2005 nesting season were lost to predation by dogs (NMFS and USFWS 2020). Management efforts to mitigate nest predation have resulted in some success. Mitigation measures at Jamursba-Medi during the 2016-2017 nesting season resulted in a 5% reduction in nest predation (NMFS and USFWS 2020). The placement of bamboo grids over nests helped prevent dogs from preying on eggs in Papua New Guinea which resulted in increased hatching success (Pilcher 2009; 2011; 2013; WRFMC 2015).

As described in section 5.2, the loss of eggs reduces future population recruitment and population productivity. Although adult leatherback sea turtles have few natural predators, nest predation is widespread throughout the West Pacific population range, with a 100% predation rate at some nesting beaches (NMFS and USFWS 2020). Predation by feral and domesticated animals remains a significant threat to the West Pacific population.



#### **5.4. Fisheries Bycatch**

The West Pacific population foraging range and migratory routes expose the population to coastal and pelagic fisheries in many nations and open ocean. At sea bycatch from a variety of gillnet and longline fisheries has historically been a major source of mortality (Wallace et al. 2013, NMFS and USFWS 2020). As described in previous sections, the West Pacific population has exhibited site fidelity to foraging grounds in the North Pacific Ocean, southwestern Pacific Ocean, and Indo-Pacific tropical seas (Bailey *et al.* 2012; Benson *et al.* 2011, Seminoff *et al.* 2012; Roe *et al.* 2014). The West Pacific Population migratory routes and foraging destinations put the population at risk of interacting with pelagic and coastal fisheries in the United States, Japan, Philippines, Malaysia, Korea, and Taiwan (Benson et al. 2011). Significant global leatherback mortalities were documented in the North Pacific high seas driftnet fishery from the late 1970s until 1992 when the driftnet fishery was banned by a United Nations resolution (Benson et al. 2015). It is estimated that a total of 5,000 to 10,000 West Pacific leatherback sea turtles were taken between the late 1970s and 1992, and this is likely a significant factor in the population declines observed during the 1980s and 1990s (Benson et al. 2015). NMFS currently estimates approximately 13.3 leatherback sea turtle interactions have occurred between 2001 and 2018 in the DGN fishery, with approximately 7.7 mortality/serious injury occurrences (Carretta 2020). Many nations participate in the longline fishery while targeting pelagic species such as yellowfin tuna, bigeye tuna, albacore tuna, and swordfish. Over the last 30 years, an estimated 3,000 to 6,000 longline vessels fished in the western and central Pacific Ocean, including 100 to 140 vessels in the

U.S. Hawaii longline fishery (NMS 2019). The West Pacific population is exposed to high fishing effort throughout the population's pan-Pacific range. Bycatch and mortality rates, though difficult to determine, indicate that fisheries bycatch remains a major threat to the West Pacific population (NMFS and USFWS 2020). The following sections describe West Pacific leatherback sea turtle interactions in international pelagic fisheries, southeast Asian fisheries, U.S. Pacific Pelagic Fisheries, and East Pacific fisheries.

#### **5.4.1. *International Pelagic Fisheries***

Accurately characterizing West Pacific leatherback sea turtle interactions in international longline pelagic fisheries is difficult due to inconsistent reporting and varying levels of observer coverage (often < 5%) (Bryan Wallace, Duke University, pers. comm., 2021). Analysis of multinational turtle bycatch data from 1990 to 2004 showed interactions in the purse seine, shallow-set longline, deep-set longline, and albacore longline fisheries resulted in an average of 100 leatherback sea turtle mortalities annually (Molony 2005). Lewison et al. (2004) estimated as many as 3,200 leatherback sea turtles (including both East and West Pacific populations) were killed by pelagic longlining in 2000 by analyzing catch data from 40 nations and 13 observer programs (Lewison et al. 2004). It should be noted that mortality estimates by Lewison et al. (2004) may be overestimated as CPUE calculations were not differentiated between deep-set and shallow-set fisheries (Clarke et al. 2014). Using a different CPUE estimate in their calculations, Beverly and Chapman estimated Pacific leatherback (including both East and West Pacific populations) mortalities to

be approximately 200 to 640 turtles annually, or 20% of that estimated by Lewison et al. (2004) (Beverly and Chapman 2007).

Pacific leatherback sea turtle interactions with pelagic fisheries are also dependent on gear type. Several studies have documented that the use of circle hooks and finfish bait significantly reduce leatherback sea turtle bycatch rates in longline fisheries (Gilman et al. 2007; Swimmer et al. 2017). In 2010, the Western and Central Pacific Fisheries Commission (WCPFC) enacted the WCPFC Sea Turtle Conservation and Management Measure (CMM 2008-03). The measure required participants in the shallow-set longline swordfish fishery to use circle hooks, finfish bait, and safe handling and release procedures for sea turtles. However, a workshop to determine the effectiveness of CMM 2008-03 found participating members of the WCPFC could "...formulate their own definition of shallow-set", resulting in less than 1% of the WCPFC longline fleet being subject to the measure even though approximately 20% of the WCPFC longline fleet consisted of shallow-set gear (Clarke 2017). In 2017, a study analyzing fishery observer data between 1989 and 2015 found 331 Pacific leatherback (including East and West subpopulations) interactions with purse seine and longline fleets and concluded mitigation effects would have been greater if CMM 2008-003 had also been applied to deep-set gear, which also have the potential to interact with Pacific Leatherback Sea Turtles (Clarke 2017). On January 1, 2020, CMM 2018-04 replaced CMM 2008-03 and expanded the requirements to reduce sea turtle mortality in fishing operations to all shallow-set longline vessels (CMM 2018-04). Despite the evidence of reduced interactions with circle hooks and finfish bait, many nations do not use the circle hook/finfish bait

combination. For example, Taiwan and China, which utilize J-style hooks with squid bait, have significantly higher sea turtle bycatch and mortality rates compared to the Hawaii longline fisheries (Lewison et al. 2004, Bartram and Kaneko 2010; Chan and Pan 2012). Deep-set gear, typically targeting tuna, operate at depths more than 60 meters (197 feet) and generally have lower bycatch rates (Beverly and Chapman 2007). However, deep-set tuna targeting fisheries constitute four times greater effort compared with shallow-set fisheries and do not have gear mitigation measures (Clarke 2017). Deep-set gear has significantly lower sea turtle interaction rates but higher sea turtle mortality rates compared with shallow-set gear, as caught sea turtles in deep-set gear are more likely to drown (Lewison et al. 2004; Kaplan 2005; Gilman et al. 2007; Beverly and Chapman 2007). Little information is known about the bycatch from small-scale coastal fisheries, but it has been considered a contributor to population declines in many regions (Kaplan 2005, Alfaro-Shigueto et al. 2011; Peckham et al. 2007). Therefore, international pelagic fishery bycatch is considered a significant threat to the West Pacific population (NMFS and USFWS 2020).

#### **5.4.2. Southeast Asian Fisheries**

The West Pacific population nests, migrates, and forages in the densely populated and exploited coastal waters off southeast Asia (Bellagio Sea Turtle Conservation Initiative, 2008; Benson et al. 2011; Lewison et al. 2014; Roe et al. 2014; Harrison et al. 2018). Few quantitative estimates of fisheries interactions exist in this region and those that do are either brief “snapshots” or outdated. In Indonesia, a rapid assessment survey from 2013 to 2016 revealed several hundred sea turtles

(primarily green and olive ridley turtles) were caught in gillnet fisheries, with three adult leatherback interactions in 2016 (Zainudin et al. 2017, NMFS and USFWS 2020). Leatherback sea turtles have been reported to be stranded dead or injured on Philippine beaches, likely a result of gillnet fishery interactions (Bagarinao 2011, MRF 2010, NMFS and USFWS 2020). In Malaysia, bycatch of leatherback sea turtles was confirmed using interview-based surveys (Pilcher 2009). In Australia, bycatch records indicate West Pacific leatherback sea turtles are encountered as turtles migrate into the Southern Hemisphere. Between 2004 and 2014, the Australian shallow-set fishery estimated 29 to 178 leatherback interactions based on 2-10 observations (Mackay et al. 2014). New Zealand has documented 288 stranding and bycatch records of leatherback sea turtles from 1982 to 2015, and an estimated 90 leatherback sea turtle interactions in New Zealand's shallow-set longline fishery between 2008 and 2015 (Godoy et al. 2016). Therefore, southeast Asian pelagic and coastal fishery bycatch has the potential to adversely impact the West Pacific population.

#### **5.4.3. U.S. Pelagic and Fixed Gear Fisheries**

U.S. managed pelagic fisheries are federally mandated to meet high levels of observer coverage. As a result, detailed West Pacific leatherback sea turtle bycatch data are available.

In the Hawaii longline fishery (shallow-set and deep-set), approximately nine leatherback sea turtle mortalities occurred annually prior to 2001 (McCracken 2000). Since 2005, leatherback sea turtle mortality in the Hawaii longline fishery (shallow-set and deep-set) has decreased to approximately seven turtles annually (NMFS

2018). Between 2004 and 2017, there have been 99 total leatherback turtle interactions in the shallow-set fishery (or approximately 8 turtles annually), based on 100 percent observer coverage (WPRFMC 2018). Between 2002 and 2016, an estimated 168 interactions may have occurred in the Hawaii deep-set fishery (or approximately 12 annually), an extrapolation based on 20 percent observer coverage (WPRFMC 2018). The American Samoa longline fishery estimated 59 total interactions between 2010 and 2017 based on 5-40% observer coverage (WPRFMC 2018).

The U.S. tuna purse seine fishery operating in the Western and Central Pacific Ocean had approximately 16 leatherback sea turtle interactions between 2008 and 2015 based on 20-100% observer coverage (NMFS and USFW 2020).

In California, 24 West Pacific leatherback sea turtle interactions were observed in the California drift gillnet fishery between 1990 and 2009 based on 15.6% observer coverage (Martin et al. 2015, NMFS and USFWS 2020). In 2001, NMFS implemented regulations establishing the Pacific Leatherback Conservation area for leatherback sea turtles, a large time-and-area closure extending between central California and southern Oregon where most Pacific leatherback sea turtle interactions with the drift gillnet fishery (DGN) occurred. The closure prohibits drift gillnet fishing in the area from August 15 to November 15 each year and reduced interactions by approximately 80-90%, with only two leatherback interactions since the conservation area's enactment (NMFS and USFWS 2020). NMFS currently estimates approximately 13.3 leatherback sea turtle interactions have occurred

between 2001 to 2018 in the DGN fishery, with approximately 7.7 mortality/serious injury occurrences (Carretta 2020).

U.S. fixed-gear fisheries also have the potential to interact with the West Pacific population. Since 2008, one Pacific leatherback sea turtle interaction was observed in the sablefish fishery (NMFS 2013). The commercial Dungeness crab fishery overlaps with leatherback foraging habitat off central California during late spring and late fall months, with one recorded Pacific leatherback sea turtle interaction in 2015 and another in 2016 (S. Benson, NMFS, pers. comm., 2018 in NMFS and USFWS 2020). In 2019, a fatal leatherback entanglement occurred off Ventura County in rock crab fixed gear.

Whereas West Pacific leatherback sea turtle mortality is minimized under U.S. managed pelagic fishery regulations, U.S. mortalities should not be ignored. In 2015, Curtis et al. concluded no more than 7.7 West Pacific leatherback mortalities could occur over a five-year period in the West Coast Exclusive Economic Zone in order to prevent the population from decline further. U.S. fishery bycatch may be a threat to the West Pacific population, though of lower magnitude compared to international fisheries.

#### **5.4.4. East Pacific Fisheries**

West Pacific leatherback sea turtles that forage in the East Pacific Ocean may be caught in the fisheries of Peru and Chili (Donoso and Dutton, 2010; Alfaro-Shigueto et al. 2007, 2011, 2018). A minimum of 440 leatherback sea turtles (including East and West Pacific populations) have been caught in East Pacific pelagic, coastal, drift

gillnet, and small-scale fisheries since 2012, with an estimated 15% of individuals originating from the West Pacific population (Red Laúd OPO Network 2020, Dutton et al. 2010, Dunoso and Dutton 2010). Therefore, although fisheries in this area have a larger impact on the East Pacific population, East Pacific fishery bycatch remains a threat to the West Pacific population.

## **5.5. Pollution**

Few studies have documented the effects of pollution on the West Pacific population. In general, entanglement by marine debris, particularly ghost fishing gear, can limit the mobility of sea turtles. Ingestion of marine debris can cause internal damage and blockage. In both cases, the effects of marine debris can lead to starvation and death. Leatherback sea turtles may mistakenly ingest plastic that resembles gelatinous prey. The highest risk areas in the Pacific Ocean for the West Pacific population include the North Pacific Gyre, South China Sea, and off the east coast of Australia (Schuyler et al. 2014). Mrosovsky et al. (2009) summarized existing leatherback autopsy literature and found 37.2% of autopsy reports starting from 1968 reported plastic in the gastrointestinal tract. However, another study that examined the gastrointestinal tracts of two leatherback sea turtle carcasses from 1993 and 2011 found no evidence of plastics (Wedemeyer-Strombel et al. 2015). A study examining three Pacific leatherback sea turtle carcasses from Pacific longline fisheries captured between 2012 and 2016 found no evidence of plastics in the gastrointestinal tracts (Clukey et al. 2017). Given the amount of floating debris in the Pacific Ocean and some evidence of ingestion of plastics by leatherback sea turtles,



marine debris has the potential to be a threat to the population (Mrosovsky et al. 2009, Lebreton et al. 2018). However, any potential impact is currently unquantified.

The West Pacific population has also been documented as being exposed to heavy metals and polychlorinated biphenyls (PCBs). Harris et al. (2011) found heavy metal exposure in Pacific leatherback sea turtles foraging off California was nine times higher compared with leatherback sea turtles in the St. Croix nesting population. Stewart et al. (2011) determined PCBs were more likely to be transferred from females to their eggs rather than the environment to the eggs. Given the potential for leatherback sea turtles to ingest or become entangled in marine debris, pollution is a threat to the West Pacific population, though the severity of the threat is unknown.

#### **5.6. Vessel Strikes**

The West Pacific population range overlaps with high vessel traffic areas especially near coastal habitats. Between 1981 and 2016, 11 Pacific leatherback sea turtle strandings in central California were determined to be the result of vessel strikes (NMFS and USFWS 2020). It is possible many vessel strikes are often unreported and undocumented. Several Pacific leatherback sea turtle strandings have occurred in Hawaii, Philippines, Australia, and New Zealand, though none were attributed to vessel strikes (Mackay et al. 2014, NMFS and USFWS 2020). Vessel strikes that result in mortality are a threat to the West Pacific population, though the severity of threat is unknown.

### **5.7. Natural Disasters**

Natural disasters that affect the West Pacific population include tsunamis, typhoons, earthquakes, and flash floods. As described in section 5.1, natural disasters have the potential to modify or destroy nesting habitat used by the West Pacific population outside California. Furthermore, natural disasters may deposit marine debris on nesting beaches and in foraging grounds. It is hypothesized that the 2006 Indonesian earthquake and 2011 Japan tsunami deposited large amounts of debris in the West Pacific population's foraging habitat and migratory routes (NMFS and USFWS 2020). Though leatherback sea turtles have outlived natural disasters of varying degrees for millions of years, increased frequency of severe environmental events linked to climate change can reduce the population's abundance and productivity (Goby et al. 2010, NMFS and USFWS 2020). Therefore, natural disasters that result in increased mortality are a threat to the West Pacific population.

### **5.8. Climate Change**

As described in section 5.7, increased frequency of abnormal environmental conditions as a result of climate change can impact the survivability of West Pacific leatherback turtles. Rising sea levels can adversely change nesting habitat and increase the risk of beach erosion (Benson et al. 2015). Warmer temperatures at nesting sites have the potential to increase the occurrence of lethal incubation temperatures, alter incubation times, and change hatchling sex ratios (Benson et al. 2015). In 2007, Tapilatu and Tiwari attributed low hatching success and a female skewed sex ratio to high average sand temperatures (Tapilatu and Tiwari 2007). In

Papua New Guinea, incubation duration was observed to decrease as beach temperatures warmed (Steckenreuter et al. 2010).

For West Pacific leatherback sea turtles foraging off the California Coast, an additional impact of climate change is the effect on prey availability. Benson et al. (2007a) found a correlation between annual abundance of West Pacific leatherback sea turtles foraging off California between 1990 and 2003 and the strength of upwelling each year, indicating the West Pacific cohort that forages off California may be impacted by ocean productivity. Weak upwelling and lower ocean productivity, particularly if exacerbated by climate change, has the potential to reduce prey availability and alter West Pacific leatherback foraging behavior. The change in foraging behavior and accompanying shift in distribution would have unknown consequences on survival and reproduction.

Climate change has the potential to alter and/or degrade Pacific leatherback foraging habitat. As global temperature rises, ocean characteristics such as ocean currents, nutrient availability, water column stratification, and species abundance and composition can change (Willis-Norton et al. 2015). A study by Willis-Norton et al. (2015) identified that the “core pelagic habitat” for East Pacific leatherback populations was characterized by low sea surface temperatures and low chlorophyll-a, and that the core pelagic habitat will decline by 15% within the next century. Though more research is needed, it is possible that West Pacific populations foraging off California also have a “core pelagic habitat” that is similarly threatened by climate change. As mentioned previously, a study documented the occurrence of West Pacific leatherback sea turtles off California to a sea surface temperature of

15-16° Celsius during late summer and early fall (Starbird et al. 1993). Because of above mentioned threats, climate change is a threat to the West Pacific population, although the severity of the threat is unknown.

## **6. Regulatory Status and Existing Management Efforts**

### **6.1. International Status and Management Efforts**

As stated in section 5.2, legislation to protect West Pacific leatherback turtles and eggs exists in all four nations where nesting occurs (Indonesia, Papua New Guinea, Solomon Islands, Vanuatu). All four countries prohibit the take, harm, or sale of leatherback sea turtles, though allowances for indigenous populations exist (NMFS and USFWS 2020). However, laws may not be effectively enforced and/or followed by the local communities (NMFS and USFWS 2020). Many nesting beaches are extremely remote and are community owned, making consistent and effective enforcement difficult. Communities within the nations with nesting beaches view the ownership of natural resources, including turtles and their eggs, belonging to the local community (Kinch 2006, McDonald 2006). As a result, government led conservation efforts and legislation is often incompatible with traditional practices (Von Essen et al. 2014).

In Indonesia, harvest of all sea turtles has been prohibited since 1999. However, the sale of sea turtle meat and other parts still occurs throughout the country (Westerlaken 2016). Furthermore, a documented ceremonial harvest of green turtles occurs in Bali, Indonesia which may add confusion regarding sea turtle protections (Westerlaken 2016). Additionally, the take of protected turtles is still allowed for the purposes of research, science, and the rescue of wildlife itself.

In Papua New Guinea, the leatherback sea turtle is the only turtle species protected under the 1976 Fauna Act. The killing and taking of leatherback sea turtles and eggs

are illegal, as well as the sale and possession of leatherback sea turtle meat and eggs. However, the 1976 Fauna Act has provisions for persons with customary rights to take turtles that makes the protective laws related to leatherback turtles confusing or nebulous. Further, the national government in Papua New Guinea has little influence over the protection of Pacific leatherback sea turtle nests as many nesting beaches in Papua New Guinea are locally owned and managed. Papua New Guinea villagers have been noted to not recognize foreign or “western” concepts of sustainability, protection, and conservation (Kinch 2006).

In the Solomon Islands, the Solomon Islands Fisheries Act of 1993 protects all nesting sea turtles and eggs during the nesting season. The act also prohibits the sale, purchase, and export of sea turtle parts. However, 85% of the land in the Solomon Islands is locally managed by chiefs and village leaders that is sometimes not aligned with national legislation since a vast majority of the population rely on the natural resources of the land to make a living. Communities have long practiced their own natural resource management strategies. Therefore, Pacific leatherback sea turtle conservation efforts must originate from chiefs and village leaders, making enforcement of national regulations difficult (McDonald 2006).

In Vanuatu, the Vanuatu Fisheries Act of 2009 prohibits the take, harm, capture, sale, or possession of any sea turtle. However, a person may be exempt from the act if he or she applies for an exemption in writing for the purposes of carrying out customary practices, education, and research. Similar to other Melanesian countries, Pacific leatherback sea turtle conservation is best implemented at the local community level rather than by national legislation (USFWS and NMFS 2020).

As described in section 5.4.1, the WCPFC adopted the sea turtle conservation and management measure CMM 2018-04. Similar to CMM 2008-03, CMM 2018-04 included the adoption of guidelines to safely handle and reduce bycatch of sea turtles by using large circle hooks, whole finfish bait, and any other approved mitigation plan or activity. While CMM 2018-04 applies to all shallow-set fleets, it does not apply to longline deep-set tuna targeting fleets, which comprise most of the WCPFC longline fleets and are known to interact with Pacific leatherback sea turtles. Analysis of the previous conservation management measure, CMM 2008-03, showed only a small percentage of fleets complied with CMM 2008-03 and/or implemented mitigation measures.

In summary, international regulatory legislation exists to protect the West Pacific population throughout its range. However, implementation and enforcement of laws are often inadequate. Provisions provided within the regulations are often misaligned with conservation efforts. As a result, existing international management efforts may not provide adequate protections to the West Pacific population.

## **6.2. Federal Status and Management Efforts**

The leatherback sea turtle is listed as endangered under the federal Endangered Species Act (ESA). As such, it is illegal to/attempt to "...harass, harm, pursue, hunt, kill, or trap" leatherback sea turtles in the United States. Furthermore, section seven of the ESA states "...agencies must consult with NOAA fisheries when any action the agency carries out, funds, or authorizes may affect either a species listed as threatened or endangered under the Act, or any critical habitat designated for it." This includes actions to authorize federal commercial fisheries, and several

management efforts since listing have aimed to reduce Pacific leatherback bycatch incidences and mortality rates. In 2001, NMFS implemented regulations as part of the Highly Migratory Species Fishery Management Plan establishing the Pacific Leatherback Conservation Area, a large time-and-area closure extending between central California and southern Oregon where most Pacific leatherback sea turtle interactions with the DGN fishery have occurred (50 CFR § 660.713(c)). The annual closure prohibits drift gillnet fishing in the area from August 15 to November 15. As noted in section 5.4.3 this closure reduced interactions by approximately 80-90%, with only two leatherback interactions since the conservation area's enactment (NMFS and USFWS 2020).

In 2004, improved management requirements in the Hawaii shallow-set swordfish targeting fishery and deep-set tuna targeting fishery included the following items (see 50 CFR Part 665):

1. Gear and handling measures designed to reduce sea turtle bycatch rates and post hooking mortality.
2. Annual hard cap limit on the number of allowable interactions in the shallow-set fishery.
3. 100% observer coverage in the shallow-set fishery.
4. 20% observer coverage in the deep-set fishery.

Other regulatory measures implemented in federal fisheries to reduce marine mammal interactions likely reduce Pacific leatherback sea turtle interactions as well. For example, measures implemented by the Pacific Offshore Cetacean Take



Reduction Team (POCTRT), such as required use of extenders which lower drift gillnets in the water to avoid surface swimming animals may reduce interactions with Pacific leatherback sea turtles foraging off California.

### **6.3. California Management Efforts**

In 2015, the California Dungeness Crab Fishing Gear Working Group, a group comprised of commercial and recreational fisherman, environmental organization representatives, members of the disentanglement network, and government agencies was established for the purpose of evaluating and responding to the potential risk of marine life entanglement in the commercial Dungeness crab fishery. The working group developed a Best Management Practices guide for the Dungeness crab fishery and criteria to pilot a Risk Assessment and Mitigation Program (RAMP). In accordance with Section 8276.1 of the Fish and Game Code, the Department consulted with the California Dungeness Crab Fishing Gear Working Group in adopting regulations that establish criteria and protocols to identify and reduce entanglements, formalizing the RAMP on November 1, 2020. RAMP defines the authority for the Department Director to restrict the commercial Dungeness crab fishery when a significant entanglement risk is present for actionable species, this includes the Pacific leatherback sea turtle. The Director may take the following actions if there is an elevated risk of Pacific leatherback entanglement or an entanglement has occurred involving a Pacific leatherback sea turtle:

1. Closure of the fishing zone containing a single Pacific leatherback sea turtle and/or entanglement. "Fishing zone" refers to one of seven zones along the

California coast that extends from zero to 200 nautical miles offshore (U.S. Exclusive Economic Zone).

2. Issuance of a fleet advisory to employ measures (i.e. best fishing practices) to reduce the risk of entanglements.
3. In-season decrease in the number of the vertical lines and/or gear per permit holder.
4. Use a depth constraint during the fishing season where Dungeness crab may not be taken or possessed in waters within a specified depth range.
5. In-season authorization for the use of alternative gear within any closed fishing zones.

Since its implementation, RAMP has consolidated data relating to Pacific Leatherback sea turtle movements and entanglements for evaluation of possible entanglement risk during the regular risk assessments. RAMP is designed to reduce the risk of sea turtle and large whale entanglements in the commercial Dungeness crab fishery using the best available science to respond to and mitigate entanglement risk while the season is open.

In 2018, California enacted Senate Bill 1017, which established a DGN transition program with the goal of reducing bycatch and enabling a sustainable swordfish fishery through the use of lower impact fishing gear. The Department adopted implementing regulations in 2019. The Transition Program enables DGN permit holders to voluntarily surrender their DGN permit and DGN gear in exchange for monetary compensation. Senate Bill 1017 described the persistent bycatch concern with the use of drift gillnets and aimed to reduce the impacts to "...whales, dolphins,

sharks, pinnipeds, and sea turtles, including the California state marine reptile, the Pacific leatherback sea turtle” (SB 1017). This program has the potential of reducing the number of active participants in the DGN fishery off California. At the time the program was initiated, there were 68 California DGN permits, though most of these were not being actively fished. As of March 31, 2021, 16 active and 7 inactive permits have been surrendered and an additional 20 permittees have indicated an intent to participate. If all potential participants surrender their permits, the number of previously active permittees would be reduced from more than 30 to 4, significantly reducing the risk of sea turtle and other protected species entanglement.

In 2019, the Department established the Lost or Abandoned Dungeness Crab Trap Gear Retrieval Program. The goal of the program is to remove commercial Dungeness crab trap gear that remains in the ocean after the end of the fishing season. Under the program, the Department issues a retrieval permit to qualified entities who then remove lost or abandoned Dungeness crab gear. During the programs first year of implementation (2020), 521 traps were removed from California waters, mostly from central and northern California. The removal of derelict gear further reduces the risk of entanglement, navigational hazards, and other threats to marine life.

The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to evaluate the environmental impact, including impacts on endangered species, of management projects and/or actions. Under NEPA, federal agencies must prepare environmental assessments or environmental impact statements that document the environmental impacts of proposed projects/actions as well as alternatives to those

actions. As a federally listed endangered species, impacts to West Pacific leatherback sea turtles must be considered during NEPA analysis. NEPA does not require federal agencies to mitigate or minimize environmental impacts identified during analysis. The California Environmental Quality Act (CEQA) also requires state and local agencies to conduct environmental assessments to identify and analyze environmental impacts. However, CEQA differs from NEPA in that CEQA requires mitigation for any identified adverse effects. More information on CEQA can be found in section 8.1.

## **7. Summary of Listing Factors**

CESA directs the Department to prepare this report regarding the status of the Pacific leatherback sea turtle based upon the best scientific information available to the Department (Fish & G. Code, § 2074.6). CESA's implementing regulations identify key factors that are relevant to the Department's analyses. Specifically, a "species shall be listed as endangered or threatened ... if the Commission determines that its continued existence is in serious danger or is threatened by any one or any 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." (Cal. Code Regs., tit. 14, § 670.1, subd. (i)). The preceding sections of this Status Review describe the best scientific information available to the Department, with respect to the key factors identified in the regulations. This section provides summaries of information from the foregoing sections of this status review, arranged under each of the factors to be considered by the Commission in determining whether listing is warranted

### **7.1. Present of Threatened Modification or Destruction of Habitat**

Based on review of the best available science, the destruction or modification of nesting habitats is a threat to the West Pacific population. Whether a result of natural occurrences, human activities, or related to climate change, beach erosion and/or ocean inundation negatively impact nesting habitat. Increased frequency of abnormal climate conditions (high water events, greater storm frequency and intensity, warmer weather) may result in the unnatural and unsustainable loss or inundation of nests

and eggs. The loss of eggs and reduced hatching success will lower the productivity of the West Pacific population, which is already at historic lows. Furthermore, despite recent research showing California's leatherback foraging habitat is not responsible for the declining abundance and population trends, climate change has the potential to reduce prey availability by altering ocean productivity. The change in prey availability can alter foraging behavior and would have unknown consequences on leatherback survival and reproduction (Benson et al. 2020). The Department considers destruction or loss of nesting habitat a threat to the continued existence of the species, albeit a threat not currently present in California.

## **7.2. Legal and Illegal Take**

Legal and illegal take of Pacific leatherback sea turtles and Pacific leatherback sea turtle eggs are the primary threat to the West Pacific population. The harvest of leatherback sea turtles and eggs occurs in all four countries where the West Pacific population nests and is well documented. Despite regulatory protections, the laws are rarely enforced. Although sustainable levels of exploitation have not been established worldwide, and many sources of take outside the U.S. are unquantified, the taking of female turtles directly removes reproductive individuals from the population and reduces the overall reproductive potential of the population. Similarly, egg harvest reduces future population recruitment. Given the documented declining abundance and population trends, the continued harvest of leatherback turtles and eggs in the West Pacific adversely impacts the population. In the United States, harvest of leatherback sea turtles and eggs is not a threat as the ESA prohibiting the take of sea turtles is adequately enforced. The Department considers harvest of

adults and eggs a significant threat to the continued existence of the species, albeit not a threat currently present in California.

### **7.3. Predation**

Predation of leatherback sea turtle eggs is a well-documented threat to the West Pacific population. Nest predation by feral pigs, feral dogs, and monitor lizards (*Varanus salvator*) is widespread throughout the West Pacific population's range, with a 100% predation rate at some nesting beaches. The loss of eggs reduces future population recruitment and population productivity. The Department considers predation to be a significant threat to the continued existence of the species, albeit not a threat present in California.

### **7.4. Competition**

Competition for prey between other Pacific leatherback sea turtles or other species (including other sea turtles) is nonexistent or not well understood. The Department does not consider competition to be a significant threat to the continued existence of the species.

### **7.5. Disease**

Information related to disease in leatherback sea turtles is currently unquantified. The Department does not consider disease a threat to the continued existence of the species.

## **7.6. Other Natural Occurrences or Human-related Activities**

### **7.6.1. Fishery Bycatch**

The West Pacific population's foraging range and migratory routes expose the population to coastal and pelagic fisheries in many nations and international waters. Information on bycatch and Pacific leatherback mortality in international pelagic and coastal fisheries suggest these fisheries negatively impact the population. U.S. managed fisheries operate under strict regulatory management regimes designed to mitigate sea turtle bycatch and mortality and have significantly reduced Pacific leatherback sea turtle interactions. NMFS currently estimates approximately 13.3 leatherback sea turtle interactions have occurred between 2001 and 2018 in the DGN fishery, with approximately 7.7 mortality/serious injury occurrences (Carretta 2020). In California, the RAMP and Trap Gear Retrieval Program are designed to reduce the entanglement risks of Pacific leatherback sea turtles in the commercial Dungeness crab fishery and the Drift Gillnet Transition Program is designed to reduce potential bycatch in the large-mesh drift gillnet fishery. Nonetheless, any mortality of females (including those in California) reduces the population's productivity. The Department concludes that fisheries bycatch is a significant threat to the continued existence of the species, although this threat is mitigated by existing regulations in California and the United States and its severity is significantly greater in certain international fisheries.

### **7.6.2. Pollution**

The West Pacific population is exposed to a large amount of marine debris in their pelagic habitats. Though the potential for pollution to injure or kill Pacific leatherback



sea turtles exists, quantitative estimates of such cases are not available. The Department concludes pollution may pose a threat to the West Pacific population, but the level of impact is currently unquantified.

#### **7.6.3. Vessel Strikes**

Eleven vessel strikes of Pacific leatherback sea turtles have been documented in California between 1981 and 2016, although the actual number of vessel strike mortalities are unknown. The Department concludes vessel strikes may pose a threat to the continued existence of the species, but the level of impact is currently unknown.

#### **7.6.4. Climate Change**

Climate change is a threat to the West Pacific population. Increased frequency and intensity of abnormal environmental conditions and storms can negatively impact the survivability of West Pacific leatherback nests and hatchlings. Rising sea levels can adversely change beach morphology and increase the risk of beach erosion or nest inundation. Warmer temperatures have the potential to increase the occurrence of lethal incubation temperatures, alter incubation times, and change sex ratios. In California, climate change has the potential to alter ocean productivity, prey availability, and foraging conditions. While the impacts of a changing climate on the West Pacific leatherback turtle population is still being studied and has yet to be quantified, the Department concludes that climate change is a potential threat to the continued existence of the species.

## **7.7. Summary of Key Findings**

In the Pacific Ocean, the West Pacific leatherback sea turtle population has declined at all major nesting beaches. It is estimated that within the last 30 years, the population has undergone an overall 95% decline, including an annual 5.7% rate of decline. Approximately 38-57% of summer nesting West Pacific leatherback sea turtles, mainly from Indonesia, use the central California foraging area during the summer and fall. Recent analysis of the population trends in this foraging area shows a similar pattern of decline. An estimated 5.6% decline of foraging West Pacific leatherback sea turtles off central California was observed between 1990 and 2017.

Based on the best scientific information available to the Department at the time of preparation of this review and in agreement with the NMFS and USFWS full status evaluation, the Department concludes the West Pacific leatherback sea turtle is currently in serious danger of becoming extinct throughout all of its range. The Department evaluated factors such as habitat loss, legal and illegal take, disease, predation, fisheries bycatch, pollution, vessel strikes, natural disasters, and climate change. With the exception of disease, the Department's analysis determined all factors are a threat to the continued existence of the species. However, it should be noted that many threats are only significant and present outside of California (and the United States). Successful recovery of the West Pacific population found foraging off California will require Pacific-wide measures and international coordination and cooperation.

## 8. Listing Recommendations

The CESA directs the Department to prepare this report regarding the status of the Pacific leatherback sea turtle in California waters based upon the best scientific information available (Fish & G. Code, § 2074.6). The CESA also directs the Department, based on its analysis, to indicate in the status report whether the petitioned action is warranted. (Fish and Game Code Section 207.46; Section 670.1(f), Title 14, California Code of Regulations).

An endangered species under CESA is one “which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease” (Fish & G. Code, § 2062). A threatened species under CESA is one “that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts required by [CESA]” (Fish & G. Code, § 2067). A species’ range for CESA purposes is the species’ California range (*Cal. Forestry Assn. v. Cal. Fish and Game Com.* (2007) 156 Cal. App. 4th 1535, 1551).

The Legislature left to the Department and the Commission, which are responsible for providing the best scientific information and for making listing decisions, respectively, the interpretation of what constitutes a “species or subspecies” under CESA. (*Cal. Forestry Assn. v. Cal. Fish and G. Com.* (2007) 156 Cal.App.4th 1535, 1548-49). Courts should give a “great deal of deference” to Commission listing

determinations supported by Department scientific expertise (*Central Coast Forest Assn. v. Fish & G. Com.* (2018) 18 Cal. App. 5th 1191, 1198-99)

The Department includes and makes its recommendation in its status report as submitted to the Commission in an advisory capacity based on the best available science. In consideration of the scientific information contained herein, the Department has determined that the petitioned action is warranted.

### **8.1. Protections Afforded by Listing**

It is the policy of the State to conserve, protect, restore and enhance any endangered or any threatened species and its habitat (Fish & G. Code, § 2052). The conservation, protection, and enhancement of listed species and their habitat is of statewide concern (Fish & G. Code, § 2051(c)). If listed as an endangered or threatened species, unauthorized “take” of Pacific leatherback sea turtles will be prohibited. It should be noted that unauthorized “take” of Pacific leatherback is already prohibited by federal law under ESA. As noted earlier, Fish and Game Code defines “take” as hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (Fish & G. Code, § 86). Any violation of the take prohibition is punishable under State law. As to authorized take on the state level, the Fish and Game Code provides the Department with related authority under certain circumstances, including incidental take permits and memoranda of understanding (for scientific, educational, or management purposes) (Fish and Game Code Sections 2081, 2081.1, 2086, 2087, 2835). Impacts of authorized take of Pacific leatherback sea turtles through incidental take permits must be minimized and fully mitigated according to State standards. Obtaining an ITP is voluntary. The

Department cannot force compliance; however, any person violating the take prohibition may be criminally and civilly liable under state law. For species listed under both the federal ESA and CESA, the Director of CDFW may, under certain circumstances, find that a federal take authorization is consistent with CESA in which case no further authorization or approval under CESA is necessary. (Fish & G. Code, § 2080.1.) Additional protections for Pacific leatherback sea turtles following listing are also likely with required public agency environmental review under CEQA. This act requires affected public agencies to analyze and disclose project related environmental effects, including potentially significant impacts on endangered, threatened, rare, or special status species. Under CEQA's "substantive mandate," state and local agencies in California must avoid or substantially lessen significant environmental effects to the extent feasible. In common practice, potential impacts to listed species are examined more closely in CEQA documents than potential impacts to unlisted species. Where significant impacts are identified under CEQA, the Department expects project-specific required avoidance, minimization, and mitigation measures will also benefit the species. State listing, in this respect, and required consultation with the Department during state and local agency environmental law review under CEQA, is also expected to benefit the Pacific Leatherback Sea Turtle in terms of related impacts for individual projects that might otherwise occur in the absence of listing.

Listing the Pacific leatherback sea turtle increases the likelihood that the State land and resource management agencies will allocate funds towards protection and recovery actions. CESA listing can lead to increased interagency coordination,

particularly between the National Marine Fisheries Service and the Department. It is possible with increased coordination that state and federal agencies may allocate additional funds towards Pacific leatherback research, protection, and recovery actions. CESA listing may also result in increased priority for limited conservation funds from State Wildlife Grants and other funding opportunities.

## 9. Recommendations for Management

The following recommendations were generated by the Department to benefit Pacific leatherback sea turtles. Given that the most significant threats to leatherbacks are found outside California and the United States and that significant state and federal protections already exist, they focus on prioritizing conservation, research, regulation, and monitoring activities:

- Increase coordination with state, federal, and international fisheries agencies to establish continuity in management goals, enforcement, and conformance in regulations.
- Encourage studies designed to reduce interactions with fishing operations, especially with longline, drift net, and fixed gear fisheries that have the potential to interact with foraging Pacific leatherback sea turtles. Research should include exploration of gear and fishing method modifications (soak time, pop-up gear, etc.) that reduce interactions.
- Continue to support the Dungeness trap gear retrieval program to remove abandoned or lost fishing gear to reduce negative impacts to habitats and reduce risk of entanglement.
- Support research specifically focused on Pacific leatherback sea turtle movements and distribution, foraging ecology, and population status and abundance trends in California and other areas within their range. Efforts should include:
  - The expansion of genetic research to include analysis of samples from both foraging and nesting sites.

- Continued life history research of all life stages of Pacific leatherback sea turtles including migration, habitat use and range, feeding ecology and reproduction.
- Continued tagging studies from nesting sites and foraging areas.
- Continued efforts to determine the effects of persistent environmental pollutants, and environmental changes related to climate change, such as ocean productivity, on Pacific leatherback abundance/behavior and their preferred prey species.
- Research and awareness of less common factors, such as predation, disease, and the potential for plastic ingestion across all life stages.



## **10. Economic Considerations**

The Department is charged in an advisory capacity in the present context to provide a written report and a related recommendation to the Commission based on the best scientific information available regarding the status of the Pacific Leatherback Sea Turtle in California. The Department is not required to prepare an analysis of economic impacts (See Fish & G. Code, § 2074.6; Cal. Code Regs., tit. 14, § 670.1, subd. (f)).

## **Acknowledgements**

Harrison Huang prepared this report. Assistance and review of the report was provided by the following California Department of Fish and Wildlife (Department) staff: Mary Loum, Travis Buck, John Ugoretz, and Ryan Bartling. The Department is grateful and appreciative for the valuable comments provided on this report by the following peer reviewers: Scott Benson, Christina Fahy, Irene Kelly, Dr. Bryan Wallace, Dr. Jim Harvey. The conclusions in this report are those of the Department and do not necessarily reflect those of the reviewers.

## References

- Alfaro-Shigueto J, Dutton PH, Van Bresse MF, Mangel J. 2007. Interactions between leatherback turtles and Peruvian artisanal fisheries. *Chelonian Conservation and Biology* 6: 129-134.
- Alfaro-Shigueto J, Mangel JC, Bernedo F, Dutton PH, Seminoff JA, Godley BJ. 2011. Small-scale fisheries of Peru: a major sink for marine turtles in the Pacific. *Journal of Applied Ecology* 48: 1432-1440.
- Alfaro-Shigueto J, Mangel JC, Darquea J, Donoso M, Baquero A, Doherty PD, Godley BJ. 2018. Untangling the impacts of nets in the southeastern Pacific: Rapid assessment of marine turtle bycatch to set conservation priorities in small-scale fisheries. *Fisheries Research* 206: 185-192.
- Avens L, Goshe LR, Zug GR, Balazs GH, Benson SR, Harris H. 2020. Regional comparison of leatherback sea turtle maturation attributes and reproductive longevity. *Mar. Biol.* 167 (4), 1e12.
- Bagarino TU. 2011. The sea turtles captured by coastal fisheries in the north eastern Sulu Sea, Philippines: documentation, care, and release. *Herpetological Conservation and Biology* 6(3):353-363.
- Bailey H, Benson SR, Shillinger GL, Bograd SJ, Dutton PH, Eckert SA, Morreale SJ, Paladino FV, Eguchi T, Foley DG. 2012. Identification of distinct movement patterns in Pacific leatherback turtle populations influenced by ocean conditions. *Ecological Applications* 22: 735-747.
- Barragan AR, Dutton PH, Abreu-Grobois A. 1998. Population genetics of the leatherback turtle in the Mexican Pacific. U.S. Department of Commerce NOAA Tech. Memo NMFS-SEFSC-415.
- Bartram PK, Kaneko JJ, Nakamura K. 2010. Sea turtle bycatch to fish ratios for differentiating Hawaii longline-caught seafood products. *Marine Policy* 34:145-149
- Bellagio Sea Turtle Conservation Initiative. 2008. Strategic planning for long-term financing of Pacific leatherback conservation and recovery. World Fish Center Conference Proceedings 1805. Penang, Malaysia. p. 79.
- Benson SR, Dutton PH, Hitipeuw C, Thebu Y, Bakarbesy Y, Sorondanya C, Tangkepayung N, Parker D. 2007a. Post-nesting movements of leatherbacks from Jamursba Medi, Papua, Indonesia: Linking local conservation with international

threats. Twenty-Fourth Annual Symposium on Sea Turtle Biology and Conservation. p. 14.

Benson SR, Forney KA, Harvey JT, Carretta JV, Dutton PH. 2007b. Abundance, distribution, and habitat of leatherback turtles (*Dermochelys coriacea*) off California, 1990-2003. Fishery Bulletin 105: 337-347.

Benson SR, Seminoff J. 2011. Aerial survey of distribution and abundance of western Pacific leatherback turtles (*Dermochelys coriacea*) in coastal waters of Oregon and Washington. SAIP Report.

Benson SR. 2015. Email to Mark Delaplaine, California Coastal Commission, and Peter Dutton, NMFS, dated September 28, 2015, Re: leatherback sea turtle trends, neritic zone, CA.

Benson SR, Forney KA, LaCasella EL, Harvey JT, Carretta JV. 2018a. A long-term decline in the abundance of leatherback turtles, *Dermochelys coriacea*, at the foraging ground off California, USA. 38th Annual Symposium on Sea Turtle Biology and Conservation; Kobe, Japan.

Benson SR, Rei V, Hitipeuw C, Samber B, Tapilatu R, Pita J, Ramohia P, Pakacha P, Horoku J, Wurlanty B, et al. 2018b. A tri-national aerial survey of leatherback nesting activity in New Guinea and the Solomon Islands. 38th Annual Symposium on Sea Turtle Biology and Conservation; Kobe, Japan.

Benson SR, Forney KA, Moore JE, LaCasella EL, Harvey JT, Carretta JV. 2020. A long-term decline in the abundance of endangered leatherback turtles, *Dermochelys coriacea*, at a foraging ground in the California Current Ecosystem. Global Ecology and Conservation 24:e01371.

Benson SR. 2020a. Email to Scott Benson, National Oceanic and Atmospheric Administration, dated March 20, 2020.

Benson SR. 2020b. Phone Conversation with Scott Benson, National Oceanic and Atmospheric Administration, dated March 16, 2020.

Beverly S, Chapman L. 2007. Interactions between sea turtles and pelagic longline fisheries. WCPFSC Scientific Committee Third Regular Session. WCPFC-SC3-EB SWG/IP-01. Hawaii.

Billes A, Fretey J. 2001. Nest morphology in the leatherback turtle. Marine Turtle Newsletter 92: 9-7.

Binckley CA, Spotial JR, Wilson KS, Paladino FV. 1998. Sex determination and sex ratios of Pacific leatherback turtles, *Dermochelys coriacea*. American Society of Ichthyologists and Herpetologists (ASIH) No. 2: 291-300.

Bowen BW, Karl SA. 1997. Population genetics, phylogeography, and molecular evolution. The Biology of Sea Turtles: 29-50.

Carretta JV. 2020. Estimates of marine mammal, sea turtle, and seabird bycatch in the California large-mesh drift gillnet fishery: 1990-2018. NOAA Technical Memorandum NMFS.

Chan EH, Liew HC. 1996. Decline of the leatherback population in Terengganu, Malaysia, 1956-1995. Chelonian Conservation and Biology 2: 196-203.

Chan HL, Pan M. 2012. Spillover effects of environmental regulation for sea turtle protection: the case of the Hawaii shallow-set longline fishery NOAA Tech. Memo., NOAA-TM-NMFS-PIFSC-30: 38.

Clarke S, Sato M, Small C, Sullivan B, Inoue Y, Ochi D. 2014. Bycatch in longline fisheries for tuna and tuna-like species: a global review of status and mitigation measures. WCPFC-SC10-2014/ EB-IP-04.

Clarke S. 2017. Joint analysis of sea turtle mitigation effectiveness. WCPFC-SC13-2017/EB-WP-10.

Clukey KE, Lepczyk CA, Balazs GH, Work TH, Li QX, Bachman MJ, Lynch JM. 2017. Persistent organic pollutants in fat of three species of pacific pelagic longline caught sea turtles: accumulation in relation to ingested plastic marine debris. Science of the Total Environment 610-611: 402-411.

Crim JL, Spotila LD, Spotila JR, O'Connor M, Reina R, Williams CJ, Paladino FV. 2002. The leatherback turtle, *Dermochelys coriacea*, exhibits both polyandry and polygyny. Molecular Ecology 11: 2097-2106.

Curtis C. 1998. Genotyping with polymorphic markers reveals multiple paternity in leatherback turtle clutches. Philadelphia, Pennsylvania: Drexel University.

Curtis KA, Moore JE, Benson SR. 2015. Estimating Limit Reference Points for Western Pacific Leatherback Turtles (*Dermochelys coriacea*) in the U.S. West Coast EEZ. Plos One 10(9): e0136452.

Davenport J. 1987. Locomotion in hatchling leatherback turtles *Dermochelys coriacea*. Journal of Zoology 212: 85-101.

Davenport J, Plot V, Georges J-Y, Doyle TK, James MC. 2011. Pleated turtle escapes the box—shape changes in *Dermochelys coriacea*. *Journal of Experimental Biology* 214: 3474-3479.

Donoso M, Dutton PH. 2010. Sea turtle bycatch in the Chilean pelagic longline fishery in the southeastern Pacific: opportunities for conservation. *Biological Conservation*.

Duchene S, Frey A, Alfaro-Núñez A, Dutton PH, Gilbert MTP, Morin PA. 2012. Marine turtle mitogenome phylogenetics and evolution. *Molecular Phylogenetics and Evolution* 65: 241-250.

Dutton PH, Owens DW, Davis SC. 1996. Natal homing; do leatherbacks do it too? Fifteenth Annual Symposium on Sea Turtle Biology and Conservation. p. 79.

Dutton, PH, SK Davis. 1998. Use of molecular genetics to identify individuals and infer mating behavior in leatherbacks. Page 42 in Byles, R. and Y. Fernandez (compilers). *Proceedings of the Sixteenth Annual Symposium on Sea 47 Turtle Biology and Conservation*. NOAA Technical Memorandum NMFS-SEFSC-412.

Dutton PH, Bowen BW, Owens DW, Barragan A, Davis SK. 1999. Global phylogeography of the leatherback turtle (*Dermochelys coriacea*). *Journal of Zoology* 248: 397-409.

Dutton DL, Dutton PH, Boulon R. 2000a. Recruitment and mortality estimates for female leatherbacks nesting in St. Croix, U.S. Virgin Islands. Nineteenth Annual Symposium on Sea Turtle Biology and Conservation. p. 268-269.

Dutton P, Balazs G, Dizon A, Barragan A. 2000b. Genetic stock identification and distribution of leatherbacks in the Pacific: Potential effects on declining populations. Eighteenth International Sea Turtle Symposium; Mazatlán, Sinaloa, México. p. 38-39.

Dutton PH, Bixby E, Davis SK. 2000c. Tendency toward single paternity in leatherbacks detected with microsatellites. Eighteenth International Sea Turtle Symposium; Mazatlán, Sinaloa, México. p. 39.

Dutton DL, Dutton PH, Chaloupka M, Boulon RH. 2005. Increase of a Caribbean leatherback turtle *Dermochelys coriacea* nesting population linked to long-term nest protection. *Biological Conservation* 126: 186-194.

Dutton P. 2006. Building our knowledge of the leatherback stock structure. SWoT (State of the World's Sea Turtles) Report. p. 10-11.

Dutton PH, Hitipeuw C, Zein M, Benson SR, Petro G, Pita J, Rei V, Ambio L, Bakarbessy J. 2007. Status and genetic structure of nesting populations of leatherback turtles (*Dermochelys coriacea*) in the western Pacific. *Chelonian Conservation and Biology* 6: 47-53.

Dutton PH, LaCasella EL, Alfaro-Shigueto J, Donoso M. Stock origin of leatherback (*Dermochelys coriacea*) foraging in the southeastern Pacific. *Proceedings of the 30th Annual Symposium on sea turtle biology and conservation*, Goa, India (2010).

Dutton PH, Roden SE, Stewart KR, LaCasella E, Tiwari M, Formia A, Thomé JC, Livingstone SR, Eckert S, Chacon-Chaverri D, et al. 2013b. Population stock structure of leatherback turtles (*Dermochelys coriacea*) in the Atlantic revealed using mtDNA and microsatellite markers. *Conservation Genetics* 14: 625-636.

Eckert SA. 2002. Distribution of juvenile leatherback sea turtle *Dermochelys coriacea* sightings. *Marine Ecology Progress Series* 230: 289-293.

Eckert KL, Wallace BP, Frazier JG, Eckert SA, Pritchard PCH. 2012. Synopsis of the biological data on the leatherback sea turtle (*Dermochelys coriacea*). U.S. Fish and Wildlife Service, editor. Washington, D.C.: Biological Technical Publication.

Eckert KL, Wallace BP, Spotila JR, Bell BA. 2015. Nesting, ecology, and reproduction. Spotila JR, Santidrián Tomillo P, editors. *The leatherback turtle: biology and conservation*. Baltimore, Maryland: Johns Hopkins University Press. p. 63.

Ene A, Su M, Lemaire S, Rose C, Schaff S, Moretti R, Lenz J, Herbst LH. 2005. Distribution of chelonid fibropapillomatosis-associated herpesvirus variants in Florida: molecular genetic variance for infection of turtles following recruitment to neritic developmental habitats. *41(3)*: 489- 97.

Evers SW, Benson RB. 2019. A new phylogenetic hypothesis of turtles with implications for the timing and number of evolutionary transitions to marine lifestyles in the group. *Paleontology* 62: 93-134.

Figgenger CA, MacCarthy D, Chacón, Feldhaar H. 2012. Re-assessment of leatherback mating strategies in Caribbean Costa Rica. Pages 37-38 in Jones, T.T. and B.P. Wallace (compilers) *Proceedings of the Thirty-First Annual Symposium on Sea Turtle Biology and Conservation*. NOAA Technical Memorandum NMFS-SEFSC-631.

Gaspar P, Georges JY, Fossette S, Lenoble A, Ferraroli S, Le Maho Y. 2006. Marine animal behaviour: Neglecting ocean currents can lead us up the wrong track. *Proceedings of the Royal Society Biological Sciences Series B* 273: 2697-2702.

Gaspar P, Benson SR, Dutton PH, Réveillère A, Jacob G, Meetoo C, Dehecq A, Fossette S. 2012. Oceanic dispersal of juvenile leatherback turtles: going beyond passive drift modeling. *Marine Ecology Progress Series*.

Gaspar P, Lalire M. A model for simulating the active dispersal of juvenile sea turtles with a case study on western Pacific leatherback turtles. *PLoS One*. 2017 Jul 26;12(7): e0181595.

Gilman E, Kobayashi D, Swenarton T, Brothers N, Dalzell P, Kinan-Kelly I. 2007. Reducing sea turtle interactions in the Hawaii-based longline swordfish fishery. *Biological Conservation* 139: 19-28.

Gjertsen H, Pakiding F. 2012. Socioeconomic research and capacity-building to strengthen conservation of western Pacific leatherback turtles in Bird's Head, Papua Barat, Indonesia. Final Contract Report prepared for the Western Pacific Fishery Management Council. Honolulu, Hawaii.

Goby G, Suka M, Bero A, Paranga J. 2010. Tetepare Descendants' Association Turtle Monitoring Program.

Godfrey MH, Barreto R. 1998. *Dermochelys coriacea* (leatherback sea turtle) copulation. *Herpetological Review* 29: 40-41.

Godoy DA. 2016. Marine Reptiles – Review of Interactions and Populations. Report Prepared by Karearea Consultants for the New Zealand Department of Conservation, Wellington.

Hall KV. 1987. Behavior and orientation of hatchling hawksbill and leatherback sea turtles in nearshore waters. Serino JL editor. *Seventh Annual Workshop on Sea Turtle Biology and Conservation*; 25-27 February 1987; Wekiwa Springs State Park, Florida. p. 14.

Harris HS, Benson SR, Gilardi KV, Poppenga RH, Work TM, Dutton PH, Mazet JAK. 2011. Comparative health assessment of western pacific leatherback turtles (*Dermochelys coriacea*) foraging off the coast of California, 2005–2007. *Journal of Wildlife Diseases* 47:321–337.



Harrison AL, Costa DP, Winship AJ, Benson SR, Bograd SJ, Antolos M, Carlisle AB, Dewar H, Dutton PH, Jorgensen SJ, et al. 2018. The political biogeography of migratory marine predators. *Nature Ecology Evolution* 2: 1571-1578.

Hawkes L, Broderick A, Godfrey M, Godley B. 2007. Investigating the potential impacts of climate change on a marine turtle population. *Global Change Biology* 13: 923-932.

Hays GC. 2000. The implications of variable remigration intervals for the assessment of population size in marine turtles. *Journal of Theoretical Biology* 206:221-227.

Heaslip SG, Iverson SJ, Bowen WD, James MC. 2012. Jellyfish support high energy intake of leatherback sea turtles (*Dermochelys coriacea*): video evidence from animal-borne cameras. *PLoS ONE* 7: e33259.

Herbst, L. H. 1994. Fibropapillomatosis of marine turtles. *Annual Review of Fish Diseases*. 4:389-425.

Hetherington, E.D., Kurle, C.M., Benson, S.R., Jones, T.T., Seminoff, J.A., 2019. Re-examining trophic dead ends: stable isotope values link gelatinous zooplankton to leatherback turtles in the California Current. *Mar. Ecol. Prog. Ser.* 632, 205e219. <https://doi.org/10.3354/meps13117>.

Hitipeuw C, Maturbongs J. 2002. Marine turtle conservation program, Jamursba-Medi nesting beach, north coast of the Bird's Head Peninsula, Papua. In: Kinan, I. (Ed.). *Proceedings of the Western Pacific Sea Turtle Cooperative Research and Management Workshop*. Western Pacific Regional Fishery Management Council, Honolulu, Hawaii, pp. 161–175.

Hitipeuw C, Dutton PH, Benson SR, Thebu J, Bakarbesy J. 2007. Population status and internesting movement of leatherback turtles, *Dermochelys coriacea*, nesting on the northwest coast of Papua, Indonesia. *Chelonian Conservation and Biology* 6: 28-36.

Houghton JDR, Doyle TK, Wilson MW, Davenport J, Hays GC. 2006. Jellyfish aggregations and leatherback turtle foraging patterns in a temperate coastal environment. *Ecology* 87:1967–1972.

Huyer A. 1983. Coastal upwelling in the California current system. *Progress in Oceanography* 12:259–284.

James MC, Andrea Ottensmeyer C, Myers RA. 2005a. Identification of high-use habitat and threats to leatherback sea turtles in northern waters: new directions for conservation. *Ecology Letters* 8: 195-201.

James MC, Eckert SA, Myers RA. 2005b. Migratory and reproductive movements of male leatherback turtles (*Dermochelys coriacea*). *Marine Biology* 147: 845-853.

Jensen MP, FitzSimmons NN, Dutton PH. 2013. Molecular genetics of sea turtles. Wyneken J, Lohmann KJ, Musick JA, editors. *The Biology of Sea Turtles*. Boca Raton: CRC Press. p. 135-154.

Jino N, Judge H, Revoh O, Pulekera V, Grinham A, Albert S, Jino H. 2018. Community-based Conservation of Leatherback Turtles in Solomon Islands: Local Responses to Global Pressures. *Conservation and Society* 16: 459-466.

Jones TT, Hastings MD, Bostrom BL, Pauly D, Jones DR. 2011. Growth of captive leatherback turtles, *Dermochelys coriacea*, with inferences on growth in the wild: Implications for population decline and recovery. *Journal of Experimental Marine Biology and Ecology* 399: 84-92.

Jones TT, Bostrom BL, Hastings MD, Van Houtan KS, Pauly D, Jones DR. 2012. Resource requirements of the Pacific leatherback turtle population. *PLoS ONE* 7: e45447.

Jones TT, Seminoff JA. 2013. Feeding biology: advances from field-based observations, physiological studies, and molecular techniques. *The Biology of Sea Turtles*, Volume III: CRC Press. p. 228-265.

Kaplan, I. C. 2005. A risk assessment for Pacific leatherback turtles (*Dermochelys coriacea*). *Canadian Journal of Fisheries and Aquatic Sciences* 62:1710–1719.

Kinan, I. 2005. Proceedings of the second western pacific sea turtle cooperative research and management workshop. West Pacific Leatherback and Southwest Pacific Hawksbill Sea Turtles Volume 1. 17-21 May 2004, Honolulu, HI. Western Pacific Regional Fishery Management Council: Honolulu, HI, USA.

Kinch J. 2006. Socio-economic assessment study for the Huon Coast. Final Technical Report. Honolulu, Hawaii: Western Pacific Regional Fishery Management Council. p. 56.

Kinch J, Anderson P, Anana K. 2009. Assessment of leatherback turtle nesting and consumptive use in the autonomous region of Bougainville, Papua New Guinea: Western Pacific Regional Fisheries Management Council.

Lewison RL, Freeman SA, Crowder LB. 2004. Quantifying the effects of fisheries on threatened species: the impact of pelagic longlines on loggerhead and leatherback sea turtles. *Ecology Letters* 7: 221-231.

Lewison RL, Crowder LB, Wallace BP, Moore JE, Cox T, Zydelis R, McDonald S, DiMatteo A, Dunn DC, Kot CY, et al. 2014. Global patterns of marine mammal, seabird, and sea turtle bycatch reveal taxa-specific and cumulative megafauna hotspots. *Proceedings of the National Academy of Sciences U S A* 111: 5271-5276.

Lontoh D. 2014. Variation in Tissue Stable Isotopes, Body Size and Reproduction of Western Pacific Leatherback Turtles. Moss Landing Marine Laboratories, San Jose State University, p. 97. Master's thesis. MacKay KT, Godoy D, Petro G. 2014. Road to extinction: threats to the western Pacific leatherback turtles (*Dermochelys coriacea*) in the South Western Pacific 34th Annual Symposium on Sea Turtle Biology and Conservation; New Orleans, Louisiana.

Martin SL, Stohs SM, Moore JE. 2015. Bayesian inference and assessment for rare-event bycatch in marine fisheries: a drift gillnet fishery case study. *Ecological Applications* 25(2):416-429.

McClain CR, Balk MA, Benfield MC, Branch TA, Chen C, Cosgrove J, Dove ADM, Gaskins LC, Helm RR, Hochberg FG, Lee FB, Marchall A, McMurray SE, Schanche C, Stone SN, Thaler AD. 2015. Sizing ocean giants: patterns of intraspecific size variation in marine megafauna. *PeerJ* 3:e715

McCracken ML. 2000. Estimation of sea turtle take and mortality in the Hawaiian longline fisheries. administrative report H-00-06, 29 p. Southwest Fisheries Science Center, NMFS, NOAA, 2570 Dole St., Honolulu, HI 96822.

McDonald J. 2006. marine resource management and conservation in Solomon Islands: roles, responsibilities, and opportunities. University of Tasmania.

Molony B. 2005. Estimates of the mortality of non-target species with an initial focus on seabirds, turtles and sharks. WCPFC-SC1 EB WP-1: Western and Central Pacific Fisheries Commission.

Morreale SJ, Standora EA, Spotila JR, Paladino FV. 1996. Migration corridor for sea turtles. *Nature* 384: 319-320.

MRF. 2010. Aerial surveys of leatherback nesting and foraging habitat in the Sulu-Sulawesi Region, off Borneo, Malaysia. Final Report Submitted to the NMFS Pacific Islands Regional Office, NA09NMF4540275.

Mrosovsky N, Dutton P, Whitmore C. 1984. Sex ratios of two species of sea turtle nesting in Suriname. *Canadian Journal of Zoology* 62: 2227-2239.

Mrosovsky N, Ryan GD, James MC. 2009. Leatherback turtles: the menace of plastic. 2009. *Marine Pollution Bulletin* 58: 287-289.

NMFS and USFWS. 1998. Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle (*Dermochelys coriacea*). Page 76. National Marine Fisheries Service, Washington DC.

NMFS. 2013. Biological opinion on the continued management of the drift gillnet fishery under the FMP for U.S. West Coast fisheries for highly migratory species. NOAA, National Marine Fisheries Service, Southwest Region, Protected Resources Division.

NMFS and USFWS. 2013. Leatherback sea turtle (*Dermochelys coriacea*) 5-year review: Summary and evaluation. Page 93. National Marine Fisheries Service, Office of Protected Resources and U.S. Fish and Wildlife Service Southeast Region, Silver Spring, Maryland and Jacksonville, Florida. Available from <https://repository.library.noaa.gov/view/noaa/17029> (accessed August 28, 2018).

NMFS, USFWS. 2019. Endangered Species Act Status Review of the Leatherback Turtle (*Dermochelys coriacea*). Report to the National Marine Fisheries Service, Office of Protected Resources.

NMFS and USFWS. 2020. Endangered Species Act status review of the leatherback turtle (*Dermochelys coriacea*). Report to the National Marine Fisheries Service Office of Protected Resources and U.S. Fish and Wildlife Service.

Peckham SH, Maldonado Diaz D, Walli A, Ruiz G, Crowder LB, Nichols WJ. 2007. Small-scale fisheries bycatch jeopardizes endangered Pacific loggerhead turtles. *PLoS ONE* 2: e1041.

Peterson WT, Emmett R, Goericke R, Venrick E, Mantyla A, Bograd SJ, Schwing FB, Hewitt R, Lo N, Watson W, Barlow J, Lowry M, Ralston S, Forney KA, Lavaniegos BE, Sydeman WJ, Hyrenbach D, Bradley RW, Warzybok P, Chavez F, Hunter K, Benson S, Weise M, Harvey J, Gaxiola-Castro G, Durazo R. 2006. The state of the California Current, 2005-2006: warm in the north, cool in the south. *California Cooperative Fisheries Investigations Report* 47, 30e74.

Petro G, Hickey FR, Mackay K. 2007. Leatherback turtles in Vanuatu. *Chelonian Conservation and Biology* 6: 135-137.

Pilcher N. 2008. To assist and provide liaison support to the Council's marine turtle program in Papua New Guinea and the Western Pacific Region. Western Pacific Fisheries Management Council Final Report 2007-2008 Nesting Season.

Pilcher N. 2009. To assist and provide liaison support to the Council's marine turtle program in Papua New Guinea and the Western Pacific Region. Western Pacific Fisheries Management Council. Final Report 2008-2009 Nesting Season. p. 14.

Pilcher N. 2011. Community-based conservation of leatherback turtles along the Huon coast, Papua New Guinea. Western Pacific Fishery Management Council, editor. Final report of the 2010-2011 Nesting Season. Honolulu, Hawaii. p. 13.

Pilcher N. 2012. Community-based conservation of leatherback turtles along the Huon coast, Papua New Guinea. Western Pacific Fishery Management Council, editor. Final report of the 2011-2012 Nesting Season. Honolulu, HI. p. 8.

Pilcher N, Chaloupka M. 2013. Using community-based monitoring to estimate demographic parameters for a remote nesting population of the critically endangered leatherback turtle. *Endangered Species Research* 20: 49-57.

Pritchard PCH. 2015. Introduction: Phylogeny and evolutionary biology of the Leatherback turtle. Spotila JR, Santidrián Tomillo P, editors. *The leatherback turtle: biology and conservation*. Baltimore, MD: Johns Hopkins University Press. p. 3.

Red Laúd OPO Network. 2020. Enhanced, coordinated conservation efforts required to avoid extinction of critically endangered Eastern Pacific leatherback turtles. *Nature Scientific Reports* 10:4772.

Reina RD, Spotila JR, Paladino FV, Dunham AE. 2009. Changed reproductive schedule of eastern Pacific leatherback turtles *Dermochelys coriacea* following the 1997-98 El Nino to La Nina transition. *Endangered Species Research* 7: 155-161.

Rieder JP, Parker PG, Spotila JR, Irwin ME. 1998. The mating system of the leatherback turtle: A molecular approach. *Bulletin of the Ecological Society of America* 77.

Rivalan P, Prevot-Julliard AC, Choquet R, Pradel R, Jacquemin B, Girondot M. 2005. Trade-off between current reproductive effort and delay to next reproduction in the leatherback sea turtle. *Oecologia* 145: 564-574.

Roe JH, Morreale SJ, Paladino FV, Shillinger GL, Benson SR, Eckert SA, Bailey H, Tomillo PS, Bograd SJ, Eguchi T, et al. 2014. Predicting bycatch hotspots for

endangered leatherback turtles on longlines in the Pacific Ocean. Proceedings of the Royal Society B-Biological Sciences 281.

Rhodin JAG, Rhodin AGJ, Spotila JR. 1996. Electron microscopic analysis of vascular cartilage canals in the humeral epiphysis of hatchling leatherback turtles, *Dermochelys coriacea*. Chelonian Conservation and Biology 2: 250-260.

Rostal DC. 2015. Reproductive Biology of the Leatherback Turtle. Spotila JR, Santidrián Tomillo P, editors. The leatherback turtle: biology and conservation. Baltimore, MD: Johns Hopkins University Press. p. 51-63.

Saba VS, Spotila JR, Chavez FP, Musick JA. 2008. Bottom-up and climate forcing on the worldwide population of leatherback turtles. Ecology 89: 1414-1427.

Saba VS, Stock CA, Dunn JP. 2015. Relation of marine primary productivity to leatherback turtle biology and behavior. Spotila JR, Santidrian Tomillo P, editors. The Leatherback Turtle: Biology and Conservation. Baltimore, MD: Johns Hopkins University Press. p. 123-131.

Salmon M, Jones TT, Horch KW. 2004. Ontogeny of diving and feeding behavior in juvenile sea turtles: Leatherback sea turtles (*Dermochelys coriacea* L.) and green sea turtles (*Chelonia mydas* L.) in the Florida Current. Journal of Herpetology 38: 36-43.

Schuyler Q, Hardesty BD, Wilcox C, Townsend K. 2013. Global analysis of anthropogenic debris ingestion by sea turtles. Conservation Biology 28: 129-139.

Schuyler Q, Hardesty BD, Wilcox C, Townsend K. 2014. Global analysis of anthropogenic debris ingestion by sea turtles. Conservation Biology 28: 129-139.

Schwing FB, Murphree T, Green PM. 2002. The Northern Oscillation Index (NOI): a new climate index for the Northeast Pacific. progress in oceanography 53:115-139.

Seminoff JA, Benson SR, Arthur KE, Eguchi T, Dutton PH, Tapilatu RF, Popp BN. 2012. Stable isotope tracking of endangered sea turtles: validation with satellite telemetry and nitrogen analysis of amino acids. PLoS ONE 7: e37403.

Sherrill-Mix SA, James MC, Myers RA. 2007. Migration cues and timing in leatherback sea turtles. Behavioral Ecology 19: 231-236.

Shillinger GL, Palacios DM, Bailey H, Bograd SJ, Swithenbank AM, Gaspar P, Wallace BP, Spotila JR, Paladino FV, Piedra R, et al. 2008. Persistent leatherback turtle migrations present opportunities for conservation. PLoS Biology 6: 1408-1416.

Spotila JR, Reina RD, Steyermark AC, Plotkin PT, Paladino FV. 2000. Pacific leatherback turtles face extinction. *Nature* 405: 529-530.

Starbird C, Baldrige A, Harvey J. 1993. Seasonal occurrence of leatherback sea turtles (*Dermochelys coriacea*) in the Monterey Bay region, with notes on other sea turtles, 1986-1991. *California Fish and Game* 79:54–62.

Steckenreuter A, Pilcher N, Krüger B, Ben J. 2010. Male-biased primary sex ratio of leatherback turtles (*Dermochelys coriacea*) at the Huon Coast, Papua New Guinea. *Chelonian Conservation and Biology* 9: 123–128.

Stewart KR, Dutton PH. 2011. Paternal genotype reconstruction reveals multiple paternity and sex ratios in a breeding population of leatherback turtles (*Dermochelys coriacea*). *Conservation Genetics* 12: 1101-1113.

Stewart K, Sims M, Meylan A, Witherington B, Brost B, Crowder LB. 2011a. Leatherback nests increasing significantly in Florida, USA; trends assessed over 30 years using multilevel modeling. *Ecological Applications* 21: 263-273.

Stewart KR, Dutton PH. 2014. Breeding sex ratios in adult leatherback turtles (*Dermochelys coriacea*) may compensate for female-biased hatchling sex ratios. *PLoS ONE* 9: e88138.

Suarez A, Starbird CH. 1996. Subsistence hunting of Leatherback turtles, *Dermochelys coriacea*, in the Kai Islands, Indonesia. *Chelonian Conservation and Biology* 2:190-195.

Swimmer Y, Gutierrez A, Bigelow K, Barceló C, Schroeder B, Keene K, Shattenkirk K, Foster DG. 2017. Sea turtle bycatch mitigation in U.S. longline fisheries. *Frontiers in Marine Science* 4: 19.

Tapilatu RF, Tiwari M. 2007. Leatherback turtle, *Dermochelys coriacea*, hatching success at Jamursba-Medi and Wermom beaches in Papua, Indonesia. *Chelonian Conservation and Biology* 6: 154-158.

Tapilatu RF, Dutton PH, Tiwari M, Wibbels T, Ferdinandus HV, Iwanggin WG, Nugroho BH. 2013. Long-term decline of the western Pacific leatherback, *Dermochelys coriacea*: a globally important sea turtle population. *Ecosphere* 4.

Tapilatu RF. 2017. Status of sea turtle populations and its conservation at Bird's Head Seascape, Western Papua, Indonesia. *Biodiversitas, Journal of Biological Diversity* 18: 129-136.

TDA. 2013. Solomon Islands community-based marine turtle monitoring, conservation, and community engagement on Tetepare, Rendova, Hele Bar and Vangunu Islands. NOAA Pacific Islands Region Marine Turtle Program Final Project Report NA12NMF4540207.

Tiwari M, Wallace B, Girondot M. 2013a. *Dermochelys coriacea* (West Pacific Ocean subpopulation). The IUCN Red List of Threatened Species: e.T46967817A46967821.

Von Essen E, Hansen HP, Nordström Källström H, Peterson MN, Peterson TR. 2014. Deconstructing the poaching phenomenon. *British Journal of Criminology* 54: 632-651.

Wallace BP, Kilham SS, Paladino FV, Spotila JR. 2006a. Energy budget calculations indicate resource limitation in Eastern Pacific leatherback turtles. *Marine Ecology Progress Series* 318: 263-270.

Wallace BP, DiMatteo AD, Hurley BJ, Finkbeiner EM, Bolten AB, Chaloupka MY, Hutchinson BJ, Abreu-Grobois FA, Amorocho D, Bjørndal KA, et al. 2010a. Regional management units for marine turtles: a novel framework for prioritizing conservation and research across multiple scales. *PLoS ONE* 5: e15465.

Wallace BP, Kot CY, DiMatteo AD, Lee T, Crowder LB, Lewison RL. 2013. Impacts of fisheries bycatch on marine turtle populations worldwide: toward conservation and research priorities. *Ecosphere* 4.

Wallace BP, Zolkewitz M, James MC. 2018. Discrete, high-latitude foraging areas are important to energy budgets and population dynamics of migratory leatherback turtles. *Scientific Reports* 8: 11017.

Wedemeyer-Strombel KR, Balazs GH, Johnson JB, Peterson TD, Wicksten MK, Plotkin PT. 2015. High frequency of occurrence of anthropogenic debris ingestion by sea turtles in the North Pacific Ocean. *Marine Biology* 162(10): 2079-2091.

Westerlaken R. 2016. The Use of green turtles in Bali, when conservation meets culture. *An1mage Jurnal Studi Kultural* 1:89-93.

Willis-Norton E, Hazen EL, Fossette S, Shillinger G, Rykaczewski RR, Foley DG, Dunne JP, Bograd SJ. 2015. Climate change impacts on leatherback turtle pelagic habitat in the southeast Pacific. *Deep Sea Research Part II: Topical Studies in Oceanography* 113:260-267.

WPRFMC. 2015. Protected species conservation. *Pacific Islands Fishery Monographs* 4: 24.



WSB. 2016. Vanuatu Marine Turtle In-water and Nesting Beach Surveys, Conservation and Awareness Raising 2014-2015.

Wurlianty B, Hitipeuw C. 2005. Leatherback turtle conservation at Warmon Beach. Papua-Indonesia. November 2004 to October 2005. Final Report to the Western Pacific Regional Fishery Management Council. Contract No. 04-WPC-034.

Wyneken J, Salmon M. 1992. Frenzy and post frenzy swimming activity in loggerhead, green and leatherback hatchling sea turtles. *Copeia* 1992: 478-484.

Zainudin IM, Pet-Soede L, Hitipeuw C, Adnyana W. 2007. Interaction of sea turtles with Indonesian fisheries – preliminary findings. *Indian Ocean Turtle Newsletter* 6: 1-10.

Zangerl R. 1980. Patterns of phylogenetic differentiation in the toxochelyid and cheloniid sea turtles. *American Zoologist* 20: 585-596.

## Appendix A. Peer Review

Below is a compilation of peer review comments on the Pacific Leatherback Sea Turtle Status Review and California Department of Fish and Wildlife (Department) Responses (Table A-1). Peer review comments were provided by Scott Benson (NOAA Fisheries), Christina Fahy (NOAA Fisheries), Irene Kelly (NOAA Fisheries), Dr. James Harvey (Moss Landing Marine Laboratories), and Dr. Bryan Wallace (Duke University). Based on peer review feedback, no substantive changes were made to the Department's recommendation that the petitioned action is warranted. All responses to comments, which are compiled and attached in a single document, were largely clarifications of statements and the addition of information where necessary.

Table A-1. Peer review comments received and Department responses.

Commenter	Page	Paragraph	Reviewer Comment	Department Response
Irene Kelly	1	2	We didn't actually end up designating DPSs under the ESA. Perhaps best to say that there are two subpopulations in the Pacific, the West Pacific and the East Pacific. I provide some suggestions.	Accepted changes, using "subpopulations"
Bryan Wallace	2	3	While this is technically true, the DPS designation, as well as the fact that this is a subpopulation recognized by and assessed on the IUCN Red List (Critically Endangered) and identified as a regional management unit (RMU) by the MTSG means that this population and its status require assessment and conservation regardless of the status of other populations. Put simply, it doesn't matter whether the 'global population' is endangered. This West Pacific RMU/subpopulation/DPS is a standalone unit that requires management.	Change incorporated, added clarification
Bryan Wallace	2	3	Very important to recognize. Whether or not CA designates leatherbacks officially on its ESA list won't necessarily affect the conservation status of this population, especially if conservation management measures are focused solely in CA. There's only so much that can be done in CA.	Correct, no change

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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Irene Kelly	2	4	I would confirm this with the SWFSC. This information is needed to describe why this document only focuses only on the WP population and not also the EP.	Scott Benson responded and confirmed statement in status evaluation is accurate. No change per Scott Benson
Tina Fahy	6	1	Within the federal ESA, we use "conservation" v. continued existence.	No change - this is CESA
Scott Benson	9	1	I'd suggest. "The skin covered carapace is predominantly black with pale spotting".	Accepted changes
Bryan Wallace	11	1	Again, each DPS/RMU/subpopulation should really be considered nearly independent from the other DPSs/subpopulations, so this statement could perhaps be strengthened to clarify.	Change incorporated, edited and modified the statement here and in executive summary.
Bryan Wallace	12	2	They do	Removed "may"
Bryan Wallace	12	2	Reference?	added
Irene Kelly	12	3	This is an important point. I brought this into the Executive Summary, but also confirm this is true with SWFSC and no EP leatherback turtles have been documented in CA waters/fisheries.	Scott Benson responded and confirmed statement in status evaluation is accurate. No change per Scott Benson
Scott Benson	13	2	Why was Tapilatu et al. 2013 deleted? This statement was included in that study.	Tapilatu reference deleted by Irene Kelly, rejected deletion
Bryan Wallace	14	4	Insert months	added
Irene Kelly	14	4	Reference?	added
Bryan Wallace	14	4	There might be others, but this one is clearly identified because a long-term effort exists	no change
Scott Benson	14	4	Lontoh 2014 reference added below.	Reference accepted
Bryan Wallace	17	2	Binckley et al. 1998 Sex Determination and Sex Ratios of Pacific Leatherback Turtles, <i>Dermochelys Coriacea</i> , Copeia 1998, No. 2. (May 1, 1998), pp. 291-300	added
Jim Harvey	17	3	Not sure of this sentence, can it be reworded to be more understandable.	changed

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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Bryan Wallace	18	4	Newer reference: Avens et al. (2020) Regional comparison of leatherback sea turtle maturation attributes and reproductive longevity Vol.:(0112 33456789) Marine Biology (2020) 167:4 <a href="https://doi.org/10.1007/s00227-019-3617-y">https://doi.org/10.1007/s00227-019-3617-y</a>	added by Scott Benson
Scott Benson	18	4	Avens et al. 2020 reference added below.	added by Scott Benson
Bryan Wallace	19	4	not always the case, but ok	no change
Bryan Wallace	19	1	Crim et al (2002) The leatherback turtle, <i>Dermochelys coriacea</i> , exhibits both polyandry and polygyny. Molecular Ecology (2002) 11, 2097–2106	added
Irene Kelly	19	1	Note that all these are extrapolations from other non-Western Pacific populations. You might want to clarify as we don't know if any of this is true for the WP population. Plus the clutch size is quite different for WP population. Suggest using references and information from the status review.	Accepted first sentence change to state "information from other populations are summarized"
Irene Kelly	19	1	Make specific for the WP population	Accepted change to "5.5 clutches per season"
Irene Kelly	19	1	Is the nesting process really necessary? Just seems like a lot of text and information that isn't really relevant.	left in for completeness
Bryan Wallace	20	1	? Or just by chomping prey like any other predator?	Removed sentence
Bryan Wallace	20	1	Have low energy content per unit wet mass	added
Irene Kelly	21	2	Did this remain constant over time? What does Benson et al. 2020 say about this?	Scott Benson responded and confirmed statement in status evaluation is accurate
Scott Benson	21	2	Hetherington et al. 2019 reference added below.	added
Tina Fahy	22	1	Just checking, is this the determination of CDFW and just for West Pacific leatherbacks or a general statement for sea turtles (per Irene's edits)?	Prefer to keep the sentence specific to the west pacific population. Rejected edit to generalize the statement for all sea turtles.
Tina Fahy	22	1	Used federally for critical habitat designations.	This is CESA, rejected change
Tina Fahy	22	1	Should be "east of the 3,000 meter contour"? (or isobath)	Accepted correction by Scott Benson

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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Irene Kelly	22	1	What protections are included? Summarize what it means to have CH and conservation area established. Are fisheries excluded etc.? Drift gillnet fishing is prohibited annually from August 15 to November 15 within the California leatherback turtle conservation area	added
Scott Benson	22	1	CH was designated to protect biological resources (jellyfish prey). The Leatherback Conservation Area prohibits drift gillnet fishing between 15 August – 15 November.	added
Tina Fahy	22	1	Note that this was in place <i>before</i> critical habitat was designated and was put in place to protect the animals, not their habitat – and as Irene points out, it is in place specifically to prohibit drift gillnet fishing. It may still be worth mentioning since it includes areas off CA but just need to be careful wrt context.	Reworded and sentence moved up
Irene Kelly	24	4	Critical habitat for nesting beaches have not been established. CH only exist in CA. Tina: includes areas off the west coast. CH can only include U.S. waters.	Accepted changes, removed "habitat"
Irene Kelly	24	4	Activity or threats?	Changed "activity" to "threats"
Irene Kelly	25	4	But they do occur in CA marine habitats. This paragraph needs to be clarified. Not sure what you are trying to get at. If your point is anthropogenic impacts to terrestrial habitats, then remove marine threats (fisheries, marine debris, pollution, ship strike etc should not be mentioned if your focus is terrestrial impacts).	Removed sentence
Scott Benson	27	1	This population was considered to be part of the Northeast Indian Ocean population.	Removed malaysian population statement
Bryan Wallace	27	1	Bryan Wallace - Please update this statement with a newer reference Laud OPO Network (2020) <a href="https://www.nature.com/articles/s41598-020-60581-7">https://www.nature.com/articles/s41598-020-60581-7</a>	Removed eastern population statement

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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Irene Kelly	27	1	In previous sentence you say the population has undergone a 95% decline, and now its 96%? Some revision is needed in this section.	Removed eastern population statement
Irene Kelly	27	2	Annual rate of decline or overall declining trend over time?	Added "annual"
Bryan Wallace	29	2	So this is ~10% of the total number of nesting females, and usually less. And includes males. It's worth noting that while CA is definitely important to this population, most of the animals are always elsewhere, and the ones that are in CA are a small proportion, part of the year.	Stated in section 2.4 "Approximately 38-57% of summer nesting West Pacific leatherback sea turtles take advantage of food availability during the seasonal upwelling that occurs in the California Current Ecosystem (Benson et al., 2011; Seminoff et al., 2012; Lontoh 2014". Not sure if we should add another statement here.
Scott Benson	29	2	178 was the estimate for California. The estimate for central California was 140.	Accepted change to 140
Irene Kelly	30	3	Services? What Department? California Dpt of Fish and Game?	Accepted change earlier in the document that established "department"
Bryan Wallace	32	2	This part is undoubtedly true, given the evolutionary history of the population described in a previous section. The issue is the pace at which current climate change is happening might be too fast for leatherback life history plasticity to respond adequately.	Added, modified statement
Bryan Wallace	32	1	Please consider whether using this term is appropriate. In some circles, it is no longer used, and less pejorative terms are preferred.	Changed to "taking"
Bryan Wallace	33	1	Still the case? This was a while ago	From what I can find, yes as these beaches are well monitored.
Bryan Wallace	33	1	More information is needed on the Kei Island traditional harvest. This is a well-known occurrence that apparently affects a large number of late-stage turtles. As such, its relevance to the population is paramount.	Added additional statement above

Commenter	Page	Paragraph	Reviewer Comment	Department Response
Bryan Wallace	34	2	These are more generic, introductory sentences. By this point in the section, there should be population-specific conclusions based on numbers presented.	Added preceding statements
Bryan Wallace	34	2	This might be true, but this section does not provide sufficient evidence to justify this statement. What is the number of turtles harvested per year? What is the % of nests harvested? Is 0% harvest the only 'sustainable' level? Or could some harvest be allowed? What if bycatch were eliminated? I'm not saying that it's the job of this document to do these types of analyses, but it should at least provide the background levels of harvest/consumption to justify a conclusion that harvest is unsustainable.	Changed "unsustainable" to "adversely impacts..."
Irene Kelly	34	1	Where was FP documented in leatherbacks? Has it ever been documented in California? This paper is related to chelonids in Florida and not applicable. We were not able to find any evidence of disease in leatherbacks in our review – suggest removing reference of FP for leatherbacks. As per the status review: While we could not find any information on disease, predation of eggs is a major and well documented threat to the West Pacific DPS, likely second to poaching (i.e., nests not taken by humans are typically predated; Bellagio Sea Turtle Conservation Initiative, 2008).	Removed FP information.
Bryan Wallace	35	2	So 5% of the 29.3% described above? So to something like 25% now?	29.3% refers to nests lost in 2005. This statement for 2016-2017.
Bryan Wallace	35	3	It's important to separate natural predation from predation by feral—i.e., anthropogenic—animals. Different management, different implications.	Both occur, added "feral and domesticated" to clarify.
Bryan Wallace	36	1	Need references	added
Bryan Wallace	36	1	Please clarify if this is a total for that time period	added

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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Bryan Wallace	37	1	This is an understatement. It would be worth mentioning that the WCPFC passed a resolution requiring a minimum of 5% observer coverage, and yet barely any country meets it, besides the USA.	added
Bryan Wallace	37	1	Please be careful with all of the different terms to describe bycatch. 'Take' is carefully defined in USA ESA terms, but that is not universally understood. Interactions with gear are one thing, but how many animals actually die as a result of those interactions is what's important to the actual population dynamics. Please be sure to clarify when describing results of studies between 'interactions' and 'mortality'.	Added clarification
Bryan Wallace	37	1	Again, be careful with number of turtle interactions and number of turtle deaths. Any bycatch interaction is negative for turtles, of course, but if animals are released alive, that's also important.	Added mortalities
Bryan Wallace	38	2	Yes, but turtle bycatch rates are much lower for deep-set gear	No change. Lower bycatch rate statement below.
Irene Kelly	39	2	Longline?	No change. A lot of focus on longline, but other gear types apply.
Irene Kelly	40	1	Reference? Or is this a conclusion of the CA Dept of Game or was this a conclusion of the status review? NMFS and USFWS concluded that international fishery bycatch is a significant threat, but I'm not sure we specifically identified Asian fisheries significant compared to all international fisheries.	Removed significant. As data is sparse and mainly interactions (rather than mortalities), I added "potential". Should we remove the section?
Bryan Wallace	40	1	It would be very useful to compile all of these bycatch estimates into a table: country/time period/gear type/estimated turtles caught/estimated mortality rate	Unnecessary - no change



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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Bryan Wallace	40	2	Mortality or catch? Just making sure because the next line says 8 leatherbacks annually caught in shallow-set, and no way 7 of those die every year. If the 7 dead/year is for shallow-set and deep-set combined, please clarify in the first sentence	Mortality. Clarified statement
Bryan Wallace	41	2	Bryan Wallace - These are observed, not fleet-wide estimates, correct? And how many dead?	Accepted Irene's edit which clarified "12 annually". Not sure how many dead
Bryan Wallace	41	3	And nearly 0 mortality; leatherbacks are rarely caught in PS operations, and even more rarely do they die as a result	no change needed
Bryan Wallace	41	4	So, < 1 mortality every other year. Again, would be interesting to compare these across gear types. Because the CA drift gillnet fishery is the one that has received the most attention, and has been under the most scrutiny, relative to its actual interactions with leatherbacks (followed closely by Hawaii LL). The point here is that there isn't too much more the USA fisheries can do at this point other than stop fishing entirely...	no change needed
Irene Kelly	42	5	This statement should be updated with current information. What about interactions btwn 2017 and 2020? If there have been no documented interactions during this time then say so with reference. Any other CA fisheries that might be of concern?	Scott Benson responded with "no CA interaction with D. Crab from 2017-2020. One rock crab interaction in 2019, not sure if COM or REC"

Commenter	Page	Paragraph	Reviewer Comment	Department Response
Irene Kelly	42	6	Reference? Or who concludes this? Is it really less significant? It is better quantified based on high observer coverage and we have smaller fleets proportionally relative to the international industry, but I'm not sure you can conclude its less significant. You can say US fishery bycatch cannot be discounted and remains a threat to the population.	Accepted Scott Benson's suggestion of "less magnitude." Full response: 'less significant' could be replaced with 'of lower magnitude'. While it's true that US fishery bycatch is better quantified and monitored, and US fleets are smaller relative to the international fleet, there have been some estimates of bycatch on the high seas and international waters, as referenced previously in this document. Authors could also reference Peatman and Nicol 2020 (after receiving permission from SPC and/or WCPFC) who provided annual rough estimates of 600-1900 leatherbacks caught incidentally during 2003-2018 within the Western and Central Pacific Fishery Commission Convention Area, but caution that limited and uneven fishery monitoring introduces substantial uncertainty. Peatman, T., Nicol, S., 2020. Updated longline bycatch estimates in the WCPO. In: 16th Meeting of the Scientific Committee of the Western and Central Pacific Fisheries Commission, WCPFC-SC16, Electronic Meeting, 11 e 20 August 2020. WCPFC-SC16-2020/ST-IP-11.
Bryan Wallace	42	6	Good, this is a balanced concluding statement.	No change needed

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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Bryan Wallace	42	1	This compilation included mostly coastal/small-scale fisheries, not only pelagic. Chile's longline fleet does fish in pelagic waters, but the others included in the 440 were a lot of national-scale drift gillnet bycatch reports.	Added clarification
Scott Benson	43	1	The sample size is small, however, authors could also cite Mrosovsky et al. 2009 (Leatherback turtles: The menace of plastic; Marine Pollution Bulletin 58 (2009) 287–289) to support the statement that marine debris has the potential to be a significant threat.	added
Scott Benson	46	2	This statement is speculative, as we have no direct data on climate impacts on prey and leatherbacks. Poor upwelling strength correlated with lower leatherback abundance in neritic waters, likely due to reduced prey availability. If weak upwelling and productivity are exacerbated by climate change, leatherbacks that forage in neritic central California waters would likely shift their distribution and forage elsewhere; however, it is unknown what impact this would have on leatherback survival, reproduction and population trends.	Revised statement
Scott Benson	47	3	This would most likely result in a distributional shift with unknown consequences for survival and reproduction.	Revised the statement
Bryan Wallace	48	1	Are there any exceptions for traditional or subsistence use?	Added statement
Bryan Wallace	48	1	Really critical point...and in part why I flagged use of the word 'poaching'	No response needed
Bryan Wallace	49	3	Need to revised the statement above about national-scale prohibitions on take	Revised the statement
Bryan Wallace	50	6	Perhaps worth noting that the IATTC passed a similar resolution in 2019, which thus covers the entire range of the population	Added CMM 2018-04 information to section 5.4.1.

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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Irene Kelly	50	6	Update this section to reference the new ST Conservation and Management Measure 2018-04 which has expanded gear/handling requirements to ALL shallow-set longline fisheries operating within the Commission's area.	Added info on CMM 2018-04
Bryan Wallace	52	1	Considering that the population is already listed on the federal ESA, and all of the below is already happening/has happened in CA, I'm left thinking what more will an official, state-level ESA listing do for leatherbacks? Is it largely symbolic? That's still important, of course, but wondering about what (if any) management tools become available that weren't available already. And if state resource management agencies now have to include leatherbacks on what I'm sure is a long list of ESA-listed species, will they also get resources needed to implement new measures? I know that these considerations are not part of the listing determination process, but still noteworthy in the broader context.	Comment noted
Irene Kelly	53	1	What is the 'zone'? Maybe define for those who are not familiar with the fishery or the area.	added
Irene Kelly	53	1	What are these measures?	added
Irene Kelly	53	1	Is this real time decrease? Or in subsequent fishing season?	Clarification added
Irene Kelly	53	1	Again is this real time implementation or in subsequent year?	Clarification added
Bryan Wallace	53	2	So this has been implemented? Or the CA senate simply passed this bill?	Added implemented
Bryan Wallace	54	2	How many total permits exist?	Added details on numbers of permits.

Commenter	Page	Paragraph	Reviewer Comment	Department Response
Bryan Wallace	56	1	What does CA's ESA law require in terms of quantification of degree of threat? Is it enough for this statement (and others like them above) to simply state that something is a threat because there is some form of negative effect on leatherbacks? It might not be required by the statute, but numbers do matter, especially when put in the population context. Are leatherbacks affected by gillnet bycatch? Sure. But are those 'threats'? Perhaps. I suggest that the loggerhead and Kemp's ridley biological status reviews and ESA listing determinations be reviewed for ways to put in context the relative population-level impacts of different threats to a sea turtle population. This is particularly important in this case as this report and consequent listing decision only really applies to the state of CA.	It is true that many of the threats are unquantified. However, the science shows the population has declined significantly and is endangered. Though unquantified, the threats described in this evaluation do negatively impact the population, which I feel we have demonstrated. Thoughts?
Irene Kelly	56	1	This sentence doesn't fit with the subject of habitat destruction.	Removed sentence
Bryan Wallace	56	1	If someone has made this argument to your knowledge, please add references. Otherwise this sounds like something that came up in an informal conversation.	Removed sentence
Irene Kelly	57	1	Since this section is about habitat destruction, I think you need to incorporate discussion about foraging habitat as well given that CA foraging habitat is of relevance to this document.	added

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Commenter	Page	Paragraph	Reviewer Comment	Department Response
Bryan Wallace	57	1	This word suggests an established level of exploitation above which the population will decline. Has such a level been established? For this or any other threat? If so, please provide and highlight this type of analysis in this report, as it would provide really critical context for the overall and threat-specific assessments.	Most sources of mortality are not quantified outside the U.S. In section 5.4.3, it is stated that Curtis et al. identified a limit reference point of a maximum of 7.7 mortalities over a 5 year period in the U.S. EEZ in order to prevent further decline. As far as I know, a limit reference point has not been established for the nesting habitat range.
Bryan Wallace	57	1	Still has not been described where, why, and how much this happens.	Added statements to section 5.2
Bryan Wallace	57	1	See previous comments	Added statements to section 5.2
Bryan Wallace	58	1	So no more restrictions are necessary on US-based fisheries? If you're referring specifically here to exploitation for human consumption vs incidental takes in fisheries, please clarify here and throughout.	Added clarifying statement
Irene Kelly	58	1	This paper references chelonid turtles (green & loggerheads) in Florida, not relevant to leatherbacks.	Accepted deletion
Bryan Wallace	59	1	Compared to what? Do you mean that what is known about leatherback bycatch suggests negative population-level impacts? What about national-scale fisheries management? (aside from the USA)	Added clarification
Irene Kelly	59	1	This information is not included in the previous fishery bycatch section and should be there. Not sure there's value in including it here as this section is an overview/summary of bycatch impacts. Suggest a summary sentence or two summarizing interactions in US fisheries and interactions in international fisheries.	Added to section 5.4
Bryan Wallace	59	1	Everywhere? Including in CA?	Added clarification

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Bryan Wallace	60	1	I appreciate this nuance, but it suggests that it only applies when there is literally no information. One could argue that the 'level of impact' has not been demonstrated in this document for any of the threats evaluated.	Changed unknown to unquantified
Bryan Wallace	60	1	Almost similar to gillnet bycatch rates...	No response needed
Irene Kelly	60	1	Add this information to habitat section	added
Bryan Wallace	60	1	Not sure. If the Benson paper did not highlight any clear climate effects on long-term resource availability, on what basis is the Department making this claim? Is this focused on nesting beach effects?	added "potential"
Scott Benson	61	1	This nesting population was considered to be part of the Northeast Indian Ocean population in the recent global status review (NMFS and USFWS 2020).	Removed Malaysian population statement
Irene Kelly	61	1	Concludes? or agrees with NOAA and USFWS (2020) conclusion that the West Pacific leatherback turtle population is currently at risk of extinction.	added
Irene Kelly	61	1	at risk of extinction	Is the current text CESA language? Edited to match CESA language
Bryan Wallace	63	1	Wondering if much of this doesn't belong up above somewhere, prior to this point in the document? I note that this section largely addresses my previous comment.	No change in order to keep format
Bryan Wallace	63	1	So would this be new, or already in place due to national listing, technically?	Edited statement
Irene Kelly	63	1	what about for research?	Edited statement
Bryan Wallace	64	2	Like offshore wind/wave energy projects, for example? What about shipping, recreational boat traffic, recreational fishing, etc.? could all of those be subject to CEQA review if leatherbacks were state-listed.	No change
Bryan Wallace	66	1	But perhaps with a focus on what can be done in CA?	Very little can be done in CA, but these are in the suggested measures

Status Review of the Pacific Leatherback Sea Turtle (*Dermochelys coriacea*) in California  
California Department of Fish and Wildlife July 2021

Commenter	Page	Paragraph	Reviewer Comment	Department Response
Bryan Wallace	67	1	These should precede the others. The other research is good, but the management actions are the most important things.	agreed, moved
Irene Kelly	67	1	Longline gear? Because both shallow and deep-set LL fisheries interact with sea turtles. What about drift net?	added
Irene Kelly	67	1	Is this when the retrieval program operates? Otherwise no need to mention season as that's not really relevant.	Removed



March 18, 2021

Scott Benson, Research Fishery Biologist  
NOAA/NMFS/Southwest Fishery Science Center  
Marine Mammal and Turtle Division  
7544 Sandholdt Road  
Moss Landing, CA 95039  
Scott.Benson@noaa.gov

Dear Mr. Benson:

RE: Pacific Leatherback Sea Turtle (*Dermochelys coriacea*)

Department of Fish and Wildlife, Status Report Peer Review

Thank you for agreeing to serve as a scientific peer reviewer for the Department of Fish and Wildlife's (Department) Draft Status Review of the Pacific Leatherback Sea Turtle (*Dermochelys coriacea*). A copy of this report, dated March 2, 2021, is enclosed for your use in that review. The Department seeks your expert analysis regarding the scientific validity of the report and its assessment of the status of the Pacific Leatherback Sea Turtle in California. **The Department would appreciate receiving your peer review input on or before May 7, 2021.**

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Sincerely,

Craig Shuman, D. Env.  
Regional Manager

Enclosure

Status Review of the Pacific Leatherback Sea Turtle (*Dermochelys coriacea*) in California  
California Department of Fish and Wildlife July 2021

Re: Peer Review of Pacific Leatherback Status Evaluation



scott benson <scott.benson@noaa.gov>

To Huang, Harrison@Wildlife

Cc Irene Kelly - NOAA Federal; Christina Fahy - NOAA Federal

Reply

Reply All

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Fri 5/7/2021 10:42 AM



You replied to this message on 5/10/2021 2:10 PM.

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Hello Harrison,

I've attached the review draft of the Pacific leatherback CESA status review with comments and suggested edits from Irene Kelly, Christina (Tina) Fahy and myself. Tina had not fully completed her review before sending the document to myself and will send an updated review when finished.

Thank you for the opportunity to review the document. Please let me know if I can be of further assistance.

Best,  
Scott

March 18, 2021

Christina Fahy, Sea Turtle Recovery Coordinator  
National Marine Fisheries Service  
West Coast Regional Office  
501 West Ocean Blvd. Suite 4200  
Long Beach, California 90802  
[Christina.Fahy@noaa.gov](mailto:Christina.Fahy@noaa.gov)

Dear Ms. Fahy:

RE: Pacific Leatherback Sea Turtle (*Dermochelys coriacea*)  
Department of Fish and Wildlife, Status Report Peer Review

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Sincerely,

Craig Shuman, D. Env.  
Regional Manager

Enclosure

Status Review of the Pacific Leatherback Sea Turtle (*Dermochelys coriacea*) in California  
California Department of Fish and Wildlife July 2021

Re: Peer Review of Pacific Leatherback Status Evaluation



Christina Fahy - NOAA Federal <christina.fahy@noaa.gov>

To: Huang, Harrison@Wildlife

Cc: Scott Benson - NOAA Federal; Irene Kelly - NOAA Federal



Fri 4/30/2021 10:16 AM



You replied to this message on 4/30/2021 10:21 AM.

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Hi Harrison--

Thank you, I was about to check in with you today. I am going to start reviewing the status review later this afternoon but I wanted to check and see whether it was okay to work from Irene's draft before I begin. She and I (and Scott) were part of the leatherback status review team for a number of years so I suspect many of her comments/additions may have to do with incorporating information from our status review to ensure it is consistent and current with the status review for CDFW, and whether that makes sense or is relevant. Thus, much of what I may be reviewing/editing may be duplicative.

Please let me know how I should proceed. Thanks so much,

Tina

March 18, 2021

Irene K. Kelly, Sea Turtle Recovery Coordinator  
NOAA Fisheries  
Pacific Islands Region  
1845 Wasp Blvd.  
Honolulu, HI 96818  
Irene.Kelly@noaa.gov

Dear Ms. Kelly:

RE: Pacific Leatherback Sea Turtle (*Dermochelys coriacea*)

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Sincerely,

Craig Shuman, D. Env.  
Regional Manager

Enclosure



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California Department of Fish and Wildlife July 2021

Re: Peer Review of Pacific Leatherback Status Evaluation



Irene Kelly - NOAA Federal <irene.kelly@noaa.gov>

To Huang, Harrison@Wildlife

Cc Christina Fahy - NOAA Federal

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Wed 4/21/2021 5:44 PM



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Aloha Harrison,

Attached are my comments and edits for your consideration. I'll be out of the office April 30 - May 9 so wanted to get this off my plate before then. I'm sharing this with Christina Fahy so she can add any additional edits that she may have from her perspective. Please let me know if there are any questions.

Regards,

**Irene K. Kelly**

*Sea Turtle Recovery Coordinator*

*NOAA Fisheries - Pacific Islands Region*

[Irene.Kelly@noaa.gov](mailto:Irene.Kelly@noaa.gov)

808.725-5141 (office)

808.542.9474 (mobile/text)

March 18, 2021

James T. Harvey, Director  
San José State University  
Moss Landing Marine Laboratories  
8272 Moss Landing Rd.  
Moss Landing, CA 95039  
jharvey@mlml.calstate.edu

Dear Dr. Harvey:

RE: Pacific Leatherback Sea Turtle (*Dermochelys coriacea*)

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Craig Shuman, D. Env.  
Regional Manager

Enclosure

Status Review of the Pacific Leatherback Sea Turtle (*Dermochelys coriacea*) in California  
California Department of Fish and Wildlife July 2021

Re: Peer Review of Pacific Leatherback Status Evaluation



Jim Harvey <jharvey@mlml.calstate.edu>

To Huang, Harrison@Wildlife

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...

Thu 5/6/2021 12:48 PM



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Hi Harrison: Please find attached my comments regarding the Status Review of the Pacific Leatherback Sea Turtle. This is a well written, accurate, and important document. As such, I had very few substantive comments, and most of my suggested changes are editorial.

I hope you find my few edits useful.

Cheers Jim

March 18, 2021

Bryan P. Wallace, Adjunct Associate Professor and Chief Scientist  
Duke University  
The Oceanic Society  
624 Keefer PI NW  
Washington, DC 20010  
bryanpwallace@gmail.com

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RE: Pacific Leatherback Sea Turtle (*Dermochelys coriacea*)

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Regional Manager

Enclosure

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California Department of Fish and Wildlife July 2021

Re: Peer Review of Pacific Leatherback Status Evaluation



Bryan Wallace <bryan@ecolibrum-inc.com>

To: Huang, Harrison@Wildlife



Reply



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Mon 5/10/2021 11:25 AM



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1 MB

Hi Harrison

I grabbed some time today to review the document. My congratulations to the folks who worked on it; it's a succinct yet comprehensive summary of available, relevant information for this assessment and listing determination.

I made several comments in the attached word doc. Please let me know if anything requires further clarification or discussion.

Thanks for the opportunity to review, and for the patience in me getting it to you!

Take care,

Bryan

---

**Bryan Wallace**

Ecolibrum, Inc

email: [bryan@ecolibrum-inc.com](mailto:bryan@ecolibrum-inc.com)

cell/WhatsApp: +01 202 295 7535



## Pacific Leatherback Sea Turtle (*Dermochelys coriacea*) CESA One Year Status Review Report



Presented to:  
California Fish and Game Commission

Presented by:  
Harrison Huang  
Environmental Scientist  
Pelagic Fisheries and Ecosystem Program  
Marine Region



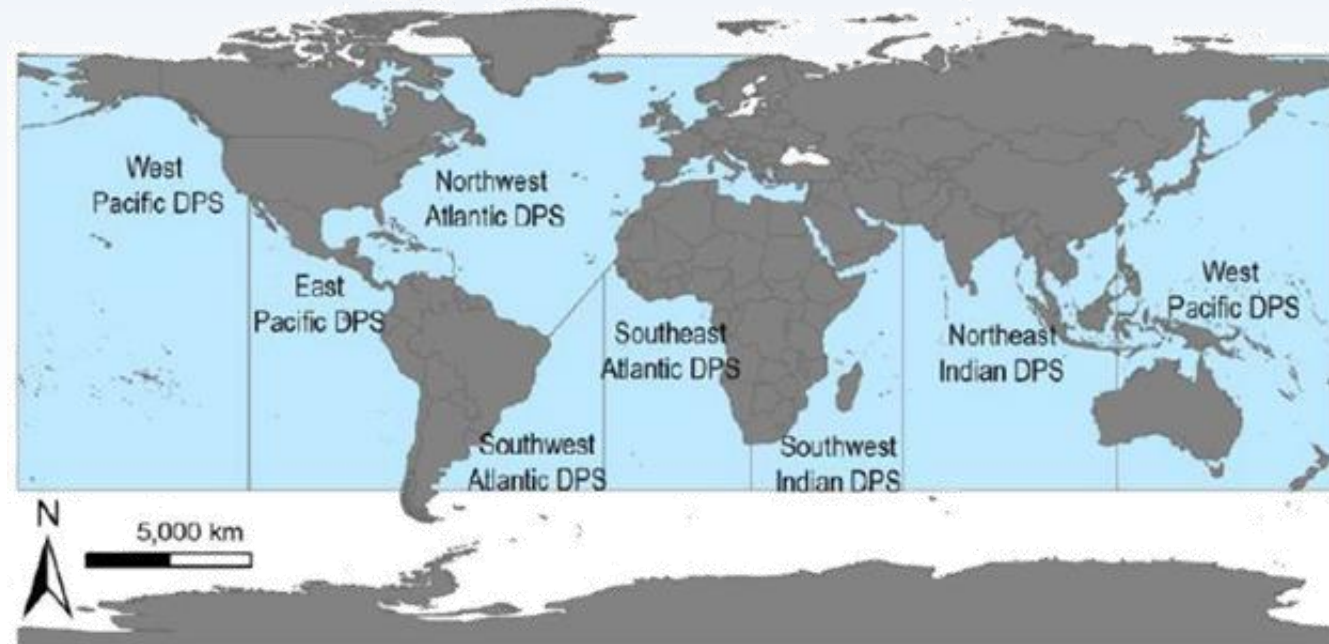


# Listing History

- Federal ESA
  - June 1970: Listed as endangered
- California ESA
  - January 2020: Petition submitted to Commission
  - February 2020: Petition received by CDFW
    - 30-day extension approved
  - June 2020: Department Evaluation received by Commission
  - August 2020: Commencement of one-year status review

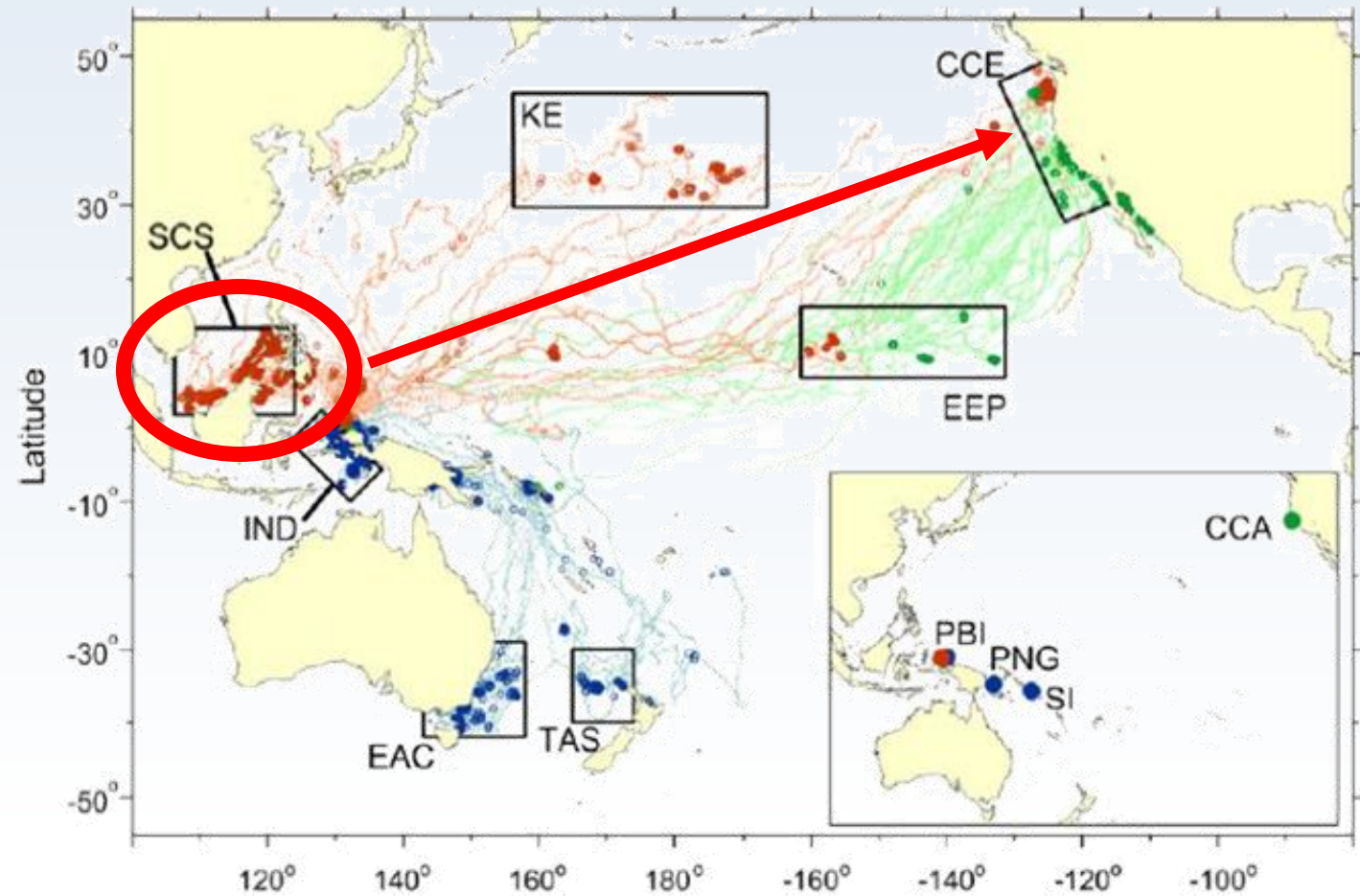
# Biology

- Largest sea turtle species (1.5-2 m, 900 kg)
- Soft ridged carapace, large flippers
- Temperature during incubation influences gender
- Seven distinct subpopulations



# Range

- 2 distinct Pacific subpopulations
  - Eastern Pacific
  - Western Pacific
- A portion of West Pacific stock migrates to North America west coast
  - Forage July-November

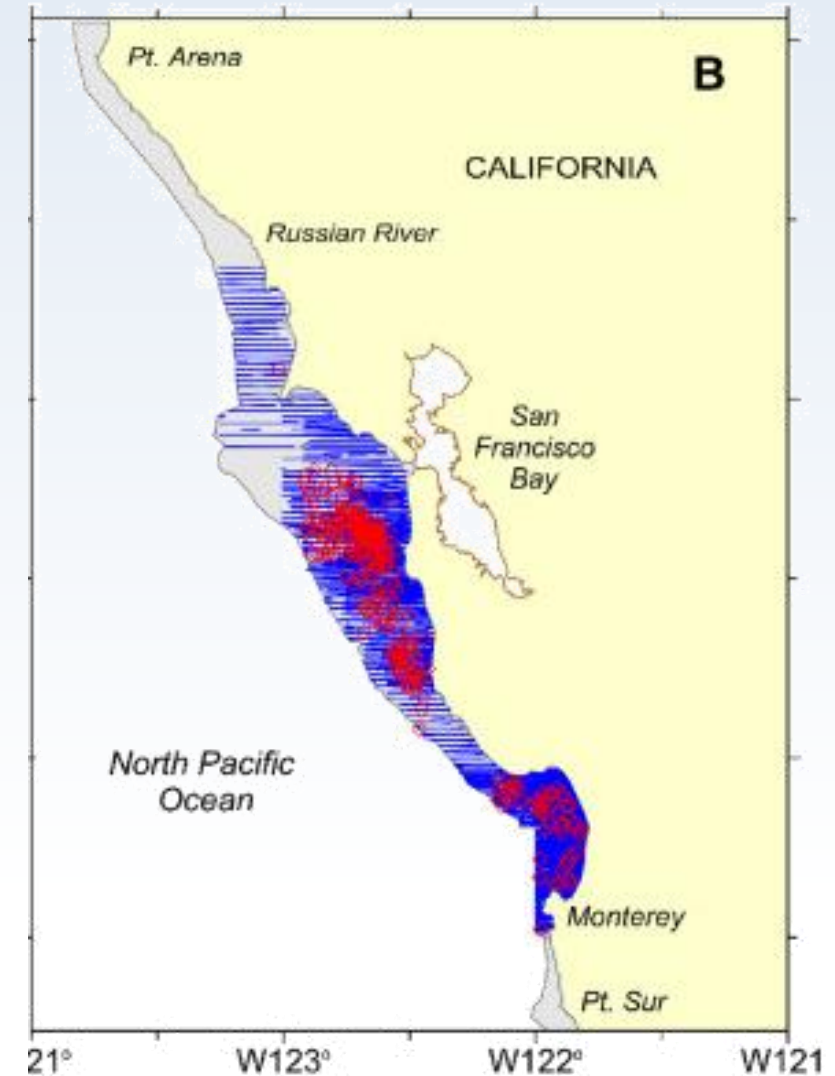


Source: Benson et al. 2011



# California Range

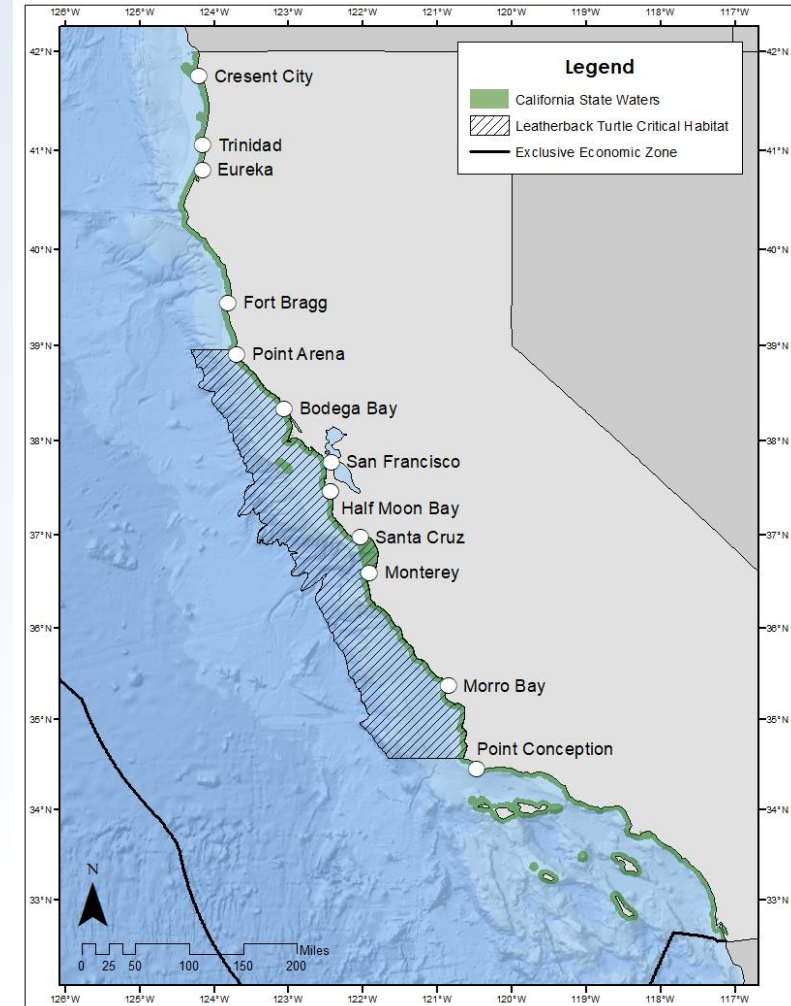
- CA-OR border to U.S.-Mexico border
  - Concentrated sightings in central CA July-November
  - Primary foraging is from Monterey Bay to Point Arena
- Presence related to seasonal upwelling
  - Jellyfish prey availability
- No nesting or coming ashore in California





# Necessary Habitat

- Highly migratory species
  - Needs ability to transit
- Quality foraging areas
  - Pt. Arena to Pt. Arguello is critical habitat
  - Favorable upwelling conditions
- Quality nesting beaches (OUTSIDE U.S.)
  - Unobstructed and mildly sloped
  - Pristine and sandy
  - Continental shores with deep offshore waters







# Population Status/Trends

- 1,277 nesting females<sup>1</sup>
  - 1984-2011: 5.9% annual decline in Indonesian nesting population<sup>2</sup>
  - 2001-2017: annual 6.1% decline<sup>3</sup>
- California foraging leatherbacks
  - Current: estimated 55 turtles<sup>4</sup>
  - 5.6% annual decline from 1990 to 2017, or 80% for the period<sup>5</sup>

<sup>1</sup> NMFS & USFWS 2020

<sup>2</sup> Tapilatu et al. 2013

<sup>3</sup> Martin et al. 2020

<sup>4</sup> Benson, pers. comm 2020

<sup>5</sup> Benson et al. 2020



# Threats to the Population

## Primarily Outside U.S.

- Destruction, modification of nesting habitat
- Legal and illegal take
- Fisheries bycatch
- Pollution and vessel strikes
- Natural disasters and climate change



Source: Center for Biological Diversity and Turtle Island Restoration Network 2020



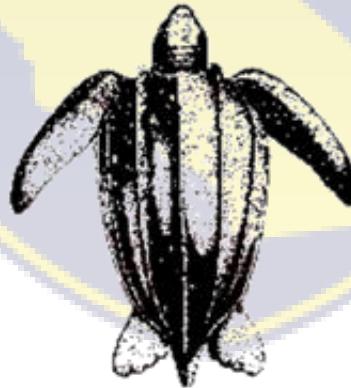
# Listing Recommendation

**Listing Pacific leatherback sea turtle  
as endangered under CESA  
is warranted**



# Thank You

**Harrison Huang**  
**Environmental Scientist**  
**Pelagic Fisheries and Ecosystem Program**  
**(562) 342-7199**  
**Harrison.Huang@wildlife.ca.gov**



Source: <https://www.fws.gov/northflorida/SeaTurtles/Turtle%20Factsheets/leatherback-sea-turtle.htm>

**From:** Robert E. Rutkowski [REDACTED]  
**Sent:** Monday, August 16, 2021 1:53 PM  
**To:** FGC  
**Cc:** Keith Abouchar  
**Subject:** California Agency Recommends Listing Leatherback Sea Turtles as Endangered, Prehistoric Reptiles Threatened by Fishing

Melissa Miller-Henson  
Executive Director  
California Fish and Game Commission  
1416 Ninth Street, Suite 1320, Sacramento, CA 95814  
[fgc@fgc.ca.gov](mailto:fgc@fgc.ca.gov) | (916) 653-4899, (916) 653-7229

Re: California Agency Recommends Listing Leatherback Sea Turtles as Endangered, Prehistoric Reptiles Threatened by Fishing

Dear Executive Director:

The California Department of Fish and Wildlife released its recommendation today to protect leatherback sea turtles as endangered under the state's Endangered Species Act. The status review precedes an October 2021 vote, by the California Fish and Game Commission, on whether to list the turtles.

The state's report makes clear that entanglement in fishing gear is the biggest threat to leatherback sea turtles. These enormous, charismatic sea turtles are threatened in California's waters and internationally. For millions of years, leatherbacks have travelled across the Pacific using their long flippers, which can easily catch on fishing lines. Now California has to commit to ensuring they survive by converting to ropeless pots and traps and doing research to prevent entanglement in other gear.

Scientists estimate that leatherback sea turtles have declined in abundance off California by 5.6% annually over nearly 30 years. An estimated 50 Pacific leatherbacks now forage in California waters annually, as compared to 178 Pacific leatherbacks during the years 1990-2003. Whale-watching trips observed three leatherback sea turtles in August 2020 in Monterey Bay.

California's action today is a decisive step in the recovery of critically endangered leatherback turtles, one of California's most giant, gentle and unique marine species. Combined with earlier action to declare the leatherback the official marine reptile of California, we now must redouble our efforts to eliminate all threats from commercial fishing, pollution and climate change.

Protecting leatherbacks under the California Endangered Species Act would make them a state conservation priority. Despite the lack of regular monitoring of state fisheries, leatherback sea turtles have been found tangled in commercial rock crab (2019) and Dungeness crab gear (2015, 2016).

In June 2020 the California Department of Fish and Wildlife determined that increased protections may be warranted and began the status review. The action came in response to a petition from the Center for Biological Diversity and Turtle Island Restoration Network.

A review of leatherback sea turtle science last year concluded that West Pacific leatherbacks, one of seven distinct populations of leatherback sea turtles worldwide, face a high extinction risk. The National Marine Fisheries Service and U.S. Fish and Wildlife Service found that all seven leatherback sea turtle populations remain endangered and denied a petition by the commercial fishing industry to relax some protections.

The Center and TIRN sued the Trump administration after a fishing permit issued in 2019 exempted vessels from the federal ban on longline gear off California. Longlines stretch up to 60 miles, with thousands of baited hooks. A federal judge in Oakland ruled that the federal government had failed to adequately consider impacts on leatherbacks when it revived longline fishing, blocking the permit.

Yours sincerely,  
Robert E. Rutkowski

cc:  
Legislative Correspondence Team  
Longworth House Office Building  
Washington DC 20515  
[keith.abouchar@mail.house.gov](mailto:keith.abouchar@mail.house.gov)





September 30, 2021

California Fish and Game Commission  
715 P Street, 16th floor  
Sacramento, CA 95814

Agenda item #25: Pacific leatherback sea turtle, CESA listing determination — Support

Dear President Silva and Commissioners:

As a California resident, I write in support of designating the Pacific leatherback sea turtle as endangered under California's Endangered Species Act.

Pacific leatherback sea turtles roamed the earth with dinosaurs, having survived for 100 million years virtually unchanged. But now these animals are disappearing from the oceans – their numbers have declined 95% over the last thirty years, and recent studies show they are continuing to decline off California. Hatched on beaches in Indonesia, full-grown leatherbacks make an impressive migration from these nesting beaches to California waters to feed on jellyfish – a 12,000 mile, round-trip journey. Once they arrive off the West Coast, Pacific leatherbacks face a gauntlet of threats, most notably entanglement in fishing gear. Combined with threats at their nesting sites, the future of the world's largest sea turtle is in danger.

It's not too late to save California's official state marine reptile from becoming extinct. As we approach California's ninth annual Pacific Leatherback Conservation Day, we must do more to prioritize monitoring and research efforts and provide safe passage for these sea turtles to freely swim and feed. Please make protection of these amazing ocean animals a conservation priority by listing them as Endangered under the state's Endangered Species Act, consistent with the recommendation of the California Department of Fish and Wildlife.

Sincerely,

2,155 California residents

<u>First Name</u>	<u>Last Name</u>	<u>City</u>	<u>State</u>	<u>Zip Code</u>
Paul	Aagaard	Newbury Park	CA	91320
Johanna	Abate	San Francisco	CA	94109
Rachel	Abdel	San Francisco	CA	94132
Mimi	Abers	Berkeley	CA	94707
Gianna	Abondolo	Richmond	CA	94804
Carroll	Abshier	Lakewood	CA	90713
Alberto	Acosta	Burbank	CA	91505
Carlos	Acosta	Los Angeles	CA	90033
Mike	Acosta	Riverside	CA	92504
David	Adams	Penn Valley	CA	95946
James	Adams	Sacramento	CA	95827
L	Adams	Escondido	CA	92026
Elizabeth	Adan	Carmichael	CA	95608
Steven	Aderhold	Fallbrook	CA	92088
Carolina	Adler	Studio City	CA	91604
Jill	Adler	Manteca	CA	95337
Roshanne	Aghevli	La Crescenta	CA	91214
Veronica	Aguirre-Dutton	Carpinteria	CA	93013
Natalie	Aharonian	North Hollywood	CA	91605
Karen	Ahn	Sebastopol	CA	95472
Achilles	Aiken	Whittier	CA	90601
Gloria	Albert	Santa Monica	CA	90403
Frances	Alet	Calabasas	CA	91302
Elaine	Alfaro	Felton	CA	95018
Alice	Alford	Blythe	CA	92226
Iona	Ali	San Francisco	CA	94112
Julie	Alicea	Denair	CA	95316
Becky	Alkire	Wilton	CA	95693
Ann	Allen	San Rafael	CA	94903
Michael	Allen	Santa Barbara	CA	93105
Gregory	Alper	Pacific Palisades	CA	90272
Kenneth	Althiser	Cherry Valley	CA	92223
Megan	Alvarado	Lakeside	CA	92040
Kate	Amar	Orangevale	CA	95662
Judy	Amarena	San Carlos	CA	94070
Cristina	Amarillas	Santa Rosa	CA	95405
Mary	Ames	Temecula	CA	92592
Liz	Amsden	Los Angeles	CA	90042
Celeste	Anacker	Santa Barbara	CA	93105
Kristine	Andarmani	Saratoga	CA	95070
Evette	Andersen	Grass Valley	CA	95945
Anabelle	Anderson	La Verne	CA	91750
Judith S	Anderson	Long Beach	CA	90807
Joan	Andersson	Berkeley	CA	94708
Sharyl	Andreatta	Rancho Murieta	CA	95683
S	Andregg	Emeryville	CA	94608
Karen	Andrew	Santa Rosa	CA	95404
JL	Angell	Rescue	CA	95672

Tina	Ann	Bolinas	CA	94924
Murielle	Antoku	San Jose	CA	95123
Patricia	Appel	Laguna Beach	CA	92651
Jacki	Apple	Los Angeles	CA	90034
Marylucia	Arace	Oceanside	CA	92057
Marybeth	Arago	Fort Bragg	CA	95437
Tim	Arai	Berkeley	CA	94702
Elisabeth	Armendarez	Santa Ana	CA	92703
Marsha	Armstrong	Los Gatos	CA	95032
Thomas	Arnold	San Jose	CA	95111
Sherrie	Arra	Fallbrook	CA	92028
Marianne	Arreaga	Los Angeles	CA	90046
Alejandro	Artigas	Glendale	CA	91206
Mary	Arum	Oakland	CA	94611
Mark	Ashby	Orinda	CA	94563
Kate	Ashley	Redwood City	CA	94061
Mee	Asks	Oakland	CA	94606
John	Asprey	Moraga	CA	94556
John	Astaunda	San Diego	CA	92129
Cliff	Atendido	Burlingame	CA	94010
Tom	Atha	Alhambra	CA	91801
Dolores	Athuil	Los Angeles	CA	90048
Ed	Atkins	Boulder Creek	CA	95006
Melissa	Atkinson	Los Angeles	CA	90064
Martha	Aubin	Santa Barbara	CA	93109
Colleen	Auernig	Folsom	CA	95630
Jane	August	Topanga	CA	90290
Abbey	Austin	Thousand Oaks	CA	91360
Teresa	Awtrey	San Jose	CA	95129
Kelly	Ayers	Ontario	CA	91761
M	Baca	Fremont	CA	94536
Kimberly	Bach	Shingle Springs	CA	95682
Michelle	Baik	Brea	CA	92821
Mary	Bailey	Soquel	CA	95073
Rich	Bailey	Santa Maria	CA	93458
Jennifer	Bair	Sacramento	CA	95818
Donna	Baker	Hemet	CA	92545
Thomas	Baker	San Diego	CA	92109
Steven	Bal	San Diego	CA	92108
Jo Ann	Baldiwn	Antioch	CA	94509
Josephine	Baldwin	La Mesa	CA	91941
Barbara	Ballenger	Thousand Oaks	CA	91361
Susan	Bally	Mentone	CA	92359
Susan	Balthasar	Los Osos	CA	93402
Elizabeth	Balvin	La Mesa	CA	91942
Carol	Banever	Los Angeles	CA	90046
Eric	Banks	Ukiah	CA	95482
Graciela	Barajas	San Diego	CA	92102
Kelly	Baraka	El Sobrante	CA	94803

Maria	Barakos	Arleta	CA	91331
Jeffrey	Barile	San Carlos	CA	94070
Jim	Barker	San Jose	CA	95119
Scott	Barlow	Sunnyvale	CA	94087
Michael	Barnes	San Diego	CA	92103
Jerry	Barnett	El Cajon	CA	92021
Judith	Barnett	Tarzana	CA	91356
S.	Barnhart	Berkeley	CA	94507
John	Barone	Santa Monica	CA	90401
Anne	Barr	Kentfield	CA	94904
Elaine	Barrett	San Diego	CA	92103
Tim	Barrington	San Jose	CA	95112
Elizabeth	Barris	Topanga	CA	90290
Sandra	Barros	Saint Helena	CA	94574
S	Barryte	Rancho Palos Verdes	CA	90275
Paula	Barsamian	Santa Cruz	CA	95062
Sharon	Bartlett	Orinda	CA	94563
N. J.	Bast	Morro Bay	CA	93442
Lori	Bates	Oxnard	CA	93035
Leslie	Batista	Fontana	CA	92337
Henning	Bauer	San Francisco	CA	94132
Miriam	Baum	Rancho Cucamonga	CA	91701
Gary	Baxel	Cathedral City	CA	92234
Susannah	Baxendale	Culver City	CA	90232
Jo	Baxter	Laguna Beach	CA	92651
Jon	Bazinet	Vallejo	CA	94591
Donna	Beal	Del Mar	CA	92014
Heidi Jo	Bean	Corona	CA	92879
Jackie	Bear	Los Angeles	CA	90048
Suzi	Beaton	Beverly Hills	CA	90210
Catherine	Beauchamp	Pasadena	CA	91103
Paul	Bechtel	Redlands	CA	92373
Rachel	Beck	Oakland	CA	94609
Carol	Becker	Sherman Oaks	CA	91423
Shari	Becker	West Hills	CA	91307
Pauline	Bedford	Joshua Tree	CA	92252
Lorrie	Beggs	Palmdale	CA	93550
Elise	Behnke	Campbell	CA	95008
Wendy R	Behrbaum	Santa Rosa	CA	95404
Rich	Behymer	Sacramento	CA	95864
Elise	Beliak	Foster City	CA	94404
Kimberly	Beliveau	Vallejo	CA	94589
Mary	Bell	Vista	CA	92083
Cindy	Belleau	Forestville	CA	95436
Michael	Belli	South San Francisco	CA	94080
Sal	Bellia	Oakland	CA	94610
Hilarey	Benda	Sherman Oaks	CA	91423
Doug	Bender	Redondo Beach	CA	90277
Matt	Bender	Cardiff By The Sea	CA	92007

Barb	Benedict	Martinez	CA	94553
Brian	Benjamin	Alpine	CA	91901
Elaine	Benjamin	Alpine	CA	91901
Travis	Benneian	Lake Elsinore	CA	92532
Dixie	Bennett	Canoga Park	CA	91304
Annette	Benton	Pittsburg	CA	94565
Suzanne	Benton	Toluca Lake	CA	91602
Myra	Berario	Castaic	CA	91384
Cheryl	Berg	Carmichael	CA	95608
Karen	Berger	Montrose	CA	91020
Colleen	Bergh	Santa Ana	CA	92704
Eric	Bergman	Santa Clarita	CA	91351
Lynda	Berkhan	San Clemente	CA	92672
Diane	Berliner	Los Angeles	CA	90046
Rainelee	Bernardino	Murrieta	CA	92563
Tricia	Berns	Laguna Beach	CA	92651
Adam	Bernstein	Los Angeles	CA	90012
David	Berry	Los Angeles	CA	90024
Kelly	Berry	San Rafael	CA	94903
Sherry	Berry	Ventura	CA	93003
Skyler	Berry	Cupertino	CA	95014
Alisha	Bettinsoli	Reedley	CA	93654
Sandra	Bever	San Diego	CA	92124
Louise	Bianco	Tarzana	CA	91356
Henry	Biggins	Ukiah	CA	95482
Jane	Biggins	Ukiah	CA	95482
Kathy	Bilicke	Los Angeles	CA	90069
Benjamin	Billhardt	Fontana	CA	92336
Barbara	Bills	Placerville	CA	95667
Janet	Bindas	Walnut Creek	CA	94598
Kevin	Bissonnette	San Clemente	CA	92672
Diana	Black	Aliso Viejo	CA	92656
Jennifer	Black	Auburn	CA	95603
Elke	Blair	Folsom	CA	95630
Meike	Blanc	Beverly Hills	CA	90210
Anne	Blandin	Calexico	CA	92231
Natalie	Blasco	Anderson	CA	96007
Amanda	Blatchford	Pleasant Hill	CA	94523
Patricia	Blevins	San Jose	CA	95118
Don	Bliss	Ukiah	CA	95482
Waundra	Blizzeard	Alturas	CA	96101
Martin	Bloom	San Francisco	CA	94132
Joseph	Blum	San Francisco	CA	94110
Harry	Blumenthal	Eureka	CA	95501
Frances	Blythe	Dixon	CA	95620
Ralph	Bocchetti	Fontana	CA	92337
Kathryn	Boeddiker	Wilton	CA	95693
Sondra	Boes	Campbell	CA	95008
Kathy	Boettcher	Redondo Beach	CA	90277



Susan	Bogdanovich	San Pedro	CA	90732
Ronald	Bogin	El Cerrito	CA	94530
Stephen	Bohac	Twain Harte	CA	95383
Richard	Bold	Vista	CA	92084
Kathie	Boley	Three Rivers	CA	93271
Charlotte	Bolinger	Grass Valley	CA	95945
Kate	Bolton	Petaluma	CA	94952
Randall	Boltz	San Diego	CA	92111
Maryann	Bomarito	Marina	CA	93933
Janet	Bond	Petaluma	CA	94954
Michael	Bordenave	Fresno	CA	93728
R.	Bostaph	Healdsburg	CA	95448
Marty	Bostic	Los Angeles	CA	90025
Vic	Bostock	Altadena	CA	91001
Robert	Boughton	Sacramento	CA	95831
Dave	Boules	Camarillo	CA	93010
Cindi	Bouvier	Carlsbad	CA	92008
Jason	Bowman	Sacramento	CA	95823
Carol	Boyd	Escondido	CA	92027
Ernest	Boyd	Sunnyvale	CA	94087
Gloria	Boyd	Atascadero	CA	93423
David	Boyer	Palo Alto	CA	94304
Jill	Boyle	Claremont	CA	91711
Lynne	Boynton	Corte Madera	CA	94925
Taryn	Braband	Agoura	CA	91301
Mary Ellen	Braden	Glendale	CA	91208
Jennifer	Bradford	Spring Valley	CA	91977
Sean	Brandlin	El Segundo	CA	90245
Karen	Brant	San Francisco	CA	94117
Michael	Braude	Menlo Park	CA	94025
Nicole	Braun	San Diego	CA	92130
Lena	Bravo	Pleasanton	CA	94588
Colleena	Brazen	Walnut Creek	CA	94598
Joan	Breiding	San Francisco	CA	94117
Gayle	Brennan	Woodland Hills	CA	91367
Georgia	Brewer	Sherman Oaks	CA	91401
Wendy	Bridges	Berkeley	CA	94705
C	Briggs	Arcata	CA	95518
William	Briggs	Hermosa Beach	CA	90254
Michael	Brinegan	San Diego	CA	92101
Susan	Brisby	Lancaster	CA	93536
Jordan	Briskin	Palo Alto	CA	94306
Joanne	Britton	San Diego	CA	92115
Blaise	Brockman	Arcadia	CA	91007
Kerstin	Bromander	Concord	CA	94519
Gane	Brooking	Ventura	CA	93004
Jennifer	Brooks	Los Altos	CA	94022
Heather	Brophy	Santa Barbara	CA	93109
Jacqueline	Broulard	Calabasas	CA	91302

Beth	Brown	San Francisco	CA	94141
Damon	Brown	Los Angeles	CA	90016
Kimberly	Brown	Pacific Grove	CA	93950
Meg	Brown	Maricopa	CA	93252
Terri	Brown	Los Angeles	CA	90095
Edie	Bruce	El Cerrito	CA	94530
Iris	Bruel	San Rafael	CA	94901
Joshua	Brumett	Atwater	CA	95301
Bruce	Bryan	Lancaster	CA	93536
Theresa	Bucher	Tarzana	CA	91356
Leo	Buckley	San Francisco	CA	94110
Joseph	Buhowsky	San Ramon	CA	94582
Nancy	Bukowski	Carmichael	CA	95608
Tammy	Bullock	Ramona	CA	92065
Christy	Bulskov	Encinitas	CA	92024
Sharon	Bunch	Piedmont	CA	94611
Deborah	Burge	Garden Valley	CA	95633
Kat	Burgess	Santa Monica	CA	90404
Holly	Burgin	Van Nuys	CA	91405
Russell	Burke	Guerneville	CA	95446
Ruth	Burman	San Carlos	CA	94070
George	Burnash	Rancho Cordova	CA	95670
Jen	Burton	El Cajon	CA	92020
Uc	Burton	Santa Monica	CA	90405
Andrew	Bush	Topanga	CA	90290
Maria	Bustamante	Oakley	CA	94561
Claire	Butler	Hollister	CA	95023
Sam	Butler	Los Angeles	CA	90045
Charles	Byrne	San Francisco	CA	94115
Maria L.	Cabrera	Davis	CA	95617
Sharon	Cagey	Sherman Oaks	CA	91411
Gene	Cain	Sacramento	CA	95826
Tamara	Cain	Sacramento	CA	95826
Dennis	Cajas	Apple Valley	CA	92308
Carlo	Calabi	Angwin	CA	94508
Linda	Calbreath	Chico	CA	95928
Kyle	Calcagno	Encinitas	CA	92024
Jesse	Caldron	Baldwin Park	CA	91706
Charles	Calhoun	San Francisco	CA	94115
Micheal	Cameron	Pacific Grove	CA	93950
Sharon	Camhi	San Francisco	CA	94121
David	Camp	Burbank	CA	91501
Allan	Campbell	San Jose	CA	95132
Brooke	Campbell	Lake Forest	CA	92630
Dudley And Candace	Campbell	Van Nuys	CA	91401
Norma	Campbell	Campbell	CA	95008
T J	Campbell	Studio City	CA	91604
Maya	Camu	Encino	CA	91436
Geraldine	Card-Derr	Exeter	CA	93221

Sylvia	Cardella	Hydesville	CA	95547
Maryfrances	Careccia	Los Angeles	CA	90046
Rebecca	Carey	Santa Maria	CA	93454
Angela	Carleton	Beverly Hills	CA	90212
David	Carlson	West Hollywood	CA	90069
Thomas	Carlton	Culver City	CA	90232
Jim	Carnal	Bakersfield	CA	93309
Kermit	Carraway	Auburn	CA	95602
Paula	Carrier	San Diego	CA	92101
Martha	Carrington	Santa Cruz	CA	95062
John	Carroll	Elk Grove	CA	95624
Angela	Carter	San Pedro	CA	90731
Carl	Cartwright	Whittier	CA	90605
Jennifer	Cartwright	San Clemente	CA	92673
Megan	Casey	Petaluma	CA	94954
Stewart	Casey	Garden Grove	CA	92841
Veronica	Casey	Navarro	CA	95463
Tina	Cash	San Rafael	CA	94901
Max	Casias	Modesto	CA	95355
Thom	Cassidy	Clovis	CA	93611
Robert	Cassinelli	Sacramento	CA	95821
James	Castaldi	Palmdale	CA	93550
Sandy	Castle	Alpine	CA	91901
Susan	Castner-Paine	Burlingame	CA	94010
Jill	Casty	Seaside	CA	93955
Monica	Catalano	Richmond	CA	94805
Joe	Catania	Fresno	CA	93728
Paula	Cavagnaro	Livermore	CA	94550
Michael	Cavanaugh	Redondo Beach	CA	90278
Edward	Cavasian	Palo Alto	CA	94303
G	Caviglia	Morgan Hill	CA	95038
Emilio	Ceballos	Bakersfield	CA	93305
Geoff	Cech	Escondido	CA	92026
Kathy	Cencirulo	Redlands	CA	92373
Carina	Chadwick	Los Angeles	CA	90019
Claire	Chambers	Oakdale	CA	95361
Diane	Chandler	Crescent City	CA	95531
Phil	Chandler	Oxnard	CA	93035
Sharon	Chang	Clearlake Oaks	CA	95423
Carl	Chao	Los Angeles	CA	90042
S.	Chapek	San Francisco	CA	94118
Elaine	Charkowski	Fort Bragg	CA	95437
Stacie	Charlebois	Sebastopol	CA	95472
Anik	Charron	Marina Del Rey	CA	90292
Felicia	Chase	Encino	CA	91436
Joan	Chatman	Albany	CA	94706
Phyllis	Chavez	Santa Monica	CA	90405
Melvin	Cheitlin	San Francisco	CA	94109
Paul	Chek	Falbrook	CA	92028

Paul	Cheney	Watsonville	CA	95076
Cari	Chenkin	Citrus Heights	CA	95610
Justin	Chernow	Paso Robles	CA	93446
Laura	Chico	Marina Del Rey	CA	90292
Deborah	Childers	Modesto	CA	95350
Alysa	Chin	Redwood City	CA	94061
James	Christian	Los Angeles	CA	90034
Sandra	Christopher	Burbank	CA	91505
Thane	Christopher	Burbank	CA	91522
Jonathan	Chu	Fremont	CA	94539
Phyllis	Chu	San Francisco	CA	94134
Wesley	Chuang	Los Angeles	CA	90024
Susan	Ciaramella	Sylmar	CA	91342
Alberto	Cisn	Sunnyvale	CA	94085
Amelia	Clark	La Mesa	CA	91941
Hilary	Clark	Berkeley	CA	94705
Rebecca	Clark	West Hills	CA	91307
Stephanie	Clark	Pleasant Hill	CA	94523
M	Clarke	San Francisco	CA	94122
Richard	Clarke	Palm Desert	CA	92211
Suzan	Clausen	San Diego	CA	92103
Sarada	Cleary	Oceanside	CA	92056
Berna	Cliffe	Long Beach	CA	90803
Barbara	Clifford	Escondido	CA	92026
Frederick	Cliver	Long Beach	CA	90815
Diana	Clock	Berkeley	CA	94705
Jim	Clough	Glendale	CA	91204
Mary	Clumeck	Santa Ana	CA	92705
Luz	Cobarrubias	San Francisco	CA	94114
Alice	Cochran	San Rafael	CA	94901
Lisa	Coffman	Los Osos	CA	93402
David	Cogswell	San Francisco	CA	94118
Joanne	Cohen	San Diego	CA	92117
Karl	Cohen	San Francisco	CA	94117
Tina	Colafranceschi	Whitethorn	CA	95589
J	Cole	Joshua Tree	CA	92252
Cayla	Coleman	San Rafael	CA	94901
David	Coleman	Cobb	CA	95426
Laura	Collins	Rancho Cordova	CA	95670
Britt	Colton	San Diego	CA	92116
Rev. And Mrs.	Colvin	San Francisco	CA	94105
Sandy	Commons	Sacramento	CA	95821
Linc	Conard	Altadena	CA	91001
Vira	Confectioner	Sunol	CA	94586
Senseria	Conley	East Palo Alto	CA	94303
Kristen	Conner	San Pablo	CA	94806
Lyn	Conner	Laguna Niguel	CA	92677
Lauren	Coodley	Napa	CA	94558
Carol	Cook	San Mateo	CA	94403

Claudia	Cook	Ontario	CA	91762
Michael	Cooper	Santa Cruz	CA	95060
Philip	Cooper	Davis	CA	95616
RJ	Cooper	Santa Ana	CA	92705
A	Corbet	Oakland	CA	94610
Kris	Cordova	Loma Linda	CA	92354
Mike	Corleone	Downey	CA	90240
Rod	Cornelius	Sacramento	CA	95833
Stacy	Cornelius	Laguna Beach	CA	92651
John	Cornish	Concord	CA	94521
Stephanie	Corona	Downey	CA	90240
Ronit	Corry	Santa Barbara	CA	93101
Michael	Cortez	Tustin	CA	92780
MC	Corvalan	Redondo Beach	CA	90278
Deborah	Cosentino	Sacramento	CA	95864
David	Cotner	Ventura	CA	93001
Rachel	Courter	Long Beach	CA	90804
Tim	Covey	Ventura	CA	93003
Linda	Cowgill	Santa Monica	CA	90405
Antonia	Cox	Berkeley	CA	94720
Tim	Cox	Claremont	CA	91711
Anna	Craig	Redwood City	CA	94061
Mark	Crane	Los Angeles	CA	90068
Judy	Cribbins	Nevada City	CA	95959
David	Cristini	Westminster	CA	92683
Susan	Croce	Sunnyvale	CA	94087
Jeff	Crossley	Carmichael	CA	95608
Kurt	Cruger	Long Beach	CA	90804
Cathy	Crum	Agoura Hills	CA	91301
John	Cruz	Roseville	CA	95747
Tara	Cufaude	Sacramento	CA	95819
Kermit	Cuff	Mountain View	CA	94041
Sherrell	Cuneo	Los Angeles	CA	90027
Alan	Cunningham	Carmel Valley	CA	93924
Barbara	Cunningham	Glendale	CA	91205
Debra	Cunningham	Oceanside	CA	92054
Jim	Curland	Moss Landing	CA	95039
Barbette	Curran	Laguna Woods	CA	92637
Michael	Curtis	San Diego	CA	92103
Romona	Czichos-Slaughter	Hollister	CA	95023
Isabella	Dadseresht	Murrieta	CA	92562
Rhea	Damon	Calabasas	CA	91302
Krista	Dana	Sunnyvale	CA	94087
Hilary	Danehy	Fremont	CA	94539
Jessica	Dardarian	Folsom	CA	95630
Julia	Darling	Carlsbad	CA	92009
Kimble	Darlington	Smith River	CA	95567
Antonia	Darragh	San Diego	CA	92122
Billy	David	Winters	CA	95694

Lynne	Davies	San Francisco	CA	94114
Jill	Davine	Culver City	CA	90232
Amy	Davis	Carlsbad	CA	92018
Cheryl	Davis	Rio Linda	CA	95673
Jean	Davis	Montrose	CA	91020
Patti	Davis	Santa Monica	CA	90403
Ryan	Davis	Burbank	CA	91502
Shellee	Davis	Cotati	CA	94931
Vicki	Davis	Emerald Hills	CA	94062
James	Dawson	Davis	CA	95618
Patricia	Day	Victorville	CA	92394
Jamie	De Anda	Los Angeles	CA	90045
Jorge	De Cecco	Ukiah	CA	95482
Kenneth	De La Rosa	Anaheim	CA	92804
Carolyn	De Mirjian	Van Nuys	CA	91401
Rayline	Dean	Ridgecrest	CA	93555
Vic	Deangelo	San Francisco	CA	94121
Glen	Deardorff	Castro Valley	CA	94546
Therese	Debing	Pacific Grove	CA	93950
Yves	Decargouet	Lucerne	CA	95458
Terri	Decker	Redding	CA	96001
Bonnie	Declark	San Rafael	CA	94901
Mary	Dederer	Menlo Park	CA	94025
Ester	Deel	Oakland	CA	94603
Mary	Degagne	Santa Rosa	CA	95409
Dolores	Delgado	Sebastopol	CA	95472
Roxanne	Delgado	Antioch	CA	94509
Giuliano	Demartini	Walnut Creek	CA	94596
Lawrence	Deng	San Jose	CA	95120
Marilyn	Dennis	North Hills	CA	91343
Brett	Dennison	Garden Grove	CA	92840
Kim	Desenberg	Richmond	CA	94801
Antonio	Dettori	San Diego	CA	92117
G	Devine	Altadena	CA	91001
Karla	Devine	Manhattan Beach	CA	90266
DJ	Dewitt	Sacramento	CA	95821
David	Dexter	Mill Valley	CA	94941
Deanna	Diaz	La Puente	CA	91744
Leilani	Dicato	Orange	CA	92868
Lori	Dick	Claremont	CA	91711
Amy	Differding	Oakland	CA	94619
Lawrence	Dillard	San Francisco	CA	94124
Sanja	Dimitrijevic	Coronado	CA	92118
Larry	Dinger	Rocklin	CA	95677
Laura	Divenere	Los Angeles	CA	90020
Judy	Doane	San Francisco	CA	94115
Mary	Doane	Watsonville	CA	95076
Jennice	Dobroszczyk	Clovis	CA	93612
Irene	Dobrzanski	Arcadia	CA	91007

David	Doering	San Francisco	CA	94109
Ian	Dogole	Novato	CA	94947
Mari	Dominguez	Lodi	CA	95240
Britton	Donaldson	San Diego	CA	92103
L.L.	Dored	Los Angeles	CA	90046
Ann	Dorsey	Los Angeles	CA	91325
Rob	Doucette	Playa Del Rey	CA	90293
Dennis	Dougherty	Novato	CA	94945
Paulette	Doulatshahi	Playa Del Rey	CA	90293
Jeri	Downing	San Francisco	CA	94134
Sharon	Downs	Crescent City	CA	95531
Christine	Doyka	Garberville	CA	95542
Nikki	Doyle	Oakland	CA	94602
Ramona	Draeger	San Francisco	CA	94117
Peggy	Draper	La Mesa	CA	91942
Karen	Drellich	Lafayette	CA	94549
Tim	Dressel	Oceanside	CA	92056
Mary	Driskill	Mission Viejo	CA	92692
Gary	Droeger	Huntington Beach	CA	92647
Nancy	Dubuc	Pasadena	CA	91104
Monica	Duclaud	San Francisco	CA	94107
Laura	Dufel	Carlsbad	CA	92011
Kellen	Dunn	Manhattan Beach	CA	90266
Arnaud	Dunoyer	Venice	CA	90291
Nico	Duon	Aliso Viejo	CA	92656
Nicolas	Duon	Santa Ana	CA	92705
Cindy	Dupray	Escondido	CA	92025
Kira	Durbin	Sherman Oaks	CA	91423
Samuel	Durkin	Fairfield	CA	94534
Carolyn	Duryea	Saint Helena	CA	94574
Claude	Duss	Auburn	CA	95602
Laura	Dutton	Los Angeles	CA	90004
Darcy	Duval	Oceanside	CA	92054
Denise	Dynan	Santa Rosa	CA	95409
Lee	Eames	Long Beach	CA	90815
Shinann	Earnshaw	Fortuna	CA	95540
Carol	Easton	Aptos	CA	95003
Chris	Eaton	Los Angeles	CA	90041
Amber	Eby	San Francisco	CA	94118
Andres	Echeverria	Culver City	CA	90232
Elaine	Edell	Westlake Village	CA	91362
Robert	Edelman	Santa Cruz	CA	95062
Jonathan	Eden	Berkeley	CA	94707
Iris	Edinger	Woodland Hills	CA	91367
Zoe	Edington	Monterey	CA	93940
Teresa	Edmonds	Carmel Valley	CA	93924
Rick	Edmondson	Danville	CA	94526
Molly	Egan	Shingle Springs	CA	95682
Rhonda	Egan	Oxnard	CA	93035



Susie	Egan	San Diego	CA	92163
Francene	Eguren	Redondo Beach	CA	90277
Vivian	Ehresman	Chatsworth	CA	91311
Sammy	Ehrnman	Alta Loma	CA	91701
Liz	Eisenbeis	Lodi	CA	95242
Laurie	Eisler	Cotati	CA	94931
Nancy	Eisman	Inverness	CA	94937
Diana	Ekholm	Simi Valley	CA	93063
W	El-Ahdab	Oakland	CA	94610
Rich	Elam	San Diego	CA	92117
Holland	Elder	Culver City	CA	90230
Evan	Elias	San Francisco	CA	94109
Anaundda	Elijah	San Luis Obispo	CA	93401
Cheryl	Elkins	San Diego	CA	92105
Caleb	Ellis	Los Angeles	CA	90046
Julie	Ellis	Fort Bragg	CA	95437
Koll	Ellis	Kensington	CA	94707
Bonnie	Elsten	Long Beach	CA	90803
Karen	Emanuel	Tarzana	CA	91356
Scott	Emsley	Carmel	CA	93923
Marilyn	Eng	Diamond Bar	CA	91765
Helen	Engledow	Sonora	CA	95370
Kelly	Erwin	Cathedral City	CA	92234
Dan	Esposito	Manhattan Beach	CA	90266
Nicholas	Esser	Simi Valley	CA	93065
John	Essman	Healdsburg	CA	95448
Keisha	Evans	East Palo Alto	CA	94303
Shalyah	Evans	Los Angeles	CA	90027
Luci	Evanston	San Bruno	CA	94066
John	Everett	Grass Valley	CA	95945
Carol Lynne	Eyster	Redlands	CA	92373
Janice	Fagan	Calabasas	CA	91372
Rita	Fahrner	San Francisco	CA	94110
Judith	Falck-Madsen	Carpinteria	CA	93013
Gael	Faller	Oxnard	CA	93033
Maryam	Faresh	Sherman Oaks	CA	91423
David	Farwell	Carmel	CA	93923
Deb	Federin	La Jolla	CA	92037
Christine	Fedon	Santee	CA	92071
Daniel	Fehr	Redding	CA	96001
James	Feichtl	Belmont	CA	94002
Marla	Feierabend	Santa Barbara	CA	93109
John	Feissel	Sonoma	CA	95476
Ruth	Felix	Walnut Creek	CA	94597
Jon	Fell	Hayward	CA	94544
Amanda	Felt	Covina	CA	91722
Cynthia	Ferguson	Sacramento	CA	95827
Lisa	Ferguson	San Pedro	CA	90731
Kathleen	Fernandez	Huntington Beach	CA	92646



Andrea	Ferrari	Oceanside	CA	92056
Asano	Fertig	Berkeley	CA	94702
Aixa	Fielder	Los Angeles	CA	90028
Heidi	Fielding	North Hollywood	CA	91606
Madeleine	Fields	Aliso Viejo	CA	92656
Chris	Figueroa	Monrovia	CA	91016
Thomas	Filip	Moorpark	CA	93020
Anthony	Fillipone II	San Diego	CA	92122
Linda	Finley	San Pedro	CA	90731
Jim	Finn	Cazadero	CA	95421
Klara	Firestone	Beverly Hills	CA	90212
Carole	Firestone-Gillis	Healdsburg	CA	95448
Jason	Fish	Fair Oaks	CA	95628
Larry	Fish	Moreno Valley	CA	92557
Austin	Fite	Santa Monica	CA	90401
F	Fitz	Irvine	CA	92604
Stan	Fitzgerald	Walnut Creek	CA	94595
Brian	Flaigmore	San Diego	CA	92105
Sara	Flamm	Los Angeles	CA	90034
M	Flannery	Oakland	CA	94609
Elise	Flashman	Los Angeles	CA	90065
Carol	Fleitz	Alameda	CA	94501
Stephanie	Flesner	Lakewood	CA	90713
Byron	Fogel	Panorama City	CA	91402
Susie	Foot	Mckinleyville	CA	95519
Jane	Forbes	Santa Cruz	CA	95060
Sterling	Forbes	Santa Cruz	CA	95062
Kathleen	Ford	Burbank	CA	91505
Megan	Forester	Antelope	CA	95843
William	Fornaciari	San Diego	CA	92130
Kim	Forrest	Los Banos	CA	93635
Douglas	Forsell	Point Arena	CA	95468
Genette	Foster	Pasadena	CA	91106
Elena	Fowler	Palm Desert	CA	92260
Joy	Fox	Valley Village	CA	91607
Janene	Frahm	San Anselmo	CA	94979
Carly	Fraizer	Orangevale	CA	95662
Laurie	Fraker	El Centro	CA	92243
Darren	Frale	Los Angeles	CA	90065
Barbara	Frances	Aromas	CA	95004
Marion	Frank	Berkeley	CA	94704
William	Franklin	Oakdale	CA	95361
Amy	Franz	La Habra Hts.	CA	90631
Mary	Franz	Laguna Beach	CA	92651
Marivee	Framer	Boulder Creek	CA	95006
Cary	Frazee	Eureka	CA	95503
Barbara	Frazer	Sacramento	CA	95816
Kelly	Frazier	Desert Hot Springs	CA	92240
Rea	Freedom	Los Gatos	CA	95033

Linda	Freeman	Yuba City	CA	95991
Jan	Friel	Fullerton	CA	92831
Friend	Friend	Santa Clara	CA	95050
Nicolette	Froehlich	Acampo	CA	95220
Jeff	Fromberg	Los Angeles	CA	90024
Kristina	Fukuda	Los Angeles	CA	90034
Judy	Fukunaga	Arroyo Grande	CA	93421
Marilyn	Fuller	Los Gatos	CA	95033
Carol	Fusco	Berkeley	CA	94708
Mal	Gaff	Lompoc	CA	93436
Joyce	Galantai	Los Angeles	CA	90004
Angela	Gantos	Tiburon	CA	94920
Sharma	Gaponoff	Grass Valley	CA	95949
Marcia	Garceau	San Diego	CA	92129
Armando A.	Garcia	Perris	CA	92571
Hector	Garcia	Pasadena	CA	91103
Jeffery	Garcia	Mendocino	CA	95460
Ked	Garden	Lemon Grove	CA	91945
Gabriel	Gardner	Lakewood	CA	90712
Jan	Gardner	Rolling Hills Estates	CA	90274
Glenn	Garland	Sherman Oaks	CA	91403
Dana	Garman Jacobsen	Santa Monica	CA	90404
Jamila	Garrecht	Petaluma	CA	94952
Jessie	Gates	San Diego	CA	92131
Patricia	Gavigan	Los Angeles	CA	90036
Gertrude	Gebin	Daly City	CA	94015
Lisa	Gee	La Crescenta	CA	91224
Steffanie	Gee	Los Angeles	CA	90064
Sandra	Geist	Santa Cruz	CA	95060
Jenny	Gelbard	Sacramento	CA	95821
H Clarke	Gentry	Oakland	CA	94609
George	Georganas	Elk	CA	95432
Catherine	George	Napa	CA	94559
Alexis	Georgiou	Santa Clara	CA	95054
Mark	Geraghty	Santa Monica	CA	90405
Michael	Gertz	San Francisco	CA	94117
Lisa	Gherardi	Los Gatos	CA	95032
Phoenix	Giffen	Fairfax	CA	94930
Camille	Gilbert	Santa Barbara	CA	93101
Nancy	Gillis	North Hollywood	CA	91602
Barbara	Ginsberg	Santa Cruz	CA	95062
Mark	Giordani	Woodland Hills	CA	91303
Asiah	Giuntoni	Palmdale	CA	93551
Barbara	Gladfelter	Dixon	CA	95620
Catherine	Glahn	San Mateo	CA	94402
Paula	Glaser	Pico Rivera	CA	90660
Mark	Glasser	Los Angeles	CA	90066
Susan	Glasser	Los Angeles	CA	90066
Joe	Glaston	Desert Hot Springs	CA	92240

Robert	Glover	Fresno	CA	93726
Gary	Goetz	Pacific Grove	CA	93950
Frances	Goff	Pasadena	CA	91107
Geoff	Goins	Vallejo	CA	94590
Sandra	Gold	Poway	CA	92064
Daniel	Goldberg	Santa Cruz	CA	95060
John	Golding	Oakland	CA	94619
Jill	Goldman	Toluca Lake	CA	91610
Kathleen	Goldman	Manhattan Beach	CA	90266
Susan	Goldstein	Danville	CA	94526
Vola	Golena	Beverly Hills	CA	90210
Eleanor	Gomez	Cloverdale	CA	95425
Adriana	Gonzalez	Fresno	CA	93722
Alan	Gonzalez	Long Beach	CA	90815
Margarita	Gonzalez	Sylmar	CA	91342
Renaldo	Gonzalez	Yucca Valley	CA	92284
Theresa	Gonzalez	Redwood City	CA	94063
Yazmin	Gonzalez	Bellflower	CA	90706
Margaret	Goodman	Pacific Grove	CA	93950
Patti	Goodman	Encinitas	CA	92024
Christine	Goodstein	Studio City	CA	91604
Carol	Gordon	Los Angeles	CA	90027
Ingrid	Gordon	Berkeley	CA	94710
Robert	Gordon	Santa Monica	CA	90403
Mark	Gotvald	Pleasant Hill	CA	94523
Crystal	Govea	Placentia	CA	92870
Kathy	Govreau	Morongo Valley	CA	92256
Kathlyn	Grabenstein	Costa Mesa	CA	92626
Steve	Graff	Los Angeles	CA	90025
Katherine	Gramoglia	Orange	CA	92867
Donna	Grampp	Fullerton	CA	92831
Fred	Granlund	N Hollywood	CA	91601
Gia	Granucci	Healdsburg	CA	95448
Ann	Graves	San Leandro	CA	94578
Caryn	Graves	Berkeley	CA	94702
Margery	Gray	San Francisco	CA	94116
Randy	Gray	San Marcos	CA	92078
Mechtilde	Grebner	Redondo Beach	CA	90277
Edward	Green	San Diego	CA	92107
Jamie	Green	Ventura	CA	93004
Pamela	Green	Tiburon	CA	94920
Corinne	Greenberg	Berkeley	CA	94707
Jeanne	Greene	Chico	CA	95928
Linda	Greene	La Habra	CA	90631
Brigette	Greener	San Jose	CA	95126
Rodman	Gregg	Los Angeles	CA	90034
Faye	Gregory	Colton	CA	92324
Kris	Gregory	San Jose	CA	95112
William L	Grgurich	Palo Alto	CA	94301

Debi	Griepsma	Fontana	CA	92335
Joan	Griffin	Nevada City	CA	95959
David	Griffith	Rancho Cucamonga	CA	91737
Antonio	Grijalva	Los Angeles	CA	90068
David	Grimshaw	Copperopolis	CA	95228
Maria	Gritsch	Los Angeles	CA	90046
Alexis	Grone	Oceanside	CA	92058
Sandy	Gross	Lynwood	CA	90262
Ann	Grow	Cardiff By The Sea	CA	92007
Paul	Gruber	Berkeley	CA	94703
Adriana	Guastavino	Jamestown	CA	95327
Stacy	Guillen	Oceanside	CA	92056
Bridgette	Guin	Manteca	CA	95336
Melodi	Gulsen	Fullerton	CA	92831
Geralyn	Gulseth	Alameda	CA	94502
Bob	Gunn	Santa Barbara	CA	93103
Sylvia	Gunning	Newbury Park	CA	91320
J. Barry	Gurdin	San Francisco	CA	94122
David O.	Gurley	Santa Rosa	CA	95404
Jill	Gustafson	Albany	CA	94706
Elin	Guthrie	Los Angeles	CA	90019
David	Gutierrez	Los Angeles	CA	90031
Stefanie	Guynn	Berkeley	CA	94707
Mario	Guzman	San Jose	CA	95112
Dale	Haas	San Diego	CA	92115
Natalie	Haddad	Los Angeles	CA	90015
Dvera	Hadden	Mill Valley	CA	94941
Sherry	Haffenden	Canoga Park	CA	91303
Gloria	Hafner	Rohnert Park	CA	94928
Alan	Haggard	San Diego	CA	92105
Sean	Hagstrom	Redlands	CA	92375
Michael	Hague	Yuba City	CA	95993
Brenda	Haig	Long Beach	CA	90803
Denise	Halbe	Sonoma	CA	95476
Christopher	Hall	Glendale	CA	91203
Diana	Hall	Mountain View	CA	94041
Ellen	Hall	Pacifica	CA	94044
Holly	Hall	Temecula	CA	92592
Karen	Hall	Sonoma	CA	95476
Sue	Hall	Castro Valley	CA	94546
Frederick	Hamilton	Rancho Cucamonga	CA	91739
Pamela	Hamilton	West Sacramento	CA	95605
Patricia	Hammons-Lewis	Los Angeles	CA	90034
Clarice	Hampel	Foster City	CA	94404
Susanna	Han	San Diego	CA	92103
Sharon	Handa	San Francisco	CA	94131
Khai	Hang	Baldwin Park	CA	91706
Steve	Hanlon	Los Angeles	CA	90049
Rayan	Hanna	Los Angeles	CA	91343

Ron	Hansel	West Covina	CA	91790
Karin	Hansen	Oakland	CA	94609
Kathy	Hanson	Huntington Beach	CA	92649
Barbara	Harper	Castroville	CA	95012
Charesa	Harper	Napa	CA	94558
Silva	Harr	Concord	CA	94521
Gabrielle	Harradine	Malibu	CA	90265
Jan	Harrell	W. H.	CA	91367
Marc	Harries	Beverly Hills	CA	90210
Beverly	Harris	Beverly Hills	CA	90212
David	Harris	Ventura	CA	93003
John	Harris	Bay Point	CA	94565
Laurel	Harris	Rutherford	CA	94573
Lois	Harris	Claremont	CA	91711
Zoe	Harris	San Anselmo	CA	94979
Jennifer	Harrison	San Francisco	CA	94131
John	Harter	Marina	CA	93933
Heidi	Hartman	Simi Valley	CA	93065
Nancy	Hartman	Lafayette	CA	94549
Randall	Hartman	San Clemente	CA	92673
Erfin	Hartojo	Walnut	CA	91789
Peter	Hartzman	Sunnyvale	CA	94087
Brit	Harvey	Berkeley	CA	94702
Claudia	Hasenhuttl	Glendale	CA	91206
Pratiksha	Hasji	North Highlands	CA	95660
David	Haskins	San Diego	CA	92105
Nadine	Hatcher	Camarillo	CA	93010
James	Hatchett	Reseda	CA	91335
Susan	Hathaway	Pico Rivera	CA	90660
Artineh	Havan	Burbank	CA	91501
Alys	Hay	Windsor	CA	95492
Noah	Haydon	Daly City	CA	94015
Christine	Hayes	Upland	CA	91786
T.	Haynes	Capistrano Beach	CA	92624
Michael	Hazelton	San Jose	CA	95112
Susan	Head	Sausalito	CA	94965
Kevin	Hearle Ph.D.	San Mateo	CA	94402
Sarah	Hearon	Santa Barbara	CA	93103
Nancy	Heck	Santa Maria	CA	93454
Kyle	Heger	Albany	CA	94706
Jessica	Heiden	Eureka	CA	95503
Christine	Hein	Huntington Beach	CA	92648
Bridgett	Heinly	San Diego	CA	92107
Amanda	Heinrich	Goleta	CA	93117
Penny	Heintz	Cedar Ridge	CA	95924
Lesle	Helgason	Pebble Beach	CA	93953
Karen	Hellwig	Los Angeles	CA	90056
Miranda	Helly	Oakland	CA	94612
Karla	Henderson	San Ysidro	CA	92173

Lynette K	Henderson	Chatsworth	CA	91311
Mike	Henderson	San Luis Obispo	CA	93405
Nancy	Henderson	Orinda	CA	94563
Sandra	Hendricks	Sutter Creek	CA	95685
Christa	Hennessy	Alta Loma	CA	91701
Birgit	Hermann	San Francisco	CA	94117
Birgit	Hermann	San Francisco	CA	94117
Thomas	Hernandez	Corona	CA	92881
Beth	Herndobler	Pasadena	CA	91106
Laura	Herndon	Burbank	CA	91505
Ana	Herold	Pacifica	CA	94044
Alexandra	Herrera	Santa Clarita	CA	91387
Raymond	Herrera	Torrance	CA	90502
Eleanor	Herscher	Culver City	CA	90230
Darienne	Hetherman	Altadena	CA	91001
Suzanne	Hewey	San Diego	CA	92123
Joyce	Heyn	Poway	CA	92064
Jacquie	Hicks	Santa Ana	CA	92704
Robert	Hicks	Long Beach	CA	90803
Nancy	Hiestand	Davis	CA	95616
Julie	Higgins	Mendocino	CA	95460
Diane	Higgs	West Hills	CA	91307
Eleanor	High	Ventura	CA	93003
Debra	Hill	Eureka	CA	95501
Eloise	Hill	Alameda	CA	94501
Dana	Hinkle	Red Bluff	CA	96080
Deborah	Hirsh	San Leandro	CA	94577
Ah	Ho	Foster City	CA	94404
Lynn	Hoang	Fullerton	CA	92833
Karen	Hobday	Los Angeles	CA	90046
Zora	Hocking	Santa Rosa	CA	95401
Cindy	Hodges	Danville	CA	94506
Suzanne	Hodges	Rancho Cordova	CA	95670
John	Hoffman	Whittier	CA	90602
Mary	Hoffman	Santa Barbara	CA	93105
Michael	Hogan	Del Mar	CA	92014
Peter	Hogan	Glendale	CA	91206
Donald	Holcomb	El Cajon	CA	92019
Cathy	Holden	Sacramento	CA	95865
Carla	Holguin	Los Angeles	CA	90027
Howard	Holko	San Anselmo	CA	94960
Candace	Hollis-Franklyn	Belvedere Tiburon	CA	94920
Sidney J.P.	Hollister	San Francisco	CA	94133
Stephen	Holman	Alhambra	CA	91801
Steven	Holzberg	Fair Oaks	CA	95628
Shelby	Homer	San Diego	CA	92104
Mike	Honda	Santa Ana	CA	92706
Susan	Hood	Sacramento	CA	95821
Stoney	Hooker	San Diego	CA	92121

Grace	Hoolihan	Simi Valley	CA	93065
Winifred	Hopkins	Fullerton	CA	92833
Martin	Horwitz	San Francisco	CA	94122
Cyndi	Houck	Santa Rosa	CA	95405
Erin	Howard	Oakland	CA	94602
John	Howard	Venice	CA	90291
Lynn	Howard	San Diego	CA	92109
Robin	Howe	Escondido	CA	92027
Sherrie	Howell	Pleasanton	CA	94588
Linda	Howie	Woodland Hills	CA	91367
Angela	Hoyes	Alta Loma	CA	91737
Katherine	Hsu	Cerritos	CA	90703
Gabriel	Hubbard	Richmond	CA	94805
Raymie	Huerta	Chula Vista	CA	91911
Vicki	Hughes	Huntington Beach	CA	92648
Saroyan	Humphrey	San Francisco	CA	94117
Paul	Hunrichs	Santee	CA	92071
Jane	Hunziker	Venice	CA	90291
Mark	Hurst	Orinda	CA	94563
Jacob	Huskey	Santa Cruz	CA	95060
Melissa	Hutchinson	Pacific Grove	CA	93950
Charles	Huynh	Irvine	CA	92612
Harvey	Hyman	Orangevale	CA	95662
Deborah	Iannizzotto	Escondido	CA	92027
Kim	Ina	Daly City	CA	94014
Maryan	Infield	San Luis Obispo	CA	93401
Kajsa	Ingelsson	West Hollywood	CA	90046
Vanessa	Ipsen	San Carlos	CA	94070
Lynn	Ireland	Larkspur	CA	94977
Yvette	Irwin	Martinez	CA	94553
Karole	Ishida	Los Gatos	CA	95033
Lisa	Isley	Mill Valley	CA	94941
Tasha	Isolani	Berkeley	CA	94708
Julia	Ivanova	Los Angeles	CA	90210
Steve	Iverson	Newport Beach	CA	92660
Elizabeth	Jache	Lemon Grove	CA	91945
Alicia	Jackson	Vallejo	CA	94591
Gregory	Jackson	Los Angeles	CA	90046
Laura	Jacobson	Walnut Creek	CA	94595
Karen	Jacques	Sacramento	CA	95811
Paula	Jain	Nevada City	CA	95959
Corinne	James	Clovis	CA	93613
Reva	James-Frye	San Francisco	CA	94115
Anthony	Jammal	Roseville	CA	95661
Ramsey	Jammal	Daly City	CA	94015
Jenniferlynn	Jankesh	Santa Monica	CA	90403
Robert	Jardine	Cupertino	CA	95014
Richard	Jellerson	Blue Jay	CA	92317
Jeffrey	Jenkins	Diamond Bar	CA	91765



Beverly	Jennings	Santa Cruz	CA	95060
Gina	Jennings	Azusa	CA	91702
Elaine	Jensen	Vista	CA	92081
Lisa	Jensen	Santa Cruz	CA	95062
Sakura	Jimenez	Van Nuys	CA	91405
Cristina	Jitcov	Torrance	CA	90504
Heather	John	Inglewood	CA	90302
Alice	Johnson	Sacramento	CA	95841
Brittany	Johnson	Simi Valley	CA	93065
Christine	Johnson	Indio	CA	92201
Karen	Johnson	Laguna Hills	CA	92653
Larry	Johnson	Pomona	CA	91767
Randy	Johnson	Sebastopol	CA	95472
Robert	Johnson	El Segundo	CA	90245
Shawn	Johnson	Encinitas	CA	92024
Tom	Johnson	Emerald Hills	CA	94062
Evelyn	Johnson-Todd	Fresno	CA	93727
Don	Johnston	Davis	CA	95618
Karen	Johnston	Chatsworth	CA	91311
Linda	Johnston	Roseville	CA	95747
Michael A	Johnston	San Diego	CA	92176
Amelia	Jones	Santa Monica	CA	90405
Diana	Jones	Hacienda Heights	CA	91745
Jan	Jones	El Cerrito	CA	94530
Jeff	Jones	El Cajon	CA	92019
Ronald	Jones	San Diego	CA	92107
S	Jones	Costa Mesa	CA	92627
Shawn	Jones-Bunn	Avila Beach	CA	93424
Aga	Kadlubowska	Los Angeles	CA	90020
Pauline	Kahney	San Francisco	CA	94102
Marianne	Kai	Sherman Oaks	CA	91403
N.	Kaluza	El Sobrante	CA	94803
Constance	Kao	San Francisco	CA	94110
Ann	Kaplan	Mill Valley	CA	94941
Eileen	Karzen	Los Angeles	CA	90064
Michael	Kast	Panorama City	CA	91402
Lise	Kastigar	Laguna Niguel	CA	92677
Hannah	Kasulka	Los Angeles	CA	90027
M S	Kate	Redwood City	CA	94062
Paula	Katz	San Francisco	CA	94116
Andrea	Kaufman	Guerneville	CA	95446
Michael	Kavanaugh	San Francisco	CA	94116
Tony	Kazmer	Fresno	CA	93710
Robert	Keats	Santa Barbara	CA	93101
Lauren	Keenan	Salinas	CA	93908
Lori	Kegler	San Pedro	CA	90731
Nancy	Keleher	Ferndale	CA	95536
Lisa	Kellman	San Francisco	CA	94131
Keith	Kellogg	Santa Cruz	CA	95060



Beverly	Kelly	Quincy	CA	95971
Jessica	Kelmon	Concord	CA	94518
Ballinger	Kemp	Richmond	CA	94804
Donna	Kemp	Chico	CA	95973
Erik	Kemper	Laguna Niguel	CA	92677
Aaron	Kenna	La Mesa	CA	91942
Eden	Kennan	Van Nuys	CA	91405
Ella	Kennedy	San Francisco	CA	94118
Ian	Kent	Kirkwood	CA	95646
Devon	Kerbow	Norco	CA	92860
Charlene	Kerchevall	Oceanside	CA	92054
Cathy	Kermer	Culver City	CA	90230
Carol	Kerridge	Del Mar	CA	92014
Rhonda	Kess	Burbank	CA	91506
Kristen	Kessler	Ventura	CA	93004
Marco M.	Khanlian	La Crescenta	CA	91214
Rubi	Khilnani	San Mateo	CA	94402
Barbara	Kiernan	Olivehurst	CA	95961
Vanessa	Killingsworth	Spring Valley	CA	91977
Karen	Kim	Los Angeles	CA	90020
Sarah	Kim	Santa Clara	CA	95051
Elli	Kimbauer	Crescent City	CA	95531
Christopher	King	Oregon House	CA	95962
Jean	King	Livermore	CA	94550
Nanook	Kinnear	Santa Ana	CA	92705
Heather	Kinney Fortin	Long Beach	CA	90802
Rachel	Kinsolving	Santa Cruz	CA	95062
Abi	Kirby	Los Angeles	CA	91303
Connie	Kirkham	Clearlake Oaks	CA	95423
Peggie	Kirkpatrick	Yorba Linda	CA	92886
Sydney	Kirsop	Valley Village	CA	91607
Elmone	Kissling	Eureka	CA	95503
Amanda	Klauk	Hemet	CA	92545
Leslie	Klein	Los Angeles	CA	90027
Linda	Klein	El Segundo	CA	90245
Renee	Klein	Marina Del Rey	CA	90292
Priscilla	Klemic	Sherman Oaks	CA	91401
Diana	Kliche	Long Beach	CA	90804
Martina	Klingenfuss	Belmont	CA	94002
George	Klipfel li	Cathedral City	CA	92234
Thomas	Knecht, Md, Phd	Nipomo	CA	93444
Kendra	Knight	Burlingame	CA	94010
Elena	Knox	Volcano	CA	95689
Valerie A	Kobal	Vineburg	CA	95487
Anne	Kobayashi	San Diego	CA	92122
Valeria	Kobzak	Los Angeles	CA	90210
Cindy	Koch	Long Beach	CA	90807
Martha	Koch	Burlingame	CA	94010
Bridget	Koch-Timothy	Sacramento	CA	95818

Diana	Koeck	Costa Mesa	CA	92626
Patricia	Kolchins	Calabasas	CA	91302
Robert	Kolesnik	Upland	CA	91784
Rashmika	Kommidi	San Jose	CA	95135
Jennifer	Kopczynski	Camarillo	CA	93010
Steven	Korson	Riverside	CA	92505
Kathy	Kosinski	Goleta	CA	93117
Bettina	Kotrich	Los Angeles	CA	90034
Rick	Koury	Los Gatos	CA	95032
Leslie	Kowalczyk	Sonora	CA	95370
Danelia	Kracht	Clayton	CA	94517
Karyn	Kraft	Mill Valley	CA	94941
Gail	Krieger	Valley Springs	CA	95242
Evan Jane	Kriss	Sausalito	CA	94965
Kevin	Krywko	San Marcos	CA	92069
Jerine	Kurashige	Berkeley	CA	94707
Sheri	Kuticka	Concord	CA	94518
Adela	La Pez	Anaheim	CA	92801
Laakea	Laano	Oakland	CA	94611
Georgia	Labey	Palm Desert	CA	92211
Roxanne	Lachapelle	Orange	CA	92867
Rochelle	Lafrinere	San Diego	CA	92114
Carol	Lam	Irvine	CA	92602
Stephanie	Laman	San Diego	CA	92115
Kelley	Lamke	Rohnert Park	CA	95405
Michael	Lamperd	San Francisco	CA	94122
Beth	Lander	San Diego	CA	92115
Katherine	Lander	Westminster	CA	92683
Dennis	Landi	Los Angeles	CA	90003
Dana	Landis	San Francisco	CA	94114
Marisa	Landsberg	Manhattan Beach	CA	90266
Jeri	Langham	Sacramento	CA	95827
Billie Lee	Langley	Torrance	CA	90501
Jason	Lannum	Pittsburg	CA	94565
Catherine	Lanzl	Encinitas	CA	92024
Kenneth	Lapointe	Los Angeles	CA	90031
Joann	Lapolla	San Diego	CA	92122
Laura	Larocca	Toluca Lake	CA	91602
Rebekah	Laros	Novato	CA	94949
Linda	Larsen	Inglewood	CA	90304
Nadine	Larsen	San Juan Capistrano	CA	92675
Elaine	Larson	Sonoma	CA	95476
R Dene	Larson Jr	San Francisco	CA	94117
Natacha	Lascano	Rocklin	CA	95765
Liana	Laskin	Sunnyvale	CA	94087
Sharon	Latta	Lincoln	CA	95648
Corey	Lavallee	Simi Valley	CA	93065
Kathleen	Lavelle	Los Angeles	CA	90065
Susana	Lavery	Fort Bragg	CA	95437

Brandon	Lawrence	Pleasant Hill	CA	94523
Jamie	Le	Alameda	CA	94501
Jan	Leath	Glendale	CA	91205
Jared	Leavitt	Oceanside	CA	92058
Harlan	Lebo	La Mirada	CA	90637
Audrey	Lee	Lodi	CA	95242
Brenda	Lee	Lakewood	CA	90712
Hansol	Lee	Pasadena	CA	91106
Peter	Lee	San Francisco	CA	94118
Richard	Lee	Salinas	CA	93907
Susie	Lee	Fullerton	CA	92835
Nancy	Leech	East Palo Alto	CA	94303
Cindy	Leerer	Berkeley	CA	94702
Harriet	Leff	San Francisco	CA	94108
Rose	Leidolph	Citrus Heights	CA	95621
Nicholas	Lenchner	Santa Rosa	CA	95403
Viki	Leonard	Santa Rosa	CA	95403
Penelope	Lepome	Ridgecrest	CA	93555
Lynne	Lerner	Van Nuys	CA	91406
Jim	Leske	North Hills	CA	91343
Vivian	Leung	Emeryville	CA	94608
Mary	Leveque	Santa Rosa	CA	95405
Jeffrey	Levicke	Valley Village	CA	91607
Marilyn	Levine	Mountain View	CA	94041
Molly	Levine	Paso Robles	CA	93446
Arthur	Levitt	Venice	CA	90291
Lacey	Levitt	San Diego	CA	92120
Elizabeth	Levy	Richmond	CA	94805
Ashley	Lewis	San Anselmo	CA	94960
Beverly	Lewis	Chatsworth	CA	91311
Linda	Lewis	Del Mar	CA	92014
Lisa	Lewis	Santa Cruz	CA	95062
Nora	Lewis	Nipomo	CA	93444
O	Lewis	Los Angeles	CA	90009
Patricia	Lewis	Los Angeles	CA	90034
Sherman	Lewis	Hayward	CA	94542
Frank	Leykamm	San Francisco	CA	94114
John	Liddy	Lake Forest	CA	92630
Louise	Lieb	Sebastopol	CA	95472
Sharon	Lieberman	Annapolis	CA	95412
Elizabeth	Liebert	Berkeley	CA	94708
Chingyi	Lin	San Diego	CA	92130
David	Lin	San Francisco	CA	94124
Emily	Lin	San Diego	CA	92123
Kathy	Linale	Napa	CA	94558
Stephanie	Linam	Benicia	CA	94510
Michelle	Lind	Hawthorne	CA	90250
Vince	Lindain	Fremont	CA	94555
Connie	Lindgren	Arcata	CA	95521

James	Lindgren	Cerritos	CA	90703
Carrie	Lindh	Richmond	CA	94805
Denise	Link	Studio City	CA	91602
Bev	Lips	San Francisco	CA	94104
Christopher	Lish	San Rafael	CA	94903
Kris	Listoe	Santa Barbara	CA	93110
Florence	Litton	Valley Center	CA	92082
Elaine	Livesey-Fassel	Los Angeles	CA	90064
John	Livingston	Redding	CA	96001
Colleen	Lobel	San Diego	CA	92126
Abby	Loeb	Porter Ranch	CA	91326
Adrian	Loeb	Los Angeles	CA	90034
Bruce	Long	San Jose	CA	95134
Clare	Long	Petaluma	CA	94975
Ned	Long	Los Osos	CA	93402
Amy	Longanecker	San Diego	CA	92111
Donald	Longo	Irvine	CA	92620
Chris	Loo	Morgan Hill	CA	95037
Kathryn	Loper	San Diego	CA	92120
Holly	Lopez	Sherman Oaks	CA	91403
Jon	Losee	San Diego	CA	92107
Rodney	Love	Newbury Park	CA	91320
Lanelle	Lovelace	Columbia	CA	95310
Marsha	Lowry	El Sobrante	CA	94803
Diana	Lubin	La Mesa	CA	91941
Matthew	Lubs	El Segundo	CA	90245
Janie	Lucas	San Francisco	CA	94110
Rosa	Lucas	Palm Desert	CA	92260
Sharon	Lucas	San Bruno	CA	94066
Daniel	Lucchesi	Rohnert Park	CA	94928
Carl	Luhring	Vista	CA	92083
Joseph	Luke	National City	CA	91950
James	Lundeen	Sonora	CA	95370
Jimmie	Lunsford	San Diego	CA	92176
Andy	Lupenko	Lemon Grove	CA	91945
Karola	Luttringhaus	Davis	CA	95616
Heather	Lutz	Carlsbad	CA	92008
Thomas	Lux	San Leandro	CA	94579
Rosann	Lynch	Monterey	CA	93940
Dawn	Lyons	Encinitas	CA	92024
Noah	Mabon	Atwater	CA	95301
Edward	Macan	Eureka	CA	95501
Sherry	Macias	Sacramento	CA	95825
Silamith	Maclean	Toluca Lake	CA	91602
Bonnie	Macraith	Arcata	CA	95521
Scott	Madia	Santa Rosa	CA	95407
Karen	Mae	Larkspur	CA	94939
Pamela	Magers	San Francisco	CA	94110
Mario	Magpale	Palmdale	CA	93550

Terrie	Maguire	Chino	CA	91710
Gina	Mahmoud	San Francisco	CA	94132
Victor	Maisano	San Diego	CA	92107
Janet	Maker	Los Angeles	CA	90024
Paul And Katherine	Malchiodi	San Diego	CA	92110
Bonnie	Maloney	Hawthorne	CA	90250
Ilene	Malt	San Anselmo	CA	94960
Robert	Mammon	El Sobrante	CA	94803
Susan	Manning	San Francisco	CA	94109
Amira	Mansour	Irvine	CA	92612
Paul	Marceau	Santa Barbara	CA	93108
Patricia	Marchant	Castro Valley	CA	94552
Cindy	Marconi	Brentwood	CA	94513
Martin	Marcus	San Diego	CA	92120
Sybil	Marcus	Berkeley	CA	94705
Penny	Marie	Malibu	CA	90265
Aida	Marina	South Pasadena	CA	91030
Stephen	Markel	Los Angeles	CA	90066
Kevin	Markoe	Watsonville	CA	95076
Anne	Marlborough	Van Nuys	CA	91406
Amber	Maron	Redondo Beach	CA	90277
Gina	Marrero	Palm Springs	CA	92264
Pat	Marriott	Los Altos	CA	94024
Sherry	Marsh	Oceanside	CA	92056
Amy	Marshall	San Diego	CA	92103
Dorrine	Marshall	Irvine	CA	92620
Val	Marshall	Fort Bragg	CA	95437
Ben	Martin	Mountain View	CA	94040
Jill	Martin	Lodi	CA	95240
Tyson	Martin	Burbank	CA	91505
Erika	Martinez	San Rafael	CA	94901
John	Martinez	Lomita	CA	90717
Mario E	Martinez	Torrance	CA	90504
M	Masek	Danville	CA	94526
Franceil	Masi	Tarzana	CA	91356
Grace	Mason	San Jacinto	CA	92583
Mary	Masters	Stanford	CA	94305
Susan	Mathison	West Hollywood	CA	90069
Sharon	Mattern	Palm Desert	CA	92260
Nan	Matthews	Pacifica	CA	94044
Barbara	Matz	Cloverdale	CA	95425
Marcia	Matz	Napa	CA	94558
Casee	Maxfield	Los Angeles	CA	90028
Dana	May	Garden Grove	CA	92840
Joe	May	El Cajon	CA	92019
Julie	May	Los Angeles	CA	90034
Katherine	Maynard	Pacific Palisades	CA	90272
Nico	Mcafee	Tiburon	CA	94920
Mary	McAuliffe	Los Angeles	CA	90028

Lisa	McCallister	Santa Cruz	CA	95060
Ellen	McCann	Escondido	CA	92027
Karen	McCaw	View Park	CA	90043
Kalyn	McCloud	Port Hueneme	CA	93044
Barney	McComas	San Diego	CA	92103
Tracy	McCowan	Laguna Woods	CA	92637
Maryann	McCoy	Torrance	CA	90505
Maria	McCready	Orange	CA	92865
Kimberly	McCullough	San Jose	CA	95122
Shereen	McDade	Los Angeles	CA	90018
Terry	McDaniel	San Marcos	CA	92078
Evan	McDermitt	Fullerton	CA	92832
Joseph	McDonough	Hemet	CA	92544
Kelley	McDowell	Colusa	CA	95932
Denise	McEvoy	San Francisco	CA	94117
Deric	McGee	Sacramento	CA	95835
Kerri	McGoldrick	Castro Valley	CA	94546
Rebecca	McGrew	Altadena	CA	91001
Cynthia	McHugh	La Mesa	CA	91941
Heather	McHugh	Oakland	CA	94611
Patricia	McHugh	Monterey	CA	93940
Jean	McKay	San Jose	CA	95152
Daniel	McKeighen	Rocklin	CA	95765
Kevin	McKelvie	Palm Springs	CA	92264
Laura	McKinney	Los Angeles	CA	90004
Tracy	McLarnon	Arcata	CA	95521
Alexa	McMahan	Huntington Beach	CA	92649
Michael	McMahan	Huntington Beach	CA	92649
Philip	McMorrow	Calabasas	CA	91301
Nina	McNitzky	Redwood City	CA	94065
Tracy	McPherson	Jacumba Hot Springs	CA	91934
Stacey	McRae	Fallbrook	CA	92028
Johanna	McShane	Walnut Creek	CA	94598
Dennis	McVey	Kentfield	CA	94904
Pattie	Meade	San Clemente	CA	92672
Deborah	Medina	Calistoga	CA	94515
Ventura	Medina	Porter Ranch	CA	91326
Desire	Medlen	Oakley	CA	94561
Don	Meehan	San Jose	CA	95124
Phillipo	Mehalopolis	Richmond	CA	94805
Louise	Mehler	Sacramento	CA	95818
Robert	Meier	Los Angeles	CA	90042
Lily	Mejia	Hemet	CA	92543
Marianna	Mejia Contact	Soquel	CA	95073
Scott	Mendelsohn	Novato	CA	94947
Miranda	Mendoza	Santa Rosa	CA	95401
Wendy	Mendoza	Sacramento	CA	95831
Suzanne	Menne	Camarillo	CA	93010
Leah	Mercado	Covina	CA	91722

Mike	Merlesena	San Diego	CA	92104
Beth	Merrill	Newbury Park	CA	91320
Barbara	Mesney	Los Angeles	CA	90066
Anna	Meyer	Los Angeles	CA	90034
Twyla	Meyer	Pomona	CA	91767
Adrianne	Micco	Vacaville	CA	95687
Veronica	Michael	Fairfield	CA	94533
August	Michaelle	San Diego	CA	92107
Kris Johnson	Michiels	Richmond	CA	94804
Allison	Mielniczuk	Petaluma	CA	94952
Neale	Miglani	Danville	CA	94526
Aaron	Miller	Van Nuys	CA	91401
Bob	Miller	Santa Rosa	CA	95404
Christine	Miller	San Diego	CA	92127
Dale	Miller	Rancho Cordova	CA	95670
Janet	Miller	Sherman Oaks	CA	91423
Kellie	Miller	Santa Ana	CA	92704
Kelly	Miller	Oceanside	CA	92056
Kenneth	Miller	Topanga	CA	90290
Valerie	Miller	Los Angeles	CA	90046
Victoria	Miller	Encino	CA	91436
Erin	Millikin	San Diego	CA	92154
Randy	Mills	Culver City	CA	90230
Catherine	Milovina	Hopland	CA	95449
Isaac	Miranda	Ontario	CA	91762
Rocio	Miranda	Oakland	CA	94619
Jill	Mistretta	Kentfield	CA	94904
Bonnie	Mitchell	Aliso Viejo	CA	92656
Desiree	Mitchell	San Francisco	CA	94102
Madison	Mitchell	Simi Valley	CA	93063
Jessica	Mitchell-Shihabi	Antelope	CA	95843
Cody	Mitcheltree	Yorba Linda	CA	92886
Robert	Mizar	Bodega Bay	CA	94923
Allison	Moffett	Pasadena	CA	91105
Nick	Moidja	Gold River	CA	95670
Bianca	Molgora	San Francisco	CA	94110
C E	Mone	Trinidad	CA	95570
Janet	Monfredini	San Francisco	CA	94127
Bruce	Monfross	Fair Oaks	CA	95628
Myrian	Monnet	Pasadena	CA	91101
James R	Monroe	Concord	CA	94521
Anthony	Montapert	Santa Maria	CA	93455
Jorge	Monterrozo	Rancho Cucamonga	CA	91730
Elaine	Mont-Eton	San Rafael	CA	94901
Todd	Montgomery	Malibu	CA	90265
Shannon	Montoya	Rohnert Park	CA	94928
Pam	Montroy	San Diego	CA	92115
Pam	Moore	Grass Valley	CA	95945
Sandra	Moore	Santa Barbara	CA	93108



Emily	Morales	Riverside	CA	92507
John	Moreau	San Leandro	CA	94577
Lorilie	Morey	Santa Rosa	CA	95401
Sandra	Morey	Oakland	CA	94602
Dan	Morgan	Rosamond	CA	93560
Linda	Morgan	San Pablo	CA	94806
John B	Morgen	Beaumont	CA	92223
Dorothea	Morgenstern	Sacramento	CA	95831
Alexis	Morris	San Francisco	CA	94122
Gary	Morris	Napa	CA	94559
Grace	Morsberger	Claremont	CA	91711
Dennis	Morton	Santa Cruz	CA	95060
Robin	Morton	Sebastopol	CA	95472
Rich	Moser	Santa Barbara	CA	93111
Anna	Mosqueda	Orangevale	CA	95662
Carol	Moss	Sacramento	CA	95816
Pavel	Mracek	Los Angeles	CA	90025
Andrew	Mueckenberger	Alameda	CA	94501
Karsten	Mueller	Santa Cruz	CA	95060
Lindsay	Mugglestone	Berkeley	CA	94705
Jill	Mulato	Dana Point	CA	92629
Sharon	Mulkey	Oceano	CA	93445
Sharon	Mullane	Los Angeles	CA	90066
Glenn	Mullins	Buena Park	CA	90620
George	Munoz	Stockton	CA	95207
G	Muramoto	Torrance	CA	90503
Beverly	Murata	Alhambra	CA	91801
Garrett	Murphy	Oakland	CA	94612
Jeannine	Murphy	Monterey	CA	93940
Joan	Murray	Los Angeles	CA	90066
Kai	Myer	San Pedro	CA	90732
John	Nadolski	Antelope	CA	95843
Ankita	Nagvekar	Redwood City	CA	94403
Kenneth	Nahigian	Sacramento	CA	95827
Sabrina	Napier	San Diego	CA	92111
Raquel	Narvios	San Francisco	CA	94134
Tem	Narvios	San Francisco	CA	94134
Gida	Naser	Vacaville	CA	95687
Tom	Nash	Rohnert Park	CA	94928
Laurie	Neill	Smith River	CA	95567
Deborah	Nelson	Simi Valley	CA	93065
Victor	Nepomnyashchy	North Hills	CA	91343
Kim	Nero	Costa Mesa	CA	92627
Edward	Neville	Hayward	CA	94541
Cyndee	Newick	Campbell	CA	95008
Evelyn	Newman	San Mateo	CA	94401
Roberta	Newman	Mill Valley	CA	94941
Ingrid	Newstadt	Los Angeles	CA	90065
Guy	Nguyen	Costa Mesa	CA	92627



Eric	Nichandros	Castro Valley	CA	94552
Debra	Nichols	Palmdale	CA	93551
Florence	Nicholson	La Crescenta	CA	91214
Kim	Nicholson	Toluca Lake	CA	91602
Michael	Nicosia	Rancho Cucamonga	CA	91739
Sheree	Noeth	Concord	CA	94521
James	Noordyk	San Diego	CA	92109
Kristin	Norby	North Hollywood	CA	91606
Rick And Sharon	Norlund	Durham	CA	95938
Diana	North	Carmel	CA	93923
Aaron	Norton	San Luis Obispo	CA	93403
Maria	Nowicki	San Francisco	CA	94116
Tom	Nulty	Dana Point	CA	92629
Jean	Nunamaker	Santee	CA	92071
Jennifer	Nunes	San Diego	CA	92106
Carlos	Nunez	Reseda	CA	91335
Stephanie	Nunez	Van Nuys	CA	91405
Richard	Nuno	Stevenson Ranch	CA	91381
Heidi	Nurse	Sacramento	CA	95819
Kate	Nyne	Oakland	CA	94601
Sandra	Obleas	Mission Viejo	CA	92692
Abraham	Oboruemuh	Riverside	CA	92505
Kathy	Obrien	Redway	CA	95560
Colleen	O'Brien	Sacramento	CA	95826
Cynthia	Obyrne	Lompoc	CA	93436
Maureen	O'Connell	Valley Village	CA	91607
Richard Michael	O'Donnell	La Quinta	CA	92253
David	Ohrberg	Beaumont	CA	92223
Sofia	Okolowicz	Temecula	CA	92592
Jean	Olds	Dublin	CA	94568
Alyssa	Olivas	Brentwood	CA	94513
Bill	Oliver	Fairfield	CA	94533
Katherine	Olson	Roseville	CA	95747
Krister	Olsson	Los Angeles	CA	90013
Robert L.	Oman	Sylmar	CA	91342
Cara	O'Neil	Calistoga	CA	94515
Sheri	Opp	Sacramento	CA	95819
Gordon	Orlick	Los Angeles	CA	90069
Erik	Ornelas	Fresno	CA	93720
Dennis	Ororke	Monte Rio	CA	95462
Karen	Orourke	Canoga Park	CA	91304
Frank	Ortiz	Los Angeles	CA	90022
Henry	Ortiz	Whittier	CA	90605
June	Osbourn	Sonoma	CA	95476
Judith	Ostapik	San Francisco	CA	94127
Julie	Ostoich	Sacramento	CA	95826
Darcy	Ostop	Cardiff By The Sea	CA	92007
Dianne	Ostrow	Wrightwood	CA	92397
Hillary	Ostrow	Encino	CA	91316

Mike	Ovard	Long Beach	CA	90815
Rhonda	Oxley	Capitola	CA	95010
John	Paladin	Valencia	CA	91380
Beatriz	Pallanes	Santa Ana	CA	92704
Allie	Palmer	San Clemente	CA	92672
Heidi	Palmer	Rancho Cucamonga	CA	91739
Susan	Palmer	Manteca	CA	95336
Aydee	Palomino	La Quinta	CA	92253
Sharon	Paltin	Laytonville	CA	95454
Jim	Panagos	Simi Valley	CA	93065
Bonnie	Pannell	Crockett	CA	94525
Marie	Pappas	Berkeley	CA	94705
Barbara	Park	Pasadena	CA	91107
Benjamin	Park	West Hollywood	CA	90046
Jason	Park	Arcadia	CA	91006
Candace	Parker	Los Angeles	CA	90034
Doug	Parker	Apple Valley	CA	92307
Cheryl	Parkins	Oakland	CA	94611
Janet	Parkins	Oakland	CA	94611
Elissa	Parra	Indio	CA	92203
Ron	Parsons	South San Francisco	CA	94080
Nancy	Paskowitz	Oakland	CA	94609
Richard	Patenaude	Hayward	CA	94541
Narendra	Patni	Palo Alto	CA	94306
Katherine	Patterson	Ukiah	CA	95482
Barbara	Patton	Sunnyvale	CA	94087
James	Patton	Los Altos	CA	94024
Lisa	Patton	San Francisco	CA	94115
Brandon	Paul	Menifee	CA	92584
Jacob	Paul	San Jacinto	CA	92583
Justin	Paul	San Jacinto	CA	92583
David	Paulsen	Morro Bay	CA	93442
Richard	Payne	Los Gatos	CA	95032
Nancy	Pearlman	Los Angeles	CA	90035
Juliet	Pearson	Grass Valley	CA	95949
Karin	Peck	Orangevale	CA	95662
Lynn	Peckham	Altadena	CA	91001
Joshua	Pederson	Santa Cruz	CA	95060
Dr Kenneth R	Pelletier	Carmel	CA	93923
Josie	Peluso	Santa Rosa	CA	95409
Melina	Pena	San Ysidro	CA	92173
Sherry	Pennell	Aromas	CA	95004
Greg	Pennington	San Francisco	CA	94109
Holly	Perez	Chula Vista	CA	91910
Margarita	Perez	Sylmar	CA	91342
Deborah	Peri	Santa Cruz	CA	95060
Susan	Perkins	Mountain View	CA	94041
Janet	Perlman	Berkeley	CA	94705
Bryce	Perog	Dana Point	CA	92629

Anithra	Perry	Winchester	CA	92596
Brenda	Perry	Napa	CA	94559
Marie	Perry	Ceres	CA	95307
Theresa	Perry	Los Angeles	CA	91040
Robert W	Peters	Porter Ranch	CA	91326
Don	Petersen	Pleasanton	CA	94566
Christine	Peterson	San Francisco	CA	94164
Ellen	Peterson	Berkeley	CA	94705
John	Peterson	Temecula	CA	92592
Jim	Petkiewicz	San Jose	CA	95125
Jamie	Pfister	San Jose	CA	95139
Margaret	Phelps	Los Angeles	CA	90024
Tami	Phelps	Redding	CA	96003
Elizabeth	Philbrook	Beaumont	CA	92223
Marvis J.	Phillips	San Francisco	CA	94102
Rochelle	Phillips	Mission Viejo	CA	92692
John	Picot	San Francisco	CA	94103
Kevin	Pierson	Roseville	CA	95747
Navil	Pineda	Moreno Valley	CA	92555
Lynn	Pique	Redwood City	CA	94063
L.	Piquett	Davenport	CA	95017
Tina	Pirazzi	Long Beach	CA	90814
Peter	Pitsker	Huntington Beach	CA	92648
Diane	Pitzel	San Diego	CA	92109
Mary F	Platter-Rieger	San Diego	CA	92105
Lauren	Pliska	Laguna Niguel	CA	92677
Joel	Ploscowe	San Francisco	CA	94114
Joseph	Pluta	Bakersfield	CA	93301
Andrew T	Pohorsky	Soquel	CA	95073
Barbara	Poland	La Crescenta	CA	91214
Alice	Polesky	San Francisco	CA	94107
Tony	Policelli	Beverly Hills	CA	90210
Bret	Polish	Tarzana	CA	91335
Nancy	Polito	Orangevale	CA	95662
Jackie	Pomies	San Francisco	CA	94122
Bonnell	Poole	Hesperia	CA	92345
Douglas	Poore	Vacaville	CA	95688
Samuel	Popailo	West Hollywood	CA	90046
Chris	Popp	Trinidad	CA	95570
Donnal	Poppe	Sherwood Forest	CA	91325
Melissa	Porter	San Leandro	CA	94577
Penny	Porter	San Francisco	CA	94109
Sharon	Porter	Paradise	CA	95969
Susan	Porter	Pasadena	CA	91103
Jon	Porter Md	Garden Grove	CA	92845
Cheri	Porter-Keisner	Piercy	CA	95587
Penny	Potter	Santa Cruz	CA	95062
Antonia	Powell	Venice	CA	90291
Kathleen	Powell	Vallejo	CA	94590

Kim	Powell	Bermuda Dunes	CA	92203
Matt	Powell	Woodland Hills	CA	91364
Judith	Poxon	Sacramento	CA	95816
Francesca	Prada	San Francisco	CA	94146
Jhosselyn	Prado	Los Angeles	CA	90004
Linda	Prandi	Sacramento	CA	95834
Brooke	Prather	Kelseyville	CA	95451
Wendy	Pratt	Redondo Beach	CA	90277
Lynne	Preston	San Francisco	CA	94110
Marilyn	Price	Mill Valley	CA	94941
Michael	Price	Los Angeles	CA	90024
Rosalie	Prieto	Bakersfield	CA	93311
Micaela	Pronio	Oakland	CA	94609
Megan	Pruiett	San Francisco	CA	94121
Felena	Puentes	Bakersfield	CA	93312
Brianda	Puig	Los Angeles	CA	90071
Robert	Quarrick	Benicia	CA	94510
Jennifer	Quednau	Sherman Oaks	CA	91403
April	Quigley	Crescent City	CA	95531
Robert	Quijada	Bakersfield	CA	93313
Timothy	Quinn	Davis	CA	95618
Audrey	Quintero	San Mateo	CA	94403
Paul	Rabjohns	Los Angeles	CA	90027
Carolyn	Radcliff	Roseville	CA	95678
Rick	Raddue	Woodacre	CA	94973
Mary	Ragsdale	Ripon	CA	95366
Annette	Raible	Petaluma	CA	94952
Delilah	Ramirez	Fullerton	CA	92833
Graciela	Ramirez	Eureka	CA	95502
Brooklynn	Ramos	Los Osos	CA	93402
Paul	Ramos	Santa Ynez	CA	93460
Sigrid	Ramos	Van Nuys	CA	91405
Rudy	Ramp	Arcata	CA	95521
Elizabeth	Ramsey	Davis	CA	95616
Dee	Randolph	Chico	CA	95926
Denise	Ranidae	Orange	CA	92867
Valerie	Ranne	Sacramento	CA	95822
Christine	Ranney	Oakland	CA	94608
Sofia	Ratcovich	Santa Monica	CA	90404
Greg	Ratkovsky	Oakland	CA	94619
Laurie	Ratto	Alameda	CA	94501
Nicholas	Ratto	Alameda	CA	94501
Robert	Rauh	Victorville	CA	92395
Jenise	Rauser	Bakersfield	CA	93308
Marianne	Ray	Ontario	CA	91761
Wendy	Raymond	Laguna Niguel	CA	92677
Michael	Raysses	Los Angeles	CA	91362
Mark	Reback	Los Angeles	CA	90039
Isela	Redman	Rohnert Park	CA	94928

Liz	Redwing	Pine Mountain Club	CA	93222
Kaylynn	Reeb	Geyserville	CA	95441
Robert	Reed	Laguna Beach	CA	92651
Geoff	Regalado	Burbank	CA	91503
Matthew	Reid	Calistoga	CA	94515
Misti	Reif	San Francisco	CA	94118
Sylvia	Ren	Sebastopol	CA	95472
Carla	Resnik	El Segundo	CA	90245
Karin	Rettig	Hemet	CA	92543
F. Carlene	Reuscher	Costa Mesa	CA	92626
Debra L.	Reuter	Martinez	CA	94553
Christian	Reyes	Moreno Valley	CA	92555
Juan	Reyes	Upland	CA	91786
Mike	Reyes	Los Angeles	CA	90035
Lloyd	Reynolds	Fountain Valley	CA	92708
David	Rhoades	Belvedere	CA	94920
Genevieve	Riber	San Diego	CA	92103
Mark	Ricci	Point Arena	CA	95468
Robert	Ricewasser	Monrovia	CA	91016
Michael	Richardson	Long Beach	CA	90802
Lonna	Richmond	Muir Beach	CA	94965
Lynette	Ridder	Concord	CA	94521
Ellen	Riegelhuth	Walnut Creek	CA	94595
Jean	Riehl	Fairfield	CA	94533
Callie	Riley	Citrus Heights	CA	95610
Laura	Riley	Citrus Heights	CA	95610
Ron	Riskin	Santa Barbara	CA	93103
Rev. Maria	Riter Wilson	San Dimas	CA	91773
Briana	Rivera	San Diego	CA	92117
Christine	Rivera	Concord	CA	94521
Debbie	Rivera	Moreno Valley	CA	92555
Tony	Robbins	San Francisco	CA	94122
Daniel	Roberto	Pasadena	CA	91104
Rob	Roberto	Santee	CA	92071
Margaret	Roberts	Mendocino	CA	95460
Francis	Robertson	Lompoc	CA	93436
Valeen	Robertson	San Mateo	CA	94403
Etta	Robin	Bakersfield	CA	93312
Nancy	Robinson	Ridgecrest	CA	93555
R	Robinson	Modesto	CA	95356
Candace	Rocha	Los Angeles	CA	90032
Silvia	Rocha	Azusa	CA	91702
Suzette	Rochat	Sebastopol	CA	95472
David	Roche	San Francisco	CA	94117
Sophie	Rocheleau	Arcata	CA	95521
Donald	Rock	San Diego	CA	92106
Lenore	Rodah	South Pasadena	CA	91030
Marykay	Rodarte	Phelan	CA	92371
Sharon	Rodrigues	Fremont	CA	94539

Laizio	Rodrigues De Oliveira	Adelanto	CA	92301
Doris	Rodriguez	Ontario	CA	91762
Vanessa	Rodriguez	West Sacramento	CA	95605
Cherrie	Roeser	Stockton	CA	95207
Judith	Rogers	Richmond	CA	94804
Margaret	Rogers	Redwood City	CA	94062
Pamela	Rogers	San Bernardino	CA	92404
Shanna	Rojas	Hesperia	CA	92345
Mary	Rojeski	Santa Monica	CA	90405
Mike	Rolbeck	Placerville	CA	95667
Kalyani	Roldan	Santa Barbara	CA	93101
Michele	Roma	Pleasant Hill	CA	94523
Pia	Romano	Vista	CA	92081
Valerie	Romero	Los Angeles	CA	90038
Rob	Rondanini	Roseville	CA	95678
Irene	Roos	Lakeside	CA	92040
Barbara	Root	Santa Barbara	CA	93108
Greg	Rosas	Castro Valley	CA	94546
Tona	Rose	Rancho Murieta	CA	95683
Ken	Rosen	Beverly Hills	CA	90212
Kenneth	Rosenblad	Berkeley	CA	94709
Jo	Rosenbloom	Studio City	CA	91602
Stephen	Rosenblum	Palo Alto	CA	94301
Darlene	Ross	Woodbridge	CA	95258
Gregory	Ross	San Leandro	CA	94577
Alexis	Rossiter	North Highlands	CA	95660
Phillip	Roullard	San Diego	CA	92119
Mckenna	Rowe	Los Angeles	CA	90068
James	Royer	San Diego	CA	92117
Vickie	Rozell	Menlo Park	CA	94025
Rita	Rubin	El Cerrito	CA	94530
Lois	Ruble	San Marcos	CA	92078
Patricia	Rudner	Cypress	CA	90630
Katrina	Rudnick	Fresno	CA	93720
M. K.	Russell	Mill Valley	CA	94941
Brian	Rutkin	Culver City	CA	90230
Elvia	Ryan	Oceanside	CA	92057
Faye	Rye	Torrance	CA	90505
Jessica M	Saavedra	Tustin	CA	92780
Eli	Saddler	Acton	CA	93510
Bonnie	Sadrpour	Los Angeles	CA	90045
G	Saffren	Los Angeles	CA	90025
Mukesh	Sahu	Sacramento	CA	95818
Jan	Salas	Santa Cruz	CA	95062
Alicia	Salazar	Los Angeles	CA	90032
Lisa	Salazar	Shasta Lake	CA	96089
Lisa	Salazar	Shasta Lake	CA	96089
Deborah	Salazar Shapiro	San Diego	CA	92130
Dalia	Salgado	Los Angeles	CA	90017

Jackie	Samallo	Walnut	CA	91789
Jolie	Samaniego	Altadena	CA	91001
Jonathan	Sampson	Santa Rosa	CA	95404
Sean	San Jose	San Francisco	CA	94112
Dorothy	Sanches	Santa Cruz	CA	95062
Michele	Sanderson	Walnut Creek	CA	94595
B	Sadow	Richmond	CA	94804
Deirdre	Santaniello	Willits	CA	95490
Harry	Santi	San Leandro	CA	94579
Sophia	Santitoro	Simi Valley	CA	93065
Alfa	Santos	Chula Vista	CA	91910
Rita	Santos-Oyama	Long Beach	CA	90803
Michelle	Santy	El Granada	CA	94018
Natasha	Saravanja	San Francisco	CA	94131
Arlene	Saretsky	Valencia	CA	91354
Deborah	Sargent	San Diego	CA	92128
Vicki	Sarnecki	Bangor	CA	95914
Julie	Sasaoka	Concord	CA	94518
Rondi	Saslow	Oakland	CA	94618
Angelina	Saucedo	Montebello	CA	90640
Felicia	Saunders	Goleta	CA	93117
Alice	Savage	San Diego	CA	92128
Antonina	Scalera	Altadena	CA	91001
Kevin	Schader	Pleasant Hill	CA	94523
Marty	Schaefer	El Cerrito	CA	94530
Carol	Schaffer	San Pablo	CA	94806
Susan	Schairer	Anaheim	CA	92806
Roberta	Schear	Oakland	CA	94618
Myra	Schegloff	Santa Monica	CA	90405
Janice	Schenfisch	Cypress	CA	90630
Lauren	Schiffman	El Cerrito	CA	94530
Bob	Schildgen	Berkeley	CA	94703
Paulette	Schindele	San Marcos	CA	92069
Steven	Schlam	San Diego	CA	92104
William	Schlesinger	Los Angeles	CA	90046
Henry	Schlinger	Glendale	CA	91201
Christie	Schmidt	Irvine	CA	92603
Heidi	Schmitz	Sausalito	CA	94965
Lesley	Schultz	Oakland	CA	94610
Brandy	Schumacher	Citrus Heights	CA	95610
Laura	Schuman	Sherman Oaks	CA	91403
Jeanne	Schuster	West Covina	CA	91791
Patricia	Schwab Rn	San Diego	CA	92119
Amanda	Schwartz	Sherman Oaks	CA	91411
Barry	Schwartz	Napa	CA	94559
Louise	Schwartz	Los Angeles	CA	90077
Marge	Schwartz	Santa Barbara	CA	93121
Dena	Schwimmer	Los Angeles	CA	90019
Andrea	Scott	Los Angeles	CA	90077



Bruce	Scott	Pacific Palisades	CA	90272
Kari Lorraine	Scott	San Diego	CA	92116
M	Scott	Los Angeles	CA	90028
Megan	Scott	West Hollywood	CA	90046
Chris	Seaton	Santa Barbara	CA	93101
Kathy	Seeba	Rocklin	CA	95677
Patricia	Seffens	Oakland	CA	94610
Patricia	Seffens	Oakland	CA	94610
Harold	Segelstad	Redwood City	CA	94062
Lisa	Segnitz	Santa Cruz	CA	95060
Mary Jill	Seibel	Petaluma	CA	94952
Fredrick	Seil	Berkeley	CA	94708
Rob	Seltzer	Malibu	CA	90265
Ron	Semenza	San Jose	CA	95119
Leila	Sen	San Francisco	CA	94123
Breanna	Senate	South Lake Tahoe	CA	96150
Lynn	Sentenn	Brea	CA	92821
Chtistine	Sepulveda	Upland	CA	91786
Amie	Serio	Burbank	CA	91506
Rafael	Serna	Fresno	CA	93705
Krista	Sexton	San Marcos	CA	92078
Victoria	Shankling	Aliso Viejo	CA	92656
Lily	Share	Sherman Oaks	CA	91423
Donna	Sharee	San Francisco	CA	94112
Robyn	Sharp	Topanga	CA	90290
Donna	Shaw	Simi Valley	CA	93065
Julie	Shaw	Sebastopol	CA	95472
Al	Shayne	Los Angeles	CA	90036
Maria	Shazer	Fallbrook	CA	92028
Robert	Sheffield	Cardiff By The Sea	CA	92007
Kacie	Shelton	Pasadena	CA	91101
Ye	Shen	Daly City	CA	94014
Jason	Shepherd	Newbury Park	CA	91320
Marilyn	Shepherd	Trinidad	CA	95570
Philip	Sherman	Sacramento	CA	95814
Stuart	Sherman	Santa Barbara	CA	93105
Erika	Shershun	San Francisco	CA	94109
Dana	Shields	Menlo Park	CA	94025
Laura	Shifley	Oakland	CA	94611
Earl	Shimaoka	Sunnyvale	CA	94086
Veronika	Shishido	Bayside	CA	95524
Judy	Shively	San Diego	CA	92101
Zoe	Shoats	Pacific Grove	CA	93950
Lu	Shoberg	San Jose	CA	95116
Elizabeth Myrin	Shore	San Anselmo	CA	94979
Tracy	Shortle	Los Alamitos	CA	90720
Lois	Shubert	Camarillo	CA	93010
Lois	Shubert	Camarillo	CA	93010
Amir	Siassi	Los Angeles	CA	90049



Martha	Siegel	Santa Barbara	CA	93105
Jeff	Sierra	Emeryville	CA	94608
D G	Sifuentes	Mammoth Lakes	CA	93546
Sheila	Silan	Somerset	CA	95684
Erin	Silberstein	Woodland Hills	CA	91364
Grace	Silva	North Hollywood	CA	91605
Marc	Silverman	Los Angeles	CA	90068
Kathy	Simington	Ontario	CA	91764
Hilary	Simonetti	Cathedral City	CA	92234
Claire	Simonich	Half Moon Bay	CA	94019
Catherine	Simonton	Fort Bragg	CA	95437
Charlotte	Sines	Yosemite National Park	CA	95389
Jerry	Singer	San Francisco	CA	94114
Lara	Sinkovich	Los Angeles	CA	90042
Christine	Sirias	Alhambra	CA	91801
Mila	Siric	Los Angeles	CA	90039
Sarah	Sismondo	Duarte	CA	91010
Daniel	Situnayake	Sunnyvale	CA	94085
Amara	Siva	Vista	CA	92081
Steve	Sketo	Bakersfield	CA	93312
Kevin	Slauson	Alameda	CA	94501
Susan	Sloan	Los Angeles	CA	90064
Bret	Smith	Santa Cruz	CA	95063
Bryson	Smith	Santa Barbara	CA	93101
Cristina	Smith	Los Angeles	CA	90019
Erin	Smith	Monterey	CA	93940
Gayle	Smith	Carmel	CA	93923
Joe	Smith	El Cajon	CA	92020
Judith	Smith	Oakland	CA	94601
Julie	Smith	Los Osos	CA	93402
Kate	Smith	Concord	CA	94521
Kathleen	Smith	San Jose	CA	95112
Leslie	Smith	Oakland	CA	94611
Missie	Smith	Tehachapi	CA	93561
Nancy	Smith	San Diego	CA	92106
Stephanie	Smith	Laguna Beach	CA	92651
Crystal	Smith-Connelly	Los Angeles	CA	90027
Robert	Smithfield	Fairfax	CA	94930
Paula	Sneddon	Pebble Beach	CA	93953
Renee	Snyder	Oakland	CA	94611
Robert	Snyder	Rancho Palos Verdes	CA	90275
Todd	Snyder	San Francisco	CA	94115
Genevieve	Soares	Oakland	CA	94610
Monique	Soares	Freedom	CA	95019
Susan	Soh	Woodland Hills	CA	91367
Thad	Solloway	Costa Mesa	CA	92627
Benny	Soltero	Ventura	CA	93001
Allison	Souza	San Diego	CA	92109
Jan	Sownie	Bellflower	CA	90706

Margrit	Spear	Jamul	CA	91935
Barbara	Speidel	La Mesa	CA	91942
Brent	Spencer	Paramount	CA	90723
D R	Spencer	San Diego	CA	92104
Anne	Spesick	Cool	CA	95614
Stephanie	Spiers	San Diego	CA	92107
Jane	Spini	Arcata	CA	95521
Leslie	Spoon	Los Osos	CA	93402
Natalia	Spornik	Studio City	CA	91604
Kathryn	St John	Boulder Creek	CA	95006
Ken	Stack	Los Angeles	CA	90004
Musia	Stagg	Oakland	CA	94608
Bettina	Staib	Los Angeles	CA	90019
Jane	Stallman	San Jose	CA	95117
Katie	Stamps	Santa Clara	CA	95050
Roxanne	Staniorski	Santa Ana	CA	92707
Jan	Stark	Westminster	CA	92683
Todd	Stark	San Leandro	CA	94577
Mary Beth	Starzel	Arroyo Grande	CA	93420
Celia	Stauty	Pacific Grove	CA	93950
Patricia	Stearns	Exeter	CA	93221
Jenifer	Steele	Berkeley	CA	94703
Karen	Steele	Eureka	CA	95501
Regina	Stefaniak	Berkeley	CA	94708
Wayne	Steffes	Redding	CA	96001
Richard	Steiger	Oakland	CA	94611
Beth	Stein	Los Angeles	CA	90066
Cindy	Stein	Thousand Oaks	CA	91360
Emma	Stein	Modesto	CA	95355
M.A.	Steinberger	Tujunga	CA	91042
Neal	Steiner	Los Angeles	CA	90034
Salllye	Steiner Bowyer	Soquel	CA	95073
Shelley	Sterrett	Santa Monica	CA	90402
Lee	Stevens	Yucaipa	CA	92399
Judy	Stewart	Santa Barbara	CA	93108
Katherine S	Stewart	San Diego	CA	92111
Michael	Stewart	Elk Grove	CA	95624
Michele	Stewart	San Diego	CA	92128
Brian	Still	San Diego	CA	92103
Amy	Stinstrom	Sherman Oaks	CA	91413
Linda	Stock	Cypress	CA	90630
Helen	Stone	Gardena	CA	90249
Peggy	Stone	San Diego	CA	92101
Russell	Stone	San Jose	CA	95148
Carol	Stormberg	San Jose	CA	95129
Kat	Stranger	San Rafael	CA	94901
Erich	Stratmann	Santa Monica	CA	90402
Ann	Stratten	La Mesa	CA	91941
Terry	Strauss	Mill Valley	CA	94941

Brenda	Street	Downey	CA	90241
Laura	Strom	Los Angeles	CA	90034
Carey	Suckow	San Francisco	CA	94114
Eva	Suhr	Palo Alto	CA	94306
Brendan	Sullivan	San Diego	CA	92119
Edward	Sullivan	San Francisco	CA	94116
Elizabeth	Sullivan	Penngrove	CA	94951
Kirsten	Sullivan	Cloverdale	CA	95425
Melissa	Sullivan	Oceanside	CA	92054
Lynn	Sunday	Half Moon Bay	CA	94019
Stacie	Surabian	Los Angeles	CA	90068
Guru	Suryanarayana	Alviso	CA	95002
Guruprasad	Suryanarayana	Menlo Park	CA	94025
Julie	Svendsen	Burbank	CA	91505
Anne	Swanson	Campbell	CA	95008
Rebecca	Swanson	Mariposa	CA	95338
Roberta	Swanson	Walnut	CA	91789
Debra	Swartz	Los Angeles	CA	90034
Roy	Sweet	Aliso Viejo	CA	92656
Richard	Swift	Camarillo	CA	93010
F	Sylvester	Millbrae	CA	94030
Jim	Szewczak	Redwood City	CA	94062
Daniel	Szymanowski	La Mesa	CA	91942
Keith	Taber	Santa Barbara	CA	93111
Barbara	Tacker	Camarillo	CA	93012
Theresa	Tafoya	Temecula	CA	92591
Carol	Taggart	Menlo Park	CA	94025
Michael	Talbot	San Rafael	CA	94901
Susan	Tamura	San Diego	CA	92129
Singgih	Tan	San Jose	CA	95123
Tina	Tanner	Placerville	CA	95667
Carol	Tao	Salinas	CA	93901
Fred	Tashima	Los Angeles	CA	90066
Leslie	Tate	National City	CA	91950
Susan	Tatro	Eureka	CA	95503
Tammy	Taunt	Oceanside	CA	92057
Donald	Taylor	Fair Oaks	CA	95628
Melinda	Taylor	Long Beach	CA	90814
Melvin	Taylor	Sacramento	CA	95823
Pat	Taylor	Sacramento	CA	95814
John	Teevan	Chula Vista	CA	91914
Susan	Telese	Los Angeles	CA	90027
Dennise	Templeton	Castro Valley	CA	94546
Sara	Templeton	San Francisco	CA	94112
Joanne	Tenney	Escondido	CA	92026
Jeff	Thayer	San Diego	CA	92117
Tanya	Thienngern	Orange	CA	92865
Rita	Thio	Walnut	CA	91789
Eva	Thomas	Woodside	CA	94062

Robert	Thomas	Fremont	CA	94539
Shakayla	Thomas	Compton	CA	90220
Linda	Thompson	Torrance	CA	90503
Linda	Thompson	Santa Rosa	CA	95407
Melanie	Thompson	Santa Monica	CA	90405
Pat	Thompson	Roseville	CA	95678
Paula	Thompson	San Diego	CA	92117
Sandra	Thompson	Roseville	CA	95678
Nancy	Thomsen	Napa	CA	94559
Matthew	Thorn	San Diego	CA	92116
Tammy	Tillack	Lajolla	CA	92037
Elena	Tillman	San Diego	CA	92102
Lydia	Tinder	Stockton	CA	95219
Maryann	Tittle	Phelan	CA	92371
Kalita	Todd	Grass Valley	CA	95945
Lisa	Toliver	Carlsbad	CA	92009
April	Toller	Corona	CA	92883
Margaret	Tollner	Lakewood	CA	90713
Pela	Tomasello	Santa Cruz	CA	95062
Michael	Tomczyszyn	San Francisco	CA	94132
Jessica	Tong	San Francisco	CA	94118
Ava	Torre-Bueno	San Diego	CA	92105
Myra	Toth	Ojai	CA	93023
Lana	Touchstone	Vallejo	CA	94591
Alan	Townsend	San Francisco	CA	94110
Candice	Toyoda	El Cerrito	CA	94530
Rich	Toyon	La Crescenta	CA	91214
Lila	Trachtenberg	Santa Barbara	CA	93105
Judy	Trahan	Hayward	CA	94544
Kim	Tran	Santa Ana	CA	92707
Gene	Trapp	Davis	CA	95616
Tami	Trearse	Sacramento	CA	95820
Linda	Trevillian	Alhambra	CA	91803
Tia	Triplett	Los Angeles	CA	90066
Martin	Tripp	Santa Clarita	CA	91390
Christine	Troche	Fremont	CA	94555
Justin	Truong	San Francisco	CA	94112
Linda	Tuan	Poway	CA	92064
Ellen	Tubbs	Sacramento	CA	95864
Anne	Tuddenham	El Cerrito	CA	94530
Jerold	Tuller	Auburn	CA	95603
Anthony	Tupasi	San Francisco	CA	94122
Virginia	Turner	Woodland Hills	CA	91367
Ilya	Turov	Moreno Valley	CA	92555
Natascha	Tuznik	West Sacramento	CA	95691
Glen A	Twombly	Arcata	CA	95521
Bob	Tyson	Lincoln	CA	95648
Canan	Tzelil	Beverly Hills	CA	90210
Patricia	Ulloa	Pasadena	CA	91105

Linda	Ulvaeus	Santa Barbara	CA	93109
Robert	Underwood	Concord	CA	94519
Jeff	Urdank	Sherman Oaks	CA	91403
Rose	Urias	Gilroy	CA	95020
Matt	Uzzi	Murrieta	CA	92563
Sandra	Vadhin	West Hills	CA	91307
Sylvia	Vairo	Santa Cruz	CA	95062
Jacqueline	Valadez	Santa Ana	CA	92704
Kim	Valentine	Carson	CA	90745
Paul	Van Duine	Woodland Hills	CA	91364
Sara	Van Dusen	Palo Alto	CA	94303
Jeremy	Van Hecke	Mountain View	CA	94043
Chris	Van Hook	Pacific Palisades	CA	90272
Corinne	Van Houten	Sacramento	CA	95835
Shana	Van Meter	Irvine	CA	92623
Kristopher J	Van Stralen	Orinda	CA	94563
Robin	Van Tassell	Summerland	CA	93067
Richard	Vanella	Morgan Hill	CA	95037
Erik	Vanlier	Van Nuys	CA	91405
John	Varga	Rancho Mirage	CA	92270
Natasha	Varner	Santa Cruz	CA	95062
Melissa	Vasconcellos	Ventura	CA	93006
Silvia	Vasquez	Sacramento	CA	95841
Iris	Vaughan	San Francisco	CA	94102
V C	Vcar	San Jose	CA	95134
Monica	Ventrice	Loma Mar	CA	94021
Dirk	Verbeuren	Valley Village	CA	91607
Paul	Vesper	Berkeley	CA	94703
Lori	Vest	Potter Valley	CA	95469
Keith	Vezina	San Luis Obispo	CA	93401
Timothy	Vila	Burbank	CA	91506
Juan	Villasenor	Live Oak	CA	95953
Carlene	Visperas	Concord	CA	94521
Chris	Vitali	Yucca Valley	CA	92284
Melanie	Vliet	La Mirada	CA	90638
Pablo	Voitzuk	Oakland	CA	94618
Sheryl	Volkman	Livermore	CA	94550
Alexander	Vollmer	San Rafael	CA	94901
Janice	Von Itter	Oakland	CA	94609
Susan	Von Schmacht	Watsonville	CA	95076
Carol	Vonsederholm	Chula Vista	CA	91913
Vulpes	Vulpes	Fresno	CA	93730
Kris	Waara	Boulder Creek	CA	95006
Mary	Wade	La Mesa	CA	91942
Victoria	Wade	Marina	CA	93933
Nicholin	Wagner Quackenbush	Moorpark	CA	93021
Morgan	Waldroup	Redding	CA	96001
Daman	Walia	Clovis	CA	93619
Cameron	Walker	Irvine	CA	92620

Greg	Walker	Riverside	CA	92507
James	Walker	Mckinleyville	CA	95519
Steph	Walkowiak	Costa Mesa	CA	92627
Markie	Wallace	Riverbank	CA	95367
Michael	Wallace	Santa Cruz	CA	95062
Patrice	Wallace	Santa Cruz	CA	95060
Paul	Waller	Woodland Hills	CA	91367
Jennifer	Walls	Los Angeles	CA	90004
Nina	Waloewandja	Pinole	CA	94564
Ernie	Walters	Union City	CA	94587
Will F	Walworth	Downey	CA	90242
Rebecca	Wang	Alhambra	CA	91801
Maria	Wanless	Herlong	CA	96113
Penelope	Ward	Topanga	CA	90290
Christopher	Ware	Fremont	CA	94539
Ronald	Warren	Glendale	CA	91206
Lisa	Wasilewski	Redwood City	CA	94063
Debbie	Watanabe	San Luis Obispo	CA	93401
Melissa	Waters	Laguna Niguel	CA	92677
Michael	Watson	Sonoma	CA	95476
Rachel	Watson	Los Angeles	CA	90018
Richard	Watson	Long Beach	CA	90807
Susan	Watts	Riverside	CA	92506
Linda	Webb	Rancho Palos Verdes	CA	90275
Sally	Webb	Santa Barbara	CA	93108
Trish	Webb	Palm Springs	CA	92264
Dave	Webster	Petaluma	CA	94952
Jennifer	Wechsler	Sausalito	CA	94965
Vicki	Wegscheider-Kissinger	Placerville	CA	95667
Cheryl	Weiden	Los Altos	CA	94022
Gwen	Weil	Oakland	CA	94610
Linda	Weiner	San Francisco	CA	94110
Robin	Weirich	Irvine	CA	92618
Joe	Weis	Reedley	CA	93654
Lynne	Weiske	Los Angeles	CA	90048
Russell	Weisz	Santa Cruz	CA	95060
Jeannette	Welling	Thousand Oaks	CA	91362
John	Wendell	Santa Rosa	CA	95401
David	Wendt	Walnut Creek	CA	94596
Margaret	Wessels	Aptos	CA	95003
Amanda	West	Mountain View	CA	94043
Richard	Whaley	Eureka	CA	95503
Janet	Wheeler	Murrieta	CA	92563
Michelle	Wheeler	Anaheim	CA	92802
Brandon	Wheelock	Vista	CA	92081
Heidi	Whelchel	Rancho Cucamonga	CA	91730
Howard	Whitaker	Gold River	CA	95670
David	White	Beverly Hills	CA	90212
Edwina	White	Sacramento	CA	95811

Lori	White	Lower Lake	CA	95457
Frances	Whiteside	Montclair	CA	91763
Helene	Whitson	Berkeley	CA	94709
Barbara I	Whyman	Ventura	CA	93001
Joan	Wickham	Pasadena	CA	91107
Cara	Wicks	Oceanside	CA	92057
Charles	Wieland	San Ramon	CA	94583
Connie	Wigen	Sacramento	CA	95831
Richard	Wightman	Arcadia	CA	91006
Stewart	Wilber	San Francisco	CA	94114
Stephanie	Wilder	Mount Shasta	CA	96067
Sharon	Wilensky	San Francisco	CA	94122
Carol	Wiley	Victorville	CA	92394
Ramona	Wilkerson	Oakland	CA	94604
Debbie	Williams	Menifee	CA	92586
Gerry	Williams	Thousand Oaks	CA	91360
Melissa	Williams	Sacramento	CA	95823
Robin	Williams	Nicasio	CA	94946
William	Willis	Fallbrook	CA	92028
Jennifer	Willison	Morro Bay	CA	93442
John	Wills	Oakland	CA	94603
Clyde	Willson	Oakland	CA	94606
Norm	Wilmes	Yuba City	CA	95991
Amy	Wilson	San Mateo	CA	94401
Ken	Wilson	Santa Rosa	CA	95409
Martha	Wilson	Davis	CA	95618
Merlin	Wilson	Salinas	CA	93906
Bruce	Wimberley	El Segundo	CA	90245
Karsten	Windt	Point Richmond	CA	94801
Cami	Winikoff	Malibu	CA	90265
Lisa	Winningham	Los Gatos	CA	95032
Heidi	Winslow	Santa Barbara	CA	93105
Theresa	Winters	Sylmar	CA	91342
Anita	Wisch	Santa Clarita	CA	91355
Anita	Wisch	Valencia	CA	91355
Anita	Wisch	Valencia	CA	91355
Jason	Witchel	San Rafael	CA	94901
Lynn	Wolf	Saugus	CA	91350
Rachel	Wolf	Santa Cruz	CA	95060
Alan	Wolfe	San Francisco	CA	94117
Michael	Wollman	San Luis Obispo	CA	93401
Sabrina	Wong	Danville	CA	94526
Jud	Woodard	Sutter Creek	CA	95685
Bill	Woodbridge	Santa Barbara	CA	93111
Peg	Woodin	Oroville	CA	95966
Tansy	Woods	San Diego	CA	92101
Annie	Woodward	San Diego	CA	92101
Linda	Woodward	Pleasant Hill	CA	94523
Vivian	Woolfson	Altadena	CA	91001



Claudia	Wornum	Oakland	CA	94605
Don	Wright	Goleta	CA	93117
Keith	Wright	Glendale	CA	91201
Kimberly	Wright	San Diego	CA	92128
W	Wright	Cambria	CA	93428
Blake	Wu	Lafayette	CA	94549
Dana	Wullenwaber	Redding	CA	96001
Jak	Wyld	Los Angeles	CA	90036
Finale	Xiong	Stockton	CA	95209
June	Yamada	Westminster	CA	92683
Jennifer	Yamamoto	Manhattan Beach	CA	90266
Kyle	Yaskin	Los Angeles	CA	90046
Chloe	Yeap	Milpitas	CA	95035
Carolyn	Yee	Sacramento	CA	95822
Kobi	Yonai	Sunnyvale	CA	94087
Jimmie	Yonemoto	San Jose	CA	95126
Brittney	Yore	Huntington Beach	CA	92647
Angela	York	El Cajon	CA	92021
Bing	York	Mendocino	CA	95460
Amanda	Young	Lake Forest	CA	92630
Amy	Young	Reseda	CA	91335
Dennis	Young	Pismo Beach	CA	93449
Jay	Young	Windsor	CA	95492
Kathleen	Young	Oakland	CA	94619
Kristin	Young	Buena Park	CA	90620
Kyle	Young	Rosamond	CA	93560
Lyn	Younger	San Jose	CA	95111
Christopher	Yrarrazaval-Correa	Santa Ana	CA	92706
Brian	Yu	Santa Monica	CA	90404
Barry	Zakar	Vallejo	CA	94591
Rena	Zaman-Zade	Escondido	CA	92027
Sondra	Zanassi	Oceanside	CA	92058
Charlene	Zanella	Redwood Valley	CA	95470
Sandra	Zaninovich	Los Angeles	CA	90024
Sandy	Zelasko	Valley Center	CA	92082
Rudy	Zeller	Benicia	CA	94510
Jess	Zelniker	North Hollywood	CA	91601
Esther	Zepeda	Los Angeles	CA	90026
Paula	Zerzan	Sonoma	CA	95476
Dawn	Ziegler	San Diego	CA	92107
Teresa	Zollars	Fresno	CA	93704
Pilar	Zorrilla	West Hills	CA	91307
Ronnie	Zuckerberg	San Francisco	CA	94131
Ruth	Zulas	Corona	CA	92883
Helen	Zung	Oakland	CA	94610
Arleen	Zuniga	Guerneville	CA	95446
Stephanie	Zuniga	Huntington Park	CA	90255
Kristina	Zweig	Pacheco	CA	94553
Maxine	Zylberberg	San Francisco	CA	94110