

Proposal for Addition to U.S. Tentative List for World Heritage
CALIFORNIA CURRENT CONSERVATION COMPLEX
June 8, 2016

Working Name of Site

California Current Conservation Complex World Heritage Site

Working Boundaries of Site

The boundaries of the three existing national marine sanctuaries as described by regulations – approximately Point Arena south to Point Piedras Blancas, California, from the shoreline to varying distances offshore (15 – 50 miles).

Site Jurisdiction:

- National Oceanic and Atmospheric Administration – Greater Farallones, Cordell Bank and Monterey Bay National Marine Sanctuaries
- National Parks Service – Point Reyes National Seashore, Golden Gate National Recreation Area
- US Fish & Wildlife Service – Farallon Islands National Wildlife Refuge
- Bureau of Land Management – California Coastal National Monument
- State of California

General Description of the Site

The central element of the California Current Conservation Complex is a contiguous group of three federally-designated marine protected areas extending from the coastal towns of Point Arena in Mendocino County south to Cambria, in San Luis Obispo County (see Figure 1). Encompassing the marine and coastal waters of approximately 10,675 square miles (2,765,000 hectares), along 450 miles (725 kilometers) of shoreline, the area is nearly the size of Belgium. The area includes: Greater Farallones National Marine Sanctuary (GFNMS) in the north, which protects coastal habitats and surrounds a group of islands and sea stacks known as the Farallon Islands, rising from the fog offshore San Francisco and brimming with seabirds and marine mammals; Cordell Bank National Marine Sanctuary (CBNMS) in the center, featuring a submarine canyon and an offshore rocky bank rising 300 feet from the soft sediments of the continental shelf; and Monterey Bay National Marine Sanctuary (MBNMS) in the south, protecting pristine beaches, vast kelp beds, rocky shores, deep submarine canyons and a unique seamount. Collectively, the northern California national marine sanctuaries protect an extremely productive marine environment driven by strong upwelling within the California Current large marine ecosystem. Seasonal upwelling initiates an annual productivity cycle that supports a rich resident biological community as well as migratory populations of threatened and endangered sea turtles, fishes, sea birds, and whales that travel thousands of miles to feed in the fertile waters of the national marine sanctuaries.

GFNMS hosts some of the largest and most diverse eastern Pacific populations of seabirds, seals and sea lions south of Alaska. Extensive beds of bull kelp and healthy red abalone populations flourish in nearshore reefs. GFNMS also includes two Ramsar Wetlands of International Importance, Bolinas Lagoon and Tomales Bay, that are critical nursery areas for many species of fish and marine mammals, and an important link in the Pacific flyway for thousands of migratory

water birds in winter. Golden Gate National Recreation Area, Point Reyes National Seashore, Farallon Islands National Wildlife Refuge and GFNMS make up a UNESCO Golden Gate Biosphere Reserve.

CBNMS is blanketed with a diverse assemblage of colorful invertebrates including stands of cold water coral that provide important nursery habitat for juveniles of 20 different rockfish species during their first year of life. Many of these rockfish populations are still recovering from years of intensive fishing pressure. More species of albatross (five) have been observed around Cordell Bank than anywhere else in the northern hemisphere. It is an aggregation mecca for salmon sharks which make regular migrations to CBNMS from Alaska and British Columbia in Canada, and a feeding destination for blue and humpback whales.

MBNMS, the heart of this “Serengeti of the Sea”, protects a submarine canyon system equal in size and majesty to the Grand Canyon. The Monterey Canyon, in the center of Monterey Bay, is the largest submarine canyon along the coast of North America and plays a key role in the recruitment of diverse fish and invertebrates to coastal reefs. With 36 species of marine mammals, 94 species of seabirds, 350 species of fishes, 4 species of sea turtles, 31 phyla of invertebrates, and more than 450 species of algae, the sanctuary hosts one of the highest levels of marine biodiversity in the world and is an outstanding area for marine wildlife viewing and marine research. The sanctuary protects the largest kelp bed in the world stretching nearly 200 miles along the coast. Davidson Seamount, a vast, tall, dormant undersea volcano hosts large gorgonian corals and colonies of sponges and continues to surprise scientists with discoveries of new species. The seamount’s crest has the highest recorded diversity of deepwater coral species in the world, including some that are hundreds of years old and can measure more than six feet in height.

Within this area, two U.S. national parks - Point Reyes National Seashore and Golden Gate National Recreational Area - have coastal waters, and rich natural resources, within their boundaries contiguous with GFNMS and MBNMS (only the coastal waters of these largely terrestrial parks are included in this nomination). Farallon Islands National Wildlife Refuge provides critical nesting habitat for hundreds of thousands of marine birds and breeding rookeries for five pinniped species on the Farallon Islands. Point Reyes National Seashore and Farallon Islands National Wildlife Refuge, included in this submission, were both listed on the 1982 U.S. World Heritage Tentative List. Most of the other islands and coastal rocks along this stretch of coast are protected by the California Coastal National Monument, ensuring this essential habitat for seabird and pinniped rookeries have comprehensive protection.

Additional marine resource conservation within the California Current Conservation Complex is provided through a network of special marine protected areas designated by the State of California. Of these, 20 marine reserves prohibit all marine harvesting while 24 marine conservation areas allow only limited harvest of certain marine organisms within their boundaries. These areas include Point Lobos State Reserve and Ano Nuevo State Park, both of which have been designated as National Natural Landscapes by the National Park Service for their outstanding wildlife and biodiversity values. Ano Nuevo, along with Point Piedras Blancas (also within this nominated area), are the only large, mainland breeding grounds for the northern elephant seal in the world.

The diversity and abundance of wildlife, in all seasons of the year, occurs close enough to shore to offer spectacular wildlife viewing opportunities to millions of residents and visitors alike. More specifically, the California Current Conservation Complex protects 36 species of marine mammals, many endangered or threatened — affording world-class wildlife watching. Many marine species come to this wildlife hot spot after travelling enormous distances. For instance, endangered leatherback sea turtles cross the Pacific Ocean to gorge on vast aggregations of jellies in all three national marine sanctuaries, before returning to beaches in Indonesia where females lay their eggs. Nesting albatross fly monthly from the Hawaiian Islands to this area of the California Current, a round trip of nearly 7,000 miles, to feed on squid and fish, before returning to regurgitate food for hungry chicks. GFNMS hosts one of the world's largest seasonal congregations of adult white sharks, most common around the Farallon Islands where they feed on elephant seals and sea lions; they later travel to an area in the Pacific Ocean known as the “White Shark Café” and also to the Hawaiian Islands before returning to California. In all of these cases and many more, the wildlife aggregates in this ecological hotspot because varied and diverse prey are supported by the productive ocean conditions.

The California Current Conservation Complex hosts historically productive fisheries, including salmon, market squid, groundfish (including rockfishes, flatfishes, and black cod), sardines, herring, urchin and dungeness crab. Vast fortunes have been made, and lives and vessels lost, in the fishing industry in this area. Human harvest can be traced back thousands of years when Native Americans and later Chinese immigrants collected invertebrates in shoreside tide pools and occasionally captured marine mammals. Skilled Chinese seamen launched the first commercial fishing industry in Monterey, taking first abalone and later other varieties of fish including cod, halibut, flounder, yellowtail, sardines, squid and shark, as well as oysters and mussels from the bay waters. Whales were hunted from small coastal villages until the 1970s, when the last whaling station in the United States, in San Francisco Bay, ceased operation. Sea otter pelts fueled an international fur trade in coastal California, nearly driving the species extinct. The gold rush in the 1840s put San Francisco on the map and also put nearby natural resources, in particular common murre and their eggs at the Farallon Islands, under tremendous pressure. The common thread for these human stories has been the harvest (and occasionally over-harvest) of abundant natural resources and their subsequent associated boom and bust economies.

Presently, more than eight million people live within 50 miles of the area's shorelines, and many rely on its resources for recreation or work. Managing an area with such a rich abundance and diversity of marine life near a densely populated urban area can be challenging. However, residents living near the California Current Conservation Complex have embraced the value of conserving this unique system. In addition to wildlife viewing, users of the national marine sanctuaries and national parks engage in recreational activities, including world-class scuba diving, world-renowned surfing including two of largest big wave surf breaks in the United States and the world (Mavericks and Ghost Trees), ocean kayaking, tidepooling, boating, and unparalleled marine research. Coastal industries such as agriculture, tourism and commercial fishing are important to the regional economy, with direct links to the national marine sanctuaries.

Collectively, from the large areas protected as national marine sanctuaries, to companion coastal protections from other federal protected areas, to the special marine protected areas created through pioneering action by the State of California, the California Current Conservation Complex is a marine management success story. Collaborative, shared management between multiple federal and state agencies have created wide-scale ecosystem conservation that can in turn support considerable, sensibly-managed human uses of the region's natural resources.

Outstanding Universal Values

This nomination to the tentative list supports World Heritage by meeting four criteria:

(vii) contains superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;

The coast and shoreline along the California Current Conservation Complex are of exceptional natural beauty and aesthetic importance as those were factors in recognition of their national significance for designation as national marine sanctuaries, a national park and a national seashore, and countless state parks and state beaches. Privately owned areas of international renown, such as Pebble Beach, overlook this special coastal system and are exceptional in their own right based on the conservation of aesthetic resources afforded by the various protected areas with the Complex. Adjacent to these national marine sanctuaries lie some of the most stunning and visually appealing shorelines in the world, almost entirely accessible by the iconic U.S. Highway 1, designated by the United States as an All American Road, the highest standard for a scenic highway. This includes the famous Big Sur coast in Monterey County, and the Sonoma/Mendocino coast north of San Francisco, where in both cases the scenic highway traverses coastal cliffs and hills where redwood forests climb down slopes to the Pacific Ocean. Throughout the nominated area are long, often remote sandy beaches and undeveloped coastal bluffs.

(viii) outstanding examples representing major stages of Earth's history, including the record of life, significant on-going geological process in the development of landforms, or significant geomorphic or physiographic features;

The most significant geomorphic landform is the Monterey Canyon. This canyon, centered in Monterey Bay with its head coming nearly to shore in Moss Landing, contains geological process still being explored by scientists such as cold seeps – deep water areas fed by sulfur that seeps to the canyon walls through freshwater flows. Other lesser canyons intersect the continental shelf throughout the nominated area, creating dynamic oceanographic processes. Davidson Seamount and Cordell Bank, both described above, also represent significant geomorphological features that dramatically influence deep sea ecology in this region. The San Andreas Fault runs parallel to the coast and has contributed over millennia to California's myriad fault complexes that have shaped submerged and coastal land forms.

(ix) outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;

The California Current is one of only four eastern boundary currents affiliated with the majority of coastal upwelling on Earth, the others being the Humboldt Current off South America, and the Canary Current and the Benguela Current off Africa. None of these rich and diverse ecosystems have World Heritage status. Eastern boundary currents like the California Current are extremely productive areas in our global ocean. Although eastern boundary currents make up less than one percent of the world ocean, these ecosystems support a rate of fish harvest nearly 100 times the global mean and account for >20% of the world's marine fish catch. These figures are indicative of extreme productivity and rich biodiversity supported by the elevated productivity created by coastal upwelling in eastern boundary currents. The area proposed with this nomination represents the most spectacular ecological diversity and found within the larger California Current large marine ecosystem. The United States' past actions to afford the marine waters of this area a high level of protection – as national marine sanctuaries, parks, wildlife refuge and monument – indicate this area contains nationally-significant resources.

(x) contains the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

One of the hallmark attributes of the protected areas within the California Current Conservation Complex are the diverse ecological communities and habitat areas, many in near-pristine condition. For instance, deep ocean area, canyons, and seamounts within Monterey Bay National Marine Sanctuary are some of the best studied in the world and yet missions to these remote areas routinely turn up species entirely new to science. The offshore oceanic waters and those closer to shore protect and provide critical foraging habitat for almost a dozen different cetacean species and four sea turtles. Subtidal reefs are essential to the survival and recovery of nearly a dozen endangered marine fish species or genetically distinct stocks. Examples of the importance this area to threatened yet ecologically important species include the important apex predator, the great white shark, for which a very large portion of its worldwide population depends on seal and sea lion prey common in this area. Nearly 90% of the entire worldwide population of the California sea otter exists in the southern half of the California Current Conservation Complex. Blue whales, endangered and also renowned as the largest animal to ever live, also regularly visit this special area to feed on high density krill aggregations common throughout all three national marine sanctuaries. Thriving species also depend on this area for their life history, from sea birds that fly thousands of miles for meals in these productive offshore and coastal waters, to elephant seals that breed and molt on beaches protected along this coastline, to beautiful jellies that drift in aggregations that can reach the hundreds of millions in some seasons.

Potential Support/Opposition from Owners and Stakeholders

The submerged lands and waters associated with the California Current are owned or controlled by the United States Government and the State of California. The federal managers (NOAA within the U.S. Department of Commerce, and BOEM, NPS and USFWS within the U.S. Department of the Interior) support this nomination and designation as a World Heritage Site. NOAA plans to brief the three Sanctuary Advisory Councils comprising this site as well as the Pacific Fishery Management Council regarding plans to nominate this site to the Tentative List.

Leadership from the State of California's Natural Resources Agency supports this nomination and is working on formal concurrence from the Governor's office.

Global Comparative Analysis

Of the 47 marine areas on the World Heritage list, only a small handful protect temperate waters, none of those including the diverse habitats – open ocean, abyssal plain, submarine canyons, seamounts, rocky reefs, offshore islands and rocks, kelp forests, intertidal rocky shores and wetlands – as is found in the California Current Conservation Complex. It is one of only four eastern boundary currents affiliated with the majority of coastal upwelling on Earth. The California Current Conservation Complex protects one of the most productive fisheries in the world due largely to the upwelling, which brings to the surface nutrient-rich water, that, through elaborate food webs, support large populations of fish as well as whales, seabirds and many species that are threatened or endangered. The only other large marine ecosystems already identified as World Heritage sites are the Great Barrier Reef, Phoenix Islands Protected Area, and Papahānaumokuākea Marine National Monument, all of which are distinguishable as warm tropical systems protecting largely coral reef ecosystems whereas the California Current is an ecosystem based largely on the upwelling of cold water.

Perhaps the most apt global, World Heritage comparison to the California Current Conservation Complex is a terrestrial site - the Serengeti (a large portion of which is included in two World Heritage Sites, Serengeti National Park and Ngorongoro Conservation Area), with its well-known migrations of wildebeests, zebra and trailing predators. However, the migration of marine animals into and out of the California Current Conservation Complex dwarfs those found on the African savannah, both in terms of numbers and diversity of species making tremendous migrations. Furthermore, the species migrate from all directions to the California Current Conservation area, some travelling tremendous distances – south from as far as Alaska, the Bering Sea and Arctic waters, north from as far as Chile, Argentina and New Zealand, and east from across the Pacific Ocean. Nearly all of the animals migrating to the California Current Conservation Complex come for the reliable, predictable, plentiful food sources.

Ecological and Resource Integrity/Concerns

The area of the California Current Conservation Complex is a contiguous conservation zone from Point Arena in the north, along the coast and far offshore, to roughly Point Piedras Blancas in the south. Wholly-intact ecological habitat and biological communities blend from north to south, from the coastline to offshore, and from the ocean's surface to the deep abyssal plain. Moreover, the interwoven management regimes of the three national marine sanctuaries, other federal protections and state conservation actions provide integrated marine management and conservation, while also allowing numerous human uses. This area demonstrates, on a global scale, how sound resource management and human use and enjoyment can transpire together.

The greatest threat to the natural resources in this area comes from the impacts of climate change, in particular ocean acidification. Warming waters will also have an impact, but species have shown greater adaptation to warmer oceans than the impacts scientists predict will arrive due to an acidifying ocean. Ship traffic poses a threat to whales, but is being addressed through traffic separation schemes approved by the International Maritime Organization.

Other Considerations

Few if any other marine areas in the United States, or in the world, can match the number and diversity of marine research institutions whose scientists work within and along the shores of the California Current Conservation Complex, especially in Monterey Bay. Scientists from the area employ cutting edge technologies to track marine species, measure ocean conditions and document numerous natural phenomena. The diversity of marine biological communities attracts scientists from around the world to collaborate on key issues facing the ocean. Some of the world's leading work to plan for, educate about, and mitigate marine and coastal impacts from climate change is taking place in and around GFNMS and the San Francisco Bay Area.

This area has a rich maritime history that is actively being explored and shared with the public, revealing fascinating stories of early settlements – Native American, European, Asian, and early American – lighthouses, and harbors. There are many hundreds of shipwrecks and aircraft that lie offshore, such as the Manila galleon *San Agustin* wrecked in 1595, which is believed by Spain and NPS to be the oldest documented shipwreck along the West Coast of the United States. All of these maritime heritage resources are protected by national marine sanctuary status. A dedicated maritime heritage program explores, characterizes, protects, and publicizes the rich history of these waters. Such a diverse cultural/maritime landscape exists in large part due to the highly productive coastal waters that have persisted for more than 10,000 years.

Figure 1. Map of Proposed California Current Conservation Complex.

