AN EVALUATION OF A PETITION TO REVISE THE CRITICAL HABITAT DESIGNATION FOR THE LEATHERBACK SEA TURTLE (*Dermochelys coriacea*) UNDER THE ENDANGERED SPECIES ACT

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The Center for Biological Diversity, Oceana and the Turtle Island Restoration Network (CBD *et al*. 2007) have petitioned the Secretary of Commerce to revise the critical habitat designation for the leatherback sea turtle (*Dermochelys coriacea*) under the Endangered Species Act, 16 U.S.C. § 1531, *et seq*. (ESA), to include the Pacific Leatherback Conservation Area (PLCA) currently managed by the National Marine Fisheries Service (NMFS) pursuant to regulations adopted under Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (HMS FMP) (50 C.F.R. § 660.713(c)(1)). This area encompasses roughly 200,000 square miles off the U.S. West Coast and spans diagonally from Pt. Sur to a point due west of Pt. Conception, CA out to 129ºW and then north to 45ºN. The petitioners contend that this area meets the ESA criteria for designation as critical habitat because it assertedly contains "physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection," within the meaning of Section 3(5) of the ESA, 16 U.S.C. § 1532(5), and its implementing regulations, 50 C.F.R. § 424.02(d).

Under NMFS' regulations, in designating or revising critical habitat, NMFS must first "focus on the principal biological or physical constituent elements . . . that are essential to the conservation of the species," and then list "[k]nown primary constituent elements . . . with the critical habitat description." 50 C.F.R. § 424.12(b)(5); *see also* NMFS/U.S. Fish and Wildlife Service, Final ESA Section 7 Consultation Handbook, pp. xii, 4-33 (March 1998) (defining "critical habitat") (Handbook). As we will demonstrate below, the assertion that the entire area of the PLCA contains the requisite primary constituent elements (or PCEs) and so constitutes critical habitat is incorrect. Critical habitat may be present within this vast region, but, if so, it is restricted to the coastal margin of the PLCA where "the narrow shelf off Oregon and California propels mass upwellings of nutrient-rich waters which creates a highly protective zone for prey such as cnidarians that provide necessary nutrition for species like the leatherback" (CBD *et al*. 2007, p. 30). This high-value foraging area, based on the results of Benson *et al*. (2007a), is bounded on the seaward edge by the 50 fathom contour which is generally located less than 30 kilometers offshore. Most of the area proposed as critical habitat by CBD *et al*. (2007) has no more distinguishing habitat attributes than any other region of the vast north Pacific that must be traversed by members of the leatherback population that nests in the western Pacific and uses the coastal area of the northeastern Pacific as a foraging area.

It may also be that management of certain areas off the West Coast of the United States may be needed to protect PCEs which may make up prospective leatherback sea turtle critical habitat. However, contrary to the CBD *et al*. (2007) petition, the designation of critical habitat does not create some kind of "sanctuary" where threatened and endangered species are protected from any and all potential threats from any kind of

human activity. *See* Center for Biological Diversity, Press Release, dated December 28, 2007, available at www.biologicaldiversity.org/swcbd/press/leatherback-12-28-2007.html.[1] Rather, designation of critical habitat is intended to preserve a listed species by protecting the physical and biological features of certain areas from Federal or Federally-authorized activities which might result in their "destruction or adverse modification." ESA, sec. 7(a)(2), 16 U.S.C. §1536(a)(2); *see also Middle Rio Grande Conservancy District v. Babbitt*, 206 F. Supp. 2d 1156, 1171 (D. N.M. 2000). The ESA's prohibitions against the "taking" of listed species in Section 9, 16 U.S.C. § 1538, are not and cannot be equated with the destruction and adverse modification of critical habitat. In the case of leatherback sea turtles, critical foraging habitat is not in any way threatened by any of the fisheries. The fisheries do not target or take leatherback prey species as bycatch in any appreciable amounts, nor do they affect the oceanographic processes that create the conditions that result in a highly productive and rich foraging ground. The PLCA was not established for habitat protection, but rather is a zone where fishing is seasonally restricted in order to minimize the incidental take of leatherbacks in the California/Oregon drift gillnet fishery (CA/OR DGF). Even though the take of leatherbacks in this fishery is thus not relevant to the critical habitat designation, we will clarify the record regarding this issue below.

LEATHERBACK SOURCES AND STOCK SIZES

Leatherback turtles along the U.S. West Coast are part of the western Pacific genetic stock which is known to nest in Papua (Indonesia), Papua New Guinea, Solomon Islands, and on other western Pacific islands (Dutton *et al*. 2000, Dutton *et al*. 2007). The western Pacific metapopulation was estimated to contain roughly 1,800 nesting females in 1995 (Spotila *et al*. 1996), but Dutton *et al*. (2007) estimates that this metapopulation contains on the order of 2,700 to 4,500 breeding females. These estimates were made using 1) the range of nests laid each year since 1999, 2) the assumption that each female laid five nests per season (the actual number of nests per female per season is unknown for these populations), and 3) the assumption that the total number of breeding females could be estimated by multiplying the number of females nesting annually by 2.5, an assumed average remigration interval between nesting years for an individual female. This value is also unknown for the subject populations. The remigration interval for leatherbacks can range up to seven years (Benson *et al*. 2007a).

Satellite telemetry studies (Benson *et al*. 2007b) have linked leatherback turtles foraging along the U.S. West Coast with one of the two largest remaining nesting beaches, Jamursba-Medi (Papua, Indonesia) which experiences peak nesting activity during May-September. At this site, five of nine post-nesting female turtles traveled northeastward across the tropical Pacific towards temperate waters of the eastern north

[1] Congress has in fact provided a mechanism for designation of "marine sanctuaries," the Marine Sanctuaries Act, 16 U.S.C. § 1431, *et seq*., and sanctuaries have been created for the express purpose of populations of endangered species, *viz*., the Hawaiian Islands Humpback Whale National Marine Sanctuary, Pub. L. No. 102-587, Title II, Subtitle C, §§ 2301-2308 (Nov. 4, 1992), Pub. L. No. 104-283, § 7 (October 11, 1996).

Pacific; three traveled westward through the Sulawesi and Sulu seas (n = 2) and into the South China Sea (one), and one turtle moved north into the Sea of Japan.

Only one of the nine leatherbacks (11%) traveled all the way to the west coast of the U.S. mainland. This female moved to foraging areas located 50- to 100 kilometers off the coasts of Oregon and Washington. After about two months, this turtle moved in late October to tropical waters southeast of Hawaii and remained there until March 2005. It then traveled back towards the northeast coast of the United States but the transmitter failed before this region was reached (Benson *et al*. 2007b). These data were interpreted to indicate that this individual spent two consecutive years foraging in the temperate eastern Pacific following nesting at Jamursba-Medi. Allowing about a year each way (nesting beach to foraging ground and vice versa), for the trans-Pacific migrations, the total remigration interval would have been on the order of 4+ years. If a high proportion of the Jamursba-Medi stock utilizes the northeastern Pacific as primary foraging grounds then the average remigration interval is likely larger than 2.5 years. As a consequence, the stock size would be larger as well.

If it is assumed that 5 of 9 nesting turtles at Jamursba-medi have a 4-year remigration interval and that 4 of 9 have a 2-year remigration interval, the average interval would be 3.1 years. Since 1999, the number of nests counted at the Jamursba-Medi beach ranged between 1,865 and 3,601. Assuming five nests per female, this equates to between 373 and 720 females nesting annually. If the average remigration interval is 3.1 years the total number of females ranges between 1,156 and 2,232. The average number of nests recorded between 1999 and 2004 suggests 565 nesting females were present, on average, which equates to 1,413 (2.5 yr migration interval), or 1,752 adult females (3.1 yr migration interval) in the Jamursba-Medi nesting beach population. For the 5-year period 2000 to 2004, the number of nests reflects a stable or even increasing trend (*see* Figure 6 in Hitipeuw *et al*. 2007).

PROPORTION OF STOCK USING CALIFORNIA/OREGON FORAGING GROUNDS

Leatherbacks from the Jamursba-Medi nesting beach utilize multiple foraging grounds, including but not restricted to the South China Sea, the Sea of Japan, the tropical Pacific around Hawaii, and the temperate waters of the eastern north Pacific offshore the northwest coast of the United States (Benson *et al*. 2007b). Only a relatively small proportion of the Jamursba-Medi nesting assemblage utilizes the northwest U.S. coastal region. It does appear, however, that the foraging grounds off the West Coast of the United States are important to the species.

Benson *et al*. (2007a) estimated that, on an annual basis, an average of 178 leatherback turtles utilized the coastal zone of central (<92 m depth) and northern California during 1990 to 2003. They also reported that capture studies in this region during 2000 to 2005 documented that about 67.5% of the foraging leatherback turtles were female. Thus, the annual average of 178 total leatherbacks should correspond to about 120 females. Above, we have shown based on the average unadjusted annual nest

counts from 1999 to 2004 (Hitipeuw *et al*. 2007), an assumed 5 nests per year per female (Dutton *et al*. 2007) and an average remigration interval of 2.5 year (Dutton *et al*. 2007), that the number of breeding females in the Jamursba-Medi nesting assemblage is on the order of 1,413 females. Thus, on average, about 8.5% of the Jamursba-Medi nesting females may utilize the nearshore zone (<92 meter depth) of the central and northern California coast. The maximum number of leatherback turtles observed in this zone was 379 observed in 1990. Assuming 67.5% of these were female, this total would equate to 256 female leatherbacks or 26.8% of the total estimated Jamursba-Medi nesting females. In 1995 only 12 total leatherbacks or 8 females were observed using this zone. This would equate to only 0.6% of the total estimated Jamursba-Medi nesting females.

These estimates, along with the satellite telemetry data (1 of 9 or 11% traveled from Jamursba-Medi to the northwest coast of the U.S.) suggest that, on average, about 9 to 11% of the nesting females of the Jamursba-Medi nesting assemblage utilize the coastal zone from central and northern California to Oregon (Benson *et al*. 2007 a, b). These turtles may travel northward as far as Canada and southern Alaska in conjunction with the 13º to 15º isotherms during June to November (*see* below).

The leatherbacks of the Jamursba-Medi nesting assemblage have been documented to utilize a variety of foraging grounds; some areas are relatively near to the nesting grounds while others are located at great distances from the nesting beach (Benson *et al*. 2007a). The Oregon coast, for example, is located nearly 13,000 miles from the Jamursba-Medi nesting grounds.

Having a diversity of foraging grounds may result in greater population stability since the population would be less vulnerable to adverse impacts on prey populations and other factors than if the turtles were restricted to only one foraging area. While the benefits of traveling so far to a foraging area when other suitable areas are available nearer to the nesting beaches are not clearly known, possible benefits might include greater net fitness of offspring resulting from longer intervals between nesting events and, perhaps, more eggs per nesting event (Scott Benson, as quoted in *The Oregonian*, January 22, 2008).

CALIFORNIA/OREGON LEATHERBACK FORAGING GROUNDS: POTENTIAL AREAS WARRANTING CRITICAL HABITAT DESIGNATION

The northwest coast of the United States is characterized by coastal upwellings which create a dynamic and highly productive nearshore coastal ecosystem. Benson *et al*. (2007a) described the trophic links between the coastal physical processes in this region and leatherback turtles:

> "Strong northwest winds during late spring and early summer lead to wind-driven upwelling (Bakun et al. 1974), particularly near points and headlands. These prominences can interact with local hydrographic features to create localized retention areas (upwelling shadows; Graham 1994), where nutrient-rich, upwelling-modified water is entrained nearshore,

> particularly during wind relaxation. This process creates favorable conditions for phytoplankton growth and increases retention of zooplankton, larval fish, crabs, and gelatinous organisms (Wing et al. 1995, Graham et al. 2001). Dense aggregations of jellyfish (Scyphomedusae), primarily *Chrysaora fuscescens*, *C. colorato*, and *Aurelia* spp., have been reported off Oregon, where Scyphomedusae become denser and larger in size during summer, when the movement of surface and near-surface waters concentrates plankton in nearshore retention areas (Shenker 1984). During our surveys, Scyphomedusae were common in retention areas between Pt. Reyes and Monterey Bay (Fig. 6), where leatherback turtles were most frequently encountered and observed feeding on *C. fuscescens*, *C. colorata*, and *Aurelia* spp. (Starbird et al. 1993, this study). We hypothesize that variability in the expression of these physical and trophic processes leads to interannual and seasonal variability in observed leatherback turtle abundance off central California, with densities greatest during periods of significant upwelling and subsequent relaxation events."

Benson *et al*. (2007a) also observed that, while leatherback abundance estimates off coastal California did not exhibit a trend between 1990 and 2003, abundance was related to the average annual Northern Oscillation Index (NOI). Positive NOI values associated with greater leatherback turtle abundance and vice versa. This relationship is shown by Figure 5 in Benson *et al*. (2007a) which is reproduced herein (Figure 1), along with their Figure 6 referenced above. Leatherback turtles and their prey were primarily found in areas of retention which are circled in the middle panel of Benson *et al*.'s (2007a) Figure 6.

As summarized in Gallaway (2001), Stinson (1984) provides evidence that most leatherbacks enter the coastal zone of northern California and Oregon in summer in association with the arrival of 13ºC and 15ºC isotherms. Consistent with this finding, the leatherback that was tracked across the Pacific from the Jamursba-Medi nesting beach arrived off Oregon in August (Benson *et al*. 2007b). According to Stinson (1984), an "explosion" of sightings in the coastal zone occurs as early as July along the Oregon coast in conjunction with the arrival of the 13ºC to 15ºC isotherms. After arrival, some of the turtles move south into the coastal waters of northern and central California in late July through September. Benson *et al*. (2007a) showed that peak abundance off northern and central California occurs in August and September but that the encounter rates remained high during September in the Monterey Bay and Gulf of the Farallones areas, and in October within the Gulf of the Farallones area. November was marked by low abundance and leatherbacks were absent from the coastal zone from October until the next summer.

Other leatherbacks arriving off the Oregon coast in summer in association with the 13ºC to 15ºC isotherms move northward from Oregon as part of the Alaska Gyral current (Stinson 1984). Overall, the distribution was observed to extend into the Gulf of Alaska at one extreme (Stinson 1984) all the way to Monterey Bay to the south (Benson *et al*. 2007a). The 13ºC to 15ºC isotherms intersect the coast off Oregon and then spread north and south, and are compressed tightly along the coast (*see* Figure 7 in Gallaway 2001). It

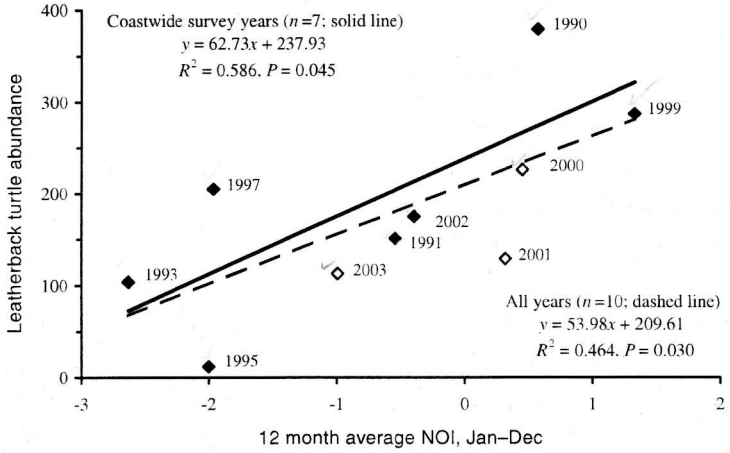

Figure 5

Regression of estimated leatherback turtle (*Dermochelys coriacea*) abundance versus 12 month average Northern Oscillation Index (NOI; Schwing et al., 2002) for the period January–December of each survey year (indicated next to the points). Filled symbols represent years in which surveys were conducted coastwide; open symbols represent years in which estimates of coastwide abundance were based on central California abundance (see "Materials and methods" section).

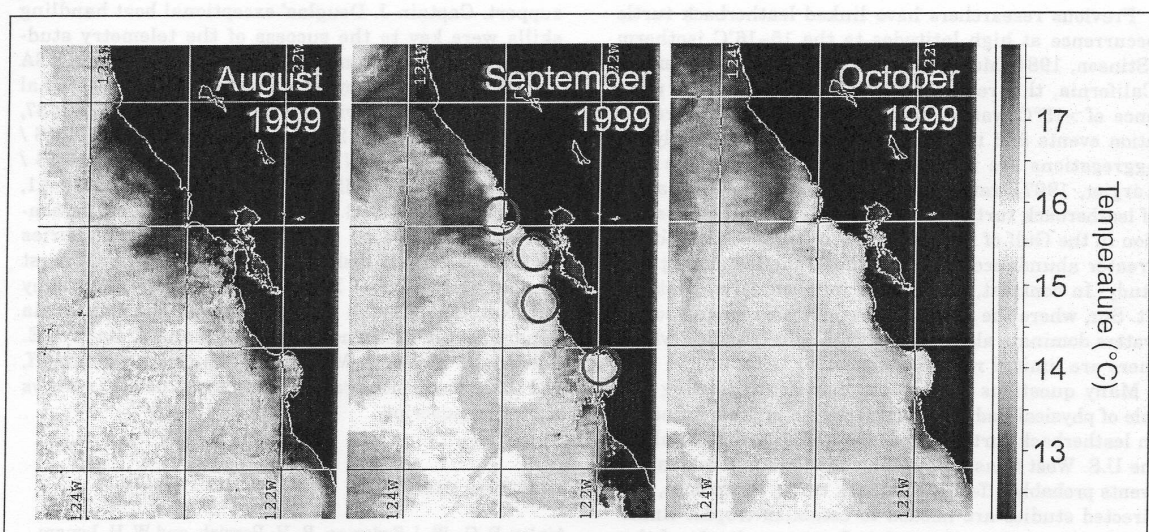

Figure 6

Pattern of upwelling and retention along the central California coast, illustrated with monthly satellite-derived sea surface temperature images for August, September, and October 1999. Leatherback turtles (*Dermochelys coriacea*) and Scyphomedusae were primarily found in areas of retention (circled in middle panel). High resolution monthly composite satellite images courtesy of NOAA CoastWatch, West Coast Node.

Figure 1. Reproductions of Figures 5 and 6 from Benson *et al*. (2007a).

is in these coastal areas that the upwellings occur and result in prey-rich areas that constitute important foraging areas for leatherback sea turtles.

When considering the designation of an occupied area as critical habitat, NMFS must first identify those physical or biological features that are essential to the conservation of the species. ESA, sec. 3(5)(A)(i), 16 U.S.C. § 1532(5)(A)(i); *see also The Cape Hatteras Access Preservation Alliance v. United States Dept. of the Interior*, 344 F. Supp. 2d 108, 120 (D.D.C. 2004). Features that satisfy this requirement may be deemed PCEs. *See* 50 C.F.R. § 424.12(b)(5). Designation of PCEs is critical because at least one PCE must be "found" in an occupied area before that area can be eligible for critical habitat designation. *See* ESA, sec. 3(5)(A)(i), 16 U.S.C. § 1532(5)(A)(i); *see also The Cape Hatteras Access Preservation Alliance*, 344 F. Supp. 2d at 122; *Home Builders Ass'n of Northern California v. United States Fish and Wildlife Service,* 268 F. Supp. 2d 1197, 1211 (E.D. Cal. 2003) ("it is impossible for the Service to comply [with the requirements of the ESA] without determining what physical and biological features are essential to the conservation" of the species in question).

NMFS' regulations specify that PCEs may include, but are not limited to: "roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species or plant pollinator, geological formation, vegetation type, tide, and specific soil types." 50 C.F.R. § 424.12(b)(5). A general reference to one of these potential PCEs, without more, however, is not enough to satisfy the requirement that PCEs be identified with a certain level of specificity. Stating an obvious need, such as the need for "sufficient flowing water" or "water of sufficient quality," or stating some other "vague generality that does little more than identify what is required for any related species without clarifying exactly which elements are considered 'primary' or most necessary to the species in question, is inadequate." *Middle Rio Grande Conservancy District*, 206 F. Supp. 2d at 1185; *see also Home Builders Ass'n of Northern California*, 268 F. Supp. 2d at 1211-1212 (mere description of possible location of important physical and biological elements, without identification of the elements themselves, does not provide the critical information necessary for designation of critical habitat). The CBD *et al*. (2007) petition, which does little more than parrot the ESA regulations in stating that the area in question contains "space for population growth and normal behavior," "food and water," etc., *see* CBD *et al*. 2007, pp. 30-32, is plainly inadequate in this regard.

NMFS must act upon the best scientific data available, and these data should allow the agency to "articulate with a specificity capable of providing (1) a standard for distinguishing those geographical segments of [a species'] historic habitat truly critical to its survival, and (2) a cornerstone for informing federal agencies and others of those attributes of habitat considered immutable." *Middle Rio Grande Conservancy District*, 206 F. Supp. 2d at 1185. Thus, NMFS must be meticulous and careful to avoid vague designations of PCEs that fail to provide a standard for the management and protection of habitat. *See id*. This concept is underscored by the Handbook's identification of the need for "clarity and conciseness," making critical habitat documentation "more

understandable to everyone" as one of the underlying philosophies guiding Section 7 work. Handbook, p.1-2.

In the case of leatherback sea turtles, the upwelling shadows or coastal retention areas hold dense aggregations of zooplankton, larval fish, crabs and gelatinous organisms, including "cnidarians (jellyfish and siphonophores) and tunicates (pyrosomas and salps), and their commensals, parasites and prey" (NMFS 2006, p. 18; *see also id.*, p. 60). The coastal upwelling and corresponding retention areas that occur near points and headlands along the northwest coast of the U.S. mainland afford prime feeding habitat for a small fraction of leatherback turtles from the Jamursba-Medi nesting assemblage (NMFS 2006, pp. 18-19, NMFS 1998, p. 14). These may be considered to make up the PCEs of the leatherback foraging habitat and could therefore provide a basis for critical habitat designation. The conditions that result in the prime foraging grounds or feeding areas are governed by climatological, meteorological, and oceanographic processes that occur on a global scale. Because of this, factors such as global warming may impact the present distribution of critical foraging habitat (NMFS 2006, pp. 30, 42-43). Areas which do not contain these characteristics, however, would not qualify for critical habitat designation.

From the above we conclude that foraging habitat for leatherbacks occurs along the coastal zones of central California to southern Alaska. On the order of 10% or so of the females associated with Jamursba-Medi nesting beach appear to use these West Coast areas for foraging. The degree of utilization varies from year-to-year in a reasonably predictable way that is associated with the Northern Oscillation Index.

High-value areas within this region are characterized by upwelling zones and retention areas that occur mainly along the nearshore coastline. Retention areas produce extremely high densities of the gelatinous prey utilized as food for leatherbacks. As such, these areas might be considered to represent critical foraging habitat. The 200,000 square mile PLCA does not constitute critical foraging habitat except at its very coastal margin, and it fails to incorporate all the high-value foraging areas that occur along the coast north of California.

An approximation of leatherback foraging habitat would likely include the coastal zone extending from Cape Flattery, Juan de Fuca Strait, Washington, southward to Point Sur, California, just south of Monterey Bay. The high-value areas within this region, which may warrant critical habitat designation, would typically be found near the mainland shore. Benson *et al*. (2007a) suggest these high-value areas are bounded on the seaward edge by the 50 fathom contour which is generally located less than 30 kilometers offshore. Certain areas, such as Monterey Bay and the Gulf of the Farallones, may be especially valuable. *Id*.[2] NMFS needs to define these specific, high-value areas with

[2] It should be noted, of course, that, because both Monterey Bay and the Gulf of the Farallones are national marine sanctuaries, there may be little need for an additional management overlay in these areas to protect leatherback habitat. *See* 15 C.F.R. Part 922, Subpart H, §§ 922.80-922.84 (Gulf of the Farallones National Marine Sanctuary Regulations); 15 C.F.R. Part 922, Subpart M, §§ 922.130-922.134 (Monterey Bay National Marine Sanctuary Regulations).

geographic precision and determine whether they may actually require "special management considerations or protection" before proceeding with a critical habitat designation.

LACK OF QUALIFCATION OF THE PLCA AS CRITICAL HABITAT

The important foraging areas are restricted to coastal areas and are not represented throughout the entire 200,000 square miles defined as the PLCA. In contrast, the coastal feeding grounds extend northward beyond the northern boundary of the PLCA into the coastal zones of northern Oregon, Washington, Canada, and southern Alaska (*see* Stinson 1984 and Gallaway 2001 for a review). The CBD *et al*. (2007) petition calls for designating large areas that are not important foraging habitats as critical habitat, yet fails to protect coastal areas that are important foraging grounds.

The lack of justification for designation of the entire PLCA as critical habitat is manifest. The area in question is simply too vast, undifferentiated from other wide swaths of the ocean where leatherback sea turtles may be found and of uncertain importance to the species. Indeed, the PLCA is more than five times the size of the largest ocean habitat ever designated by NMFS, namely that for the North Pacific right whale. *See* 71 *Fed. Reg*. 38277 (July 6, 2006) (designating 36,750 square mile critical habitat in the Gulf of Alaska and Bering Sea). It is neither "essential for the conservation" of the species, nor in need of "special management considerations or protection."

NMFS has in fact often declined to designate broad areas of the ocean environment as critical habitat due to an inability to determine that the areas have been "essential" to threatened or endangered species.[3] Thus, for example, in 1993, when NMFS designated critical habitat for the Steller sea lion (*Eumetopias jubatus*) in certain areas and waters of Alaska, Oregon, and California, the agency determined that at-sea rafting sites, locations in which the animals float on the ocean surface in a tightly-packed group, did not qualify as critical habitat, even though they were an important part of the areas used by sea lions. *See* 58 *Fed. Reg*. 45269 (August 27, 1993). Similarly, when it designated critical habitat for Snake River sockeye salmon (*Oncorhynchus nerka*) and certain Snake River chinook salmon (*Oncorhynchus tshawytsha*), NMFS affirmatively declined to identify areas and features of the Pacific Ocean "used by listed salmon for growth and development to adulthood." *See* 58 *Fed. Reg*. 68543 (December 28, 1993). Rather, NMFS has quite properly focused upon more discrete, identifiable areas, such as calving grounds, nesting beaches and rookeries, haul-outs and immediately adjacent offshore habitat, where PCEs can be described with precision. Thus, for example, the Atlantic Ocean areas designated as critical habitat for right whales encompass just 4350 square nautical miles, including Cape Cod Bay (540 square nautical miles), the Great South Channel (2430 square nautical miles) and Florida and Georgia calving grounds

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[3] In any case, it should be noted that critical habitat cannot be designated for any areas beyond U.S. jurisdiction, *e.g*., oceans areas outside the Exclusive Economic Zone. *See* 50 C.F.R. § 424.12(h).

(1380 square nautical miles). *See* 59 *Fed. Reg.* 28973 (June 3, 1994). Likewise, the parameters of the critical habitat established for the Hawaiian monk seal (*Monachus schauinslandi*) were drawn to comprise only the beach areas, lagoon waters, and ocean waters out to a depth of twenty fathoms around several islands and reefs in the Hawaiian archipelago. *See* 51 *Fed. Reg.* 16047 (April 30, 1986); 53 *Fed. Reg.* 18988 (May 26, 1988). In order to provide for the conservation of the green turtle (*Chelonia mydas*), NMFS designated as critical habitat the coastal waters only out to three nautical miles surrounding Culebra Island, Puerto Rico, 63 *Fed. Reg.* 46693 (September 2, 1998), while hawksbill turtle (*Eretmochelys imbricata*) critical habitat is limited to the coastal waters out to three nautical miles surrounding Mona and Monita Islands, Puerto Rico. *See id.*

It is equally clear that that the PLCA as a whole is not an area in need of "special management considerations or protection," at least as far as the fisheries are concerned. As noted above, the focus of NMFS' inquiry in this regard must be whether features of critical habitat are at risk of "destruction or adverse modification." 50 C.F.R. § 402.02 defines "destruction or adverse modification" as a "direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical." The purpose of the prohibition against "destruction or adverse modification" is to ensure the maintenance of the value of critical habitat. Thus, the designation of critical habitat "effectively prohibits all subsequent federal or federally funded or directed actions likely to destroy or disrupt the habitat." *Catron County Board of Commissioners v. U.S. Fish and Wildlife Service*, 75 F.3d 1429, 1434 (10th Cir. 1996); *see also* Handbook, p. xviii (noting that "Section 7(a)(2) requires Federal agencies to consult with the Services to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat").

The Handbook underscores that the focus of the adverse modification inquiry must be on the effects of agency action on PCEs. The Handbook states (p. 4-34), "In evaluating project effects on critical habitat, the Service must be satisfied that the constituent elements of the critical habitat likely will not be altered or destroyed by the proposed activities to the extent that the survival and recovery of affected species would be appreciably reduced." *See also id.*, p. 4-39 ("the **adverse modification** threshold is exceeded when the proposed action will adversely affect the critical habitat's constituent elements or their management in a manner likely to appreciably diminish or preclude the role of that habitat in both the survival and recovery of the species") (boldface in original)*; Sierra Club v. U.S. Fish and Wildlife Service*, 245 F.3d 434, 441 (5th Cir. 2001) ("the destruction/adverse modification standard focuses on the action's effect on critical habitat").

It is evident that, whatever the features that might be identified in the PLCA, they are not at risk from fishing activities.[4] Certainly, fishing has no effect on the PCEs

[4] It should also be emphasized that the mere enumeration of general, unspecific threats (marine pollution, debris, etc.) is not enough to meet the requirements of the ESA. Threats must be real

discussed above.[5] The prey species utilized by the leatherback are not taken as bycatch or substantially impacted by operation of the fishing gear. Moreover, operation of the vessels does not result in any appreciable pollution, especially given the small size of today's fleet. Furthermore, even assuming *arguendo* that the risk of incidental taking could somehow provide a basis for critical habitat designation – a proposition with which we emphatically disagree – this risk is addressed by existing fishery management measures which are more than sufficient to protect the species. Indeed, as discussed in greater detail below, since institution of the PLCA almost seven years ago, there has in fact not been a single documented take of leatherback sea turtles in the fishery. In rejecting a petition to designate critical habitat for the bowhead whale in the Beaufort Sea and Chukchi Sea in 2002, NMFS relied particularly on the adequacy of existing laws and regulations to protect the species. *See* 67 *Fed. Reg.* 55767 (August 30, 2002). Similarly, in declining to designate open ocean areas used by Sacramento winter-run chinook salmon as critical habitat, NMFS emphasized that, because there were no significant threats to the species not already addressed by existing laws, those areas did "not appear to be in need of special management considerations or protection." 58 *Fed. Reg.* 33212, 33213 (June 16, 1993). Those considerations are even more compelling in connection with the CBD *et al.* petition.

FISHERIES INTERACTIONS AND THE PLCA

The PLCA was established in conjunction with a seasonal closure (15 August to 15 November annually) to reduce the *incidental take* of leatherback turtles in the CA/OR DGF. *See* 66 *Fed. Reg.* 44549 (August 24, 2001) (adopting interim final closure rule). Threats of incidental taking were not and are not related to habitat protection. Contrary to what the petitioners argue, the need for management in the critical habitat context is not "evidenced by the existing measures to reduce leatherback interactions with fisheries." *See* 72 *Fed. Reg.* 73745, 73747, col. 1 (December 28, 2007); CBD *et al.* 2007, p. 32. These measures have to do with the "taking" prohibitions in Section 9 of the ESA. As NMFS said in designating critical habitat for the North Pacific right whale, "We conclude that, at the current time, vessel and gear interactions do not affect the whales' habitat, but rather are take issues which are prohibited by section 9 of the ESA and properly addressed in jeopardy analyses in section 7 consultations on Federal actions or in

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and identifiable, not hypothetical or conjectural. An area is not critical habitat if its essential physical and biological features "cannot by any possibility, *when the facts are reasonably considered*," be viewed as requiring special management considerations or protection. *Cf.*, *United States v. Lexington Mill & Elevator Co.*, 232 U.S. 399, 411 (1914) (emphasis added) (finding that the phrase "added poisonous or other added deleterious ingredient which may render such article injurious to health" does not apply to the presence of poisonous or deleterious ingredients in amounts too small to pose an appreciable health threat). Notably, the Recovery Plan (NMFS 1998, pp. 23-26) identifies few threats to habitat in the marine environment, other than oil and gas development. *See also* NMFS 2006, p. 61. And, even oil and gas development is purely hypothetical at this time, given the current moratorium on drilling off the coast of California.

[5] NMFS (2006, p. 66) notes, "Potential impacts from the CA/OR drift gillnet fishery will generally be related to injury or mortality," not any effects on habitat.

incidental take permit applications evaluated pursuant to section 10 of the ESA." 71 *Fed. Reg.* 38277, 38280, col. 3 (July 6, 2006). *See also id.* at 38282, col. 3 (noting that management measures affecting fishing operations "would be required to prevent take of the endangered right whale and would not be attributable to the designation of critical habitat"). As described above, fisheries are not a threat to the prey-rich situations which develop along the coastal zone of the northwestern U.S.

Even assuming, for the sake of argument, that incidental takes might somehow be relevant to the designation of critical habitat, the observed levels of leatherback takes in CA/OR DGF are not significant at the present time, nor have they been significant since implementation of the 1997 Take Reduction Plan (TRP) (*see* Gallaway 2001 for a review). The NMFS' (2000) Biological Opinion, dated October 23, 2000, on the CA/OR DGF based its jeopardy finding for leatherback sea turtles on flawed estimates of take and projected effort levels, as will be described below. A leatherback time/area closure of a 200,000 square mile area from 15 August to 15 November every year was established to avoid "jeopardy". *See* 66 *Fed. Reg.* at 44549, col. 3. Eighty-four percent of the annual CA/OR DGF effort formerly occurred in the closed area during the time period of the closure. The fishery was, however, allowed an incidental take of 3 leatherbacks annually, of which 2 were assumed to die from the fishery interaction. The take estimates in the NMFS (2000) Biological Opinion, however, are problematical.

NMFS estimated that, for leatherbacks overall (using data from July 1990 to January 2000), the CA/OR DGF would be anticipated to capture/entangle an average of 13 individuals per year, of which 8 per year would be killed. The annual take estimate was based on the total observed leatherback captures for the 1990-1999 fishing seasons (23), divided by the corresponding total observer effort (5,527 net sets). This simple calculation yields an average catch rate (0.00416 leatherbacks per net set). This catch rate was then multiplied by an estimated total of 3,000 sets that were assumed for each year over the next 3-year period (2001 to 2003). Of these predicted 13 takes (0.00416 x 3,000 = 12.5 or 13 leatherbacks), 61%, or 8 leatherbacks, were estimated to be killed. The mortality estimate was based on the observation that 13 of the 23 leatherbacks taken over the period in question had been killed outright, and one that had an unknown fate was also assumed to have died. Thus, 14 of 23 leatherbacks taken were assumed to have been killed, yielding a mortality rate of 0.609 or 61%. NMFS went on to point out that the actual observed take varied among years (from 1 to 5) and that these fluctuations did not exhibit any discernible pattern. NMFS then calculated a "worst-case" scenario based on the maximum observed catch rate for the period of record (5 leatherbacks taken in 572 observed net sets or 0.00874 per set) multiplying this catch rate times an assumed 3,000 sets to obtain an estimate of 27 takes per year of which as many as 17 might be killed (27 x 0.61 = 16.5 or 17). These take levels were considered to be sufficiently high to create a jeopardy finding.

Neither of these estimates was consistent with the most recent data available in 2000. In the three years following implementation of the TRP (1998-2000), just two (2) leatherback turtles had been observed entangled in 1,557 observed sets (Gallaway 2001). (*See also* NMFS 2006, p. 62.) Both were released alive. Overall then, the catch rate averaged 0.00128 following implementation of the TRP. Gallaway (2001) predicted

effort in the 2001 season would be on the order of 1,700 total sets and predicted further effort declines. Multiplying the TRP catch rate times 1,700 expected sets per year yielded a predicted take of two (2) leatherbacks per year of which one (1) might be killed (2 takes x 61% mortality = 1.2). Of interest, leatherbacks were taken in only one of the three years between1998 to 2000—two were taken in 1999 and none was observed taken in either 1998 or 2000. In all other years for the period of record, the fishery had been observed to take at least one, and up to five leatherbacks.

The NMFS (2000, p. 110) Incidental Take Statement allowed for the take of nine leatherbacks in three years. Assuming the catch rate of 0.00128 leatherbacks/set observed for the 1998 to 2000 fishery was representative of future catch rates, Gallaway (2001) calculated that the total effort that would be required over the following three years to produce the maximum number of entanglements that NMFS believed would not constitute jeopardy. That estimate was 7,031 total sets or 2,344 sets per year. Total fishing effort was 2,503 sets in 1999 and 1,766 sets in 2000. Gallaway (2001) observed that if the fishery remained stable at 2000 levels, leatherback takes (without any change to the fishery) would be less than the take estimated by NMFS under the proposed time/area closure.

Effort in the CA/OR DGF did not remain stable but continued to decline from 2001 through 2004 and 2005 (Table 1, Figure 2):

Table 1. Recent California/Oregon Drift Gillnet Fishery effort data (total sets), observed sets and observed leatherback takes. Data for 2001 through 2004 were obtained from the Pacific Fishery Management Council Stock Assessment and Fisheries Evaluation Report, October 2005. Data for the 2005 and 2006 seasons were calculated based on NOAA Southwestern Data presented in April 2007 as footnoted. The 2007 data were an estimate provided by Chuck Janisse.

Fishing Year	Total Sets	Observed Sets	Observed Leatherback Takes
2001-2002	1486	323	0
2002-2003	1673	373	0
2003-2004	1474	295	0
2004-2005	1022	223	0
2005-2006	1140[2]	228[1]	0
2006-2007	1250[2]	250[1]	0
2007-2008	1236[3]	N/A	0

[1]NOAA Southwest Region Data provided to the Pacific Offshore Cetacean Take Reduction Team at their April 2007 meeting.

[2]Calculated from observed sets assuming 20% observer coverage.

[3]Chuck Janisse, personal communication.

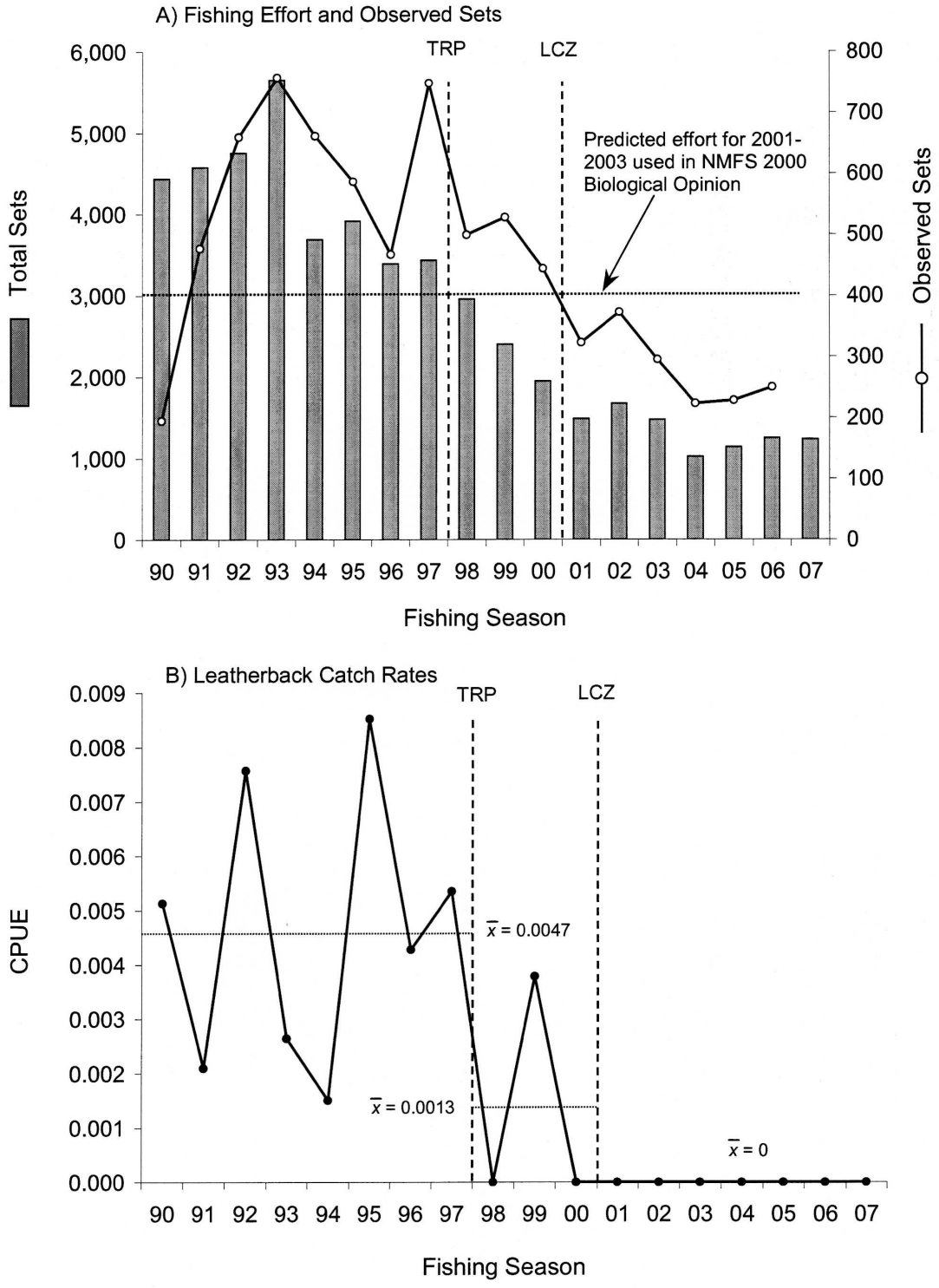

Figure 2. Total gill net sets and observed sets in the CA/OR DNF for the 1990 to 2007 fishing seasons and corresponding leatherback catch rate set. TRP = Take Reduction Plan; LCZ = Leatherback Conservation Zone.

In the last two years, effort has stabilized at about 1,250 total sets per year. Only two takes have been observed over the past 10-yr period (both in 1999), and the 2007-2008 season will mark the eighth consecutive year without an observed take.

If the fishery remains stable at about 1,250 sets per year and the post-TRP catch rate is representative, the annual take without any time/area closure would be about two leatherbacks per year which is below the annual incidental take allowance of 3 leatherbacks. If the average catch rate for 1990 through 2000 was used (23 takes in 5,971 sets or 0.0039 leatherbacks per set), an effort level of 1,250 total sets would yield 5 leatherbacks of which 3 might be expected to die. We do not believe 3 leatherback deaths per year would constitute jeopardy to the western Pacific population of leatherbacks.[6]

In sum, the current time/area closure taken to reduce leatherback takes is a draconian management measure that appears largely unwarranted. Even without the existing HMS FMP management measures, the number of incidental takes would be very low. Thus, there is no need for additional steps, such as the designation of critical habitat, to protect leatherback sea turtles from incidental taking in the CA/OR DGF.

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[6] NMFS has also concluded that the issuance of an exempted fishing permit for the CA/OR DGF, resulting in an anticipated take and mortality of two leatherbacks, would not be likely to jeopardize the continued existence of leatherback sea turtles. (NMFS 2006, pp. 84-86.)

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