Considering Open Ocean Critical Habitat Under the Endangered Species Act: Does Critical Habitat Actually Help Protect the Pacific Leatherback Sea Turtle?

Emily Brand[1]

I. Introduction

The leatherback sea turtle (*Dermochelys coriacea*) is one of the most imperiled species on earth. Thirty-eight years ago, the National Marine Fisheries Service (NMFS) listed the species as "endangered" under the Endangered Species Act (ESA or the Act),[2] and in 2000 the World Conservation Union listed it as "critically endangered."[3] The Pacific population is dramatically declining; it diminished 95% in just the last two decades.[4] If trends continue without protective measures to mitigate threats, the Pacific leatherback sea turtle may be extinct within twenty years.[5]

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[1] J.D. Candidate, University of California, Davis, 2009; Co-Editor-in-Chief *Environs Law & Policy Journal* 2007-2008. I would like to thank Professor Holly Doremus and Stephanie Showalter for their guidance and help with this article.

[2] ESA listing rule, 35 Fed. Reg. 8,491 (June 2, 1970).

[3] WORLD CONSERVATION UNION, SPECIES SURVIVAL COMMISSION RED LIST (2007), *available at* http://iucnredlist.org.

[4] James R. Spotila et al., *Pacific Leatherback Turtles Faces Extinction*, 405 NATURE 529, 530 (2000).

[5] *Id.*

The leatherback is one of the longest living species on earth and "the largest, deepest diving, and most migratory and wide ranging of all sea turtles."[6] Endemic leatherback populations can be found in both the Pacific and Atlantic Ocean. Pacific leatherbacks migrate great distances across the Pacific Ocean every year, from nesting grounds in tropical beaches to foraging grounds in open water off the North and South American west coasts.[7]

Pacific leatherbacks face significant threats in both their nesting and foraging habitats, including entanglement in fishing gear,[8] harvesting of adults and eggs,[9] destruction of habitat through coastal development and erosion,[10] ingestion of marine debris,[11] and ocean acidification.[12] While the turtle does not nest on U.S. beaches, it does forage in open waters off California and Oregon. To prevent the extinction of the Pacific leatherback, threats in foraging habitat must be mitigated.[13]

One of the most direct ways to protect the habitat of an endangered species is to designate that habitat "critical" under the ESA.[14] Only areas under U.S. jurisdiction can be designated.[15] With designation comes increased awareness and special legal consideration for federal actions that might affect the habitat. Although the value of critical habitat designation (CHD) is controversial, it may be an essential conservation tool for the Pacific leatherback.

Conservation organizations, the Center for Biological Diversity, Oceana, and Turtle Island Restoration Network (collectively "petitioners"), contend it is NMFS's duty under the ESA

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[6] U.S. Fish & Wildlife Serv., Species Profile: Leatherback Sea turtle *(Dermochelys coriacea)*, http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=C00F (last visited Feb. 2, 2009).
[7] Scott R. Benson et al., *Abundance, distribution, and habitat of leatherback turtles (Dermochelys coriacea) off California, 1990-2003*, 105(3) FISHERY BULLETIN 337, 337-38 (2007).
[8] NAT'L MARINE FISHERIES SERV., BIOLOGICAL OPINION: ENDANGERED SPECIES ACT SECTION 7 CONSULTATION ON AUTHORIZATION TO TAKE LISTED MARINE MAMMALS INCIDENTAL TO COMMERCIAL FISHING OPERATIONS UNDER SECTION 101(A)(5)(E) OF THE MARINE MAMMAL PROTECTION ACT FOR THE CALIFORNIA/OREGON DRIFT GILLNET FISHERY 102 (2000) [hereinafter DRIFT GILLNET BIOP]. Sea turtles are very susceptible to entanglement in fishing gear because of their large fins and active movement. The species usually drowns once entangled either due to prolonged submersion or exhaustion from trying to free itself, regardless of whether it eventually escapes. *Id.* at 73.
[9] NAT'L MARINE FISHERIES SERV. & U.S. FISH & WILDLIFE SERV., RECOVERY PLAN FOR U.S. PACIFIC POPULATIONS OF THE LEATHERBACK TURTLE (DERMOCHELYS CORIACEA) 21 (1998) [hereinafter RECOVERY PLAN].
[10] Creusa Hitipeuw et al., *Population Status and Interesting Movement of Leatherback Turtles, Dermochelys coriacea, Nesting on the Northwest Coast of Papua, Indonesia*, 6 CHELONIAN CONSERVATION & BIOLOGY 30 (2007).
[11] For ingestion of debris, *see* RECOVERY PLAN, *supra* note 9, at 24.
[12] For ocean acidification, *see* GERMAN ADVISORY COUNCIL ON GLOBAL CLIMATE CHANGE (WBGU), SPECIAL REPORT: THE FUTURE OF OCEANS – EARMING UP, RISING HIGH, TURNING SOUR 69 (2006), *available at* http://www.wbgu.de/wbgu_sn2006_en.html (last visited Feb. 2, 2009).
[13] While the ESA allows listing of foreign species, it only permits critical habitat designation and protection in U.S. jurisdiction. *See* Endangered Species Act of 1973 (ESA) § 4, 16 U.S.C. § 1533 (2005).
[14] *See id.* § 1532(5)(A) (definition of "critical habitat").
[15] 50 C.F.R. § 424.12(h)(2008).

to designate the Pacific leatherback's foraging waters as critical habitat and petitioned NMFS to do so in 2007 (Petition).[16]

The Petition requests NMFS revise existing leatherback critical habitat to include a 200,000 square-mile area of open water off Oregon and California extending to the boundary of the Exclusive Economic Zone (EEZ). The leatherback has critical habitat in the U.S., but it encompasses a beach in the Virgin Islands and the coastal waters just off that beach, so it does not help the Pacific population. Scientific data demonstrates that the imperiled Pacific leatherback depends on the proposed Pacific habitat. The Petition presents a special challenge because it requests the designation of open ocean as critical habitat, something NMFS has not done before.[17] Petitioners believe the value of formal designation outweighs its costs, like weakening the fishing industry, the prohibitive expenditures the designation would require to meet water quality standards, and national security impediments.[18] However, regardless of costs, it is unclear what benefits open ocean designation would actually provide the leatherback.

Part II of this paper explains the role of critical habitat in ESA implementation and the debate over the conservation value of critical habitat. Part III discusses Pacific leatherback biology, the species' ESA management history, and the details of the Petition. In Part IV, the paper analyzes the extent to which ESA critical habitat designation could benefit the Pacific leatherback and considers how other protection measures benefit the species as well, such as those adopted under the Magnuson-Stevens Fishery Conservation and Management Act (MSA),[19] the Marine Mammal Protection Act (MMPA),[20] and the Clean Water Act (CWA).[21] This article asserts that the ESA provides the best overall protection for the species, though the MSA may afford the most direct means to curtail the most serious threat to the Pacific leatherback, the incidental take of turtles by commercial fishing boats.

Although the Pacific leatherback might greatly benefit from ESA critical habitat designation of its foraging grounds off the U.S. West Coast, NMFS is likely to determine that the costs of designation outweigh the benefits. The threats interfering with Pacific leatherback survival may be simply too vague and difficult to control in the open ocean. It is unreasonable for NMFS to designate open ocean habitat without assured mitigation benefits, which research cannot demonstrate at this time. The Pacific leatherback sea turtle

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[16] *See* CENTER FOR BIOLOGICAL DIVERSITY & TURTLE ISLAND RESTORATION NETWORK, PETITION TO REVISE THE CRITICAL HABITAT DESIGNATION FOR THE LEATHERBACK SEA TURTLE (*DERMOCHELYS CORIACEA*) UNDER THE ENDANGERED SPECIES ACT, *available at* http://www.nmfs.noaa.gov/pr/pdfs/species/petition_leatherback_critical_habitat_pacific.pdf [hereinafter PETITION].

[17] Of the few listed marine species for which NMFS designated critical habitat, the habitat is mostly for breeding and all of it is on or near shore. *See generally* NMFS Office of Protected Resources, http://www.nmfs.noaa.gov/pr/species/ (last visited Feb. 2, 2009).

[18] In order to designate critical habitat for a species under the ESA, NMFS must make the determination that the benefits of designation outweigh the cost of designation. *See* generally ESA § 4, 16 U.S.C. §§ 1532 *et seq.* (2005). Detailed description of this process will follow in Part II.

[19] 16 U.S.C. § 1801 *et seq.* (2008).

[20] *Id.* § 1361 *et seq.*

[21] 33 U.S.C. § 1251 *et seq.* (2008).

deserves prudent protective measures, but it does not seem that CHD is a measure that will provide the necessary protections.

II. The Law and Practice of Critical Habitat

There is significant debate over the purpose and language of species and habitat protection provisions in the ESA, including debate over the value of critical habitat. Although the ESA identifies the importance of habitat protection, the language directing the designation of critical habitat is ambiguous, leaving room to question the value of designation and provides exceptions that enable the regulating agencies, NMFS and the U.S. Fish & Wildlife Service (FWS), to preclude designation.

Congress passed the ESA in 1973 to protect at-risk species and their habitat. The Act is a "comprehensive suit of affirmative mandates, strict prohibitions, strong recommendations, and limited exceptions"[22] and is "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation."[23] The ESA has "three fundamental goals: to prevent the extinction of imperiled species, to secure their eventual recovery, and to protect the ecosystems upon which those species depend."[24] The Act explicitly mandates that all federal agencies conserve species.[25] It plainly and boldly defines "conservation" as using all methods necessary to bring a species back from threatened or endangered status.[26]

The ESA provides many protections for listed species. Key protections include: listing and designation (§ 4) and prohibitions against any activity that would "take" a listed species (§ 9) and any federal agency activity that might jeopardize a listed species or adversely modify its habitat (§ 7).[27] It also has a citizen suit provision to enable "any person"[28] to bring suit to enforce the Act (§ 11(g)).[29] Nonetheless, the ESA does provide exceptions to prohibitions and listing requirements.

A. Critical Habitat in the ESA

The plain language of the ESA identifies the importance of protecting habitat.[30] Congress recognized the inseparable dynamic between species and their habitat, and designed the

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[22] TONY A. SULLINS, BASIC PRACTICE SERIES: ENDANGERED SPECIES ACT 2 (American Bar Association Section of Environment, Energy, and Resources 2001) (1966).
[23] *TVA v. Hill*, 437 U.S. 153, 180 (1978).
[24] Kieran F. Suckling and Martin Taylor, *Critical Habitat and Recovery*, in THE ENDANGERED SPECIES ACT AT THIRTY: RENEWING THE CONSERVATION COMMITMENT 75, 75 (D. Goble et al., eds. 2006).
[25] ESA § 2(c)(1), 16 U.S.C. § 1531(c)(1) (2005).
[26] *Id.* § 1532(3).
[27] *See id.* §§ 1538, 1540; *See generally* SULLINS, *supra* note 22, at 39-58.
[28] 16 U.S.C. § 1531(13) (2008).
[29] *Id.* § 1540(g). A recent case may partly eviscerate this power. *Center for Biological Diversity v. Hamilton*, 453 F.3d 1331 (11th Cir. 2006). *See* Stephen Butler, *In Brief:* Center for Biodiversity v. Hamilton*: Eviscerating the Citizen Suit Provision of the Endangered Species Act?*, 34 ECOLOGY L.Q. 1137 (2007).
[30] *See* ESA, § 2(b) "the purposes of this Act are to provide a means whereby the ecosystem upon which endangered species and threatened species depend may be conserved." 16 U.S.C. § 1531(b) (2005).

ESA to enable designation, not hinder it. In fact, Congress acknowledged, "[T]he ultimate effectiveness of ESA will depend on designation of critical habitat."[31] The Act requires critical habitat identification, designation, and protection for every listed species.[32] However, because of the resulting difficulties with implementation, the regulating agencies, NMFS and FWS (collectively, "the Services"), and presidential administrations since President Reagan have manipulated statutory language to weaken the value of critical habitat and preclude designation.[33]

Two sections of the ESA pertain most directly to CHD: §§ 4 and 7. Section 4 defines the species listing and CHD process. Section 7 identifies the consultation process federal agencies must adhere to when conducting an action that may jeopardize a species or adversely modify that species' habitat. These sections include many important terms and processes imperative to the ESA goals of species and habitat protection. However, Congress did not clearly define many of them in the original statute, and left the door open to amended definitions subject to political agendas, disagreement, and confusion over implementation.

Despite Congress's intent that the decision "not to designate" be the exception and not the rule, the opposite seems true in practice.[34] In 2001, approximately only 10% of total listed species had designated critical habitat.[35] In 2007, after many years of lawsuits and court ordered designations, the FWS estimates this number has increased to 36%.[36] Marine species fall below the average, with approximately 21% of species having designated critical habitat.[37]

1. Section 4: Listing Determination and Critical Habitat Designation

Section 4 defines the listing process.[38] A species must be listed under the ESA to be substantially protected by it. The Secretary of Commerce is responsible for listing marine species, which the Secretary has delegated to NMFS, and the Secretary of the Interior is

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[31] H.R. Rep. No. 887 at 3 (1976).
[32] The Act requires investigation into designation, but critical habitat does not always have to be designated. The exceptions for designation are discussed below.
[33] *See* D. Noah Greenwald, Kieran F. Suckling, and Martin Taylor, *The Listing Record*, in THE ENDANGERED SPECIES ACT AT THIRTY: RENEWING THE CONSERVATION COMMITMENT 51, 56-67 (D. Goble et al, eds. 2006).
[34] J.M. Hoekstra et al., *A Critical Role for Critical Habitat in the Recovery Planning Process? Not Yet*, 12 ECOLOGICAL APPLICATIONS 701, 701-707 (2002).
[35] J.M. Patlis, *Paying Tribute to Joseph Heller with the Endangered Species Act: When Critical Habitat Isn't*, 20 STAN. ENVTL. L.J., 133, 133-217 (2001); A. Armstrong, *Critical Habitat Designations Under the Endangered Species Act: Giving Meaning to the Requirements for Habitat Protection*, 10 S.C. ENVTL. L.J., 53, 53-86 (2002); Amy N. Hagen and Karen E. Hodges, *Resolving Critical Habitat Designation Failures: Reconciling Law, Policy, and Biology*, 20 CONSERVATION BIOLOGY 399, 399-407 (2006).
[36] U.S Fish & Wildlife Serv., Fact Sheet, *Endangered Species Program: Critical Habitat: What is it?*, 1 (2007), *available at* www.fws.gov/endangered/factsheets/Critical_Habitat_12_05.pdf (last visited Feb. 2, 2009).
[37] NMFS Office of Protected Resources, Critical Habitat, http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm (last visited Feb. 2, 2009).
[38] 16 U.S.C. § 1533 (2005). For a more in-depth explanation, *see* SULLINS, *supra* note 22, at 5-25.

responsible for all other species, which the Secretary has delegated to the FWS.[39] Listing is initiated either by the Secretary or by a petition to the Secretary. To be listed, a species must be at risk of extinction in all or most of its range, or likely to become so within the foreseeable future.[40] The Secretary must list all qualified species.

The ESA requires the Secretaries to consider five criteria when determining listing, including "the present or threatened destruction, modification, or curtailment of the species' habitat or range."[41] The five considerations must be assessed "solely on the basis of the best scientific and commercial data available."[42] Economic criteria are prohibited from consideration.[43] The courts and the Services support thorough deliberation of these considerations and require reliance on current realistic conservation efforts.[44]

Section 4 also requires designation of critical habitat at the time of listing and allows for later revision.[45] It defines critical habitat as a specific area that has the physical and biological features "essential to the conservation of the species and which may require special management considerations or protection."[46] A species' entire range should not be designated.[47] The original Act did not include the above requirement or definition. Congress added them in 1978, along with habitat designation procedures allowing consideration of economic impact.[48] Although these amendments provided clearer definitions and specified a process, they also gave the Secretary "greater latitude rather than a stronger mandate."[49]

In 1982, the Services promulgated a regulation to specify what the Secretary may consider and should focus on when determining critical habitat identification.[50] The regulation states the Secretary should consider requirements like space for normal behavior and nutritional and physiological requirements. This rule limits the search to "primary constituent elements" (PCEs), which are "principle biological or physical constituent elements within the defined area that are essential to the conservation of the species," including feeding, spawning and nesting sites, and water quality.[51]

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[39] Throughout this paper, the term "Secretary" refers to both the Secretary of Commerce and Interior, unless noted otherwise. The term "the Services" or "the Agencies" refers to both NFMS and FWS.
[40] 16 U.S.C. §§ 1522(6), (20) (2005).
[41] *Id.* § 1533(a)(1)(A).
[42] *Id.* § 1533(b)(1)(A).
[43] 50 C.F.R. § 424.11(b) (2007).
[44] *See* Draft Policy for Evaluation of Conservation Efforts When Making Listing Decisions, 65 Fed. Reg. 37,102 (2000); *See Biodiversity Legal Foundation v. Babbitt*, 943 F. Supp. 23, 26 (D. D.C. 1996).
[45] 16 U.S.C. § 1533(a)(3)(A) (2005).
[46] *Id.* § 1532(5)(A).
[47] 50 CFR § 424.12(b).
[48] Patlis, *supra* note 35, at 136.
[49] *Id.* at 153.
[50] 50 C.F.R. § 424.12(b).
[51] 50 C.F.R. § 424.12(b). In assessing the requirement that the "features are essential to the conservation of the species," NMFS must consider the needs of the species. Regulations define these as including, but not limited to (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring; and (5) habitats that are

Although the Services themselves created the PCEs concept, courts have found they have not always follow their own regulations. In 2000, the U.S. District Court for New Mexico ruled that the Agencies must define PCEs with enough specificity to be meaningful under the purposes of the ESA.[52] In 2003, the U.S. District Court for the Eastern District of California ruled that the Agencies must clearly identify the PCEs and if no PCEs are known, the Agencies cannot designate critical habitat.[53]

Although the ESA mandates the Services designate critical habitat, the language allows for exclusions. The breadth and boundaries of these exclusions creates much uncertainty and debate. The Act requires that the Secretary "shall" designate critical habitat at the time of listing "to the maximum extent prudent and determinable."[54] Critical habitat must be determined based on the best scientific data available and after taking into consideration economic and other relevant impacts.[55] A species' need for critical habitat can be excluded if the benefits of exclusion outweigh the benefits of designation, provided that exclusion will not result in the extinction of the species.[56]

Proper discretion to designate rests on the terms "prudent" and "determinable," which the Services defined in 1982.[57] Designation is not prudent if either the identification of habitat increases the threat to the species or designation would not be beneficial. If a Service determines the designation is not prudent, then it is not required to designate critical habitat.[58] If critical habitat is not determinable, because information is lacking or the needs of the species are not understood, the Agencies can take an additional year to decide whether to designate it.[59] The courts have been clear that this exception is not automatic and the Agencies must defend their need for the extra time.[60]

The standard for determining that designation will not be beneficial to a species and therefore "not prudent," is complicated and unclear. It is also FWS's most common justification for not designating.[61] FWS has tried to defend decisions not to designate based on this exclusion because alternative protections on the area already exist or because the §

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protected from disturbance or are representative of the historic geographical or ecological distribution of a species. *Id.*

[52] *Middle Rio Grande Conservancy Dist. v. Babbitt*, 206 F. Supp. 2d 1156, 1178 (D. N.M. 2000).

[53] *Home Builders Ass'n of N. Cal. v. U.S. Fish & Wildlife Serv.*, 268 F. Supp. 2d 1197, 1210 (E.D. Cal. 2003).

[54] 16 U.S.C. § 1532(5)

[55] *Id.* §1533(b)(2).

[56] The requirement of a cost-benefit analysis in critical habitat designation methodology is an important and interesting distinction from listing designation methodology, which forbids it. The only exception to the cost-benefit analysis and determination is if the Secretary determines that the species will go extinct without habitat designation. In such a case, the Secretary is required to designate the habitat as critical. *Id.* § 1533(b)(2).

[57] 50 C.F.R. § 424.12 (2008).

[58] *Id.* § 424.12.

[59] ESA § 4(b)(5)(c)(ii), 16 U.S.C. § 1533(b)(6)(c)(ii) (2005).

[60] *Northern Spotted Owl v. Lujan*, 758 F. Supp. 621 (W.D. Wash. 1991).

[61] Josh Thompson, *Critical Habitat Under the Endangered Species Act: Designation, Re-designation, and Regulatory Duplication*, 58 ALA. L. REV. 885, 891 (2007).

7 consultation process provides adequate protection.[62] Courts have maintained that a "not prudent" determination must be supported by a reasonable analysis of specific facts and cannot be defended based on the existence of the § 7 jeopardy standard.[63] Further, the court has maintained that FWS cannot use the existence of "special management" to preclude the need for designation.[64]

Another powerful justification for exceptions lies in the ESA provisions permitting the Services to perform economic analysis when considering designation and to preclude designation if the costs are too high.[65] It is a notable difference from the listing procedure, which explicitly precludes economic analysis.[66] Taking advantage of limited direction from the ESA, the Services have aggressively excluded habitat based on economic analysis.[67] Since FWS asserts that CHD does not provide a species with any additional protection, any cost of designation is likely to outweigh the benefit.[68]

Recently, federal courts have held that the FWS's economic analysis for CHD violated express intentions of the ESA. However, the courts' reasonings have not been consistent. In 2000, the U.S. District Court for New Mexico overturned the habitat designation for the Rio Grande Silvery Minnow because it found the FWS did not properly distinguish costs for listing and for designation.[69] In 2001, the U.S. Court of Appeals for the Tenth Circuit invalidated this method and determined that the FWS should consider all costs for designating critical habitat for the Southwestern willow flycatcher.[70] In 2003, the U.S. District Court for the Eastern District of California supported the Tenth Circuit holding in a challenge to the FWS's determination of CHD for the Alameda whipsnake.[71] The court vacated the CHD and remanded it to the FWS for the purpose of revising the legal description of the critical habitat.[72]

In 2004, the U.S. District Court for the District of Columbia disagreed with the Tenth Circuit's position and followed the 2000 New Mexico district court's holding that the Service must distinguish costs.[73] Some argue this inconsistent determination has led FWS to

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[62] Hagen & Hodges, *supra* note 35, at 401.
[63] *See Natural Res. Def. Council v. U.S. Dep't of Interior*, 113 F.3d 1121 (9th Cir. 1997); *Conservation Council for Haw. v. Babbitt*, 2 F. Supp. 2d 1280 (D. Haw. 1998); *See also* discussion on § 7 jeopardy standard, *infra* Part II.A.ii.
[64] *Center for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090 (D. Ariz. 2003); *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv.*, 378 F.3d 1059 (9th Cir. 2004).
[65] Patlis, *supra* note 35, at 153.
[66] H.R. Rep. No. 97-567, at 22 (1982).
[67] *See*, Thompson, *supra* note 61, at 889; Amy Sinden, *The Economics of Endangered Species: Why Less is More in the Economic Analysis of Critical Habitat Designations*, 28 HARV. ENVTL. L. REV. 129, 139 (2004); Amanda Garcia, *The Sage Grouse Debate: Cost-Benefit Analysis and the Discourse of the Endangered Species Act*, 14 N.Y.U. ENVTL. L.J. 572 (2006).
[68] *Id.* at 605.
[69] *Middle Rio Grande Conservancy Dist. v. Babbitt*, 206 F. Supp. 2d 1156, 1183 (D. N.M. 2000).
[70] *New Mexico Cattle Growers Ass'n v. U.S. Fish & Wildlife Serv.,* 248 F.3d 1277 (10th Cir. 2001).
[71] *Home Builders Ass'n of N. Cal. v. U.S. Fish & Wildlife Serv.*, 268 F. Supp. 2d 1197, 1239 (E.D. Cal. 2003).
[72] *Id.* at 1240.
[73] *Cape Hatteras Access Pres. Alliance v. U.S. Dept. of Interior*, 344 F. Supp. 2d 108, 132 (D. D.C. 2004).

perform more formal economic analysis, leading to fewer CHDs.[74] Although the most recent decision on this issue supports excluding listing costs from designation cost consideration, the decision does not bind other courts from following the Tenth Circuit and including listing costs. The issue will not be resolved between circuits until the Supreme Court rules on the matter.

Despite the substantial CHD exceptions available to the Services and their hesitation to designate, some species do receive CHD. When an area is designated as critical habitat, the designating agency must inform the public by issuing a formal rule and delineating the area on a map.[75] Designation does not create a sanctuary or automatically provide blanket protection for the area.[76] It is "essentially an official notification" to federal agencies that their § 7 consultation duties apply in the area.[77] Further, consultation only leads to protection when it is determined that a federal agency action may impact the area. Section 7 of the ESA explains the process for this determination.

2. Section 7: Consultation Process

Section 7 of the ESA imposes conservation obligations on federal agencies.[78] Section 7(a)(1) requires all federal agencies to further the purposes of the ESA by carrying out programs for the conservation of species.[79] Section 7(a)(2) requires federal agencies to consult with the Services to ensure their actions do not jeopardize the existence of listed species or adversely modify its critical habitat.[80] This consultation process is one of the most powerful conservation tools in the ESA, but it is also one of the most resource intensive.

Regulations define what it means to "jeopardize" a species or "adversely modify" habitat. An action jeopardizes a species if it is reasonably expected to "directly or indirectly . . . reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."[81] An action adversely modifies habitat if it is likely to result in 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."[82] This definition includes PCEs.[83]

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[74] "For example, FWS used its formal CBA process to justify reducing the arroyo toad's critical habitat designation by 97 percent, reducing the bull trout's critical habitat by more than 75 percent, and to propose reducing the red-legged frog's critical habitat by 82 percent." Garcia, *supra* note 67, at 603; Sinden, *supra* note 67.
[75] 50 C.F.R. §§ 424.12(c), 424.18 (2008).
[76] Proposed Critical Habitat – Sandy Point, St. Croix, U.S. Virgin Islands, 43 Fed. Reg. 12050, 12050 (Mar. 23, 1978).
[77] *Id.* at 12051.
[78] *See* SULLINS, *supra* note 22, at 59-86.
[79] 16 U.S.C. § 1536(a)(1) (2008).
[80] *Id.* § 1536(a)(2).
[81] 50 C.F.R. § 402.02 (2008).
[82] *Id.*
[83] Final Designation of Critical Habitat for the Rio Grande Silvery Minnow, 64 Fed. Reg. 36,274 (July 6, 1999) (to be codified at 50 C.F.R. pt. 17).

If a federal agency action may jeopardize a species or adversely modify that species habitat, the agency must consult with the Service that oversees the species. The complicated consultation process strictly concerns the nature of a federal action and how that action might affect listed species. It can be broken down into three main steps: (1) Screening the "Action," (2) Biological Assessment, and (3) Formal Consultation.[84] The federal agency must use the best scientific data available to answer specific questions that determine the length of the process.

To "screen the 'action,'" the agency must determine if the action is a "major construction activity" and what listed species present in the action area (all areas directly or indirectly affected by the action) may be affected by the action. If these answers are positive, the agency is required to continue the process, by either preparing a biological assessment (BA) or conducting an informal consultation to determine whether the action is likely to adversely affect listed species or habitat.[85] If it is found likely, an agency must conduct a formal consultation with the Service and request the Service issue a biological opinion (BiOp). The BiOp must state how the agency action affects the species or its critical habitat, in terms of whether the action creates "no jeopardy," jeopardy with "reasonable and prudent alternatives (RPAs)," or "jeopardy with no RPAs." If the Service finds the action creates jeopardy or adverse modification, then the BiOp must include RPAs to the proposed action, if there are any.[86] RPAs must be alternatives that can be implemented consistent with the purposes of the action, are within the scope of the action agency's legal authority, are economically feasible, and avoid jeopardy or adverse modification.[87] While BiOps serve an "advisory function" and it is up to the action agency to decide how to proceed based on that advice,[88] the agency must select and implement an RPA before conducting the harmful activity.[89]

Despite its importance, the ESA does not define the consultation process very well and does not define important terms like "jeopardy" and "adverse modification." The Services are responsible for promulgating regulations that help clarify definitions and provide direction. However, without firm definitions from Congress, the interpretations of these critical terms are susceptible to political and economic agendas.[90]

B. How Useful is Critical Habitat?

The debate over the value of critical habitat centers on § 7 and the consultation process. Designating critical habitat adds a difficult step to the already arduous consultation process

[84] *See* SULLINS, *supra* note 22, at 71-81.
[85] 50 C.F.R. §§ 402.14(a) and (b) (2008).
[86] *Id.* § 402.14(h).
[87] *Id.* § 402.14(h)(3).
[88] Interagency Cooperation - Endangered Species Act of 1973, as Amended, 51 Fed. Reg. 19,926, 19,928 (June 13, 1986) (to be codified 50 C.F.R. 402); SULLINS, *supra* note 22, at 78.
[89] *Sierra Club v. Marsh*, 816 F.2d 1376, 1389 (9th Cir. 1987).
[90] For example, in December 2008, the Bush administration issued revised regulations that no longer require the Services to perform independent consultations with other agencies for environmental review determinations. Several non-profit organizations and the state of California immediately filed suit against the Bush administration over these regulations. The Obama administration responded to the regulations within hours of the 2009 Inauguration by freezing all new and pending federal regulations the Bush administration pushed through.

because it requires the Services to determine whether an action will "adversely modify" the habitat.[91] This extra step, coupled with the lack of a clear definition to distinguish protections provided by "adverse modification" from the "jeopardy" standard, creates an incentive for the Services to argue that "adverse modification" is superfluous to the "jeopardy" standard.[92] If it is, the Services argue, then designating critical habitat serves little to no purpose because the designation of critical habitat and the prohibition on "jeopardy" grant species the same protections. The Services, therefore, should not have to spend valuable time and energy assessing it. Decades of re-interpretation and argument over the value of the standards have resulted, much to the detriment of ESA critical habitat designation.

The Services have been reticent to designate critical habitat since Congress added the designation process in 1978. Up until the late 1990s, FWS determined that designation was not prudent for almost every species it listed. Although NMFS did not follow the FWS's policy, its designation record is actually lower than FWS.[93] In general, the Services complain that designation is too resource intensive, they do not have the monetary allocations to do so appropriately, and designation does not provide additional benefits anyway.[94] The courts have repeatedly lambasted FWS for "chronically failing"[95] to designate, identifying their "long held policy position that CHDs are unhelpful, duplicative, and unnecessary."[96]

Without definition and direction for CHD from the ESA, the Services started promulgating regulations and issuing guidelines soon after the Act's inception. The first guidelines, issued in 1975, seemed to support the importance of CHD and the power of the term "adverse modification."[97] However, the following year, the Services' regulations started reflecting their frustration and disinterest in CHD. They defined "adverse modification" and "jeopardy" in a way that conflated their meanings and created a weaker standard for both.[98] During the Reagan administration, FWS promulgated regulations that indicated adverse modification had little bearing on conservation[99] and in the G.H. Bush

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[91] 16 U.S.C. § 1536(a)(2) (2005).
[92] Thompson, *supra* note 61, at 896; Endangered and Threatened Wildlife and Plants; Final Listing Priority Guidance for Fiscal Years 1998 and 1999, 63 Fed. Reg. 25,502, 25,505 (May 8, 1998); Patlis, *supra* note 35, at 14; *Gifford Pinchot Task Force v. U.S Fish & Wildlife Serv.*, 378 F.3d 1059 (9th Cir. 2004).
[93] Daniel J. Rohlf, *Jeopardy Under the Endangered Species Act: Playing a Game Protected Species Can't Win*, 41 WASHBURN L.J. 114, 117 n.9 (2001).
[94] *Forest Guardians v. Babbitt*, 174 F.3d 1178, 1191 (10th Cir. 1998).
[95] *Alabama-Tombigbee Rivers Coalition v. Kempthorne,* 477 F.3d 1250, 1269 (11th Cir. 2007); Jessica Ferrell, *Court Upholds ESA "No Surprises" Rules, Boosts Confidence in Habitat Conservation Plans*, ENVIRONMENTAL NEWS, Oct. 10, 2007, at A1, *available at* http://www.martenlaw.com/news/?20071010-no-surprises-rules .
[96] *New Mexico Cattle Growers Ass'n v. U.S. Fish & Wildlife Serv.,* 248 F.3d 1277, 1283 (10th Cir. 2001).
[97] FWS and NMFS, Notice on Critical Habitat Areas, 40 Fed. Reg. 17,764 (April 22, 1975); Patlis, *supra* note 35, at 163.
[98] *Id.* at 169.
[99] M.F. Taylor, K.F. Suckling, and J.J. Rachlinksi, *The Effectiveness of the Endangered Species Act: A Quantitative Analysis*, 55 BIOSCIENCE 360 (2005).

administration, NMFS issued guidance that critical habitat was meaningless.[100] At this point, in a clear move away from critical habitat designation, NMFS actually started creating conservation areas instead of designating critical habitat.[101] More recently, under direction from the G.W. Bush administration, FWS started issuing a disclaimer criticizing CHD.[102]

It is not surprising that the Services resist CHD. They face remarkable practical difficulty in the designation process and struggle with the time consuming and costly steps the ESA demands, from listing a species, designating its habitat, creating a recovery plan, and administering the consultation process. The saga of the critical habitat designations for two species, the Rio Grande silvery minnow and the Alameda whipsnake, demonstrate the practical difficulties in designation. For both of these species, FWS faced nearly ten years of litigation between listing and final designation of critical habitat. However, regardless of the justification, courts have not been overly sympathetic to the Services' complaints.

Despite the Services' authority to promulgate regulations defining jeopardy and adverse modification, courts have rejected the Services' interpretations that conflate jeopardy and adverse modification.[103] In 2001, the Fifth Circuit held that FWS's interpretation conflicts with the intentions of the ESA. The Ninth Circuit, in *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv.*, supported the Fifth Circuit's decision in 2004.[104] The court held that FWS unlawfully interpreted the definition of "adverse modification" and required the Services to consider adequately the recovery benefits that critical habitat provides to a species.[105] The District Court for the District of Columbia, in *Cape Hatteras Access Pres. Alliance v. U.S. Dept. of the Interior*, yet again confirmed this holding.[106] Increasing court pressure may force FWS to change their interpretation of the definition, but FWS has yet to act.

If the Services revised their critical habitat regulations to meet the court's requirement that definitions and procedures be aligned with ESA policy, designation could have a stronger role in facilitating recovery. "The status quo for CHD is divisive, inefficient, and harmful to species recovery efforts."[107] Studies suggest this could be turned around through actions like requiring the Services to consider the social costs of not designating critical habitat and by

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[100] MEMORANDUM FROM WILLIAM W. FOX, DIRECTOR, NATIONAL MARINE FISHERIES SERVICE, ON GUIDANCE ON DESIGNATING CRITICAL HABITAT, TO THE REGIONAL DIRECTORS (March 19, 1992). "...the direct impacts resulting from a designation, over and above the impacts of listing the species, in most cases are minimal. In general, the designation of critical habitat only duplicates and reinforces the substantive protections resulting from listing." *Id.* at 2.

[101] *See* 50 C.F.R. §§ 223.206-.207 (1999); Patlis, *supra* note 35, at n.165.

[102] In 2003, the Department of Interior required FWS to include a disclaimer in critical habitat designation stating "In 30 years of implementing the ESA, the Service has found that the designation of statutory critical habitat provides little additional protection to most listed species, while consuming significant amounts of scarce conservation resources." U.S. DEPT. OF THE INTERIOR, CRITICAL HABITAT DISCLAIMER, Washington D.C. May 1 2003, *quoted in* Suckling & Taylor, *supra* note 24, at 78.

[103] Garcia, *supra* note 67, at 602 and n.185.

[104] 378 F.3d 1059, 1069 (9th Cir. 2004).

[105] *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv.*, 378 F.3d 1059, 1069 (9th Cir. 2004).

[106] *Id.*

[107] Hagen & Hodges, *supra* note 35, at 406.

giving separate meaning to "adverse modification."[108] Species and habitat are inextricably linked.[109] If ESA regulation supported CHD better, it is very likely that more listed species would recover more quickly.

While "[n]o scientist or policymaker questions the fact that habitat is the key to the survival of [listed] species,"[110] the debate over the usefulness of CHD continues to grow, fueled by every court holding and designation determination. Although it is difficult to quantify the usefulness of critical habitat given the short time span since most designations and the varied time needs of a species to recover,[111] it seems studying its possible effects in terms of species recovery may be the best way. Several recent studies purport to do this, although they find different results.

Some research indicates that CHD does help a species survive and recover. Studies points out that species with critical habitat are more likely to be improving or stabilizing and less likely to be declining than those species without designation.[112] Some researchers looked at population trends of 1,095 species in association with time listed, CHD, and recovery plans, and determined that species with critical habitat are twice as likely to be recovering as those without it.[113] Others recently determined that "CHD is correlated to increased effort to protect species," and identified how biology, law, and policy can work together to improve its usefulness.[114] Research and assessment on the Pacific leatherback species in particular indicates the species may greatly benefit from CHD.[115]

Many studies using varied approaches find critical habitat is not useful. Most recently, two economists used regression analysis to examine FWS recovery scores of 225 species to determine that CHD does not promote species recovery or prevent species decline.[116] Other social scientists used similar data to analyze the association between species recovery and factors like CHD, funding, and FWS priorities and found no significant correlation to CHD and recovery.[117] Still others considered the recovery plans of 181 species to determine that recovery trends for species with critical habitat did not differ significantly from species without it.[118]

Although many recent empirical studies indicate that CHD is not useful, they all admit that the difficulties in analyzing this kind of data may lead to inexact results. One

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[108] *Id.* at 403; Patlis, *supra* note 35, at 138.
[109] *Id.* at 141.
[110] *Id.* at 136.
[111] T.D. Male and M.J. Bean, *Measuring Progress in U.S. Endangered Species Conservation*, 8 ECOLOGY LETTERS 986, 990 (2005).
[112] J.A. Clark et al., *Improving U.S. Endangered Species Act Recovery Plans: Key Findings and Recommendations of the SCB Recovery Plan Project*, 16(6) CONSERVATION BIOLOGY 1510-1519 (2002).
[113] Taylor, *supra* note 99; Male & Bean, *supra* note 111, at 986.
[114] Hagen & Hodges, *supra* note 35, at 400.
[115] Benson et al., *supra* note 7.
[116] Joe Kerkvliet and Christian Langpap, *Learning From Endangered and Threatened Species Recovery Programs: A Case Study Using U.S. Endangered Species Act Recovery Scores*, 63 ECOLOGICAL ECONOMICS 499 (2007).
[117] Male & Bean, *supra* note 111, at 991.
[118] Clark et al., *supra* note 112, at 1515.

researcher is quick to identify the limited sample size and shortsighted methodology.[119] Other researchers admit that recovery is correlated with funding, threats, and recovery potential, which are also directly tied to CHD. With limited fields to study from and easily manipulated statistics, many of the studies embrace the difficulties in identifying the usefulness of CHD. Yet another points out that given this situation, the Services should not be so quick to dismiss the usefulness of CHD.[120]

It does not seem possible to make a strong determination that CHD does not benefit species, given the short period of recovery time to analyze, the difficulty in determining causation, funding, threat assessment, and individual species biology which impacts how quickly they could recover. With the largely undisputed fact that species depend on healthy habitat, it does seem appropriate to give designation the benefit of the doubt and proceed as if it is certain to help species recover, at least until we have enough years of data and consistent management methodology to prove otherwise.

The real usefulness of CHD depends on how the Services interpret the ESA and promulgate regulations to designate critical habitat and protect it. It is likely that for CHD to be truly useful, the Services must adhere to the courts' requests that they change their regulations and attitude towards designation. Under the Bush administration, the Services did not appear to be willing to do so. However, the usefulness of critical habitat designation must be considered under the current regulatory situation. While the Obama administration is seeking to reverse some of the Bush administration regulatory changes to the ESA, it is unclear how the administration will treat CHD.

III. The Petition: Background, Details, and Analysis

A. Leatherback Biology

The leatherback sea turtle (*Dermochelys coriacea*) is a unique species. It is one of the oldest species on earth and the largest, deepest diving, and longest migrating sea turtle. It is also the only surviving sea turtle species of its taxonomic family, which is distinguished by a slightly flexible carapace, instead of a bony carapace.[121] Special adaptations enable the leatherback to spend virtually its entire life at sea, traversing great distances of ocean between foraging and nesting habitat.[122] Female leatherbacks leave the ocean every two or three years to lay nests of eggs on the same beach where they were born.[123]

Leatherbacks average four to six feet long, weigh between 550 to 1,545 pounds, and feed almost exclusively on jellyfish.[124] Females lay about five clutches of sixty eggs per season.[125]

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[119] *Id.*
[120] Hagen & Hodges, *supra* note 35, at 400.
[121] RECOVERY PLAN, *supra* note 9, at 4.
[122] Scott R. Benson et al., *Post-Nesting Migrations of Leatherback Turtles from Jamursaba-Medi, Bird's Head Peninsula, Indonesia*, 6 CHELONIAN CONSERVATION AND BIOLOGY 150, 151 (2007).
[123] *Id.* at 152.
[124] M.C. James & T.B. Herman, *Feeding of Dermochelys coriacea on Medusae in the Northwest Atlantic*, 4 CHELONIAN CONSERVATION AND BIOLOGY 202, 205 (2001).
[125] RECOVERY PLAN, *supra* note 9.

There is a high mortality rate for the eggs. Studies estimate that leatherbacks mature around thirteen years, but growth and maturity is uncertain.[126]

The leatherback species lives in both the Atlantic and Pacific Ocean, but the populations are endemic to those particular regions.[127] Although the leatherback is listed as one single population, NMFS manages them separately, and the agency is considering making the species two distinct population segments.[128] The Pacific population migrates great distances in the Pacific, from nesting beaches off equatorial warm waters to foraging grounds in more southern and northern cooler waters. Many Pacific leatherbacks migrate from Western Pacific nesting beaches to U.S. waters off the West Coast in August through November.[129] They migrate to the U.S. to forage on the abundant jellyfish population that is present due to the exceptional seasonal upwelling that creates an incredibly productive ecosystem.[130] Pacific leatherbacks only forage in U.S. west coast waters; they do not make landfall to nest on any beaches.

The entire leatherback population is decreasing, but the Pacific population is catastrophically declining. Over the last two decades, every major Pacific nesting site has lost population.[131] Research estimates that the number of female adults and sub-adults dropped from 91,000 to 2,955 and the entire population has diminished by ninety-five percent.[132] The Pacific leatherbacks are predicted to be on the verge of extinction.[133] The endangered leatherback population faces five major threats: entanglement in fishing gear; harvesting of adults and eggs; destruction of habitat through coastal development and erosion; ingestion of marine debris; and ocean acidification.

Leatherbacks directly face entanglement in gear, ingestion of debris, and ocean acidification in their foraging habitat. Debris ingestion and ocean acidification result from human activity, but it is uncertain how critical habitat designation would enable effective management to mitigate these threats. Entanglement in gear is a direct result of fishing activity in or near the habitat. Critical habitat designation can help curtail this threat by limiting fishing activity in the area and forcing specific regulation of water quality, but it is not the only way to do so.

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[126] DRIFT GILLNET BIOP, *supra* note 8, at 66.
[127] Johan Chevalier et al., *Significant Difference of Temperature-Dependent Sex Determination Between French Guiana (Atlantic) and Playa Grande (Costa-Rica, Pacific) Leatherbacks (Dermochelys coriacea)*, 20 ANNALES DES SCIENCES NATURELLES – TOOLOGIE ET BIOLOGIE ANIMALE 147, 148 (1999); Benson et al., *supra* note 122; NMFS issues separate Recovery Plans for the Atlantic and Pacific populations.
[128] NAT'L MARINE FISHERIES SERV. & U.S. FISH & WILDLIFE SERV., LEATHERBACK SEA TURTLE (*DERMOCHELYS CORIACEA*) FIVE-YEAR REVIEW: SUMMARY AND EVALUATION 3 (2007), *available at* http://www.nmfs.noaa.gov/pr/pdfs/species/leatherback_5yearreview.pdf (last visited Feb. 2, 2009).
[129] Benson et al., *supra* note 7, at 341.
[130] J.F. Eisenberg and J. Frazier, *A Leatherback Turtle (Dermochelys coriacea) Feeding in the Wild*, 17 J. HERPETOLOGY 81, 82 (1983); Benson et al., *supra* note 7, at 345.
[131] PACIFIC FISHERY MGMT. COUNCIL & NMFS, MANAGEMENT OF THE DRIFT GILLNET FISHERY EXEMPTED FISHING PERMIT AND/OR REGULATORY AMENDMENT: DRAFT ENVIRONMENTAL ASSESSMENT, REGULATORY IMPACT REVIEW, AND REGULATORY FLEXIBILITY ANALYSIS 67 (2006).
[132] Spotila et al., *supra* note 4, at 530.
[133] *Id.*

To save the leatherback from extinction, the threats they encounter in that habitat must be mitigated. In 1979, NMFS designated Atlantic leatherback nesting beaches as critical habitat to help protect the species. Since the two populations do not mingle, this habitat designation does not help protect the Pacific population. Because Pacific leatherbacks do not nest in U.S. waters, there is less that can be done to stop the destruction of nesting habitat. However, CHD could help mitigate threats in foraging habitat.

B. Leatherback History with the ESA

FWS and NMFS share management duties of ESA-listed species based on species habitat. NMFS manages marine species under the ESA and the Marine Mammal Protection Act (MMPA) and "works to conserve, protect, and recover species" listed under these acts.[134] It manages approximately 65 ESA-listed species and 160 marine mammal stocks.[135] When species like sea turtles use both marine and terrestrial habitat, NMFS and FWS may manage a species together. Because the Atlantic leatherback population has critical habitat to protect terrestrial nesting sites, both Services manage it. FWS is responsible for protection of leatherbacks in their nesting beach habitat, while NMFS has jurisdiction for the species in the marine environment.

The legal history of leatherback protection spans nearly forty years. In 1970, the species was listed under the predecessor to the current ESA.[136] In 1979, NMFS designated a small area of Atlantic nesting grounds in the U.S. Virgin Islands as critical habitat for the species.[137] NMFS justified this designation by stating, "The survival and recovery of the leatherback depends on the maintenance of suitable and undisturbed nesting beaches and protective waters adjacent to those beaches."[138] NMFS did not consider Atlantic offshore ocean or Pacific Ocean habitat.[139]

In 1998, twenty-eight years after listing, NMFS issued a Recovery Plan for the Pacific population.[140] The Secretary is required to create and implement recovery plans "for the conservation and survival of each listed species" under § 4(f) of the ESA.[141] However, the plans "are for guidance purposes only" and do not have the force of law.[142] FWS has stated that "implementation of all recovery tasks identified in a recovery plan is not assured by

[134] *See* NOAA Fisheries, Office of Protected Resources, http://www.nmfs.noaa.gov/pr (last visited Feb. 2, 2009).
[135] *See* NOAA Fisheries, Office of Protected Resources, Species Information, http://www.nmfs.noaa.gov/pr/species/ (last visited Feb. 2, 2009).
[136] ESA listing rule, *supra* note 2.
[137] Critical Habitat – Sandy Point, St. Croix, U.S. Virgin Islands, 44 Fed. Reg. 17,710 (Mar. 23, 1979). *See also* Endangered and Threatened Species; Regulations Consolidation, 64 Fed. Reg. 14,052, 14,067 (Mar. 23, 1999) (In 1999 NMFS consolidated threatened and endangered species regulations).
[138] 44 Fed. Reg. 17,710, 17,712 (Mar. 23, 1979).
[139] 43 Fed. Reg. 12,050 (Mar. 23, 1978).
[140] Nat'l Marine Fisheries Serv.; Endangered and Threatened Wildlife; Recovery Plans for Listed Sea Turtles, 63 Fed Reg. 28359 (May 22, 1998).
[141] ESA § 4(f)(1), 16 U.S.C. § 1533(f)(1) (2005).
[142] *Fund for Animals v. Rice*, 85 F.3d 535, 548 (11th Cir. 1996). *See* 16 U.S.C. § 1533(f).

publication of the plan,"[143] but "review plans are considered an integral component of species conservation."[144] The Leatherback Plan stated that the Pacific population was "in severe decline and recovery actions must be given the highest priority."[145] It specifically identified the primary threats as incidental take from high seas fisheries, like drift gillnet fishing, and mortality related to nest destruction.[146] Incidental take means the turtle is not the primary target of fishermen, but the species gets caught in the fishing net and is "taken" incidentally with the targeted catch. Most importantly, the Plan declared a primary priority to take measures to ensure the maintenance of existing foraging areas as healthy environments.[147]

In 2001, NMFS promulgated a regulation creating a seasonal protected area to mitigate leatherback bycatch in the drift gillnet fishery.[148] Soon NMFS referred to this area as "The Leatherback Conservation Area" (LCA). The area spans an impressive 200,000 square miles, from the coastline of Oregon and California out to the edge of the Exclusive Economic Zone (EEZ), 200 nautical miles from shore, and comprises the primary foraging grounds of Pacific leatherback in U.S. jurisdiction. From August 15 to November 15 every year, during peak foraging time, the drift gillnet fishery is excluded from fishing in this area.[149]

Most recently in 2007, NMFS issued a Five-Year Review of the Pacific population.[150] The ESA mandates a review of listed species at least every five years to ensure listing classification accuracy and establish a current recovery priority number.[151] The recovery priority number is based on an analysis of recovery criteria, biology and habitat, threats, conservation measures, and regulatory mechanisms. The Review identified Pacific leatherback recovery priority "#1," which "represents a high magnitude of threat, a high recovery potential, and the presence of conflict with economic activities."[152] It further stated that, despite thirty-seven years of listing and great strides in research, nine years after the Recovery Plan identified an immediate need for recovery measures "a management plan designed to maintain sustained populations of turtles was not yet completed."[153]

C. The Leatherback Conservation Area

As previously mentioned, in 2001 NMFS promulgated a rule prohibiting the drift gillnet commercial fishery from fishing off most of California and Oregon from August 15 to

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[143] U.S. FISH & WILDLIFE SERV., REPORT TO CONGRESS ON THE RECOVERY PROGRAM FOR THREATENED AND ENDANGERED SPECIES 3 (1996), *available at* http://www.fws.gov/endangered/pdfs/Recovery/1996-1.PDF (last visited Feb. 2, 2009).
[144] SULLINS, *supra* note 22, at 37.
[145] RECOVERY PLAN, *supra* note 9, at vi.
[146] *Id.* at 17.
[147] *Id.* at 60-64.
[148] Drift gillnetting is a passive form of fishing where the fishermen use a very large mesh net that is designed to float vertically in the water column, typically over night. This method targets near surface swimming pelagic groups of fish, like tuna and swordfish.
[149] 50 C.F.R. § 660.713 (2008).
[150] *See* NMFS AND FWS, *supra* note 128.
[151] ESA § 4(c)(2)(a), 16 U.S.C. § 1533(c)(2)(a); Endangered and Threatened Wildlife and Plants; Initiation of a 5-year Review of Listed Sea Turtles, 70 Fed. Reg. 20,734 (April 21, 2005).
[152] RECOVERY PLAN, *supra* note 9, at 3.
[153] *Id.* at 7.

November 15.[154] This designation essentially created a seasonal protected area for Pacific leatherbacks. NMFS would later refer to it as "The Leatherback Conservation Area" (LCA).[155] Since its inception, no take of Pacific leatherback has been recorded.

NMFS created the LCA under authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSA).[156] It was a required response to NMFS's biological opinion (BiOp) of NMFS's Marine Mammal Division's proposal to authorize marine mammal incidental take by the California/Oregon Drift Gillnet Fishery.[157] The BiOp determined that the drift gillnet fishery was "jeopardizing the continued existence of the leatherback population by appreciably reducing the likelihood of both the survival and recovery of the species."[158] The fishery was doing so by incidentally taking too many leatherbacks, typically by entanglement in fishery gear.[159] NMFS determined the unacceptable incidental take level was dependent on the area and season being fished.[160] As an alternative measure to prevent jeopardy, the agency proposed to close the fishery when conflicts are most likely.[161] NMFS accepted this as an appropriate mitigation measure and promulgated a regulation to do so.[162]

In 2004, NMFS further corroborated the LCA by promulgating regulations under the MSA implementing the fishery management plan (FMP)[163] for highly migratory species fisheries off the West Coast.[164] FMPs are plans developed by a Regional Fishery Management Council and NMFS to manage a fishery resource pursuant to the MSA. It does not have the force of law, but is advisory.[165] The ESA requires consultation with NMFS of FMPs and any implementing regulations.[166] NMFS incorporated the existing LCA into these regulations specifically for the drift gillnet fishery.[167] The FMP also excludes pelagic longlining in U.S. West Coast waters because of sea turtle take, but this restriction is not officially part of the LCA.

D. The Petition to Revise Leatherback Critical Habitat

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[154] Endangered and Threatened Wildlife; Sea Turtle Conservation Requirements; Taking of Threatened or Endangered Species Incidental to Commercial Fishing Operations, 66 Fed. Reg. 44,549 (Aug. 24, 2001).
[155] *Id.*
[156] *Id.*
[157] DRIFT GILLNET BIOP, *supra* note 8, at 3.
[158] *Id.*
[159] *Id.* "Take" is defined as "to harass, harm, pursue, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." ESA § 3, 16 U.S.C. § 1532. "Incidental take" is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity." 50 C.F.R. § 402.02 (2008).
[160] DRIFT GILLNET BIOP, *supra* note 8, at 92.
[161] 66 Fed. Reg. 44,549 (Aug. 24, 2001).
[162] DRIFT GILLNET BIOP, *supra* note 8.
[163] Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1851(b) (2007).
[164] Highly migratory species include tuna, swordfish, billfish, and sharks.
[165] Fisheries Off West Coast States and in the Western Pacific; Highly Migratory Species Fisheries, 69 Fed. Reg. 18,444 (Apr. 7, 2004).
[166] DRIFT GILLNET BIOP, *supra* note 8, at 3.
[167] 69 Fed. Reg. 18,444, 18,460 (Apr. 7, 2004).

On September 26, 2007, conservation organizations, Center for Biological Diversity, Oceana and Turtle Island Restoration Network (Petitioners), petitioned NMFS to revise[168] leatherback sea turtle critical habitat to include habitat for the Pacific population.[169] Petitioners argued that the dramatically declining Pacific population is in dire need of habitat protection to prevent its extinction.[170] They proposed designating the LCA as critical habitat because that area is a major foraging ground upon which the species depends for survival and it meets all criteria for designation.[171] They also stipulated, "[T]he primary constituent elements should be those habitat components that are essential for feeding, resting, migrating, and include all marine waters, along with associated marine aquatic flora and fauna in the water column, and the underlying marine benthic community."[172]

The Petition argues that critical habitat is both prudent and determinable. The designation is prudent because it would benefit the species and would not increase the degree of threat. The designation is determinable because there is sufficient information analyzing the impacts of designation and the needs of the species are well known to permit identification of the area. The Petition cites the Recovery Plan and studies as enough proof that "increased long-term protection of the leatherback foraging grounds is not just beneficial to the species, but critical to its survival."[173]

Petitioners cite scientific data and NMFS leatherback management documents as the basis for designation because they demonstrate that the area contains physical and biological features essential to the conservation of the species. Specifically, data demonstrates the proposed area is a crucial feeding ground for leatherbacks because of its unique biological and physical features.[174] It is well established that leatherbacks migrate great distances across the Pacific Ocean to the U.S. West Coast to forage.[175] The turtles come to exploit the unique convergence zones and areas of upwelling waters that create seasonally abundant aggregations of jellyfish, their primary prey.[176] While this productive range encompasses more than the proposed area and Pacific leatherbacks have been seen as far north as

[168] The Petition seeks to revise habitat because the leatherback sea turtle already has critical habitat designated for the Atlantic population in the U.S. Virgin Islands. While the species is not listed as two distinct populations, the populations live in different oceans and do not mingle. Thus, habitat designation in the Atlantic does not provide any protection for the Pacific population.
[169] *See* PETITION, *supra* note 16.
[170] *Id.* at 1.
[171] *Id.* at ii.
[172] Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Snapper-Grouper Fishery off the Southern Atlantic States; Amendment 15A, 72 Fed. Reg. 73,747 (Dec. 28, 2007).
[173] PETITION, *supra* note 16, at 35; RECOVERY PLAN, *supra* note 9; DRIFT GILLNET BIOP, *supra* note 8, at 67; *see* Benson et al., *supra* note 122.
[174] RECOVERY PLAN, *supra* note 9, at 14; *See* Benson et al., *supra* note 122; *See* D.B. Chelton et al., *Large-Scale Inter Annual Physical and Biological Interaction in the California USA Current*, 40(4) J. OF MARINE RESEARCH 1095 (1982).
[175] Benson et al., *supra* note 122, at 152.
[176] Benson et al., *supra* note 6, at 346; RECOVERY PLAN, *supra* note 9; *See* W.M. Graham et al., *A Physical Context for Gelatinous Zooplankton Aggregations: A Review*, 451 HYDROBIOLOGIA 199 (2001).

Alaska, studies indicate that the turtles generally appear to stay further south.[177] Petitioners say that research proves leatherbacks depend on this area specifically for necessary sustenance, thereby warranting designation.[178]

Petitioners further maintain that the area requires special management consideration. They state that NMFS's creation of the LCA supports this conclusion. They rely on a recent case in which the U.S. District Court for Arizona stated, "[T]he fact that a particular habitat does, in fact, require special management is demonstrative evidence that the habitat is 'critical.'"[179] Petitioners claim that current management is not adequate because it only curtails drift gillnet fishing threats and does not protect leatherbacks against other major threats "from other fisheries, ocean debris ingestion, vessel strikes, oil spills, coastal development, and changing ocean conditions from global warming and ocean acidification."[180] Petitioners cite NMFS's Leatherback Recovery Plan, which identifies a primary priority to protect and manage marine habitat by "identifying important habitat, ensur[ing] long-term protection of that habitat, prevent[ing] degradation of marine habitat from pollution and oil transshipment, and tak[ing] action."[181] Petitioners argue CHD of that water is the only available option to meet these goals because any other option, like the seasonal LCA, falls short of mitigating all the various threats.

The Petition maintains that designating the LCA as critical habitat could help mitigate many major threats from activities that cause entanglement in fishing nets, boat collisions, ocean pollution, and global warming.[182] Petitioners cite studies that demonstrate the turtles forage in this area from August to December.[183] Although this time is represented by the LCA, the Petition cites documents in which NMFS admitted to the value in protecting seasonal habitat all year round for other turtles in order to mitigate threats that take place when the species are not there but that affect their habitat.[184]

Currently the LCA is under threat from pollution and marine debris, which impacts leatherback foraging capacity. For example, turtles drown by becoming entrapped in discarded fishing lines and starve by consuming floating plastic bags they mistake for jellyfish, which stay in their stomachs and block further digestion. The Petition claims designation could help "prevent further degradation and maintain the healthy waters for

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[177] C.R. McMahon and G.C. Hays, *Thermal niche, large-scale movements and implications of climate change for a critically endangered marine vertebrate*, 12 GLOBAL CHANGE BIOLOGY 1330, 1336 (2006).
[178] Benson et al., *supra* note 6, at 346.
[179] PETITION, *supra* note 16, at 32 (*citing Center for Biological Diversity v. Norton*, 240 F. Supp 2d 1090, 1099 (D. Ariz. 2003) (The court found that FWS cannot refuse to designate habitat based on concluding that existing management measures are adequate).
[180] PETITION, *supra* note 16, at 33.
[181] RECOVERY PLAN, *supra* note 9, at 76; Endangered and Threatened Wildlife; Recovery Plans for Listed Sea Turtles 63 Fed. Reg. 28,359 (May 22, 1998).
[182] Benson et al., *supra* note 6, at 342; Spotila et al., *supra* note 4, at 529.
[183] C.H. Starbird et al., *Seasonal Occurrence of Leatherback Sea Turtles (Dermochelys coriacea) in the Monterey Bay Region, with Notes on Other Sea Turtles, 1986-1991*, 79 CALIF. FISH AND GAME 2, 54-62 (1993).
[184] Nat'l Marine Fisheries Service, Designating Critical Habitat: Green and Hawksbill Sea Turtles, 63 Fed. Reg. 46,693, 46,696 (Sept. 2, 1998).

the survival and recovery of the leatherback."[185] A recent study supports this argument by shedding light on how human activities impact the ocean's health.[186] However, Petitioners do not detail how CHD would actually achieve these goals, though they are not required to do so. On December 28, 2007, NMFS agreed the Petition *may* be warranted and announced it would further examine the Petition.[187]

IV. Evaluating the Role of Critical Habitat in the Ocean

NMFS faces a special challenge in designating critical habitat for listed marine species. Many more terrestrial than marine species have been listed.[188] Subsequently, more case law and regulation derive from terrestrial conservation problems, which do not necessarily lend themselves to marine protection problems. Further, it is easier to see how human activities like development and pollution directly affect species habitat on land, as opposed to the marine environment.

As the health of the ocean decreases and the number of endangered marine species increases, it is important to consider the value of designating critical marine habitat. Unfortunately, not a great deal is understood about the open ocean environment in terms of both species' needs and human impacts.[189] The lack of scientific data makes proving that the open ocean is "essential to conservation of the species" especially formidable. It is not surprising that, out of the fourteen marine species for which critical habitat has been designated, none of the habitat area is open ocean.[190]

Species like the Pacific leatherback present the greatest challenge for critical habitat designation because the only areas the turtle use within U.S. jurisdiction are open ocean.[191] Most marine endangered species that enter U.S. jurisdiction spend some time near or on U.S. shore, usually to breed, give birth, or feed.[192] Because these activities usually require a species to linger in an accessible area, we can more easily research their behavior there.[193]

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[185] PETITION, *supra* note 16, at 31.
[186] Benjamin S. Halpern et al., *A Global Map of Human Impact on Marine Ecosystems*, 319 SCIENCE 948 (Feb. 15, 2008).
[187] Listing Endangered and Threatened Wildlife and Designating Critical Habitat; 90-day Finding for a Petition to Revise the Critical Habitat Designation for the Leatherback Turtle, 72 Fed. Reg. 73,745 (Dec. 28, 2007) (to be codified 50 C.F.R. Part 226).
[188] Of the currently 1,391 listed U.S. species, 65 are marine and managed by NOAA's Office of Protected Resources. *See* http://ecos.fws.gov/tess_public/Boxscore.do and http://www.nmfs.noaa.gov/pr/species/ .
[189] STRUCTURE AND FUNCTION OF MARINE ECOSYSTEMS: HEARING BEFORE THE SUBCOMM. ON FISHERIES AND OCEANS, COMMITTEE ON NAT. RES., U.S. HOUSE OF REPS. (June 8, 2005) (statement by Dr. Stephen Murawski, Director, Office of Science and Technology, Nat'l Marine Fisheries Serv.).
[190] 50 C.F.R. § 226 (2008).
[191] To be clear, the U.S. can only designate critical habitat in U.S. waters. Although Pacific leatherbacks migrate across the Pacific Ocean, the only time they spend in U.S. jurisdiction is in our open ocean.
[192] This includes the Atlantic leatherback turtle, which has critical habitat designated in its breeding breaches in the U.S. Virgin Islands. *See* 44 Fed. Reg. 17,710 (Mar. 23, 1979).
[193] For example, consider the endangered Stellar sea lion, which spends most of its life in the ocean, but stops for significant and specific periods of time on particular beaches to breed and give birth. This species was listed as threatened in 1990 (Listing of Stellar Sea Lion as Threatened under ESA,

NMFS has not designated any open ocean areas as critical habitat. Out of the fourteen marine species granted critical habitat, NMFS has only considered open ocean designation for two, the Northern right whale and the Southern resident killer whale.[194] Instead of designating open ocean habitat for these species, NMFS designated areas that were relatively close to shore, protected, and/or shallow. NMFS admits in its notice to designate critical habitat for the killer whale that, although it recognizes the importance of offshore areas, it "cannot assess the value" of them at this time.[195]

NMFS is in the unusual position of having to designate open ocean habitat in order to designate any critical habitat for the Pacific leatherback. There must be enough scientific evidence to demonstrate that designating open ocean habitat for the leatherback is prudent and determinable, and to prove that the benefit is not outweighed by cost of designation.[196] NMFS must determine *where* habitat is "essential" and *how* protecting that habitat will benefit the species. This requires some degree of conclusive scientific data. Due to scientific uncertainties of location and benefit, and the existence of the LCA (which creates great benefit to the leatherback despite not being recognized as critical habitat), designation is unlikely.

A. Identifying Ocean Critical Habitat

NFMS describes its approach to critical habitat designation, based on the regulatory and statutory direction, as a two-part process.[197] First, NMFS identifies specific areas eligible for CHD. Then NMFS conducts the § 4(b)(2) analysis by determining the impacts of designation, the benefits of designation and exclusion, whether the benefits of exclusion outweigh the benefits of designation, and whether exclusion will result in the extinction of the species.[198]

1. Meeting the Definition of Critical Habitat

To designate critical habitat for a species, NMFS must first be able to identify specific areas that the species depends upon for habitat. This task is a considerable challenge for open ocean habitat because the dangerous unpredictable environment makes it very difficult to

55 Fed. Reg. 49,204 (Nov. 26, 1990)) and its breeding beaches were designated as critical habitat in 1993 (Designation Critical Habitat: Stellar Sea Lion, 58 Fed. Reg. 45,269 (Aug. 27, 1993)).

[194] Northern right whale designation includes the Great South Channel Critical Habitat Area off of Cape Code designated in 1994 (Designation Critical Habitat: Northern Right Whale, 59 Fed. Reg. 28,793 (June 3, 1994)) and the Bering Sea Critical Habitat Area off Alaska, designated in 2006 (Revision of Critical Habitat: Northern Right Whale, 71 Fed. Reg. 38,277 (July 6, 2006)). The Southern resident killer whale critical habitat area covers most of Washington State's inland waters and was designated in 2006 (Designation Critical Habitat: Southern Resident Killer Whale, 71 Fed. Reg. 69,054 (Nov. 29, 2006)).

[195] *Id.* at 69,063.

[196] 50 C.F.R. § 424.12 (2007).

[197] NAT'L MARINE FISHERIES SERV., NORTHWEST REGION, DISTRIBUTION OF CRITICAL HABITAT FOR SOUTHERN RESIDENT KILLER WHALES SECTION 4(B)(2) REPORT 6 (2006) [hereinafter KILLER WHALE REPORT].

[198] *Id.*

study species.[199] Most marine species information is gathered by fishery catch or take information, strandings, or direct observations.[200] These factors limit the ability to establish specific information about species activities, locations, and needs in the open ocean and how human activities affect these things.

Species in the open ocean are difficult to study for many reasons.[201] It is hard to locate a species and monitor it because the open ocean is very expansive and species are relatively small, move quickly, and usually dive below the surface for long periods of time. When species can be located, inherent difficulties associated with researching and tracking in the open ocean limits productivity. Logistically, working on an offshore research vessel is uncertain. Scientific equipment can be sensitive and fail due to wave motion and the conductive and corrosive nature of sea water. If equipment fails, it can only be replaced by what is already on the boat, which is usually limited because scientific equipment is expensive. The constant wave motion also makes it difficult to handle equipment. And finally, the ocean itself is mostly inaccessible, as it is difficult to see through the water even with remote sensing tools and the increased pressure limits of equipment. Although satellite-based tracking is improving and providing excellent data, it is still a new, expensive, limited tool.

NMFS has used the difficulty in assessing open ocean habitat as reason not to designate areas of it as critical habitat.[202] NMFS just recently declined to designate open ocean habitat for the Southern resident killer whale based on this premise. In the BiOp to determine critical habitat, NMFS brushed off open ocean designation in one paragraph. NMFS stated that, although it knew the whales used the offshore area and could infer that some Primary Constituent Elements (PCEs) are present, like prey and passage, it could not describe the PCEs adequately or identify specific areas with those features.[203] In the Final Notice to designate, NMFS explained that "based on difficulties of determining the presence of PCEs in specific offshore areas," it was unable to assess the human activities that impact PCEs or special management considerations for those PCEs.[204] NMFS did determine, however, that it had enough information to designate nearshore habitat.[205]

Although NMFS is required to consider critical habitat based on the best scientific information available, it must be able to determine PCEs with specificity to designate.[206] However, the level of specificity required is not clear. For the Northern right whale, NMFS identified critical habitat areas based on areas with abundant prey. It admitted it was unable to ascertain what physical and biological features produce aggregates of zooplankton, so "in absence of the appropriate data on the PCEs themselves, the

[199] DOUGLAS A. SEGAR, INTRODUCTION TO OCEAN SCIENCES: Ch. 2.3 (Difficulties in Studying the Ocean Environment) (W.W. Norton & Company Inc. 2006).
[200] For example, *see* Starbird et al., *supra* note 183.
[201] SEGAR, *supra* note 199.
[202] Designated Critical Habitat: Stellar Sea Lion, 58 Fed. Reg. 45,269 (Aug. 27, 1993); Designated Critical Habitat: Southern Resident Killer Whale, 71 Fed. Reg. 69,054 (Nov. 29, 2006).
[203] KILLER WHALE REPORT, *supra* note 197, at 35.
[204] 71 Fed. Reg. 69,054, 69,063 (Nov. 29, 2006).
[205] *Id.*
[206] *See* discussion supra II.A.i; *Middle Rio Grande Conservancy Dist. v. Babbitt*, 206 F. Supp. 2d 1156, 1178 (D. N.M. 2000); *Home Builders Ass'n of N. Cal. v. U.S. Fish & Wildlife Serv.*, 268 F. Supp. 2d 1197, 1210 (E.D. Cal. 2003).

distribution of right whales [was] used as a proxy."[207] NMFS determined these areas by evidence of consistently feeding whales, even if just a single whale.[208] Although this standard appears much lower than the one used for the Southern resident killer whale, it is important to note that NMFS originally declined designating the area for the Northern right whale and was ordered by a court to re-consider its assessment.[209]

Petitioners depend on several scientific studies, the Recovery Plan, and NMFS's reasoning for the creation of the LCA to prove that the proposed area contains physical and biological features essential to the conservation of the Pacific leatherback population. The Petition depends greatly on a recent study which provides specific information of leatherback abundance, distribution, and habitat off California over thirteen years.[210] This study was the first to examine this information and admitted that weather and inability to see into the ocean greatly limited the data.[211]

The Petition suggests that the PCEs for the proposed area should include: "those habitat components that are essential for the primarily biological needs of feeding, resting, and migrating, and include all marine waters, along with associated marine aquatic flora and fauna of the water column, and the underlying marine benthic community."[212] Although remarkably ambitious and vague, the Petition maintains the PCEs are consistent with other marine species' critical habitat, like the Steller sea lion and spectacled eider.[213] The Petition relies on the established fact that the marine area off California and Oregon is a unique environment in the Pacific Ocean that is highly productive.[214] While this fact is indisputable, NMFS will likely need more detail to identify specific areas within this huge swath of ocean most important to the Pacific leatherback. It is very improbable NMFS will issue a blanket designation for the entire area, due to regulatory requirements and that fact that the LCA is much larger than any other marine critical habitat area.[215]

Research indicates that it is not clear exactly what areas off California and Oregon Pacific leatherbacks particularly depend upon. Researchers maintain that, while leatherbacks have been observed feeding on jellyfish off California and Oregon for many years, and the area is indisputably a feeding area, a specific trophic link between physical processes and leatherbacks has not been studied.[216] This link would help establish more specific areas that leatherbacks depend upon, such as nearshore areas like Monterey Bay and the Gulf of the

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[207] NAT'L MARINE FISHERIES SERVICE, ALASKA FISHERIES SCIENCE CENTER PROCESSED REPORT 2006-06: HABITAT REQUIREMENTS AND EXTINCTION RISKS OF EASTERN NORH PACIFIC RIGHT WHALES 15 (2006) [hereinafter RIGHT WHALE HABITAT REPORT].
[208] Revision of Critical Habitat for the Northern Right Whale in the Pacific Ocean, 71 Fed. Reg. 38,277, 38,278 (July 6, 2006); RIGHT WHALE HABITAT REPORT, *supra* note 207, at 15.
[209] *Ctr. for Biological Diversity v. Evans*, 2005 U.S. Dist. LEXIS 44984 (N.D. Cal. June 14, 2005).
[210] Benson et al., *supra* note 6.
[211] *Id.* at 341.
[212] PETITION, *supra* note 16, at 32.
[213] *Id.*, *citing* 50 C.F.R. § 17.95(b) (2005).
[214] PETITION, *supra* note 16, at 30.
[215] To compare, the LCA is 200,000 square miles and the Northern right whale Pacific habitat totals 36,750 square miles (71 Fed. Reg. 38,277 (July 6, 2006)) and Southern Resident killer whale habitat totals 2,560 square miles (71 Fed. Reg. 69,054 (Nov. 29, 2006)).
[216] Benson et al., *supra* note 6, at 345.

Faralones, instead of a general and enormous 200,000-square-mile area.[217] The Petition brushes these statements aside and focuses instead on the fact that NMFS determined the entire area was important to the leatherback. The Petition also ignores the fact that NMFS uses different standards to manage fishery areas than to designate critical habitat.

However, it is not clear exactly what information is sufficient to demonstrate dependence on a specific area. It is important to note that in determining Northern right whale critical habitat, NMFS stated that "the boundaries are based upon the best available information regarding the location of zooplankton in sufficient concentrations to encourage and sustain feeding by [N]orthern right whales."[218] Because Pacific leatherbacks forage on jellyfish, information on boundaries of jellyfish aggregations, if it exists, may be appropriately sufficient.

The lack of scientific evidence describing leatherback foraging behavior off U.S. waters makes it very difficult for NMFS to identify open ocean critical habitat for the leatherback. There is no proof that the entire area is distinct in a way that specifically benefits leatherbacks or that leatherbacks use every inch of it. Petitioners are hopeful that that level of detail is not necessary to designate, like it was not necessary for the LCA.[219] However, NMFS's primary determination of the LCA area was based on a widespread distribution of observations of leatherback entanglements so those events could be curtailed.[220] This data only indicates presence in the area, not dependence on it.

For species that greatly depend on the open ocean, identifying important areas offshore may be the biggest hurdle to achieving critical habitat. Not many species have conservation areas already in place that a petitioner can use to suggest importance. For the Pacific leatherback, the LCA is so enormous that it might not help prove necessity anyway. Designation is unlikely without sufficient scientific evidence to demonstrate a dependence on specific physical and biological features in a specific area.

2. Benefits of Exclusion: Economic Costs of Designation

In addition to the difference between scientific knowledge the habitat needs of marine and terrestrial species, the way people control, use, and impact marine habitat differs dramatically from land. This is important because the way humans use species' habitat directly affects the benefits critical habitat provides and the costs associated with designation. While humans use land in a myriad of ways and control it through private, state, and federal entities, there is a lack of firm private rights for use and control of the open ocean. Therefore, virtually every activity in the open ocean can be classified as a federal activity.[221]

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[217] *Id.* at 346.
[218] 71 Fed. Reg. 38,277, 38,281 (July 6, 2006).
[219] 66 Fed. Reg. 44,549, 44,550 (Aug. 24, 2001).
[220] *Id.* at 44,550.
[221] While states do exercise control out to three miles, federal law supersedes this control. For ESA purposes, when a species is listed under the ESA, it becomes the federal government's responsibility to manage the species' conservation.

The ocean ownership regime gives the federal government superseding power over the open ocean and any activity that occurs in it. The Magnuson-Stevens Fishery Conservation and Management Act permits the U.S. federal government to control waters off our coast out to 200 miles.[222] The Submerged Lands Act gives states jurisdiction out to three miles,[223] but federal law preempts state law if there is a conflict between the two.[224] Fewer actors and centralized control over the area could reduce economic burdens and increase efficient facilitation of consultations. Imperiled species like the Pacific leatherback have a great deal to gain from habitat designation and the open ocean may be a place where that benefit more easily outweighs the economic burden of the designation.

If NMFS does identify an area of the open ocean that meets the definition of "critical habitat," it will then conduct a § 4(b)(2) analysis to determine whether the benefits of excluding an area outweigh the benefits of designating it.[225] The Secretary can decline to designate critical habitat where she finds the benefits of exclusion outweigh the benefits of designation, unless exclusion will result in the extinction of the species.[226] The benefits to exclusion can include economic, national security, and other relevant impacts. The economic cost to be considered is the "probable economic impact of the CHD upon proposed or ongoing activities."[227] The economic cost associated with designating portions of the open ocean as critical habitat may easily outweigh the benefit of designation, especially if benefits are uncertain. NMFS has never performed this analysis for open ocean habitat, because it has never determined that the open ocean meets the definition of critical habitat for a species.

Based on other economic analyses for CHD, the economic impacts analysis will likely focus on the fishing industry and water quality management because they are the two biggest threats to Pacific leatherbacks in their foraging area.[228] The threats considered must contribute to the adverse modification of habitat. Specifically, this means the PCEs, and not activities that result in the "take" of the species because that is covered by the § 7 jeopardy analysis. Because jellyfish are not a target of commercial fishermen, the economic cost of restricting harvesting is probably low.[229]

The Pacific leatherback's ability to forage depends on the water quality of the ocean. Compromised ocean health can affect the species directly by affecting its health and indirectly by reducing jellyfish populations. Ocean acidification threatens jellyfish abundance, and pollution from activities like oil spills, oil and gas leasing and development, mining, disposal of dredge material, seafood processing waste discharge, and trash disposal threatens both jellyfish and the leatherback's ability to use its habitat. However, estimating

[222] 16 U.S.C. § 1801 (2007).
[223] 43 U.S.C. § 1301(a)(2) (2002).
[224] *Id.*
[225] *See* KILLER WHALE REPORT, *supra* note 197, at 6.
[226] 72 Fed. Reg. 73,745, 73746 (Dec. 28, 2007).
[227] 50 C.F.R. § 424.19 (2005).
[228] INDUSTRIAL ECONOMICS, INC., FINAL REPORT: ECONOMIC IMPACTS ASSOCIATED WITH CRITICAL HABITAT DESIGNATION FOR THE SOUTHERN RESIDENTIAL POPULATION OF KILLER WHALES (2006), *available at* http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Status/Orca-Critical-Habitat.cfm .
[229] See similar reasoning in Revision of Critical habitat: Northern Right Whale, 71 Fed. Reg. 38,277, 38,290 (July 6, 2006).

the costs of modifying water quality management is difficult, considering the expanse of the area, the fluid movement of the ocean, and the multiple regulating agencies. The California and Oregon Departments of Ecology set water quality standards for their respective state waters and NOAA monitors the rest of U.S. jurisdictional Pacific Ocean, all under EPA supervision. Current efforts to reverse ocean acidification or marine debris are only developing right now and may take decades to actually help imperiled species. Cost estimates likely would be enormous for any effort to address marine pollution or ocean acidification.

The "benefits of exclusion" include not just economic costs, but impacts to national security. Although it is not known whether sea turtles are sensitive to sonar, it has been suggested that they could be.[230] The recent controversy over whales and sonar includes sea turtles and may persuade NMFS to consider this issue very carefully.[231]

Given the enormous area under consideration, 200,000 square miles, NMFS may look to exclude areas that are too economically valuable to protect. NMFS could do this based on fishing areas. However, these areas would be very difficult for NMFS to identify since the most threatening activities generally take place over the entire area and activities in one area of the ocean can travel and impact another area. It is more likely that NMFS would find that it is too difficult to distinguish between areas in the open ocean and that designating the entire area would be prohibitively expensive. Threats like marine debris and ocean acidification are nearly impossible to prevent in open water, which implies that designation would require monitoring of all U.S. open water to meet critical habitat standards. This request is not only vague, but borders on the absurd in terms of potential economic cost.

B. What Conservation Benefits Would Ocean Critical Habitat Provide?

Determining the benefit of critical habitat may be the most important step in the path to designation. If benefits of designation cannot be ascertained clearly in comparison to the economic benefits of not designating, designation is unlikely. NMFS maintains that benefit of designation "depends upon the inherent conservation value of the area, the seriousness of the threats to that conservation value, and the extent to which an ESA [§] 7 consultation or educational aspects of designation will address those threats."[232] This analysis boils down to whether a threat is better mitigated through the jeopardy or adverse modification standard and the inherent conservation value of the area.

1. Creating the Baseline

[230] *Natural Res. Def. Council v. Gutierrez*, 2008 U.S. Dist. LEXIS 8744 (N.D. Cal. Feb. 6, 2008).
[231] Litigation over the Navy's use of sonar for training exercises off the coast of California culminated in November 2008 when the Supreme Court ruled that the lower courts did not give enough weight to the Navy's interest in national security when considering environmental harm. *Winter v. NRDC*, 129 S. Ct. 365 (2008). NMFS has promulgated regulations aimed to minimize impact to marine mammals, but the conflict is on-going.
[232] Designation for Critical Habitat for the Southern Resident killer whale, 71 Fed. Reg. 69,054, 69,065 (Nov. 26, 2006).

The key to determining the conservation benefit of designation is determining what baseline protection already exists without it and what additional benefits would be created. Since the species itself is already protected from jeopardizing federal activity, threats must be broken down to determine what threatens the species and what threatens the habitat. For example, fishery threats against leatherbacks are essentially mitigated through the jeopardy consultation process because fisheries do not target their prey or modify their habitat in a significant way. However, pollution may adversely modify the habitat by weakening prey abundance or threatening its inherent conservation value.

The baseline assessment of what conservation benefits a listed species has been awarded before designation can extend beyond the ESA. Other environmental statutes may directly or indirectly provide conservation protection for a species. For the Pacific leatherback, these acts include, but are not limited to, the Magnuson-Stevens Fishery Conservation and Management Act (MSA),[233] the Marine Mammal Protection Act (MMPA),[234] and the Clean Water Act (CWA).[235] The benefits these acts provide should be assessed to determine exactly what designation adds to existing conservation measures.

a. The Magnuson-Stevens Fishery Conservation and Management Act

The MSA is the principal law controlling marine fisheries management in federal waters. First enacted in 1976, the Act directs NMFS to manage and promote conservation of our fisheries. Two rounds of amendments have focused the Act towards rebuilding overfished stocks, protecting essential fish habitat, and reducing bycatch.[236] NMFS can promulgate regulations under the Act to meet these goals.

So far, the MSA has provided great benefit to the Pacific leatherback via the Leatherback Conservation Area.[237] Although the action was a result of ESA-mandated consultation of a fishery management plan, NMFS derived its power to create the area through the MSA. NMFS promulgates regulations under the MSA in accordance with its directives and in conjunction with other conservation acts like the MMPA and ESA to help protect listed species. These regulations are usually a result of a reasonable and prudent alternative to a finding of jeopardy as the result of a § 7 consultation BiOp for FMPs. Examples include "general catch restrictions" for sea turtles regarding incidental take handling rules,[238] Observer Program requirements, and the LCA.

In creating the LCA, NMFS took unprecedented direct action to stop the most pervasive and direct threat to the Pacific leatherback population, takings from the drift gillnet fishery. The LCA provides Pacific leatherbacks with an enormous conservation benefit by virtually stopping recorded take. Although the MSA could provide habitat protection through stricter requirements for gear loss and pollution from fishing boats, it appears its current benefit to Pacific leatherbacks is reducing take through fishery regulation.

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[233] 16 U.S.C. § 1801 et seq. (2008).
[234] *Id.* § 1361 et seq.
[235] 33 U.S.C. § 1251 et seq. (2008).
[236] Oct. 11, 1996, P.L. 104-297, Title I, § 101, 110 Stat. 3560; Jan. 12, 2007, P.L. 109-479, § 1(a), 120 Stat. 3575.
[237] 50 C.F.R. § 660.713 (2007).
[238] *See id.* § 660.711(d).

b. The Marine Mammal Protection Act of 1972

The MMPA protects all marine mammals in U.S. waters and from U.S. citizen action in the high seas, regardless of population status.[239] The Act establishes a moratorium on taking all marine mammals, with limited exceptions for activities like scientific research, aboriginal subsistence, and accidental takes by commercial fisheries.[240] While sea turtles are not mammals, they are susceptible to similar threats and benefit from similar protective measures. Therefore, sometimes regulations regarding fishing gear and take restrictions passed under the MMPA incidentally help sea turtles.

The MMPA increases knowledge about Pacific leatherback biology and take threats. One of the main goals of the MMPA is to reduce marine mammal bycatch from fisheries. Part of this goal is attained through the Observer Program, which NMFS uses to gather information about species interactions with fishery gear and actual takings. [241] While the MSA authorizes NMFS to require observers on federal commercial fisheries, the MMPA allows NMFS to require observers on both federal and non-federal commercial fishing vessels, depending on how much that fishery interacts with marine mammals. Although the program's first priority is to monitor marine mammals, the MMPA allows observers secondarily to monitor sea turtle interactions.[242] This provides an opportunity for observance that is otherwise only available through the ESA. The MMPA does not appear to mitigate Pacific leatherback habitat threats.

c. The Clean Water Act

The Federal Water Pollution Control Act Amendments of 1972, commonly referred to as the Clean Water Act,[243] is the primary law governing water pollution. The broad and ambitious goal of the Act is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters . . . to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."[244] Section 303(d) of the CWA requires states to identify and list waters that do not meet water quality standards, determine which pollutants are causing the violation, and what levels of that pollutant are necessary to meet requirements. The CWA regulates various pollutants in water, including pH, which in the ocean is commonly referred to as "ocean acidification."

The Petition and NMFS identifies global warming and ocean acidification as a major threat to the Pacific leatherback, but fighting ocean acidification through the CWA is probably not

[239] The term "high seas" refers to any area of ocean not within a country's EEZ.
[240] *See generally* Marine Mammal Commission, Legislation – Marine Mammal Protection Act, http://www.mmc.gov/legislation/mmpa.html (last visited Feb. 2, 2009).
[241] The Observer Program is a program NMFS started in 1972 to gather data about what happens on a fishing vessel. Observers are placed on certain fishing vessels for particular periods of time to monitor and gather data on, for example, adherence to regulations regarding bycatch and vessel protocol. This program is under constant scrutiny and conflict between the pressure to place observers and the cost of doing so.
[242] Sea Turtle Conservation; Observer Requirements for Fisheries, 72 Fed. Reg. 43176, 43177 (Aug. 3, 2007).
[243] 33 U.S.C. § 1251 *et seq.* (2008).
[244] CWA § 101(a)(2), 33 U.S.C. § 1251(a) (2008).

realistic at this point. Further, the CWA is supposed to mitigate debris that actually reaches the ocean through waterways. However, this has proven to be a formidable task. While there is potential, the CWA does not provide much benefit to Pacific leatherbacks at this time due to scientific, political, and management limitations.

At baseline, the MSA and MMPA help directly or indirectly mitigate fishery threats that jeopardize the Pacific leatherback. All three acts could potentially help protect Pacific leatherback open ocean habitat, but do not seem to at this point. Therefore, there is room for CHD to benefit the Pacific leatherback by helping mitigate pollution threats and protect the inherent conservation value of the open ocean.

2. The Benefits of Critical Habitat Designation

NMFS indicates that there are primary and ancillary benefits to CHD.[245] Primary benefits include the addition of ascertaining "adverse modification to habitat" in the § 7 consultation process, notice of areas and features important to species conservation, and education and outreach. Ancillary benefits are more vague, but can include incidental economic benefits (for whales, this might be increased whale watching opportunities with increased population) or beneficial changes to the ecosystem and reduced pollution of the habitat.

Petitioners set out to prove the benefits of designation based on NMFS's own statements that the turtle population cannot withstand further jeopardy and deserves "#1" priority effort to increase protection against identified threats. Petitioners argue that designation will help mitigate at least three major threats that are not remedied without CHD, including entanglement in fishing gear, ingestion of marine debris, and global warming/ocean acidification.[246]

The Petition argues for the benefits of designation with scientific data and NMFS's own statements. It specifically cites the green and hawksbill sea turtle CHD notice, where NMFS identified at least five reasons that CHD generally benefits turtles.[247] These benefits included educational benefits, helping focus conservation and management efforts, and three specifically related to § 7: designation "provides a clear indication to Federal agencies regarding when section 7 consultation is required, . . . assists [them] in determining which activities conducted outside of designated area are subject to section 7, and . . . in planning future actions."[248]

Although the green and hawksbill sea turtle habitat designation was for nesting sites and not for an open ocean area, Petitioners believe the acknowledged benefits still apply. However, education can help protect beaches in a way that it cannot so readily protect the open ocean. People are more aware of how their actions on land affect the land and less aware about how those actions affect the ocean because the links are more direct on land. It is relatively simple to show the correlation between eating turtle eggs and lowering the

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[245] Nat'l Marine Fisheries Serv., Designation of Critical Habitat for Southern Resident Killer Whale, 71 Fed. Reg. 69,054, 69,064 (Nov. 29, 2006).
[246] PETITION, *supra* note 16, at 9-21.
[247] Designated Critical Habitat: Green and Hawksbill Sea Turtles, 63 Fed. Reg. 46693, 46696 (Sept. 2, 1998).
[248] *Id.* at 46,696-97.

population, but the link between vehicle emissions and ocean acidification is considerably more removed. Demonstrating the educational benefits from designating open ocean is difficult. People know the ocean is home to many species and notifying people, through designation, that the open ocean off of California and Oregon is especially important to sea turtles, simply will not be as effective as identifying a particular beach or bay.

The ancillary benefits to protecting the open ocean may be considerable, but technology and public interest to curtail ocean pollution is lacking. Further, it is uncertain that designating the open ocean could even help prevent ocean pollution, which makes designation fairly superfluous. Until particular PCEs and specific areas can be identified off the California and Oregon coast, the benefits of designation likely remain weak, at best.

C. Possible Alternatives for Protection

The Petition to designate ESA critical habitat for the Pacific leatherback is one obvious way to bolster protection for the endangered species, but the ESA might not be the most effective legal tool at NMFS's disposal. The greater goal of the Petition is to help protect the leatherbacks against identified threats to sustain and enhance the population. Conservation organizations and the Services could explore other legal tools that might better meet this goal.

The MSA, MMPA, and CWA all may provide further conservation opportunities to the Pacific leatherback. For example, through the MSA mandates to reduce bycatch and protect essential fish habitat, NMFS may be able to curtail most threats to the Pacific leatherback. Specifically, NMFS could promulgate more restrictive fishing regulations, like restricting other fishing fleets, creating stricter gear use and loss regulations, and developing more meaningful pollution measures. These measures could not only further mitigate threats from fishery entanglement, but also threats that adversely modify the open ocean foraging habitat, like debris and pollution.

The MMPA could also directly help the Pacific leatherback, instead of providing incidental benefit as it does now, if Congress amended it. Sea turtles are not specifically protected, like some marine species of concern, by an act like the MMPA or the Migratory Bird Treaty Act.[249] Therefore, they fall into a category of marine species that are highly at risk, endearing to the public, but afforded no specific special protective rights from an act (besides the ESA).[250] Sea turtle behavior and threat susceptibility is more similar to marine mammals than any other marine animal group, so incorporating them into the MMPA would probably not dramatically shift MMPA implementation measures. If Congress amended the MMPA to include sea turtles, it is possible that major threats that result in jeopardy to leatherbacks and adverse modification to the open ocean from fisheries and pollution could be mitigated in a manner similar to that already available for marine mammals.

The CWA also holds potential for Pacific leatherback threat mitigation in the future. Recently, the Center for Biological Diversity started petitioning states to list the Pacific Ocean as a CWA impaired body of water, due to too low pH values (i.e. ocean acidification),

[249] Migratory Bird Treaty Act of 1918, 16 U.S.C. § 702 *et seq*. (2008).
[250] In terms of their own act, like marine mammals or migratory birds.

and establish total maximum daily loads for the cause of pollution, carbon dioxide.[251] Research indicates that ocean acidification impairs many organisms, like cnidarians, the primary foraging target of leatherback turtles.[252] If the CBD petitions are successful, the CWA may be the most direct way to protect leatherback ocean habitat. Primarily, it could lead to a decrease in ocean acidification because the EPA and coastal states will have to monitor and manage the ocean's pH.

The MSA, MMPA, and CWA all provide windows of opportunity for achieving threat mitigation goals that CHD could also provide. Although ESA critical habitat designation potentially provides the most safeguards for Pacific leatherbacks,[253] it is unlikely to be granted at this time given the inherent difficulties and high cost of open ocean designation. Continuing to depend on the ESA § 7 consultation process and subsequent regulations through the MSA, as well as exploring other legal alternatives, may be the most realistic option for effective Pacific leatherback protective measures and recovery at this time.

V. Conclusion

The ESA may simply not be the most effective source of protection for species like the Pacific leatherback that only uses U.S. open ocean habitat. This species forages across an enormous area of open ocean and faces threats that protective mitigating measures would be incredibly expensive and resource intensive, if not simply impossible, to curtail. The turtles need a foraging area with significantly less fishing pressure, fishing gear and plastic debris, boat traffic, and impacts from global warming, like ocean acidification. It is unlikely that NMFS could justify the benefits of exclusion do not outweigh the benefits of designation.

It cannot be denied that the Pacific leatherback requires further protection against threats to avoid extinction. Despite thirty-seven years of protection and its own Conservation Area, the Pacific leatherback continues to decline at a rapid rate. Within the cost-benefit analysis, surely, Congress intended ESA critical habitat designation to value the risk of losing a historic species. Nevertheless, the "prudent" standard allows NMFS to weigh benefit versus cost and, in this case, makes it difficult to imagine NMFS ruling the benefit of designation outweighs the benefits of not designating.

At this time, it seems unlikely that any species will be granted offshore critical habitat in the near future because the value of critical habitat is too tenuous. Further, current policy gives little hope of designation without a significant legal battle. Since 1996, FWS has listed 250 species but only designated critical habitat for two, despite the requirement to designate habitat within a year of listing unless certain exceptions apply. As of 2004, only

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[251] When carbon dioxide is assimilated into the ocean, it reacts with seawater and lowers the pH, thus making the ocean more acidic.

[252] Studies suggest that ocean acidification impairs the calcification rates of calcium carbonate. Most organisms in the ocean have or depend on a species that construct cell coverings and skeletons with calcium carbonate, like types of plankton and mollusks. It is suggested that ocean acidification threatens the entire marine food web. *See generally* GERMAN ADVISORY COUNCIL, *supra* note 12.

[253] For example, only the ESA can enable NMFS to implement a rule to specifically research sea turtle interactions on commercial fishing vessels. *See* Sea Turtle Conservation; Observer Requirement for Fisheries, 72 Fed. Reg. 43,176 (Aug. 3, 2007).

37% of species listed on the ESA had critical habitat designated.[254] Further, of the sixty-five species under NMFS jurisdiction, only fourteen have critical habitat designated.[255] The Bush Administration has not listed or designated critical habitat for any species without prompting from petition or court action. In the downturn of the economy, funding for conservation is likely to lessen, although this may be mitigated by the Obama administration's support of the ESA.[256]

The leatherback Petition may be a prodigious opportunity for critical habitat designation innovation. Perhaps facing habitat designation consideration for a beloved species that is spiraling towards extinction is just the inspiration NMFS needs to consider the benefits of open ocean designation explored in this paper. Despite limited science, management capacity, and knowledge of the open ocean, it is still possible for NMFS to find value in designation over the economic burden. The Petition has the potential to encourage NMFS to re-assess their value standards in critical habitat designation and set a precedent for open ocean critical habitat designation. With increased effort to consider designating open ocean, the difficulties of doing so and factors that limit its protective benefits to species can be overcome.

The arguments and research backing up designating open ocean critical habitat probably do not meet the standards for implementation. There is little regulatory support for NMFS, the agency that manages commercial fishing fleets and monitors all actions in the open ocean, to designate an enormous area that is one of the most productive and economically viable ocean areas as critical habitat for a species that is only there three months out of the year. Although the Petition serves a greater purpose for raising these arguments and requiring NMFS to consider them, conservation organizations might be more successful considering other legal options in the MSA, MMPA, and CWA. Although this action may be a compromise of the power and purpose of the ESA and critical habitat designation, it may also be the best chance the Pacific leatherback population has for survival.

[254] Suckling & Taylor, *supra* note 24, at 76.
[255] National Marine Fisheries Serv., Endangered and Threatened Species Under NMFS' Jurisdiction, *available at* http://www.nmfs.noaa.gov/pr/pdfs/species/esa_table.pdf (last visited Feb. 2, 2009).
[256] Tony Davis, *Endangered Species Rule: Muddled Future*, ARIZONA DAILY STAR, Jan. 20, 2009.