

COMMENTS

HABITAT-BASED CONSERVATION LEGISLATION: A NEW DIRECTION FOR SEA TURTLE CONSERVATION

By
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This Comment explores various agreements designed to protect sea turtles at international and local levels as migratory species. Traditional approaches have been unsuccessful at addressing the myriad threats that face sea turtles. The effectiveness of international agreements could be greatly increased through government enforcement of national and local laws that protect species and through increased cooperation and coordination. This Comment concludes that regional legislation in the European Community mandating habitat protection for listed species and local involvement in sea turtle protection offers direction for future agreements seeking to protect sea turtles.

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I. INTRODUCTION

Sea turtles—one of the world’s most ancient still-surviving aquatic species¹—are facing extinction despite hundreds of domestic and international agreements currently aimed at stopping the decrease in sea turtle populations. The Endangered Species Act (ESA) lists six of the seven species of sea turtles as “endangered” or “threatened.”² The Convention on International Trade in Endangered Species (CITES) lists all seven as species that are “threatened with extinction and are or may be affected by trade.”³ The Convention on Conservation of Migratory Species (CMS) also lists various species of sea turtles as endangered species.⁴

Although there are more than 650 international agreements⁵ focused on restoring sea turtle populations, the data show a continued and steady population decline.⁶ These agreements do not provide adequate protection because they fail to account for the fact that sea turtles are migratory animals.⁷ Adequate consideration for sea turtle

¹ James R. Spotila, *Sea Turtles: A Complete Guide to their Biology, Behavior, and Conservation* 58 (Johns Hopkins U. Press 2004).

² U.S. Fish & Wildlife Serv., *Species Reports*, http://ecos.fws.gov/tess_public/SpeciesReport.do (last updated May 11, 2009) (last accessed Mar. 14, 2010).

³ *Convention on International Trade in Endangered Species of Wild Flora and Fauna* [hereinafter *CITES*], *Appendices I, II and III* (May 22, 2009), T.I.A.S. 8249 (available at <http://www.cites.org/eng/app/e-appendices.pdf> at 26 (last accessed Mar. 14, 2010)).

⁴ *Convention on the Conservation of Migratory Species of Wild Animals, Appendices I and II* (available at http://www.cms.int/documents/appendix/Appendices_COP9_E.pdf at 4 (Mar. 5, 2009) (last accessed Mar. 14, 2010)).

⁵ 5 *See CITES* (Mar. 3, 1973), T.I.A.S. No. 8249, art. II (available at <http://www.cites.org/eng/disc/text.shtml> (last accessed Feb. 17, 2010)).

⁶ *Convention on the Conservation of Migratory Species of Wild Animals* art. III(3) (June 23, 1979), 1651 U.N.T.S. No. 333 (available at http://www.cms.int/pdf/convtxt/cms_convtxt_english.pdf (Oct. 2003) (last accessed Mar. 14, 2010)) [hereinafter *CMS Treaty*].

⁷ Chris Wold, *The Status of Sea Turtles under International Environmental Law and International Agreements*, 5 *J. Intl. Wildlife L. & Poly.* 11 (2002).

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migration patterns requires cooperation with neighboring nation-states, enforcement of conservation laws by local governments, and a means of addressing the full range of threats facing sea turtles.

In addition, the language of these agreements and legislation is often either incomprehensible or at odds with the recommendations of conservationists, researchers, and scientists who are pushing for more robust sea turtle protections.⁸ This clash impedes even the most promising conservation efforts. In fact, sea turtle conservationists identify the following as some of the many inefficiencies created by current international agreements: frequently limited focus on one narrow threat, lack of incentives for both complying with and incorporating these international agreements into national laws, and absence of enforcement mechanisms.⁹ For example, CITES¹⁰ provides protection for sea turtles, but it only addresses the *commercial trade* of sea turtles and their parts that is *detrimental* to their survival.¹¹ The CMS lacks participation from a number of coastal countries, including Brazil, Canada, China, Indonesia, Japan, Mexico, Russia, and the United States.¹² In addition, the CMS does not impose financial obligations on the signatory countries.¹³ Finally, although the Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC)¹⁴ focuses specifically on sea turtle conservation and is legally binding, it does not mandate habitat protection and has been too stringent for some countries to accept.¹⁵

Despite these challenges, successful sea turtle legislation is not only possible but also currently exists in the European Union's Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Directive).¹⁶ The European Union (EU) enacted the Directive to conserve biodiversity within its twenty-seven member countries.¹⁷ The Directive requires Member States to protect species and habitats listed in the legislation's Annexes, conduct surveillance of the habitats listed, and produce a report every six years on the imple-

⁸ Manjula Tiwari, *An Evaluation of the Perceived Effectiveness of International Instruments for Sea Turtle Conservation*, 5 J. Intl. Wildlife L. & Poly. 145, 145–56 (2002).

⁹ *Id.* at 152.

¹⁰ CITES, *supra* n. 5.

¹¹ *Id.* at art. III.

¹² Douglas Hykle, *The Convention on Migratory Species and Other International Instruments Relevant to Marine Turtle Conservation: Pros and Cons*, 5 J. Intl. Wildlife L. & Poly. 105, 105–19 (2002).

¹³ *Id.*

¹⁴ *Inter-American Convention for the Protection and Conservation of Sea Turtles* (available at <http://www.seaturtle.org/iac/convention.shtml> (last updated May 6, 2003) (last accessed Apr. 3, 2010)).

¹⁵ *Id.*; see also Wold, *supra* n. 7, at 11–48.

¹⁶ *Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora* (Nov. 29, 1997), 206 Off. J. L. 0007-0050 (July 22, 1992) (available at http://europa.eu/legislation_summaries/environment/nature_and_biodiversity/128076_en.htm (last accessed Mar. 14, 2010)) [hereinafter *Directive*].

¹⁷ *Id.*

mentation of the program.¹⁸ Each state is also required to prepare a list of sites to be designated as Special Areas of Conservation (SACs), which then form a network of protected areas known as “Natura 2000.”¹⁹ The Directive stands out because it is effective, and it should be replicated in other agreements aimed at conserving sea turtles and other migratory marine species because it allows the needs of the species to be considered in the context of participating countries.

Several human activities act in concert to threaten sea turtle populations and undermine protections advanced by international agreements. Arguably, fishing may be the leading cause of the decline in sea turtle populations.²⁰ The equipment used by fishers is often harmful to sea turtles; various types of bait hooks, nets, dredges, longlines, and trawls may kill, drown, or injure them.²¹ For example, one fishing line may have hundreds or even thousands of hooks attached in order to effectively bait swordfish, tuna, and halibut, but it is also likely to ensnare sea turtles. These unintended sea turtle catches are referred to as “bycatch.”²² In the United States, federal law requires shrimp vessels to fish with nets that are equipped with turtle excluder devices (TEDs), which provide an escape for sea turtles that have been swept into the shrimp trawling nets.²³ Unfortunately, many small-scale fisheries do not comply with the law and the lack of enforcement has left sea turtles vulnerable to being caught and killed by nets without TEDs.²⁴

Moreover, the collected data illustrates the incredible impact that fishing operations have on sea turtle populations: shrimp trawling kills approximately 150,000 sea turtles each year; longline fishing captures, injures, or kills more than 200,000 Loggerhead turtles and

¹⁸ *Id.* at art. 3, 4, 6, 17.

¹⁹ *Id.* at art. 3.

²⁰ Kate Spinner, *Statistics Paint Grim Picture for Sea Turtles*, <http://www2.tbo.com/content/2009/feb/12/statistics-paint-grim-picture-sea-turtles> (Feb. 12, 2009) (last accessed Mar. 14, 2010).

²¹ Anne B. Meyland & David Ehrenfeld, *Conservation of Marine Turtles*, in *Turtle Conservation* 96, 124–25 (Michael W. Klemens ed., Smithsonian Instn. Press 2000) (explaining that, when commercial shrimping vessels trawl for shrimp, their nets also catch sea turtles, who need to breathe air, and when turtles are trapped on the sea floor in the nets, they drown); Caribbean Conserv. Corp., *Threats to Sea Turtle Survival*, <http://ccturtle.org/seaturtleinformation.php?page=threats> (last accessed Feb. 23, 2010) (same) [hereinafter Caribbean Conserv. Corp., *Survival*]; Humane Socy. of the U.S., *Turtle Excluder Device (TED)*, http://www.hsus.org/wildlife/issues_facing_wildlife/turtle_excluder_device_ted.html (last updated Sept. 2007) (last accessed Mar. 14, 2010) (same).

²² Tim Stephens, *Turtles in Trouble*, <http://www.universityofcalifornia.edu/news/article/16589> (Oct. 17, 2007) (last accessed Mar. 14, 2010).

²³ Humane Socy. of the U.S., *supra* n. 21 (stating that the TED is a metal grid of bars that attaches to a shrimp trawling net with an opening at either the top or the bottom that creates a hatch to allow larger animals such as sea turtles, sharks, and larger fish to escape while keeping shrimp inside).

²⁴ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

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50,000 Leatherback turtles each year;²⁵ and the Mid-Atlantic trawl fisheries alone catch about 770 Loggerhead sea turtles each year.²⁶ In 2007, Loggerhead nest counts on Florida beaches were the lowest since counting began twenty years ago.²⁷

Other human activities that threaten to further decrease sea turtle populations include the consumption of sea turtle meat and eggs,²⁸ use of their parts in other products,²⁹ oil rig spills,³⁰ use of plastic fishing line,³¹ boat propellers,³² climate change,³³ introduction of invasive species,³⁴ marine pollution,³⁵ and the construction of roads and houses near beaches.³⁶ People hunt sea turtles to harvest their meat, eggs, oil, cartilage, skin, and shells to consume or to use in jewelry production.³⁷ More specifically, the illegal trade of Hawksbill sea turtle shells on the black market has caused their population to decline by 90% during the last 100 years—even though they are protected by international agreements.³⁸ In fact, the chance of survival for the Hawksbill sea turtle in any region is extremely low due to the demand for products that are made from their shells.³⁹ Moreover, beach construction, dredging, roads, recreational activities, and housing development all interrupt sea turtle nesting and create a dangerous environment for hatchlings.⁴⁰ Further, domestic dogs and cats prey upon hatchlings and eggs.⁴¹

²⁵ *Id.*

²⁶ Press Release, Oceana, *News Report Finds Sea Turtles in Atlantic and Gulf Threatened by Trawl Fisheries* (July 10, 2008) (available at <http://na.oceana.org/en/news-media/press-center/press-releases/new-report-finds-sea-turtles-in-atlantic-and-gulf-threatened-by-trawl-fisheries> (last accessed Mar. 14, 2010)).

²⁷ Spinner, *supra* n. 20.

²⁸ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

²⁹ *Id.*

³⁰ State of the World's Sea Turtles, *Ancient Mariners, Ancient Fuels: How Sea Turtles Cope with Our Modern Fossil Fuel Dependency*, 4 *SWOT Report* 39 (available at http://seaturtlestatus.org/pdf/r4_ancient_mariners_ancient_fuels.pdf at 2 (last accessed Mar. 14, 2010)).

³¹ Caribbean Conserv. Corp., *Survival*, *supra* n. 21 (noting that “[m]onofilament line appears to be the principal source of entanglement for sea turtles in U.S. waters.”). *Id.*

³² Conn. Dept. of Env'tl. Protec., *Kemp's (Atlantic) Ridley Sea Turtle*, http://www.ct.gov/dep/lib/dep/wildlife/pdf_files/outreach/fact_sheets/krsturt.pdf at 2 (Dec. 1999) (last accessed Mar. 14, 2010).

³³ U. Exeter, *Scientists Warn of Climate Change Risk to Marine Turtles*, <http://www.sciencedaily.com/releases/2007/02/070220003809.htm> (Feb. 22, 2007) (last accessed Mar. 14, 2010).

³⁴ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ Anne B. Meylan & Marydele Donnelly, *Status Justification for Listing the Hawksbill Turtle (Eretmochelys imbricata) as Critically Endangered on the 1996 IUCN Red List of Threatened Animals*, 3 *Chelonian Conserv. and Biology* 200, 215–16 (1999).

⁴⁰ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

⁴¹ *Id.*

This Comment (1) explores the legal terrain created by major treaties, conventions, and agreements; (2) discusses their failure to adequately protect sea turtle populations; and (3) explains what the Directive offers to the international efforts to conserve sea turtle populations. Part II explores the necessary protections for endangered sea turtles, followed by a discussion of past international agreements' failures in Part III. Next, Part IV reviews the Directive while exploring the implementation of legislation and the reasons for its success in certain member countries. Finally, Part V concludes with a summary of the Directive's successful structure and appeal, then suggests a drafting method that will enable future laws to provide effective protections for sea turtle populations and habitats.

II. PROTECTIONS NEEDED FOR EFFECTIVE SEA TURTLE CONSERVATION

Sea turtles face a myriad of threats from over-exploitation and environmental degradation as they migrate across jurisdictional boundaries. Traditional conservation approaches have left these species vulnerable because addressing one threat, such as denigration of nesting grounds, still leaves turtles open to additional threats such as marine pollution and exploitative fishing practices. International agreements thus far have done little to encourage protection at a local, cooperative level and have allowed for the continued exploitation of these species.

A. *Unique Biological Cycles and Needed Protections*

Sea turtles have a life expectancy upwards of sixty years,⁴² and their life-cycle is a complex system of international migration, reproduction, and foraging behaviors. Put simply, sea turtles migrate across jurisdictional boundaries and the high seas⁴³ to get from feeding areas to reproductive and nesting areas in coastal and inshore waters.⁴⁴ Female sea turtles deposit nests of eggs on high beaches, and hatchlings initially develop on the high seas.⁴⁵ This creates a habitat that spans international terrestrial and marine zones.⁴⁶

⁴² Wave Foundation, *Sea Turtles Teacher Packet 21*, <http://wavefoundation.org/pdfs/Finstute PDFs/Sea Turtles teacher packet.pdf> (last accessed Mar. 14, 2010).

⁴³ The definition of "high seas" is "sea or ocean lying outside the territorial waters or maritime belts of a country." *Webster's Third New International Dictionary* 1069 (Merriam-Webster 1993); Jack Frazier, Presentation, *Marine Turtles: Whose Property? Whose Rights?* (10th Conf. of Intl. Assn. for Study of Com. Prop., Aug. 9–13, 2004) (available at http://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/242/Frazier_Marine_040531_Paper547b.pdf (last accessed Apr. 2, 2010)).

⁴⁴ *Memorandum of Understanding on the Conservation and Management of Marine Turtles and Their Habitats of the Indian Ocean and South-East Asia* 1 (available at http://www.cms.int/pdf/IOSEA_MoU.pdf (June 23, 2001) (last accessed Mar. 3, 2010)).

⁴⁵ U. N.C., *Sea Turtle Life Cycle*, <http://www.unc.edu/depts/oceanweb/turtles/lifecycle.html> (last accessed Feb. 20, 2010).

⁴⁶ Wold, *supra* n. 7, at 11.

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Loggerhead sea turtle hatchlings migrate south from the east coast of the United States to the Gulf Stream, which sweeps the hatchlings up into the North Atlantic Gyre.⁴⁷ Similarly, the nests of Hawksbill sea turtles—primarily located in tropical regions of the Atlantic Ocean—have been found as far north as Massachusetts.⁴⁸ Atlantic Ridley sea turtles may be found along the entirety of the Atlantic coast of the U.S. and along the shores of Europe and the Mediterranean Sea.⁴⁹ However, their nesting grounds are restricted to a single stretch of beach in Mexico, while their forage or food areas develop along the shores of Louisiana.⁵⁰ Finally, the Olive Ridley sea turtles may be found in both the Indo-Pacific Ocean and the Atlantic Ocean—nesting in India as well as the Gulf of California.⁵¹

Sea turtle migration patterns weave through the ocean waters of many jurisdictions, subjecting sea turtles to various laws and levels of protection.⁵² According to internationally recognized and “firmly embedded” concepts of national sovereignty, a state has the right as a sovereign to use a species within the bounds of its coastal territory.⁵³ On the other hand, all states have a right to exploit resources because those resources belong to no one.⁵⁴ Further, although states have an obligation to conserve harvested populations at levels that can support the maximum sustainable yield,⁵⁵ states do not have the enforcement power to ensure that these conservation obligations are followed.⁵⁶ This must be taken into account when formulating cooperative strategies for sea turtle protection because permanent sovereignty over natural resources and the freedom of the high seas⁵⁷ present many

⁴⁷ U. N.C., *The Loggerhead Sea Turtle* (*Caretta caretta*), <http://www.unc.edu/depts/oceanweb/turtles/species1.html> (last accessed Mar. 14, 2010). The North Atlantic Gyre is a gravity-induced circular water current along the northern region of the Atlantic Ocean. U. So. C., *Ocean Currents and Climate*, <http://earth.usc.edu/~stott/Catalina/Oceans.html> (last accessed Mar. 14, 2010).

⁴⁸ Michael Edelman, *Eretmochelys imbricate: Hawksbill Sea Turtle*, http://animaldiversity.ummz.umich.edu/site/accounts/information/Eretmochelys_imbricata.html (2004) (last accessed Mar. 14, 2010).

⁴⁹ N.Y. St. Dept. of Envtl. Conserv., *Atlantic Ridley Sea Turtle Fact Sheet*, <http://www.dec.ny.gov/animals/7168.html> (last accessed Mar. 14, 2010).

⁵⁰ *Id.*

⁵¹ Peter Herbst, *Lepidochelys olivacea*, http://animaldiversity.ummz.umich.edu/site/accounts/information/Lepidochelys_olivacea.html (1999) (last accessed Mar. 14, 2010).

⁵² Frazier, *supra* n. 43.

⁵³ Wold, *supra* n. 7, at 15.

⁵⁴ *Id.* at 11–12.

⁵⁵ Third UN Conf. on L. of Sea, 11th Sess., 187th meeting at 173, UN Doc A/CONF.62/122, art. 119(1)(a) (Oct. 7, 1982); see generally NOAA’s National Marine Fisheries Service, *Definition of Fisheries Technical Terms*, http://www.nefsc.noaa.gov/techniques/tech_terms.html (last accessed Mar. 14, 2010) (“Maximum sustainable yield” is “[t]he largest average catch or yield that can continuously be taken from a stock under existing environmental conditions.”).

⁵⁶ Wold, *supra* n. 7, at 18–19.

⁵⁷ *Id.* (because states have no legal jurisdiction and no authority to enforce conservation on the high seas, they are essentially free).

obstacles. Thus, strategies for sea turtle protection must take these exploitation rights into account.

B. Threats from Over-Exploitation

There are two types of exploitive human activities that have acute and negative impacts on sea turtle populations: ocean fisheries and sea turtle hunting. Estimates show that the first type of human activity—fishing—poses a great threat to sea turtle populations.⁵⁸ Commercial fishers use encirclement nets, set nets, longlines, seines, and shrimp trawlers that capture and drown more sea turtles than any other accidental capture or “bycatch” method.⁵⁹ Officials responded to this problem by imposing restrictions on the commercial fishing industry to provide protection for affected sea turtle populations.⁶⁰ Furthermore, new research shows that small-scale fisheries in Mexico have killed similar numbers of Loggerhead sea turtles to those killed by commercial fishing fleets.⁶¹ According to the research, there are two reasons for this: first, small-scale fishing in Mexico takes place in areas with abundant Loggerhead populations;⁶² and second, there is a lack of regulations governing fishing equipment and methods.⁶³ Overall, the global estimates of the numbers of sea turtles that are captured, injured, and killed annually are alarming. Every year, shrimp trawls kill 150,000 sea turtles; longlines kill or capture more than 200,000 Loggerhead sea turtles and 50,000 Leatherback sea turtles; and gill nets drown a large number of sea turtles.⁶⁴

Historically, sea turtle conservation efforts affecting the fishing industry have focused on requiring the use of turtle excluder devices (TEDs) on the nets of commercial shrimp trawler vessels. However, small-scale fisheries, which often go unregulated, have different types of fishing gear that capture, kill, or injure sea turtles. The problems caused by overfishing and bycatch will continue to drive population numbers down, even in the face of laws creating sanctuaries. Improvements must be made to both domestic and international laws and regulations governing fisheries in order to curb their negative impact on sea turtle survival and conservation efforts.

The second type of human activity—sea turtle hunting—also contributes to declining population numbers. Sea turtles need protection from hunters that exploit and kill them for their meat, eggs, oil, skin,

⁵⁸ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

⁵⁹ Hillburn O. Hillestad et al., *Worldwide Incidental Capture of Sea Turtles*, in *Biology and Conservation of Sea Turtles* 489 (Karen A. Bjorndal ed., Smithsonian Inst. Press 1995).

⁶⁰ Caribbean Conserv. Corp., *Sea Turtle Threats: Commercial Fishing*, <http://cccturtle.org/seaturtleinformation.php?page=longlinefisheries> (last accessed Mar. 14, 2010) [hereinafter Caribbean Conserv. Corp., *Commercial Fishing*].

⁶¹ Stephens, *supra* n. 22.

⁶² *Id.*

⁶³ *Id.*

⁶⁴ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

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cartilage, shells, and other parts.⁶⁵ Although there are various communities that historically depended upon sea turtles for nourishment and subsistence needs, today, sea turtles are primarily taken to be traded or sold in one form or another.⁶⁶ In fact, the International Union for Conservation of Nature and Natural Resources (IUCN) endangered-species list identifies human consumption as the principal factor contributing to the 46% decline of endangered species taxa and also as a cofactor for an additional 20% decline of the endangered taxa.⁶⁷ Biological characteristics of certain sea turtle species, such as the ability to survive under dire conditions while kept prior to consumption, determine when and how humans will use them for food.⁶⁸

In addition, humans poach, trade, and use various parts of sea turtles in manufacturing. The removal or taking of sea turtle eggs has been outlawed in many countries.⁶⁹ However, these poaching laws are not typically enforced against violators.⁷⁰ As a result, poaching has become common, which has allowed poachers to fuel the illegal trade of sea turtle parts on the black market.⁷¹ Everyday use of sea turtle shells, or carapaces,⁷² also creates a large black-market demand for items with their shells.⁷³ Green and Hawksbill sea turtles are used to create shell ornaments and jewelry.⁷⁴ For the Hawksbill sea turtles, this use of their shells is a major reason they are currently listed as “critically endangered.” In fact, there have been population decreases of 90% during the last 100 years as a result of illegal trade.⁷⁵ Understanding and documenting these uses is critical in order to move forward in formulating strategies for sea turtle protection.

C. Threats from Environmental Degradation

Humans engage in activities that simultaneously alter the composition of the ocean waters and coastal terrains and threaten sea turtle habitats. In particular, oil rig spills, beach dredging, construction projects, artificial lights, marine water pollution, introduction of invasive species, and climate change create new obstacles in the arena of sea turtle protection.⁷⁶ First, oil rig spills may degrade sea turtle habitat, as well as severely debilitate and kill turtles. Many of the sea turtles killed by oil rig spills are likely younger, vulnerable pelagic tur-

⁶⁵ *Id.*

⁶⁶ John Thorbjarnarson et al., *Human Use of Turtles: A Worldwide Perspective*, in *Turtle Conservation* 33 (Michael W. Klemens ed., Smithsonian Instit. 2000).

⁶⁷ *Id.* at 34.

⁶⁸ *Id.*

⁶⁹ *69 Encyclopedia of World Environmental History* 1107 (Shepard Krech III, J.R. McNeill & Carolyn Merchant eds., Routledge 2004).

⁷⁰ *Id.*

⁷¹ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

⁷² Renee C. Rebman, *Turtles and Tortoises* 13 (Marshall Cavendish 2007).

⁷³ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

bles⁷⁷ that do not make it back to land, and thus their deaths go undetected.⁷⁸ Even though oil spills on a grand scale are uncommon, sea turtles are exposed to leakage from everyday use of oil. In a study of Loggerheads in the Atlantic Ocean off the Florida coast, 40% of the turtles had ingested tar from shipping fuel oil.⁷⁹

In addition, oil and gas extraction projects require the use of artificial lighting, which misdirects and disorients hatchlings away from the sea.⁸⁰ This is important because if hatchlings are not able to quickly reach the sea, they may die of dehydration or be eaten by predators.⁸¹ Dredging and pipeline installation can cause direct threats to marine habitats and incidental capture of thousands of sea turtles by use of heavy machinery that bury or drive over nests.⁸² Biologists speculate that more adequate information on site-specific sea turtle history could reduce effects on sea turtles from offshore industry by facilitating research-guided planning and operational changes for spill contingency plans.⁸³

Further, coastal construction projects and property developments fracture the reproductive cycle of sea turtles. The development of coastal homes and buildings is followed by the construction of armoring structures such as sea walls. These structures interfere with nesting habits and erode the natural landscape of beaches crucial to sea turtle habitat.⁸⁴ Once beaches erode, sand often has to be trucked in.⁸⁵ However, this imported sand may be too compacted for turtles to nest, affecting the entire incubation process and sometimes destroying nests entirely.⁸⁶ In addition, tourist spots, residential homes, and business buildings emanate artificial light that discourages female sea turtles from nesting in safer areas and disorients hatchlings.⁸⁷ The cumulative effects of the above factors often results in a substantial break in the reproductive cycle of sea turtles, causing permanent losses of sea turtle habitats and environmental degradation.

⁷⁷ State of the World's Sea Turtles, *supra* n. 30.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ Caribbean Conserv. Corp., *Sea Turtle Threats: Beach Nourishment & Dredging*, <http://ccturtle.org/seaturtleinformation.php?page=lighting> (last accessed Mar. 14, 2010).

⁸¹ Caribbean Conserv. Corp., *General Behavioral Patterns of Turtles*, <http://ccturtle.org/seaturtleinformation.php?page=behavior#nest> (last accessed Mar. 14, 2010) [hereinafter Caribbean Conserv. Corp., *Behavioral Patterns*].

⁸² Caribbean Conserv. Corp., *Sea Turtle Threats: Beach Nourishment & Dredging*, *supra* n. 80, at 4.

⁸³ State of the World's Sea Turtles, *supra* n. 30.

⁸⁴ Caribbean Conserv. Corp., *Sea Turtle Threats: Coastal Armoring*, <http://ccturtle.org/seaturtleinformation.php?page=seawalls> (last accessed Mar. 14, 2010).

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ Caribbean Conserv. Corp., *Sea Turtle Threats: Artificial Lighting*, <http://ccturtle.org/seaturtleinformation.php?page=lighting> (last accessed Mar. 14, 2010) [hereinafter Caribbean Conserv. Corp., *Lighting*].

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Humans have introduced relatively new and problematic factors to sea turtle environments; invasive species, marine pollution, and climate change are having drastic negative effects on marine turtle populations. For example, domestic and feral dogs and cats can prey upon eggs and hatchlings and attack adult nesting turtles.⁸⁸ Introduced species—such as pigs, goats, cattle, horses, and non-native plants—can destroy turtle habitats and introduce outbreaks of disease.⁸⁹ Disease outbreaks may also be caused by ocean pollution from chemical runoff, fertilizers, or other toxins.⁹⁰ Scientists believe that fibropapillomas, a disease killing sea turtles, is one such disease.⁹¹ Also, climate change can harm turtles at all life cycle stages by raising sea levels and causing erosion of nesting beaches.⁹² Climate change also increases incubation temperatures and causes stronger storms, interfering with reproduction, nesting, and turtle habitat.⁹³ An understanding of ecosystem effects from all of these factors is essential in crafting comprehensive conservation strategies that are not aimed at only one issue or species.

D. Challenges to Traditional Approaches Used for Sea Turtle Conservation

Faced with these threats, sea turtle conservationists have attempted to answer the following questions:

- (1) Will protection of nesting grounds be helpful if marine pollution and climate change still impact sea turtle migration?
- (2) Can the establishment of hatcheries and captive breeding programs aimed at restoring populations end up causing more problems for wild populations by introducing new diseases or result in more sea turtles being destroyed as bycatch?
- (3) Can education help local communities protect sea turtle populations if communities still need to utilize turtles and turtle products to survive economically?
- (4) Can control of international legal trade of sea turtle parts, eggs, and products also curb the illegal trade of these items?
- (5) Can we continue our current fishing practices simply by utilizing devices that may or may not protect sea turtles from becoming bycatch?

⁸⁸ Caribbean Conserv. Corp., *Sea Turtle Threats: Invasive Species Predation*, <http://ccturtle.org/seaturtleinformation.php?page=invasivespecies> (last accessed Mar. 14, 2010) [hereinafter Caribbean Conserv. Corp., *Invasive Species*].

⁸⁹ Joseph C. Mitchell & Michael W. Klemens, *Primary and Secondary Effects of Habitat Alteration*, in *Turtle Conservation* 5, 6 (Michael W. Klemens ed., Smithsonian Instit. 2000).

⁹⁰ Caribbean Conserv. Corp., *Sea Turtle Threats: Marine Pollution*, <http://ccturtle.org/seaturtleinformation.php?page=pollution> (last accessed Mar. 14, 2010) [hereinafter Caribbean Conserv. Corp., *Pollution*].

⁹¹ *Id.*

⁹² Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

⁹³ *Id.*

These questions have been subjects of debate among sea turtle biologists and the core components of legislation aimed at sea turtle conservation.

There are some basic challenges to traditional approaches used to protect sea turtles, to manage their habitats, and to reduce the rates of bycatch. First, if the local community and its laws do not support the creation of sanctuaries out of nesting beaches, then sea turtles are left vulnerable to threats posed by harvesting and land development.⁹⁴ In addition, these sanctuaries may become fragmented habitats if they are either too small to adequately support sea turtles or are upset by threatening human activities existing alongside them.⁹⁵ Setting aside sea turtle sanctuaries to create protected sea turtle habitats requires conservationists to go above and beyond protecting nesting beaches. Second, attempts to manage sea turtle bycatch and attain a maximum sustainable yield have failed because of the nonexistent data about sea turtle population dynamics that are required to strike this balance and make this a realistic possibility.⁹⁶ Furthermore, sea turtles have extremely slow growth and maturation rates, which in turn creates another challenge for the sustainable yield method.⁹⁷ Third, as biologists have observed, sea turtles have certain characteristics that should be taken into account in deciphering the causes and solutions of bycatch. For example, smaller sea turtles drown more quickly than larger sea turtles.⁹⁸ Fourth, captive sea turtle breeding programs have been unsuccessful because sea turtles have a very complex biology that is not entirely understood.⁹⁹ Finally, the illegal trade in various sea turtle products continues today despite numerous legal prohibitions and restrictions.¹⁰⁰

E. Protections Needed at the International Level

To be more effective, international agreements must include cooperative strategies that enable neighboring states to work together rather than direct individual states to pursue isolated initiatives in separate parts of the world.¹⁰¹ This may be accomplished by expanding the current understanding of international agreements. Furthermore, we must first expand our existing knowledge of international laws that protect turtles and how we can better enforce these existing laws.

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ SeaWorld/Busch Gardens, *Sea Turtles*, <http://www.seaworld.org/infobooks/SeaTurtle/sthabit.html> (2002) (last accessed Mar. 14, 2010).

⁹⁷ Hillestad et al., *supra* n. 59, at 493.

⁹⁸ *Id.*

⁹⁹ Roger L. Mellgren et al., *Habitat Selection in Three Species of Captive Sea Turtle Hatchlings* 259, <http://www.nmfs.noaa.gov/pr/pdfs/species/turtlesymposium1994.pdf> (Aug. 1994) (last accessed Mar. 14, 2010).

¹⁰⁰ Caribbean Conserv. Corp., *Survival*, *supra* n. 21.

¹⁰¹ Frazier, *supra* n. 43, at 19.

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It is also important to integrate international agreements into national policies, given the variety of habitats on which sea turtles depend. Cooperative strategies must also reflect an understanding of the biological nature of sea turtles, or the agreement as a whole will not effectively protect sea turtle populations.¹⁰² In addition, agreements must provide a survey method of coordinating nesting and migration routes and detailed information on known and suspected sea turtle areas.¹⁰³ These surveys should go beyond site-specific content and put forth comprehensive data that could increase global protection of sea turtle populations and establish a basis for international reserves.

Yet, perhaps the first step is to enhance sea turtle specialists' understanding of international wildlife law and the existing legal instruments that may be utilized to effectively conserve sea turtles. Indeed, experts suggest that utilizing what the law already provides for sea turtle protection would be more productive than simply rendering criticism about the law's shortcomings and failures.¹⁰⁴

A more productive means of formulating strategies for sea turtle protection consists of two components: comparing the effectiveness of the existing international agreements, and strengthening existing international wildlife laws that enact the protections granted by international agreements. Supporting government enforcement of both national and international laws that protect sea turtles, combined with increasing public awareness and efforts by authorities to address illegal exploitation and poaching could greatly increase the effectiveness of existing international agreements. Efforts must extend beyond conservationists protecting sea turtle environments and involve scientists, social scientists, legislators, politicians, governments, and community groups.

III. THE SHORTCOMINGS OF INTERNATIONAL AGREEMENTS RELEVANT TO SEA TURTLES

The international agreements that affect sea turtle conservation efforts unfortunately operate independently, with little coordination and cooperation between signatory states. These agreements range from multilateral legally binding agreements to non-binding Memoranda of Understanding to regional action plans. Binding agreements may involve exhaustive negotiations, followed by bureaucratic, political processes to implement the provisions of the agreement as the law of the respective country or countries.¹⁰⁵ On the other hand, non-bind-

¹⁰² David Ehrenfeld, *Options and Limitations in the Conservation of Sea Turtles*, in *Biology and Conservation of Sea Turtles* 458 (Karen A. Bjorndal ed., Smithsonian Inst. Press 1995).

¹⁰³ Stephen Shabica, *Planning for Protection of Sea Turtle Habitat*, in *Biology and Conservation of Sea Turtles* 516 (Karen A. Bjorndal ed., Smithsonian Inst. Press 1995).

¹⁰⁴ Frazier, *supra* n. 43, at 18–19.

¹⁰⁵ *Id.*

ing agreements are often simpler than their legally binding counterparts but do not carry the same level of obligations.¹⁰⁶ The most influential agreements are often incomprehensible to the conservationists working on the ground. This disconnect between the text of the law and the work of conservationists creates a strong barrier for the sea turtle conservation effort.¹⁰⁷

A. *Convention on Conservation of Migratory Species*

The Convention on Conservation of Migratory Species (CMS or Bonn Convention) was created to conserve terrestrial, marine, and avian migratory species throughout their ranges via conservation of the individual species and their respective habitats.¹⁰⁸ The CMS is an intergovernmental treaty and framework Convention within the United Nations Environment Programme that allows legally binding treaties and less formal non-legally binding Memoranda of Understanding.¹⁰⁹ In this sense, it functions as a means for signatory states to communicate with each other and create resolutions for the protection of migratory species such as sea turtles.¹¹⁰ As of February 2010, the CMS had 113 parties, including a range of African, Central and South American, Asian, European, and Oceanian countries.¹¹¹ These member parties are obligated to list migratory species threatened with extinction in Appendix I. They must also list, in Appendix II, migratory species that need or would significantly benefit from international cooperation, encouraging states to conclude global or regional agreements.¹¹² In terms of major obligations, the CMS, as a framework agreement, provides general guidelines and instructs the parties to establish additional binding or non-binding agreements.

By listing marine turtles in Appendixes I and II, the CMS reflects its flexibility to categorize a species as endangered (thereby fostering complex, formal agreements) and as benefiting from international cooperation (thereby fostering less formal, more flexible means of protection).¹¹³ The CMS can help forge critical partnerships between governments and omit the time-intensive bureaucracy associated with formal agreements. Countries such as Brazil, Canada, China, Indonesia, Japan, Mexico, Russia, and the United States are not parties to

¹⁰⁶ *Id.*

¹⁰⁷ Tiwari, *supra* n. 8, at 145–56.

¹⁰⁸ UN Env. Programme, *Introduction to the Convention on Migratory Species*, <http://www.cms.int/about/intro.htm> (last accessed Mar. 14, 2010).

¹⁰⁹ *Id.*

¹¹⁰ *CMS Treaty*, *supra* n. 6, at art. II(3).

¹¹¹ UN Env. Programme, *Introduction to the Convention on Migratory Species*, *supra* n. 108; UN Env. Programme, *Parties to the Convention on the Conservation of Migratory Species of Wild Animals*, http://www.cms.int/about/Partylist_eng.pdf (Feb. 1, 2009) (last accessed Mar. 3, 2010).

¹¹² UN Env. Programme, *Introduction to the Convention on Migratory Species*, *supra* n. 108; *CMS Treaty*, *supra* n. 6, at apps. I, II.

¹¹³ *CMS Treaty*, *supra* n. 6, at art. II (2), (3).

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the CMS parent agreement but can be signatory states and major funders of associated memoranda of understanding.

Yet ambiguity in the CMS weakens the overall agreement. For example, Article III of the CMS requires parties to prohibit the taking of Appendix I species (which includes “taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in such conduct”).¹¹⁴ However, four exceptions to the taking prohibition render this provision largely ineffective: (1) taking for scientific purposes, (2) taking to enhance the propagation or survival of the species, (3) taking to accommodate the needs of traditional subsistence users, and (4) taking where extraordinary circumstances require it.¹¹⁵ Furthermore, these exceptions create a range of problems: Undefined key phrases such as “traditional subsistence” and “extraordinary circumstances” provide vague limitations on party behavior. Parties must also “endeavor” to conserve and restore the habitats of the listed species, but only to the extent feasible;¹¹⁶ and parties are left without a clear sense of what the CMS requires or how to comply with its provisions.

B. CMS Memoranda of Understanding for Sea Turtles

Under the CMS, two Memoranda of Understanding (Memoranda) for sea turtles or “marine turtles” were created and adopted: *Marine Turtles-Africa* (July 1999)¹¹⁷ and *Marine Turtles-Indian Ocean-South-East Asian region* also known as *Marine Turtles-IOSEA* (September 2001).¹¹⁸ Both Memoranda aim to safeguard six species of sea turtle by associating each species with a “Conservation Plan” and small-scale project activities.¹¹⁹ In 2002, *Marine Turtles-Africa* produced the “Nairobi Declaration,” which focused on the establishment of a database of sea turtle ecology and the creation of a network to monitor and protect sea turtle nesting and feeding sites through collaboration with local communities.¹²⁰ The CMS, through *Marine Turtles-Africa*, provides

¹¹⁴ *Id.* at arts. I(1)(i), III(5).

¹¹⁵ *Id.* at art. III(5).

¹¹⁶ Cyrille de Klem, *The Problem of Migratory Species in International Law*, in *Green Globe Yearbook of International Co-operation on Environment and Development* 67–77 (Helge Ole Bergesen & George Parmann eds., Oxford U. Press 1994).

¹¹⁷ *Convention on the Conservation of Migratory Species of Wild Animals (CMS): First Meeting of Signatory States to the Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa*, 5(3) *J. Intl. Wildlife L. & Poly.* 269 (2002).

¹¹⁸ Philippe G. Le Presetre, *Conservation and Management Plan of the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia* 5(1) *J. Intl. Wildlife L. & Poly.* 199 (2002).

¹¹⁹ *Convention on Migratory Species, Marine Turtles-Africa*, http://www.cms.int/species/africa_turtle/AFRICAturtle_bkgd.htm (2004) (last accessed Apr. 28, 2010); NOAA Fisheries, Office of Protected Resources, *Indian Ocean-South-East Asian Marine Turtle Memorandum of Understanding (IOSEA)*, <http://www.nmfs.noaa.gov/pr/species/turtles/iosea.htm> (last accessed Apr. 28, 2010).

¹²⁰ UN Env. Programme, *Introduction to Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa* ¶¶ 4–5, <http://>

funding for the most comprehensive review of the status of sea turtles located along the Atlantic Coast as well as basic training and awareness materials.¹²¹ Even more ambitious, the CMS “Conservation and Management Plan” contained in the *Marine Turtles-IOSEA* created 24 programs and 105 specific activities that focus on the reduction of threats (including bycatch rates) and the conservation of critical sea turtle habitats throughout the region.¹²²

The Memoranda are “regional agreements” that do not attempt to provide specific rules for each member country. Instead, the Memoranda give Member States a “Conservation and Management Plan” containing a set of general guidelines to be followed by each state and measured by the state’s compliance report.¹²³ Unfortunately, regional agreements stand to lose effectiveness if they do not have a regional body to prescribe how, specifically, conservation programs will implement the Memorandas’ sea turtle conservation programs.¹²⁴ The *Marine Turtles-IOSEA* has a Secretariat,¹²⁵ and therefore more time and resources devoted to implementing the regional programs that comply with its guidelines. The *Marine Turtles-IOSEA* divided the entire region into four sub-regions and charged each with the task of initiating sea turtle programs.¹²⁶ As a result, the western Indian Ocean now has a Turtle Task Force that is slowly taking on responsibility for promoting conservation programs under IOSEA.¹²⁷ However, *Marine Turtles-Africa* does not have its own Secretariat; it only has CMS as the default Secretariat and a regional coordinating body with limited resources and limited experience.¹²⁸ As a result of not having time, resources, and expertise devoted to it, *Marine Turtles-Africa* has not produced clear conservation programs for sea turtles.¹²⁹ To become ef-

www.cms.int/species/africa_turtle/AFRICAturtle_bkgd.htm (last accessed Feb. 26, 2010).

¹²¹ *Id.* at ¶¶ 6–7.

¹²² UN Env. Programme, *Introduction: Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia*, http://www.cms.int/species/iosea/IOSEAturtle_bkgd.htm ¶ 6 (last accessed Apr. 2, 2010).

¹²³ *CMS Treaty*, *supra* n. 6, at art. V(5).

¹²⁴ Tiwari, *supra* n. 8, at 153.

¹²⁵ UN Env. Programme, *Introduction: Memorandum of Understanding*, *supra* n. 122, at ¶ 1.

¹²⁶ *Id.* at ¶ 5.

¹²⁷ S.L. Humphrey & R.V. Salm, *Status of Sea Turtle Conservation in the Western Indian Ocean* 19–20, Proceedings of the Western Indian Ocean Training Workshop and Strategic Planning Session on Sea Turtles, held at Sodwana Bay, South Africa, Nov. 12–18, 1995 (UNEP 1996).

¹²⁸ UN Env. Programme, *Introduction to Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa*, *supra* n. 120, at ¶ 1.

¹²⁹ Jacques Fretey et al., *Meeting Report: Fourth African Meeting at the 24th Annual Symposium on Sea Turtle Biology and Conservation* (San Jose, Costa Rica), 105 *Marine Turtle Newsletter* 12–13 (2004) (available at <http://www.seaturtle.org/mtn/archives/mtn105/mtn105p12.shtml> (last accessed Feb. 24, 2010)).

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fective at the national level, these agreements require a regional body with resources available to make sure that meaningful rules become applicable to all relevant parties.

C. *The Convention on International Trade in Endangered Species*

The Convention on International Trade in Endangered Species (CITES) is an international agreement that regulates the trade of wild animals and plants to make certain that the trade does not threaten their survival.¹³⁰ Under CITES, trade is controlled through a permit system that sets limits on the number of specimens of each species that may be taken, based upon an appendix system.¹³¹ In fact, all seven species of sea turtles are listed in CITES Appendix I as “threatened with extinction which are or may be affected by trade.”¹³² CITES Article III requires both import and export permits for the trade of any “specimen of a species”¹³³ listed in CITES Appendix I in order to certify: that the trade “will not be detrimental to the survival of that species”; the specimen was not obtained illegally; and that any living specimen will be “shipped as to minimize risk of injury, damage to health or cruel treatment.”¹³⁴ Sea turtles that are caught on the high seas only require an “introduction from the sea” permit for transporting the specimen into port, which demonstrates that the import was made for purposes that “are not detrimental to the survival of the species,” “the proposed recipient of a living specimen is suitably equipped to house and care for it,” and “the specimen is not to be used for primarily commercial purposes.”¹³⁵

CITES provides a tightly controlled monitoring system over the trade of sea turtle products. It regulates legal international commercial trade, and its international acceptance and enforcement provisions have helped halt the legal trade of sea turtles and their products.¹³⁶ Listing sea turtles in the most stringent category of Appendix I has effectively stopped all legal international commercial trade of sea turtles.¹³⁷ Indeed, trade in Kemp Ridley sea turtle eggs has been drastically reduced as a result of CITES.¹³⁸

Moreover, the incorporation of CITES provisions into national laws has made CITES an effective international conservation instrument due to national implementation of international law. In this way, CITES has become the primary legal means of controlling trade of wildlife because of broad support from countries that generate the

¹³⁰ *CITES*, *supra* n. 5, at preamble.

¹³¹ *Id.* at arts. III, IV, V.

¹³² *Id.* at art. II(1), App. I.

¹³³ *Id.* at art. III.

¹³⁴ *Id.* at art. III(2)(a)–(c), (3)(a).

¹³⁵ *Id.* at art. III(3), (5).

¹³⁶ Wold, *supra* n. 7, at 12.

¹³⁷ *Id.* at 26.

¹³⁸ Carol Ruckdeschel & C. Robert Shoop, *Sea Turtles of the Atlantic and Gulf Coasts of the United States* 76 (U. Ga. Press 2006).

most tourists. In addition, CITES has effectively enabled its member parties to take the appropriate measures to enforce the provisions of the convention.¹³⁹ Parties may impose sanctions or other punishments upon parties that do not comply and must designate ports of exit and entry where specimens must be presented for clearance to ensure that they pass through any formalities required for trade.¹⁴⁰

Although the strict guidelines and wide-reaching support mechanisms in CITES have helped curb the legal trade of turtle products, CITES does not provide for enforcement against illegal trade, habitat protection, or address the problem of bycatch. This leaves sea turtles overly exploited for eggs, meat, leather, and shells, subjected to habitat loss and degradation, and at risk of becoming accidental catch in fishing gear. In addition, CITES does not address enforcement issues in the illegal international trade of sea turtle species. Hawksbill sea turtles, for example, have not been positively affected by CITES because their shells are still illegally traded.¹⁴¹ The 2006 study by Trade Records Analyses of Flora and Fauna in Commerce (TRAFFIC) in the Dominican Republic revealed that 249 of 414 curio and souvenir shops and stalls were trading Hawksbill sea turtle products.¹⁴² By limiting its scope to international trade, CITES does not address many of the serious threats facing sea turtles.

CITES is also compromised because it allows parties to enter reservations on Appendix I species, exempting them from trade restrictions.¹⁴³ Parties who have entered reservations are encouraged to treat Appendix I species as an Appendix II species by monitoring and reporting trade but are not required to place any restrictions on trade of the species or to engage in any conservation measures. For example, Cuba and St. Vincent and the Grenadines currently have reservations on Hawksbill sea turtles, inhibiting the protection that these species receive under CITES.¹⁴⁴ In 1992, these countries were the only CITES parties to provide tortoiseshell or “bekko” (hawksbill turtle shell) to Japan, which had a corresponding reservation.¹⁴⁵ Moreover, trade records indicate that Japan legally imported a total of 641,531 kilograms of Hawksbill sea turtle shells from 1970 to 1986, more than half

¹³⁹ *CITES*, *supra* n. 5, at art. VIII(1).

¹⁴⁰ *Id.* at art. VIII(1), (3).

¹⁴¹ Ruckdeschel & Shoop, *supra* n. 138, at 106.

¹⁴² Adrian Reuter & Crawford Allan, *Tourists, Turtles and Trinkets: A Look at the Trade in Marine Turtle Products in the Dominican Republic and Colombia 3* (TRAFFIC 2006) (available at <http://www.traffic.org/search-publications>, search “Dominican Republic” (last accessed Mar. 14, 2010)).

¹⁴³ Phillippe Sands, *Principles of International Environmental Law I: Frameworks, Standards, and Implementation* 378 (Manchester U. Press 1995).

¹⁴⁴ Karen L. Eckert & Scott A. Eckert, *Tortoiseshell Trade: End of an Era?*, 66 *Marine Turtle Newsletter* 16–17 (1994) (available at <http://www.seaturtle.org/mtn/archives/mtn66/mtn66p16.shtml> (last accessed Mar. 10, 2010)).

¹⁴⁵ *Id.*

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of which originated from Caribbean and Latin American countries.¹⁴⁶ Fortunately, Japan has since dropped their reservation,¹⁴⁷ making it more difficult for countries with reservations to find a market. Unfortunately, the levels of trade in Hawksbill turtle products and trends in this trade are uncertain. As of 2007, Cuba, Palau, Suriname, Saint Vincent and the Grenadines, and Australia held reservations to various species of sea turtles.¹⁴⁸ In addition, evidence indicates that several CITES parties and non-parties continue to trade in wild sea turtle products despite their Appendix I listing.¹⁴⁹ Because parties may take reservations to sea turtle species' protections, several sea turtle populations remain unprotected from commercial trade.

In November 1994, the Conference of the Parties to CITES approved a set of guidelines governing regulations for a sea turtle ranching program¹⁵⁰ that may help or hinder sea turtle conservation. Sea turtle ranching differs from captive breeding under CITES because specimens are *continually* taken from the wild and reared in a controlled environment.¹⁵¹ Some proponents of sea turtle ranching programs maintain that these programs are able to alleviate the impact of illegal international trade on the overall sea turtle populations such as Hawksbill sea turtles.¹⁵² In theory, this type of program would allow trade only of ranched sea turtle populations, and unranched sea turtle populations would be afforded protection under Appendix I. However, the benefits of a sea turtle ranching program must be weighed against potential dangers of laundering illegal trade of sea turtles through legal ranching programs. Some parties are concerned that legal exports in general can encourage illegal trade because of the difficulties associated with distinguishing legal from illegal products.¹⁵³ In addition, sea turtle products such as shells can be stored easily for long periods of time and are so valuable that even the suggestion of reopening legal international trade of ranched populations can encourage fishermen to stockpile products from ranched and unranched populations just in

¹⁴⁶ CITES Secretariat, *Status of Trade in Hawksbill Turtles*, http://www.cites.org/eng/prog/HBT/bg/trade_status.shtml (last accessed Mar. 14, 2010).

¹⁴⁷ CITES Secretariat, *Reservations Entered by Parties*, <http://www.cites.org/eng/app/E070913.pdf> (last updated Sept. 13, 2007) (last accessed Mar. 14, 2010).

¹⁴⁸ *Id.*

¹⁴⁹ Agnese Mancini & Volker Koch, *Sea Turtle Consumption and Black Market Trade in Baja California Sur, Mexico*, 7 *Endangered Species Research* 1, 5 (May 2009).

¹⁵⁰ CITES Secretariat, *Res. Conf. 9.20: Guideline for Evaluating Marine Turtle Ranching Proposals Submitted Pursuant to Resolution Conf. 11.16 (Rev. CoP14)*, <http://www.cites.org/eng/res/all/09/E09-20R10.pdf> (last accessed Apr. 2, 2010) [hereinafter CITES Secretariat, *Res. Conf. 9.20*].

¹⁵¹ CITES Secretariat, *Res. Conf. 11.16: Ranching and Trade in Ranched Specimens of Species Transferred from Appendix I to Appendix II*, <http://www.cites.org/eng/res/all/11/E11-16R14.pdf> (last accessed Apr. 2, 2010) [hereinafter CITES Secretariat, *Res. Conf. 11.16*].

¹⁵² CITES Secretariat, *Proposal 11.41 to COP11 Concerning the Export of E. imbricata Shell Derived from Cuban Waters*, <http://www.cites.org/eng/cop/11/prop/41.pdf> (last accessed Mar. 14, 2010).

¹⁵³ *Id.* at § C(4.1.2).

case the markets reopen and, therefore, create opportunities for illegal trade.¹⁵⁴ It is the threat of fostering the illegal trade through the ranching program that could be problematic.

Under these guidelines, countries interested in sea turtle ranching submit proposals to list their sea turtle populations on Appendix II of CITES. Proposals are then voted on by two-thirds of the parties to the CITES Convention.¹⁵⁵ If approved, those countries could then trade ranched turtle products, subject to certain guidelines.¹⁵⁶ The guidelines also require the establishment of positive conservation benefits before a given sea turtle population may be ranched.¹⁵⁷ If the guidelines are not followed, a population can be re-listed on the more stringent Appendix I.¹⁵⁸ To date, all proposals to ranch sea turtles for legal international trade have been rejected, but some delegates maintain that these specific guidelines allowing for proposals are necessary to address the practical constraints of sea turtle conservation and the need for regional management.¹⁵⁹ Benefits of a sea turtle ranching program must be weighed against the potential danger of compromising protection for wild, unranching populations.

D. Inter-American Convention for the Protection and Conservation of Sea Turtles

The Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC) is the only international agreement that was created exclusively for sea turtles.¹⁶⁰ It aims to conserve six species of sea turtles: Loggerhead, Green, Leatherback, Hawksbill, Kemp's Ridley, and Olive Ridley.¹⁶¹ The IAC promotes the protection and conservation of these six species, as well as their habitats, by taking environmental, socioeconomic, and cultural characteristics (or needs) of the parties involved into account.¹⁶² Indeed, the IAC is designed to

¹⁵⁴ Karen A. Bjorndal, *Conservation of Hawksbill Sea Turtles: Perceptions and Realities*, *Chelonian Conservation and Biology* 3(2):174-76 (1999).

¹⁵⁵ James Perran Ross, *C.I.T.E.S. Approves Marine Turtle Ranching Guidelines*, 69 *Marine Turtle Newsletter* 1-2 (1995) (available at <http://www.seaturtle.org/mtn/archives/mtn69/mtn69p1.shtml> (last accessed Mar. 7, 2010)).

¹⁵⁶ CITES Secretariat, *Res. Conf. 9.20*, *supra* n. 150, at 1.

¹⁵⁷ *Id.*

¹⁵⁸ CITES Secretariat, *Res. Conf. 11.16*, *supra* n. 151, at 4 (CITES Standing Committee can request that the country prepare a proposal to transfer the ranching population back to the wild and Appendix I.).

¹⁵⁹ Ross, *supra* n. 155.

¹⁶⁰ *Inter-American Convention for the Protection and Conservation of Sea Turtles, Introductory Remarks*, <http://www.seaturtle.org/iac/intro.shtml> (1998) (last updated 2003) (last accessed Apr. 3, 2010).

¹⁶¹ *Inter-American Convention for the Protection and Conservation of Sea Turtles*, *supra* n. 14, at Annex I.

¹⁶² *Id.* at art. II.

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address the domestic use of sea turtles while allowing for “subsistence use” of this animal.¹⁶³

Several distinct elements of the IAC render it an extremely broad agreement. The IAC addresses issues that other wildlife protection agreements tend to avoid. First, the IAC addresses scientific research on sea turtle habitat conservation, management, and subsistence use.¹⁶⁴ Second, the IAC promotes experimental efforts that may enhance sea turtle populations such as experimental reproduction, raising, and re-introduction of sea turtles into their habitats.¹⁶⁵ In fact, the IAC habitat-conservation provisions call for the protection, conservation, and restoration of sea turtle habitats and nesting areas, as well as the imposition of restrictions on use of such zones.¹⁶⁶ Annex II of the IAC gives boundaries to these protected zones¹⁶⁷ and requires detailed assessments of environmental impacts caused by marine and coastal development activities, manages the use of beaches, and establishes insulated areas for sea turtles.¹⁶⁸ However, it is not clear whether these experiments refer to captive breeding, ranching programs, or any scientific research that enhances sea turtle conservation in general.

In an effort to become more cooperative with traditional communities, the IAC allows for the incidental take of sea turtles in order to satisfy the economic and subsistence needs of these communities.¹⁶⁹ This provision is premised on the idea that more states will sign on to the IAC if the IAC permits communities to domestically harvest and consume sea turtles in accordance with traditional subsistence needs.¹⁷⁰

In order to increase effectiveness, the IAC attempted to incorporate input from sea turtle conservationists and other international agreements. For example, during post-1995 negotiations, sea turtle specialists provided a detailed analysis of the draft Convention and recommendations for further development of the treaty.¹⁷¹ The specialists then presented delegates with their results and recommendations during the 1996 symposium on sea turtle conservation.¹⁷² In addition, the IAC requires compliance with CITES as part of Article IV

¹⁶³ Dept. of State, *Letter of Submittal*, <http://www.seaturtle.org/iac/secstate.shtml> (July 16, 1997) (last accessed Apr. 3, 2010).

¹⁶⁴ *Inter-American Convention for the Protection and Conservation of Sea Turtles*, *supra* n. 14, at art. IV(1)–(3).

¹⁶⁵ *Id.* at art. IV(2)(f).

¹⁶⁶ *Id.* at art. IV(2)(c)–(d).

¹⁶⁷ *Id.* at art. IV(2)(d).

¹⁶⁸ *Id.* at annex II.

¹⁶⁹ *Id.* at art. IV(3)(a).

¹⁷⁰ Dept. of State, *supra* n. 163, at *Letter of Submittal*.

¹⁷¹ Jack Frazier, *Guest Editorial: Inter-American Convention for the Protection and Conservation of Sea Turtles*, 78 *Marine Turtle Newsletter* 7, 8 (1997) (available at <http://www.seaturtle.org/mtn/archives/mtn78/mtn78p7.shtml> (last accessed Mar. 14, 2010)).

¹⁷² *Id.* at 9.

measures¹⁷³ and mandates that parties prepare annual reports to ensure compliance with the programs they have adopted to protect sea turtles and their habitats.¹⁷⁴

As part of its principle of sustainable use of fisheries' resources, the IAC uniquely requires shrimp trawler vessels to use turtle excluder devices (TEDs) on their nets. TEDs were designed to address incidental captures and mortality rates of sea turtles during shrimp-ing.¹⁷⁵ A TED is composed of a grid of bars that has an opening near the top or bottom of the trawl net.¹⁷⁶ As sea turtles are captured in the trawl, they strike these grid bars and are guided towards the opening, while shrimp pass through to the net.¹⁷⁷ They were developed by the National Oceanic and Atmospheric Administration (NOAA) and the United States Department of State,¹⁷⁸ and there are currently comparable programs in approximately fifteen countries.¹⁷⁹ Relative to all fishing efforts, TEDs are effective conservation measures and have the potential to reduce sea turtle mortality by 97% by addressing the threats posed by shrimp trawling.¹⁸⁰

Although TEDs are generally effective at reducing sea turtle by-catch rates, their use is not foolproof.¹⁸¹ These devices are only required for larger shrimp trawlers operating within the IAC's area, and other fishing activities must only be regulated to reduce incidental take of sea turtles "to the greatest extent practicable."¹⁸² As previously noted, it is often the small-scale fisheries using smaller boats, not bound to use TEDs or any other devices, that have the greatest effect on the incidental catch of sea turtles.¹⁸³ In addition, even with these devices, sea turtles can still be prevented from reaching the surface

¹⁷³ *Inter-American Convention for the Protection and Conservation of Sea Turtles*, *supra* n. 14, at art. IV(2)(b).

¹⁷⁴ *Id.* at art. XI(1).

¹⁷⁵ Natl. Oceanic and Atmospheric Administration, *Turtle Excluder Devices (TEDs)* ¶ 2, <http://www.nmfs.noaa.gov/pr/species/turtles/teds.htm> (last accessed Mar. 14, 2010).

¹⁷⁶ *Id.* at ¶ 2.

¹⁷⁷ *Id.*

¹⁷⁸ 50 CFR § 223.206 (2008) (available at http://www.nmfs.noaa.gov/pr/pdfs/fr/ted_regulations.pdf (Oct. 1, 2008) (last accessed Feb. 26, 2010)).

¹⁷⁹ Natl. Oceanic and Atmospheric Administration, *supra* n. 175; Natl. Oceanic and Atmospheric Administration, *Shrimp Embargo Legislation for Marine Turtle Conservation*, <http://www.nmfs.noaa.gov/pr/species/turtles/teds.htm> (last updated 2009) (last accessed Mar. 14, 2010) (Nations that seek to import shrimp into the U.S. must be certified to meet the requirements of P.L. 101-162 § 609 on an annual basis.).

¹⁸⁰ Peter A. Fugazzotto, *Turtle Excluder Devices: Good for Sea Turtles, Good for People, and Good for Business*, <http://www.arbec.com.my/sea-turtles/art31julysept01.htm> (last accessed Mar. 14, 2010).

¹⁸¹ Natl. Oceanic and Atmospheric Administration, *Fisheries Interactions/Protected Species Bycatch*, <http://www.nmfs.noaa.gov/pr/interactions> (last accessed Mar. 14, 2010).

¹⁸² *Inter-American Convention for the Protection and Conservation of Sea Turtles*, *supra* n. 14 at arts. III, IV(2)(h).

¹⁸³ Stephens, *supra* n. 22.

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and thus die from suffocation or shock.¹⁸⁴ It is also possible for an individual sea turtle to perish from the stress and exhaustion of being repeatedly caught and released from the nets.¹⁸⁵ In addition, sea turtles effectively escaping the nets may be hindered if TEDs are not installed properly.¹⁸⁶ Though an effective tool for sea turtle conservation, TEDs still have drawbacks.

While the IAC displays many strengths, some of its merits are also limitations. For example, the IAC makes an attempt to involve as well as appease local populations, which reduces its effectiveness as an *international* agreement for sea turtle conservation. Though it tries to incorporate local subsistence needs, it is challenging to determine at what level sea turtles can be sustainably used given their unique biological patterns.¹⁸⁷ In addition, allowing each party to make exceptions “to satisfy economic subsistence needs of traditional communities” does not include a definition of important terms such as “traditional” and “subsistence.”¹⁸⁸ Therefore, it can be difficult to determine where the line is drawn for the taking of sea turtles to become “a source of income beyond the subsistence needs of traditional communities,”¹⁸⁹ and this lack of clarity has proven to be destructive.¹⁹⁰ Parties are not provided with clear lines that distinguish “subsistence” from “commercial” hunting methods, and because of this some parties are allowed “legal” take although they have not complied with these terms of the IAC.¹⁹¹ This has been particularly problematic in Costa Rica, where traditional subsistence hunting has been replaced by mass harvesting of sea turtles for high profits.¹⁹² Although the IAC attempts to involve local communities, it is unclear what involvement is entailed. Instead, the IAC merely encourages communities to adopt the objective of protecting and conserving sea turtles and their habitats without providing a framework to accomplish this objective.

Moreover, the IAC’s efforts at international and community outreach are limited by an overall lack of participation. Only a small number of individuals participated in negotiating the IAC, and only

¹⁸⁴ Marydele Donnelly, *Trawl Fishing Threatens Loggerheads*, <http://www.cccturtle.org/velador.php?page=velart80> (2008) (last accessed Mar. 14, 2010).

¹⁸⁵ *Id.*

¹⁸⁶ Charles A. Oravetz, *Development of Turtle Excluder Devices (TEDs) and their Potential Applicability to ASEAN Nations*, <http://www.arbec.com.my/sea-turtles/art32julysept01.htm> (2001) (last accessed Mar. 14, 2010).

¹⁸⁷ Ehrenfeld, *supra* n. 102, at 459.

¹⁸⁸ *Inter-American Convention for the Protection and Conservation of Sea Turtles*, *supra* n. 14, at art. IV(3)(a).

¹⁸⁹ L.M. Campbell, *Use Them or Lose Them? The Sustainable Use of Marine Turtle Eggs at Ostional, Costa Rica*, 24 *Environmental Conservation* 305, 306 (1998).

¹⁹⁰ Ehrenfeld, *supra* n. 102, at 461.

¹⁹¹ Cindy Taft, *Struggle to Strengthen Sea Turtle Protection in Costa Rica*, <http://www.cccturtle.org/velador.php?page=velart15> (1998) (last accessed Mar. 14, 2010).

¹⁹² *Id.*

thirteen countries have signed it into force.¹⁹³ Practically speaking, the IAC's ability to facilitate sea turtle conservation is dependent upon domestic legislation reflecting the agreement. For example, a sea turtle may nest in Costa Rica but spend its juvenile years in the waters of Panama and spend other parts of its life transiting the waters of a dozen Caribbean countries. Without protection throughout the region, the efforts to protect nesting beaches in one country are undermined by fishing without TEDs in another. In this sense, a lack of participation indicates that the IAC currently does not have the support and effect that CITES has, where countries cooperatively work together to coordinate turtle conservation efforts.

Additionally, the IAC's provisions governing habitat protection are too vague. For example, obligations to protect habitat merely allow for establishing protected areas "to the greatest extent practicable."¹⁹⁴ This makes protecting a migratory species very difficult. For example, the Green turtle receives a high degree of protection in Costa Rica, where vast amounts of land are devoted to protecting nesting sites, only to travel to Nicaragua, where very little habitat is protected and they face grave danger at the hands of the commercial fishing industry.¹⁹⁵ In general, the IAC is lacking in obligations specific enough to conserve habitat in a coordinated way at the regional level.

E. Conclusion

Despite the best protections offered by the provisions of the CMS, CITES, and the IAC, sea turtle conservationists are left wondering why they have not successfully protected sea turtles when working in conjunction with one another. Are agreements such as CITES and the CMS meant to be complementary since the former addresses the very specific threat of international trade while the latter addresses the conservation of sea turtles domestically? If so, why have they not worked to restore sea turtle populations? Is it possible for each to overcome its individual weaknesses and work together with other agreements to conserve a given species?

The Humane Society of the United States has proposed establishing a more formal link between CITES and the IAC so parties to both may "cooperate to share information and reinforce resolutions to maximize sea turtle protection efforts."¹⁹⁶ However, the difficulty of establishing formal links between large international instruments like

¹⁹³ Humane Socy. Intl., *Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC)*, http://www.hsus.org/hsi/policy_and_trade/treaties/interamerican_convention_for_the_protection_and_conservation_of_sea_turtles (last updated Jan. 31, 2008) (last accessed Feb. 24, 2010).

¹⁹⁴ *Inter-American Convention for the Protection and Conservation of Sea Turtles*, *supra* n. 14, at annex II.

¹⁹⁵ Press Release, Wildlife Conserv. Socy., *Sea Turtles Protected in Costa Rica are Killed in Nicaragua* (Jul. 26, 2005) (available at http://news.mongabay.com/2005/0726-wcs-sea_turtles.html) (last accessed Mar. 14, 2010).

¹⁹⁶ Humane Socy. Intl., *supra* n. 193.

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these has left them addressing threats to sea turtles separately rather than cooperatively.

Although each agreement has positively impacted sea turtle conservation, they have also left crucial threats unaddressed. Furthermore, these instruments are not as comprehensible to sea turtle biologists and conservationists as they could be. They do not adequately create a niche for local conservation strategies proven to be beneficial to sea turtles.

IV. THE EUROPEAN COMMUNITY HABITATS DIRECTIVE

The European Community's (EC) Habitats Directive (Directive) is legislation born out of a general interest in the protection and improvement of environmental quality, including "conservation of natural habitats and of wild fauna and flora."¹⁹⁷ It was derived from the EC's obligation under the Bern Convention (the Convention on the Conservation of European Wildlife and Natural Habitats)¹⁹⁸ and their own European Community Biodiversity Strategy. Unlike the CMS, CITES, and the IAC, the Directive goes a long way toward protecting migratory species. Although it does not focus on migratory species as a distinct class, it specifies a network of habitats for conservation, or Special Areas of Conservation (SACs), collectively known as the Natura 2000.¹⁹⁹ A species has to be listed under the Natura 2000 program to be eligible for protection. The area of each SAC is based on available scientific information to ensure that SACs for migratory species contain "physical or biological factors essential to their life and reproduction."²⁰⁰ Member States designate these special areas to be added to Natura 2000 to form a network of protected natural habitats.

The Natura 2000 system is designed to provide an ecological network of special conservation areas that enable maintenance of habitat types in their natural range.²⁰¹ It does this by listing habitat types, habitats, and species in Annexes. Habitat types of "Community interest" (those proposed by the Commission and adopted by the Council) are listed in Annex I and areas of habitat. Annex III sets out criteria for designating the SACs. It is the duty of the network to "maintain or restore, at favorable conservation status, natural habitats and species of wild flora and fauna of Community interest"²⁰² and "to contribute towards ensuring biodiversity through the conservation of natural habitats."²⁰³ Natural habitats are terrestrial or aquatic areas distinguished by geographic, abiotic, and biotic features, whether entirely

¹⁹⁷ *Directive*, *supra* n. 16, at preamble.

¹⁹⁸ *Convention on the Conservation of European Wildlife and Natural Habitats*, European T.S. No. 104 (Sept. 19, 1979) (available at <http://conventions.coe.int/Treaty/en/Treaties/Html/104.htm>) (last accessed Mar. 14, 2010)).

¹⁹⁹ *Directive*, *supra* n. 16, at art. 3(1).

²⁰⁰ *Id.* at art. 4(1).

²⁰¹ *Id.* at art. 3.

²⁰² *Id.* at art. 2.

²⁰³ *Id.*

natural or semi-natural.²⁰⁴ Natural habitat types of Community interest are those that are in danger of disappearance in their natural range, have a small natural range following their regression or by reason of their intrinsically restricted area, or present outstanding examples of typical characteristics of one or more of five biogeographical regions: Alpine, Atlantic, Continental, Macaronesian, and Mediterranean.²⁰⁵ Priority natural habitat types are defined as “natural habitat types in danger of disappearance . . . and for the conservation of which the Community has particular responsibility.”²⁰⁶

Ultimately, the protection of species and habitat types is left up to the Member States and the Commission. Species are proposed by the Commission, adopted by the Council, and listed in Annex II or IV. Species of “community interest” (endangered, vulnerable, rare, or endemic)²⁰⁷ are listed in Annex II and/or Annex IV or V.²⁰⁸ Annex IV includes species that are in need of special protection—for example, Loggerhead sea turtles.

The ecological benefits of the network depend on the site selection procedures used by Member States, which are very specifically regulated. In the first stage, the Member States prepare a list of sites based on Annex III criteria.²⁰⁹ The Commission then adopts a list of nationally selected sites based upon recommendations from national authorities and Member States to classify the sites as part of the network as soon as possible. It is particularly beneficial that the initial selection of sites is entirely scientific and does not take social or economic considerations into account, unlike agreements such as the CMS.²¹⁰ Once a site is designated by an individual Member State, if that site meets Annex III criteria or hosts a priority habitat or species, it is included without further consideration of other factors. This distinguishes the Directive from most international agreements in that there is a specific, scientific process for initial protection of habitats without exceptions made for compromises. The fact that science is embedded in these site listing criteria could be one of the reasons why sea turtle conservationists and biologists have given the Directive such a positive evaluation.²¹¹ It contains more clarity for those working with the legislation.

A. *Special Application to Marine Species*

The Directive automatically applies to marine habitats and species in territorial waters, and application can also extend into the 200 nautical mile zone (the Exclusive Economic Zone, also known as the

²⁰⁴ *Id.* at art. 1.

²⁰⁵ *Directive, supra* n. 16, at art. 1.

²⁰⁶ *Id.* at art. 1(d).

²⁰⁷ *Id.* at art. 1(g).

²⁰⁸ *Id.* at art. 3(1).

²⁰⁹ *Id.* at art. 4(1).

²¹⁰ *Commission v. France (Seine Estuary)* [1999] ECP I-1719, ¶ 25.

²¹¹ Tiwari, *supra* n. 8.

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EEZ) if a member state exerts sovereign rights in an EEZ and is therefore competent to enforce national laws in that area.²¹² This practice was upheld and even furthered by the High Court of the United Kingdom, which stated the Directive's goals could only be met if its protections were extended up to 200 nautical miles from the baselines from which the territorial sea is measured for the United Kingdom's continental shelf.²¹³

The High Court's decision has major implications for marine species under the UK's jurisdiction because the Directive extends out to a state's EEZ and to the continental shelf. The High Court of the United Kingdom held in one case, *Greenpeace II*, that the restrictions the UK government placed on the application of the Directive by limiting its application to the territorial sea were invalid as they were in breach of European Union law.²¹⁴ The court held they should apply in the full range of the UK's jurisdictional waters, namely the Exclusive Fishing Zone and Continental Shelf.²¹⁵

Greenpeace II has implications for managing oil and gas activities as well as oil pollution, and expands a country's ability to designate special areas of conservation. For example, Germany recently proposed 30% of its EEZ as a special area of conservation, which will afford species in that area special protection under the Directive.²¹⁶ In addition, in 2007 the UK designated the first offshore sites as special areas of conservation with the Darwin Mounds.²¹⁷ Further, new Member States, such as Poland, Estonia, and Lithuania, have designated even more offshore sites for conservation due to the accession demands. There have even been a few porpoise-specific SACs established by the Member States,²¹⁸ although none for sea turtles just yet. However, the ability to designate areas within a state's EEZ as protected habitat for other species can indirectly offer protection to species such as sea turtles because of their migratory nature.

In addition, there are some special obligations associated with Annex IV species such as Loggerhead sea turtles. Member States must

²¹² Comm. of the European Communities, *Communication from the Commission to the Council and the European Parliament: Fisheries Management and Nature Conservation in the Marine Environment*, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:1999:0363:FIN:EN:PDF> (July 14, 1999) (last accessed Feb. 24, 2010).

²¹³ *The Queen v. The Secretary of State for Trade and Industry ex parte Greenpeace Limited* ("Greenpeace II") QB (Nov. 5, 1999).

²¹⁴ *Id.*

²¹⁵ *Id.* at 3, 26.

²¹⁶ Soren Anker Pederson, *Managing Fisheries in Marine Protected Areas*, <http://www.ices.dk/marineworld/protectedAreas.asp> (last accessed Feb. 25, 2010).

²¹⁷ Joint Nature Conserv. Comm., *Darwin Mounds Proposed Special Area of Conservation*, <http://www.jncc.gov.uk/PDF/comm02P10.pdf> (June 2002) (last accessed Mar. 14, 2010).

²¹⁸ Eunice Pinn, Joint Nature Conservation Comm., *Threshold for Designation of Special Areas of Conservation for Harbour Porpoise and Other Highly Mobile, Wide Ranging Marine Species*, http://www.jncc.gov.uk/pdf/JNCC_P10Sept08Annex1_amendedFeb09.pdf (Feb. 2009) (last accessed Feb. 23, 2010).

take the requisite measures to establish a system of strict protection for the species listed in Annex IV(a) in their natural range. This entails prohibiting all forms of deliberate capture or killing of these species in the wild: deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation, and migration; deliberate destruction or taking of eggs from the wild; and deterioration or destruction of breeding sites or resting places.²¹⁹ Special designation in one of the Directive's annexes can protect vulnerable species such as sea turtles from intentional harvesting and hunting, and potentially even disturbance of their habitat for development. Unfortunately, Article 12 does not address any specific obligations associated with unintentional killings but only specifically addresses *deliberate* disturbance.²²⁰

Yet the Directive has laid a framework for Member States to protect areas crucial to breeding and migration, as well as to take steps towards addressing bycatch issues, or unintentional killing in fisheries. The Directive states that "Member States shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV(a)" and "shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant impact on the species concerned."²²¹ One example of a species listed in Annex IV(a) is the Loggerhead sea turtle, which is the only sea turtle listed. This provision establishes some framework for Member States to address incidental catches of marine species within their jurisdiction.

B. Additional Restrictions and Obligations for Member States

The Directive provides clear and unequivocal obligations for the Member States. They must conserve species and natural habitats and protect species by regulating their harvest. This distinguishes the Directive from international agreements because it provides for obligations based on science, which must be followed by Member States. Natural habitats must be maintained in a "favorable conservation status,"²²² and the Directive lists a series of science-based conditions explaining what this means and what Member States *must* do.²²³ Conditions indicating that the conservation status of a habitat is favorable include signs that its natural range and areas within that range are stable or increasing, signs that the specific structure and functions necessary for its long-term maintenance are likely to exist for the foreseeable future, and signs that the conservation status of its typical species may be accomplished through viable populations.²²⁴ A

²¹⁹ *Directive, supra* n. 16, at art. 12(1)

²²⁰ *Id.* at art. 12.

²²¹ *Id.* at art. 12(4).

²²² *Id.* at art. 2.

²²³ *Id.* at annex III.

²²⁴ *Id.* at art. 1(e).

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SAC only becomes official once its relevant conservation measures are in place.²²⁵

Member States must additionally adopt conservation measures and prevent the deterioration of natural habitat, which includes placing restrictions on development projects.²²⁶ This requirement is where most of the Directive's strength lies. Member States are required to formulate management plans specifically designed for sites, such as turtle nesting areas, and they must take precautionary measures to avoid the deterioration of natural habitats. In addition, states are required to carry out an assessment plan for projects that can have a significant effect on a SAC.²²⁷ Conservation plans may include positive measures such as altering habitat, or negative measures, such as creating prohibitions.²²⁸ The Directive is a feasible program because its provisions require strict implementation. First, Member States are legally bound to bring into force the laws, regulations, and administrative provisions necessary to comply with the Directive within two years of its notification.²²⁹ Second, the Directive provides financial assistance to Member States to offset the costs of reporting requirements.²³⁰ Third, it provides a means for non-governmental organizations (NGOs) to make sure its provisions are enforced, which is evidenced by how heavily the Directive has been litigated.

*C. The Directive in the European Court of Justice:
Commission v. Greece*

In 2002, the Commission brought *Commission v. Greece* due to a concern regarding tourist activities, noise, beach use, and construction during incubation and hatching periods at Loggerhead sea turtle nesting sites in the Bay of Laganas, Zakynthos, Greece, which happens to be one of the most important Loggerhead sea turtle breeding areas within the Mediterranean region.²³¹ In fact, the Loggerhead sea turtle species is listed in Annex II(a) of the Directive as a species of Community interest whose conservation requires its habitat to be designated as a Special Area of Conservation, and in Annex IV(a) as an animal of the EC interest in need of special protection.²³² Article 12(1) of the Directive provides that, for species listed in Annex IV(a), Member States are to take the requisite measures to establish a system of strict protection by prohibiting all forms of deliberate capture or killing; deliberate disturbance, particularly during the period of breeding, rear-

²²⁵ Directive, *supra* n. 16, at arts. 1(1), 4(4).

²²⁶ *Id.* at art. 6(1), (2).

²²⁷ *Id.* at art. 6(3).

²²⁸ *Id.* at arts. 1(a), 6(1)–(3).

²²⁹ *Id.* at art. 23(1).

²³⁰ *Id.* at art. 8(3).

²³¹ Case note, Case C-103/00 *European Commission v. Greece*, European Court of Justice, <http://curia.europa.eu/juris/cgi-bin/form.pl?lang=EN> (2002).

²³² Directive, *supra* n. 16, at annexes II(a), IV(a).

ing, hibernation and migration; and deterioration or destruction of breeding sites or resting places.²³³

The Directive required Greece to create a system of protection in 1994, two years after the notification to comply with the Directive in June 1992.²³⁴ The court found Greece's legislation inadequate, even though it had introduced some measures for the protection of turtles, and that it was implemented too late to satisfy Greece's obligations under the Directive.²³⁵ The court found violations under Article 12 because the migration of baby turtles had been impeded by the presence of mopeds, small boats, and illegal buildings, and this created serious implications for the species.²³⁶ The court investigated how these specific activities impacted the laying period, the incubation period and the hatching of the eggs, the baby turtles' migration to the sea, and the life and physical well-being of the turtles.²³⁷ It followed that under Article 12(1)(b) of the Directive, certain activities constituted a deliberate disturbance of the species in question during its breeding period and were likely to lead to the deterioration or destruction of the breeding site within the meaning of Article 12(1)(d) of the Directive.²³⁸ The court thus concluded that Greece had not taken all the requisite measures to prevent the deliberate disturbance of the turtles during their breeding period, and had engaged in activities leading to the deterioration or destruction of breeding sites.²³⁹

While environmentalists have praised this ruling, the Commission did not take action until four years after Greece was supposed to implement its obligations under the Directive. Furthermore, it took a significant amount of action from NGOs to motivate the Commission to take action.²⁴⁰ Also, as with many pieces of legislation, the EC is often lacking in the resources to enforce the Directive.

D. Criticism

The only exemption from Natura 2000 lies within Article 6(4) for projects that must be carried out for "imperative reasons of overriding public interest."²⁴¹ This includes economic or social reasons, such as allowing Member States to build roads and undertake other infras-

²³³ *Id.* at art. 12(1).

²³⁴ *Commission of the European Communities v. Hellenic Republic*, Judgment of the Court, Case No. C-103/00, ¶ 6, (Ct. of Just. of the European Union, Sixth Chamber, Jan. 30, 2002) (available at <http://curia.europa.eu/jurisp/cgi-bin/form.pl?lang=EN>; *select* List Case Number, *select* C-103/00, *select* Submit, *select* C-103/00 Judgment (last accessed Feb. 26, 2010)).

²³⁵ *Id.* at ¶¶ 26, 30.

²³⁶ *Id.* at ¶¶ 32, 41.

²³⁷ *Id.* at ¶ 34.

²³⁸ *Id.* at ¶¶ 34, 38.

²³⁹ *Id.* at ¶ 39.

²⁴⁰ *Commission of the European Communities v. Hellenic Republic*, Judgment of the Court, Case No. C-103/00, ¶ 7 (2002).

²⁴¹ Directive, *supra* n. 16, at art. 6(4).

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structural projects in areas already designated as protected sites.²⁴² This is distinguished from the initial process of site designation, which does not take social or economic factors into account.²⁴³ These “imperative” projects can occur on a site after it has already been designated if there are no alternative solutions.²⁴⁴ Even in light of this exception, a Member State must still take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected.²⁴⁵ This is a crucial difference between the Directive and earlier EU legislation like the Birds Directive in that there is room to justify certain projects going forward in protected areas.

This exception stems from Article 6(4) being read in conjunction with Article 6(3). Unfortunately, the inclusion of a site into the network Natura 2000 does not, a priori, exclude its future use.²⁴⁶ Article 6 was introduced to mitigate the equivalent provision in the Birds Directive, which was stricter on activities in protected areas. Article 6 therefore tries to balance ecological considerations against development needs. Article 6(3) generally discourages plans and projects (which are undefined) unless subject to an appropriate assessment.²⁴⁷ Article 6(4) allows such projects to go ahead anyway, provided that the Member State can demonstrate exigent circumstances.²⁴⁸

The crucial question is what are “imperative reasons of overriding public interest” and what does this mean for sea turtles? The Commission has generally narrowed these projects to those that will alleviate unemployment, promote the global competitiveness of the EU, or have a major infrastructure issue. This will primarily affect the placement of turtle habitats. Offshore SACs are likely to be placed in major industrial areas, such as a fishing ground, oil-rich locations, or an area of naval/shipping importance. It is possible that these circumstances will be invoked more frequently than land-based issues.

In addition, although Member States must monitor incidental capture, the Directive does not offer solutions to the issue of bycatch or provide for conservation of marine ecosystems in general. The Commission has responded by stating that management actions should account for effects on marine ecosystems, even if their details are not well understood.²⁴⁹ The Commission has also recognized that some habitats not specifically mentioned in the Directive may deserve special consideration given the level of fishing activities.²⁵⁰ Yet this still

²⁴² *Id.*

²⁴³ *Id.*

²⁴⁴ *Id.* at art. 6(4).

²⁴⁵ *Id.*

²⁴⁶ *Id.* at art. 6(3).

²⁴⁷ *Directive, supra* n. 16, at art. 6(3).

²⁴⁸ *Id.* at art. 6(4).

²⁴⁹ European Communities, *Fisheries and the Environment*, Bulletin EU3-2001, <http://europa.eu/bulletin/en/200103/p103134.htm> (Nov. 27, 2001) (last accessed Mar. 14, 2010).

²⁵⁰ *Id.*

leaves provisions within the Directive geared towards unintentional killing in fisheries largely symbolic. In addition, only having one species of sea turtles listed leaves several other species present or temporarily resident in EU waters unprotected.

The Directive itself primarily focuses on “landscape[s]” and “land-use planning” but not on marine environments.²⁵¹ Until May 2007 there was no guidance on how the Directive should operate in a marine setting, and until *Greenpeace II* there was great leeway to avoid such commitments in offshore areas—where by-catches are most likely to occur. This leaves the incidental mortality of sea turtles a serious issue, especially in the Mediterranean Sea and Spanish waters.

In addition, the wording of Article 4(1) of the Directive has hindered the establishment of SACs for many species because it requires the Member States to produce considerable information about areas of importance to the life and reproduction of the species.²⁵² For a species such as a turtle, with a wide migratory range, providing enough data under Article 4(1) can be very challenging because scientific documentation of its life cycle is so limited and takes so long to gather. In addition, the Commission has not truly provided an indication of what type of data it is looking for. And for those species for which the Commission has established criteria, it is unclear whether species-specific criteria can apply to other species and whether other factors can be taken into account. It can be extremely difficult to provide the type of data required to promote species-specific SACs in general.

The Habitats Directive, in many ways, still lacks the ability to reduce marine pollution and mitigate detrimental fishing practices. For example, the specific designation of Annex IV species should warrant specific procedures and conservation measures aligned with specificity located elsewhere in the legislation, such as site designating criteria. In addition, the Directive does not seem to cover designating sites that involve more complex ecological processes, such as incubation and nesting sites for sea turtles. These are important for migratory species, but may not be priority natural habitats per se, thereby depriving them of increased protection.

The Directive can also leave too much discretion to individual Member States when it comes to mitigation measures and site compliance timeframes. This can sometimes lead to delays in the establishment of sites for the Natura 2000 network. For example, some Member States have missed deadlines for incorporating the Directive into national law and for designating sites.²⁵³

Declassifying sites can also be somewhat mystifying under the Directive. Article 9 sets out the conditions under which an SAC can be

²⁵¹ Directive, *supra* n. 16, at art. 10.

²⁵² *Id.* at art. 4(1).

²⁵³ European Comm., *Habitats Directive: Commission Moves Against the Netherlands, Portugal, Italy, United Kingdom, Germany and Sweden*, (Aug. 6, 2001) (available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/01/1192&format=HTML&aged=0&language=EN&guiLanguage=en> (last accessed Mar. 14, 2010)).

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declassified, although the language is vague. An area can be considered for declassification “where this is warranted by natural developments noted as a result of the surveillance provided for in Article 11.”²⁵⁴ This seems to indicate that areas naturally degraded to the point that they are no longer ecologically significant to the network may be declassified, but not for industrial or infrastructural reasons.

The Directive could be improved by adopting more stringent requirements for species listed in Annex IV and by correlating the protection of special ecological areas for breeding and migration. In addition, strengthening the Directive’s requirements for incidental capture would make the legislation more effective for sea turtle conservation. As of now, the strength of the Directive truly lies in what the Member States do with the legislation and how willing they are to expand habitats through Natura 2000.

V. CONCLUSION

International agreements such as CITES, CMS, and IAC fail to provide expansive and effective sea turtle conservation and recovery methods. While CITES has received widespread support and addressed some threats to sea turtles based on commercial trade, it has not addressed threats associated with a lack of enforcement regarding the illegal trade of turtle species or bycatch issues. The CMS is inherently limited by its aspirational and overly flexible nature; sea turtle protection requires expansive cooperation between nations, not adoption by a mere thirteen countries. While the IAC focuses on sea turtle protection specifically and addresses incidental capture, it does not include a mandate to protect habitat—a crucial element for turtle conservation. These agreements cannot simply be mended to provide measures for sea turtle conservation by a decision of the parties because they each focus on a different threat facing sea turtles. Turtles need an agreement or legislation that addresses several threats simultaneously.

The EU’s Directive has been a more successful tool for sea turtle conservation because it addresses gaps that exist in larger international instruments. For one, it addresses several threats affecting sea turtles: habitat protection, disturbance, harvesting species, and incidental capture. It is also a particularly useful tool because it incorporates science into its objectives and procedures. This provides clarity for states and officials designating their sites and leaves less room for economic and social compromise. In addition, protected habitats are both designated and connected in the form of a network amongst the twenty-seven Member States, allowing for more cooperation, which is appropriate when dealing with migratory species. The Directive also has the potential to offer special protection to marine migratory species because its special areas of conservation can extend beyond a

²⁵⁴ Directive, *supra* n. 16, at art. 9.

state's territorial sea and into the Exclusive Economic Zone. In these ways, its positive attributes make it an important blueprint for developing future legislation to protect sea turtles.

Some elements of the Directive could be added to larger international instruments to make them more effective. These include incorporating opportunities for funding conservation initiatives, adding legally binding obligations to adopt national measures reflecting the legislation, and providing compliance mechanisms for enforcement. In addition, a provision very similar to the Directive's Article 12 that prohibits the deliberate disturbance of "sensitive" species, as related to trade, could be added to CITES to potentially help address the problem of illegal trade that still threatens sea turtle populations. Similarly, the IAC's provisions governing habitat protection to "the greatest extent practicable" could instead mimic the Directive's stringent process for designating special areas of conservation when they meet specific criteria, regardless of economic and social concerns.

What does this all mean for future protections of sea turtles? There does not seem to be a concrete answer to this question. However, if the input of sea turtle conservationists is taken into account, there will be a greater chance that sea turtles will be protected internationally. Agreements and legislation must provide clarity and legally binding obligations for scientists and the States who put them into practice. Finally, they must address a myriad of threats facing sea turtles and promote cooperation.