

**Sea Turtle Conservancy • Center for Biological Diversity  
Defenders of Wildlife • Earthjustice  
Gulf Restoration Network • Turtle Island Restoration Network**

**Via U.S. Mail and Electronic Mail**

July 22, 2010

Honorable Gary Locke  
Secretary of Commerce  
U.S. Department of Commerce  
1401 Constitution Avenue, N.W., Room 5516  
Washington, D.C. 20230  
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Mr. Eric Schwaab  
Assistant Administrator for Fisheries  
National Oceanic and Atmospheric Administration  
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**RE: 60-Day Notice of Intent to Sue: Violations of the Endangered Species Act Related to the Management of the Gulf of Mexico Reef Fish Fishery**

Dear Secretary Locke and Mr. Schwaab:

On behalf of the Sea Turtle Conservancy (also known as the Caribbean Conservation Corporation),<sup>1</sup> Center for Biological Diversity, Defenders of Wildlife, Turtle Island Restoration Network, and the Gulf Restoration Network, this letter serves as a 60-day notice of intent to sue the National Marine Fisheries Service and National Oceanic & Atmospheric Administration (collectively “NMFS”) for violations of Section 7 of the Endangered Species Act (“ESA”), 16 U.S.C. §§ 1531 *et seq.* As discussed below, NMFS has violated and continues to violate the ESA due to its failure to reinitiate consultation on the effects of Amendment 31 to the Gulf of Mexico Reef Fish Fishery Management Plan and operation pursuant to it, in light of substantial new information and circumstances presented by the ongoing Deepwater Horizon blowout, oil spill, and response efforts in the Gulf of Mexico.

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<sup>1</sup> The Caribbean Conservation Corporation (“CCC”) is currently in the process of changing its name to Sea Turtle Conservancy (“STC”), as announced on June 16, 2010. *See* [http://www.conserveturtles.org/about.php?page=name\\_change\\_information](http://www.conserveturtles.org/about.php?page=name_change_information).

As detailed below and in our December 16, 2009 notice letter,<sup>2</sup> NMFS is in violation of Section 7 of the ESA, 16 U.S.C. § 1536, because it is failing to ensure that the ongoing operation of the Gulf of Mexico Bottom Longline Fishery is not likely to jeopardize the continued existence of loggerhead sea turtles and other listed species. NMFS's violations stem from its continued reliance on the 2009 Biological Opinion for "The Continued Authorization of Reef Fish Fishing under the Gulf of Mexico Reef Fish Fishery Management Plan, including Amendment 31, and a Rulemaking to Reduce Sea Turtle Bycatch in the Eastern Gulf Bottom Longline Component of the Fishery" ("2009 Biological Opinion"). Even if it were not fundamentally flawed from the outset, the 2009 Biological Opinion has now been rendered virtually obsolete by the unprecedented oil spill currently affecting the Gulf of Mexico ecosystem.

In particular, the spill and response have caused and continue to cause harm to the same threatened and endangered sea turtles captured, injured, and killed by the Gulf of Mexico Bottom Longline Fishery, changing the baseline status of the affected species and further undermining NMFS's no jeopardy findings in its 2009 Biological Opinion. Simply put, the 2009 Biological Opinion did not contemplate or address a scenario in which the health of the affected species, as well as the health of the species' feeding, breeding, nesting, and migratory habitats are significantly adversely affected by an oil spill and associated response efforts. The 2009 Biological Opinion also did not contemplate the shifts in fishing effort that have resulted or are likely to result from the spill, adding even further urgency to the need to reinitiate consultation and ensure that the Reef Fish Fishery operates in compliance with the ESA.

The oil spill was occurring at the time NMFS, in reliance on the 2009 Biological Opinion, promulgated Amendment 31 and its implementing regulations and simultaneously removed protections from the ESA Rule that previously prohibited the use of bottom longline gear in waters shallower than 35 fathoms year-round. The spill had been ongoing for over a month when the agency's new regulations became effective. Evidence demonstrating the severe additional risk of harm to federally listed sea turtles caused by the blowout, oil spill, and response efforts has grown during the three months since the blowout occurred, and continues to increase.<sup>3</sup>

NMFS has a continuing duty to ensure against the likelihood of jeopardy, a duty that it must fulfill in part by reinitiating ESA Section 7 consultation when significant new information arises that may affect the validity of its prior conclusions—such as the occurrence of the historically immense oil spill and the corresponding unprecedented response effort, including the deployment of extremely high levels of chemical dispersants, the burning of large amounts of oil at sea, the use of boom over miles of sea turtle nesting habitat, the recovery of dead or stranded

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<sup>2</sup> This letter supplements but does not supplant our previous notice letter, which we incorporate here by reference. Details regarding the operation of the Bottom Longline Fishery and NMFS's history of ESA violations with respect to this Fishery are laid out in the December 2009 letter and will not be repeated here.

<sup>3</sup> For examples of recent news articles demonstrating the ongoing risk to and effects on sea turtles in the Gulf of Mexico related to the oil spill and recovery, *see, e.g.*, <http://www.google.com/news/search?aq=f&pz=1&cf=all&ned=us&hl=en&q=%22sea+turtle%22+oil> (last searched July 19, 2010).

sea turtles, and the relocation of a year's worth of sea turtle nests from northern Gulf Coast beaches to the Atlantic coast. To our knowledge, NMFS has not yet reinitiated consultation on the Fishery as it must do in light of this new information and therefore NMFS is in violation of the ESA, 16 U.S.C. § 1536, and the Administrative Procedure Act ("APA"), 5 U.S.C. § 706(2).

This letter is provided pursuant to the 60-day notice requirement of the citizen suit provision of the ESA, to the extent such notice is deemed necessary by a court. *See* 16 U.S.C. § 1540(g). If NMFS does not take action within 60 days to remedy its violations of ESA Section 7, our organizations intend to pursue litigation.<sup>4</sup>

## Background

The operation of the Bottom Longline Fishery is authorized and managed by NMFS pursuant to the federal fishery management plan ("FMP") for the Gulf of Mexico Reef Fish Fishery. While the overall Gulf of Mexico commercial Reef Fish Fishery includes several types of gear, the Bottom Longline Fishery accounts for the most grouper and tilefish landings as well as the most "take" of threatened and endangered sea turtle species within the Reef Fish Fishery as a whole. The Bottom Longline Fishery operates primarily off Florida's west coast in an area relied upon by several sea turtle species for vital foraging habitat. Loggerhead sea turtles, in particular, rely on this area and frequently are caught, injured, and killed by the Fishery.

The 2009 Biological Opinion states, in reference to Amendment 31 to the FMP:

the proposed action is anticipated to result in the take of up to 1,152 loggerhead sea turtles, of which 631 are expected to be lethal, for the period 2009 through 2011. After that (i.e., from 2012 forward), the proposed action is anticipated to result in the take of up to 1,043 loggerhead sea turtles triennially, of which 566 are expected to be lethal.<sup>5</sup>

As detailed in our December 16, 2009 notice letter and May 26, 2010 amended complaint, evidence suggests that the 2009 Biological Opinion's "no jeopardy" conclusion was not valid at the time it was made.<sup>6</sup> Nesting populations of loggerhead sea turtles throughout the Gulf of Mexico and southeast U.S. have declined significantly over the past decade.<sup>7</sup> In particular, data reveal that loggerhead nests at index nesting beaches in Florida have declined by more than 40 percent during that time.<sup>8</sup> Data also indicate that 2009 was the fourth lowest

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<sup>4</sup> There is already pending litigation regarding the Biological Opinion for the Reef Fish Fishery and NMFS action in reliance on the 2009 Biological Opinion. *See* Caribbean Conserv. Corp. et al. v. Locke, No. 1:09-cv-00259-SPM AK (N.D. Fla.).

<sup>5</sup> 2009 Biological Opinion at 129.

<sup>6</sup> *See* complaint filed in the pending case cited, *supra* note 4.

<sup>7</sup> NMFS, RECOVERY PLAN FOR THE NORTHWEST ATLANTIC POPULATION OF LOGGERHEAD SEA TURTLES (*CARETTA CARETTA*), SECOND REVISION vii (2008), available at [http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle\\_loggerhead\\_atlantic.pdf](http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_loggerhead_atlantic.pdf).

<sup>8</sup> Blair Witherington et al., *Decreasing Annual Nest Counts in a Globally Important Loggerhead Sea Turtle Population*, 19 ECOLOGICAL APPLICATIONS 30, 54 (2009); *see also id.* at 48 ("The incidental capture of sea turtles in commercial and artisanal fisheries is considered to be the most significant factor affecting the conservation and

nesting year on record for loggerhead sea turtles in Florida.<sup>9</sup> The decline in Florida loggerhead sea turtle nesting has implications for the global status of loggerheads. The South Florida loggerhead nesting assemblage, together with the important Oman assemblage in the Arabian Sea, accounts for 80-90 percent of the world's loggerhead nesting activity.<sup>10</sup>

If the Florida loggerhead nesting decline continues at its current rate, scientists estimate that by 2017 loggerhead nest counts will have decreased by 80 percent from 1998 levels.<sup>11</sup> Such a drastic decline over a period of just 19 years—less than half the loggerhead's 45-year generation time—would warrant International Union for Conservation of Nature (IUCN) Critically Endangered status.<sup>12</sup> Indeed, NMFS has proposed to designate the Northwest Atlantic population segment of loggerhead sea turtles as a distinct population segment under the ESA and change its status from threatened to endangered.<sup>13</sup>

However, even if NMFS's "no jeopardy" conclusion had been defensible at the time, the circumstances upon which the conclusion was based have changed so drastically as to undermine it entirely. As detailed below, the Deepwater Horizon disaster threatens loggerhead and other sea turtles at every stage of life, in every type of habitat they use in the Gulf of Mexico, and at the worst time of year possible.<sup>14</sup> Put simply, the loggerheads' baseline situation in the Gulf of Mexico and beyond has changed fundamentally and irrevocably, and the effects of the spill are only likely to increase during the upcoming months. The law requires NMFS's conservation and management measures to reflect this unfortunate new reality.

### **Deepwater Horizon Oil Rig Explosion, Blowout, Spill, and Response Activities**

On April 20, 2010, the Deepwater Horizon oil rig exploded and sank nearly a mile to the floor of the Gulf of Mexico. The broken rig and oil well blew out and began leaking oil into the Gulf at a rate estimated at the time to be approximately 1,000 barrels (42,000 gallons) per day. That estimate quickly grew to 5,000 barrels (210,000 gallons) per day. On June 15, 2010, government officials announced that the well was releasing 35,000 to 60,000 barrels (1.47 million to 2.52 million gallons) per day.<sup>15</sup> At this rate, the well was releasing as much oil as the

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recovery of the loggerhead sea turtle.") (citing NMFS & U.S. FISH & WILDLIFE SERV., *LOGGERHEAD SEA TURTLE (CARETTA CARETTA) 5-YEAR REVIEW: SUMMARY AND EVALUATION(2007)*).

<sup>9</sup> Fla. Fish & Wildlife Conserv. Comm'n, Fish & Wildlife Research Inst., *2009 Nesting Season for Loggerheads Continues Long-term Declining Trend*, [http://research.myfwc.com/features/view\\_article.asp?id=27537](http://research.myfwc.com/features/view_article.asp?id=27537) (last viewed July 19, 2010).

<sup>10</sup> Witherington et al., *supra* note 8, at 30; *see also* 2005 Biological Opinion at 67; 2009 Biological Opinion at 41, 58.

<sup>11</sup> Witherington et al., *supra* note 8, at 51.

<sup>12</sup> *Id.*

<sup>13</sup> Endangered and Threatened Species; Proposed Listing of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened; Proposed Rule, 75 Fed. Reg. 12,598 (Mar. 16, 2010).

<sup>14</sup> For a summary of scientific research on the potential oil spill impacts on species of all sea turtles in the Gulf, *see, e.g.*, ELIZABETH GRIFFIN WILSON, OCEANA, *POTENTIAL IMPACTS OF DEEPWATER HORIZON OIL SPILL ON SEA TURTLES*, 5-12 (June 2010) (citing scientific sources).

<sup>15</sup> Joel Achenbach & David Fahrenthold, *Oil-Spill Flow Rate Estimate Surges to 35,000 to 60,000 Barrels a Day*, WASH. POST, June 15, 2010, *available at* [http://www.washingtonpost.com/wp-dyn/content/article/2010/06/15/AR2010061504267\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2010/06/15/AR2010061504267_pf.html).

1989 Exxon Valdez spill every four to eight days—and it remains unclear at the present time whether or not the oil release has been contained. This oil and its byproducts have spread across a vast area of the Gulf's surface as well as significant areas deep in the water column, affecting deep water and open water habitats, reefs, sea grass beds, coastal marshes, and beaches. Oil has washed up onto over 150 miles of Gulf coastline, from Louisiana to the Florida panhandle. As of the present date, there is no clear prediction as to when the discharge of oil will end permanently, what the total release will be, or the full short- and long-term impact on federally listed species and their habitat, but various federal agencies, including NMFS, have been gathering significant information on these questions.<sup>16</sup>

Some tendrils of oil from the Deepwater Horizon spill are believed to have entered the Loop Current, a current that runs north past the Yucatan into the central Gulf of Mexico, then south and southeast, exiting through the Florida Straits. The Loop Current joins with the Gulf Stream near the Florida Keys, continuing up the Atlantic coast towards Cape Hatteras, North Carolina. Scientists fear that oil, tar, and chemical dispersants may be carried via the Loop Current into key wildlife habitats, including sea grass beds, reefs, nesting beaches, and open water. Should this happen, critical loggerhead nesting beaches along the Atlantic coast of Florida as well as Georgia and the Carolinas could be affected, as would turtles traveling to and from those beaches or otherwise moving through the area.

Substantial concentrations of oil have also been detected beneath the surface of the ocean. Researchers have detected at least two large underwater plumes of hydrocarbons from the leaking well. The smaller of the two plumes, which lies 3,600 feet below the surface, reaches for 15 miles or more west of the broken well and measures three miles wide and as much as 1,500 feet thick. An even larger plume was found northeast of the well.<sup>17</sup> Oil in the water and the process of microbes eating the oil droplets depletes the water of oxygen, posing an additional threat to marine life in a region already plagued by the annual formation of oxygen-depleted “dead zones” in the summer. In addition, large amounts of methane have been detected emanating from the leaking well, further exacerbating oxygen depletion.<sup>18</sup>

In an effort to minimize the amount of oil that reaches the ocean surface and coastline, spill responders have taken a number of extraordinary measures, including applying over 1.75 million gallons of chemical dispersants to Gulf waters. This figure includes over 1.07 million gallons applied to the surface and 680,000 gallons pumped nearly a mile below the surface near

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<sup>16</sup> For example, NMFS has documented significant new information on the ongoing oil spill and response, and wildlife impacts on its website. See [http://response.restoration.noaa.gov/dwh.php?entry\\_id=812](http://response.restoration.noaa.gov/dwh.php?entry_id=812) (last visited July 19, 2010); *id.* at [http://response.restoration.noaa.gov/dwh.php?entry\\_id=809](http://response.restoration.noaa.gov/dwh.php?entry_id=809) (last visited July 19, 2010). The federal government has provided additional new information at these websites: <http://www.restorethegulf.gov> and <http://www.deepwaterhorizonresponse.com> (last visited July 19, 2010).

<sup>17</sup> Justin Gillis, *Plumes of Oil Below Surface Raise New Concerns*, N.Y. TIMES, June 8, 2010, available at <http://www.nytimes.com/2010/06/09/us/09spill.html>.

<sup>18</sup> Matthew Brown & Ramit Plushnick-Masti, *Gulf Oil Full of Methane, Adding New Concerns*, ASSOCIATED PRESS, June 18, 2010, available at <http://www.google.com/hostednews/ap/article/ALeqM5gIXWYBTpLtSayJtg41LKXpxSxVPAD9GDO2VG1>.

the source of the leak.<sup>19</sup> These dispersants have never been applied at the depths they are being used in the Gulf. They have been used in such large volumes once, during the 1979 Ixtoc blowout that spewed 147 million gallons of oil into the Bay of Campeche off the Mexico coast between June 1979 and March 1980.<sup>20</sup> Neither the extensive use of dispersants nor the application of dispersants directly into deep, frigid water was contemplated in regional spill response plans. The toxicity of dispersants and dispersed oil has never been carefully evaluated or tested for most species, including sea turtles. The short- and long-term biological effects of using large volumes of dispersants on the surface and at depth, while likely to be very negative, are largely unknown. The principal type of dispersant being deployed, Corexit, has been removed from approved use in the United Kingdom due to concerns over its environmental impacts.<sup>21</sup>

In addition to applying dispersants, spill responders have also been burning large amounts of oil at sea in order to prevent it from coming ashore. This burning has captured large amounts of *Sargassum* seaweed mats, which provide important habitat for marine wildlife, including sea turtle hatchlings and juveniles. Until very recently, much of this burning was occurring without the presence of trained observers to identify and rescue sea turtles captured in the burn areas.

### **Effects of Oil Spill and Response Activities on Sea Turtles**

The Deepwater Horizon blowout and spill could have disastrous results for loggerhead and other sea turtle species. As NMFS has found, “there is strong, if dated, information that indicates oil is harmful to turtles.”<sup>22</sup> Four sea turtle species affected by the Reef Fish Fishery are also affected by the ongoing oil spill and associated response activities. Some, like loggerheads and Kemp’s ridleys, use various habitats within the Gulf of Mexico at virtually every stage of life. Subadult and adult loggerheads are known to rely upon the shelf waters of the eastern Gulf of Mexico as important year-round foraging habitat.<sup>23</sup> Loggerheads nest along the Florida Keys, west coast of Florida, Florida panhandle, and Alabama and Mississippi coasts.<sup>24</sup> Adult females

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<sup>19</sup> GULF OF MEXICO SPILL RESPONSE, DEEPWATER HORIZON RESPONSE: THE OFFICIAL SITE OF THE DEEPWATER HORIZON UNIFIED COMMAND, OPERATIONS AND ONGOING RESPONSE, *available at* <http://www.deepwaterhorizonresponse.com/go/doc/2931/768595/> (last viewed July 16, 2010).

<sup>20</sup> NMFS, OIL AND SEA TURTLES: BIOLOGY, PLANNING, AND RESPONSE, G. Shigenaka, Ed. 71, 74 (Aug. 2003).

<sup>21</sup> *See* UK MARINE MANAGEMENT ORGANISATION, OIL SPILL TREATMENT PRODUCTS APPROVED FOR USE IN THE UNITED KINGDOM (May 18, 2010) *available at* [http://www.marinemanagement.org.uk/protecting/pollution/documents/approval\\_approved\\_products.pdf](http://www.marinemanagement.org.uk/protecting/pollution/documents/approval_approved_products.pdf) (removing Corexit from list of approved products) (last viewed June 22, 2010).

<sup>22</sup> NMFS, *supra* note 20, at 85; *see also* Russell J. Hall et al., U.S. Fish & Wildlife Serv., *Residues of Petroleum Hydrocarbons in Tissues of Sea Turtles Exposed to the Ixtoc I Oil Spill*, 19 J. WILDLIFE DISEASES 106 (1983).

<sup>23</sup> *See, e.g.*, Witherington et al., *supra* note 8, at 49; Letter from Gil McRae, Fish and Wildlife Research Institute, to Roy Crabtree, NOAA Fisheries Southeast Region (Dec. 9, 2008); Letter from Gil McRae, Fish and Wildlife Research Institute, Fla. Fish and Wildlife Conservation Comm’n, to Roy Crabtree, NOAA Fisheries Southeast Region (May 11, 2009); Letter from Tony Tucker, Sea Turtle Conserv. and Research Program, Mote Marine Lab, to Roy Crabtree, NOAA Fisheries Southeast Region (May 14, 2009) (letter misdated as May 2008).

<sup>24</sup> THE NATURE CONSERVANCY, SEA TURTLE NESTING BEACH ATLAS: LOGGERHEAD SEA TURTLE NESTING HABITAT IN THE WIDER CARIBBEAN REGION (2007), *available at* [http://www.widecast.org/Resources/Docs/WCR\\_Loggerhead\\_Nesting\\_24Sept2008.jpg](http://www.widecast.org/Resources/Docs/WCR_Loggerhead_Nesting_24Sept2008.jpg).

nesting on these beaches must traverse Gulf waters on their way to and from the beaches. Scientists have documented loggerheads in the area of the Deepwater Horizon spill.<sup>25</sup> In addition, hatchlings that emerge from Gulf nesting beaches often become entrained in surface currents flowing around the Gulf, where they find food and shelter in mats of *Sargassum* seaweed. The Loop Current and Gulf Stream can carry turtles out to the Atlantic Ocean. Unfortunately, the very same currents also aggregate oil, tar, and debris that can poison hatchlings and spread oil contamination to crucial nesting beaches along the east coast of Florida. Moreover, the Deepwater Horizon spill has resulted in enormous volumes of oil and dispersants being pumped into the Gulf during the loggerheads' and other sea turtles' nesting and hatching period.

Oil, tar, and dispersed oil are known to be hazardous to sea turtles of all ages and the avenues for exposure are numerous. Egg mortality is increased in eggs exposed to oil, due both to the oil's toxicity and its smothering effect.<sup>26</sup> Eggs may be exposed during oiling of a nesting beach or during the course of egg-laying by an oiled female. Hatchlings are even more vulnerable to oil spill effects because of their small size, tendency to swim at the surface, and inability to escape convergence zones that collect small turtles, seaweed, and oil.<sup>27</sup>

Juvenile and adult turtles encounter oil, tar, and other spill-related chemicals in the water column, at the surface, and through contaminated prey. Laboratory tests of the effects of oil on 15- to 18-month old loggerheads found that both acute and chronic exposure to oil adversely affects all of a sea turtle's major physiological systems. Among these effects are declining red blood cell count and increased white blood cell count, impaired ability to regulate the animal's internal balance of salt and water, and sloughing of the skin that can lead to infection.<sup>28</sup> Sea turtles inhale very deeply before diving and thus can inhale large concentrations of toxic fumes at the surface of an oiled area, which in turn can lead to respiratory impairment.<sup>29</sup> Because sea turtles generally do not avoid oil-contaminated areas, they are very vulnerable to harmful contact with oil and its byproducts. Turtles are particularly prone to ingest oil and tar. Sea turtles are known to indiscriminately ingest tar balls that are about the size of their normal prey. Ingested tar interferes with digestion, sometimes leading to starvation, and can cause buoyancy problems, rendering the turtle more vulnerable to predation and less able to forage. In addition, tar and oil remain in the digestive system for several days, increasing the turtle's absorption of toxins.<sup>30</sup>

Oil spills also affect sea turtles in less direct ways. To the extent the spill or dispersant application kills the turtle's prey, the animal's food availability is decreased and its condition declines as a result. Ingestion of contaminated food can expose turtles to harmful hydrocarbons. Because they eat invertebrates that tend to bioaccumulate hydrocarbons, loggerheads and

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<sup>25</sup> Wilson, *supra* note 13, at 8-9 (citing C. Girard, A. D. Tucker, and B. Calmettes *Post-Nesting Migrations of Loggerhead Sea Turtles in the Gulf of Mexico: Dispersal in Highly Dynamic Conditions*, MARINE BIOLOGY 156 (2009)).

<sup>26</sup> NMFS, *supra* note 20, at 38.

<sup>27</sup> *Id.* at 38-39.

<sup>28</sup> NMFS, *supra* note 20, at 40-43.

<sup>29</sup> *Id.* at 40.

<sup>30</sup> *Id.* at 39-40.

Kemp's ridleys are most vulnerable to toxic exposure via prey. Finally, oil exposure may render turtles more vulnerable to fibropapilloma, a condition that can degrade the turtle's overall condition and interfere with feeding and other behaviors.<sup>31</sup>

Actions taken to contain, remove, or disperse oil also pose threats to sea turtles.<sup>32</sup> Dispersants contain components that can interfere with lung function, respiration, digestion, excretion, and salt gland function to a degree "similar to the empirically demonstrated effects of oil alone."<sup>33</sup> Burning oil at the surface can directly harm turtles at the surface, particularly any that may be trapped in *Sargassum* mats, and indirectly harm turtles by causing lung irritation from smoke and formation of ingestible, sinking globs of oil.<sup>34</sup> Setting booms to protect beaches from oil can have unintended effects, such as preventing females from reaching nesting beaches and preventing hatchlings from leaving the beach.<sup>35</sup> Finally, efforts to clean oiled beaches can change the profile of the beach, rendering it less suitable for nesting, and can disturb or harm turtles attempting to nest, or destroy or harm turtle nests and hatchlings.<sup>36</sup>

While the extent to which the loggerhead sea turtle or any other sea turtle species has been and will continue to be harmed by the Deepwater Horizon disaster and response activities will unfold over time, the best available science already indicates that these species are experiencing adverse effects of the oil spill and response. As of July 20, 2010, NOAA reported that a total of 708 sea turtles had been verified as stranded in the vicinity of the spill since the response efforts began.<sup>37</sup> The majority of these, 477, were already dead, and at least 4 died later.<sup>38</sup> NMFS has stated that the identified sea turtles were mainly Kemp's ridleys, loggerheads, and green turtles.<sup>39</sup> Necropsies are being performed to determine whether these strandings and deaths are related to the oil spill.<sup>40</sup> While some strandings and deaths of sea turtles are normal, the numbers recovered since the spill began are an order of magnitude above the average seen

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<sup>31</sup> *Id.* at 44.

<sup>32</sup> *Id.* at 85.

<sup>33</sup> *Id.* at 53.

<sup>34</sup> *Id.* at 55.

<sup>35</sup> *Id.* at 59.

<sup>36</sup> *Id.* at 57, 58, 86.

<sup>37</sup> NOAA / BP Oil Spill Response, [http://response.restoration.noaa.gov/dwh.php?entry\\_id=809](http://response.restoration.noaa.gov/dwh.php?entry_id=809) (last visited July 22, 2010).

<sup>38</sup> *Id.*

<sup>39</sup> NMFS, Marine Life and the Gulf of Mexico Oil Spill: Deepwater Horizon, <http://www.nmfs.noaa.gov/pr/health/oilspill.htm> (last visited July 22, 2010) (out of a total of 668 turtles analyzed, 524 were identified as Kemp's ridleys, 53 as loggerheads, 56 as green, 5 as hawksbill's, and 30 unknown).

<sup>40</sup> *Id.*; see also CONSOLIDATED FISH AND WILDLIFE REPORT (July 21, 2010) (reporting a total of 709 stranded sea turtles as of July 20), <http://www.deepwaterhorizonresponse.com/go/doctype/2931/55963>. Species-specific numbers are not available in all reports. News media have documented oil spill effects and potential harm to Kemp's ridley and loggerhead sea turtles, as well as other species. See, e.g., Harvey Rice, *Young Turtles Swarm Around Oil Spill Kemp's Ridley Could Become 'Poster Child' of Wildlife Disaster*, HOUS. CHRON., June 17, 2010; Cheryl Hanna, *Oil Coated Baby Sea Turtles Recovering in Mississippi Rehabilitation Center*, PHILA. EXAMINER, June 9, 2010, <http://www.examiner.com/x-25445-Pet-Rescue-Examiner~y2010m6d9-Oil-coated-baby-sea-turtles-recovering-in-Mississippi-rehabilitation-center>.



during this time of the year.<sup>41</sup> Furthermore, even if it is determined that any of the sea turtle deaths were unrelated or peripherally related to the spill,<sup>42</sup> the fact remains that imperiled sea turtles are taking a hit that they cannot afford, and that was not considered in the 2009 Biological Opinion.

Indeed, the threats of the oil spill on Gulf sea turtle hatchlings, and by implication the potential threat to sea turtle species, are so severe that NMFS, the U.S. Fish and Wildlife Service, and other agencies have made the decision to move 700-800 sea turtle nests from the Florida panhandle and Alabama to the Atlantic Coast of Florida, where the spill has not yet reached.<sup>43</sup> The agencies' plan, already being implemented, starts with marking and flagging all sea turtle nests.<sup>44</sup> After waiting approximately 51-53 days, the eggs will be "excavated, relocated to Styrofoam boxes . . . , and flown to the Atlantic Coast of Florida. There they will be held in a secure facility at an off-beach location for the remainder of incubation. Upon emergence from nests, hatchlings will be released on Atlantic Coast beaches."<sup>45</sup> The relocation of such a large number of nests late in incubation has never been attempted and the actions it directs "involve significant manipulation of eggs and hatchlings and are accompanied by definite . . . risks."<sup>46</sup> But, the agencies have stated that they believe this will give the greatest number of hatchlings the best opportunity to survive, explaining: "These extraordinary measures and associated risks are not supportable under normal conditions. However, the continuing environmental disaster occurring in the Gulf of Mexico requires that we take extraordinary measures *to prevent the loss of the entire 2010 cohort of hatchlings produced on Northern Gulf beaches.*"<sup>47</sup>

The best available science suggests that the ongoing effects of the disaster for federally listed sea turtle species will likely grow more widespread and acute. If there is ever a time when precautionary action is warranted in sea turtle conservation and management, it is now.

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<sup>41</sup> See NOAA /BP Oil Spill Response, *supra* note 37 (finding that "[t]urtle strandings during this time period have been much higher in Louisiana, Mississippi, Alabama and the Florida Panhandle than in previous years for this same time period" and stating that increased detection and reporting "does not fully account for the increase").

<sup>42</sup> Brian Skoloff, *Sea Turtles Killed in Rush to Fish?*, MSNBC (May 5, 2010), <http://www.msnbc.msn.com/id/36965750/>.

<sup>43</sup> DEEPWATER HORIZON (MC -252) SEA TURTLE LATE-TERM NEST COLLECTION AND HATCHLING RELEASE PROTOCOLS FOR THE FLORIDA PANHANDLE AND ALABAMA IN RESPONSE PLAN (Ken Rice – Mobile Sector) (June 18, 2010) ("Sea Turtle Nest Plan"), *available at* [http://www.fws.gov/northflorida/MC252\\_DHR/Wildlife%20Plans/20100616\\_Sea\\_Turtle\\_Nest\\_Collection\\_Hatchling\\_Plan\\_for\\_FL\\_Panhandle\\_and\\_AL.pdf](http://www.fws.gov/northflorida/MC252_DHR/Wildlife%20Plans/20100616_Sea_Turtle_Nest_Collection_Hatchling_Plan_for_FL_Panhandle_and_AL.pdf); *see also* <http://www.nmfs.noaa.gov/pr/species/turtles>. Additional information, including "Frequently Asked Questions" is available here: [http://www.fws.gov/northflorida/MC252\\_DHR/Wildlife%20Plans/Frequently\\_Asked\\_Questions\\_regarding\\_Oil-Spill\\_Sea\\_Turtle\\_Nest\\_relocation\\_and\\_Hatchling\\_Release\\_Plan\\_for\\_FL\\_panhandle\\_and%20Alabama.html](http://www.fws.gov/northflorida/MC252_DHR/Wildlife%20Plans/Frequently_Asked_Questions_regarding_Oil-Spill_Sea_Turtle_Nest_relocation_and_Hatchling_Release_Plan_for_FL_panhandle_and%20Alabama.html).

<sup>44</sup> *Id.* As of July 21, 2010, 30 nests have been transported and 168 hatchlings have been released. DEEPWATER HORIZON UNIFIED COMMAND, U.S. CONSOLIDATED FISH AND WILDLIFE COLLECTION REPORT (July 21, 2010), <http://www.deepwaterhorizonresponse.com/go/doctype/2931/55963>.

<sup>45</sup> Sea Turtle Nest Plan, *supra* note 43, at 3.

<sup>46</sup> *Id.* at 1.

<sup>47</sup> *Id.* at 1-2 (emphasis added).

## **Violations of the ESA**

In view of these new circumstances, NMFS is in violation of Section 7 of the ESA by failing to ensure that the ongoing operation of the Gulf of Mexico Reef Fish Fishery, including the Bottom Longline Fishery, is not likely to jeopardize the continued existence of loggerhead sea turtles and other listed species and by making irreversible and irretrievable commitments of resources that could foreclose future mitigation. In order to correct these violations, NMFS must reinitiate consultation on the effects of the Reef Fish Fishery in light of changed circumstances and new information presented by the Deepwater Horizon disaster and response activities and reinstate the previous ESA Rule until such time as a new, lawful biological opinion is complete.

### ESA Section 7(a)(2)

Section 7(a)(2) of the ESA requires federal agencies to “insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species . . . determined . . . to be critical.” 16 U.S.C. § 1536(a)(2); *see also* 50 C.F.R. § 402.14(a). To accomplish this goal, agencies must consult with the delegated agency whenever their actions “may affect” a listed species. 50 C.F.R. § 402.14(a); *see* 16 U.S.C. § 1536(a)(2). Where, as here, NMFS is both the action agency and the consulting agency, different branches of NMFS must undertake internal consultation with each other. At the completion of consultation, NMFS as the consulting agency issues a biological opinion that determines whether the action is likely to jeopardize the continued existence of the species or destroy or adversely modify critical habitat. If so, the opinion must specify reasonable and prudent alternatives that will avoid the likelihood of jeopardy and allow the action to proceed. 16 U.S.C. § 1536(b)(3)(A).

Even after the procedural requirements of a consultation are complete, however, the ultimate duty to ensure that an activity does not jeopardize a listed species lies with the action agency. An action agency’s reliance on an inadequate, incomplete, or flawed biological opinion cannot satisfy its duty to avoid the likelihood of jeopardy to listed species. *See, e.g., Fla. Key Deer v. Paulison*, 522 F.3d 1133, 1145 (11th Cir. 2008); *Pyramid Lake Paiute Tribe of Indians v. U.S. Dep’t of Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990); *Stop H-3 Ass’n v. Dole*, 740 F.2d 1442, 1460 (9th Cir. 1984) (action agency must independently ensure that its actions are not likely to cause jeopardy). Thus, the substantive duty to insure against jeopardy to listed species remains in effect regardless of the status of the consultation. While the action agency may most readily fulfill this substantive duty by implementing a federal action that the consulting agency properly has determined not to cause jeopardy, or by implementing a valid reasonable and prudent alternative that results from a properly completed consultation, an action agency is “technically free” to choose an alternative course of action if it can independently ensure that the alternative will avoid jeopardy. *See Bennett v. Spear*, 520 U.S. 154, 170 (1997).

As the action agency authorizing the operation of the Fishery, NMFS also has a continuing, independent duty to ensure that its actions avoid the likelihood of jeopardy. After the issuance of a final biological opinion and “where discretionary Federal involvement or control over the action has been retained or is authorized by law,” the agency must, in certain

circumstances, reinitiate formal consultation. 50 C.F.R. § 402.16. These circumstances include, *inter alia*, if “the amount or extent of taking specified in the incidental take statement is exceeded”; “new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered”; “the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion”; or “a new species is listed or critical habitat designated that may be affected by the identified action.” *Id.* § 402.16(a)-(d).

As demonstrated above, the Deepwater Horizon oil spill and response activities, including the use of dispersants in an unprecedented manner and volume, surface burning, beach booming, nest relocation, and sea turtle strandings and rescue activities, are unquestionably new information revealing that the baseline has changed and that fishing pursuant to Amendment 31 may affect sea turtles in a manner or to an extent not considered in the 2009 Biological Opinion. Already precarious at the time the 2009 Biological Opinion was issued, the short- and long-term effects of the disaster that is continuing to unfold in the Gulf of Mexico place the loggerhead sea turtle’s status in even greater peril. NMFS is unable to comply with its other ESA duties, including its duty to conserve this species, without reinitiating formal consultation and re-analyzing the Fishery’s effects in light of the new conditions at work in Gulf.

#### ESA Section 7(d)

Section 7(d) of the ESA, 16 U.S.C. § 1536(d), provides that once a federal agency initiates (or reinitiates) consultation on an action under the ESA, the agency, as well as any applicant for a federal permit, “shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures which would” ensure against the likelihood of jeopardy to the species. The purpose of Section 7(d) is to maintain the environmental *status quo* pending the completion of interagency consultation. Section 7(d) prohibitions remain in effect throughout the consultation period and until the federal agency has satisfied its obligations under Section 7(a)(2) that the action is not likely to jeopardize the continued existence of the species or destroy or adversely modify critical habitat. *Lane County Audubon Soc’y v. Jamison*, 958 F.2d 290, 295 (9th Cir. 1992). As acknowledged in the 2009 Biological Opinion, the Bottom Longline Fishery will result in the injury and death of significant numbers of sea turtles, particularly loggerheads.<sup>48</sup> Given the species’ precarious status and declining population trend, and the significant additional threats to the species’ survival now posed by the Deepwater Horizon disaster, the loss of even a small number of additional turtles constitutes an irreversible and irretrievable commitment of resources and a detrimental change to the biological *status quo*. NMFS’s continued authorization of the Fishery pursuant to Amendment 31 without a lawful and operative Biological Opinion therefore constitutes a violation of Section 7(d)’s prohibition on irreversible and irretrievable commitment of resources.

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<sup>48</sup> See 2009 Biological Opinion at 129.

## Conclusion

As this letter makes clear, we believe that NMFS's continued authorization of the operation of the Gulf of Mexico Bottom Longline Fishery pursuant to Amendment 31 violates the ESA. If NMFS does not act within 60 days to correct the violations described in this letter, our organizations will pursue further litigation in Federal Court seeking injunctive and declaratory relief against NMFS. An appropriate remedy that could forestall potential litigation would be for NMFS to immediately reinstate formal consultation pursuant to ESA Section 7(a)(2) to consider the effects of the Reef Fish Fishery as a whole, and the Bottom Longline Fishery in particular, in light of the new circumstances and information presented by the Deepwater Horizon disaster and response activities. While doing so, NMFS also should reinstate the previously effective ESA Rule pending the completion of consultation and a new biological opinion. If NMFS were to allow the Fishery to continue operation in any manner it would be essential to increase observer coverage significantly, at least to 10%. NMFS should also establish an action plan to follow immediately if sea turtle takes are observed or reported during any operation of the Fishery, and this plan should include public notification. NMFS also should immediately release all available data on all sea turtle takes observed in the Reef Fish Fishery during the year 2009 and any accompanying analysis regarding the likely total number of takes this represents for the entire Fishery.

Finally, in order to fully inform the development of the new biological opinion for this Fishery and to satisfy its conservation and public trust duties for all sea turtles in the Gulf, NMFS should make every effort to record, distinguish and report publicly the species of sea turtles found harmed or killed during the course of the Deepwater Horizon spill recovery and clean-up, and then to analyze the potential impact on the species as a whole. NMFS also should inform the public of all steps that it is taking related to the spill, including clean-up, recovery, and restoration planning efforts, or any other actions aiming to ensure against jeopardy, to advance the recovery of affected sea turtle species, to make these sea turtle species and their Gulf habitat "whole," or to prevent additional harm to sea turtles and their habitat.<sup>49</sup>

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<sup>49</sup> "The goal of the Oil Pollution Act of 1990 (OPA), 33 U.S.C. 2701 *et seq.*, is to make the environment and public whole for injuries to natural resources and services resulting from an incident involving a discharge or substantial threat of a discharge of oil (incident)." 15 C.F.R. § 990.10. The President has delegated part of the duties of federal trustee of natural resources to NOAA and NMFS. *See, e.g.*, 33 U.S.C. §§ 1321(c), (f)(5), 2706; 40 C.F.R. § 300.600 (trustee designation). NOAA and NMFS also have an overall duty under the public trust doctrine to protect natural resources in the Exclusive Economic Zone. *See, e.g.*, Mary Turnipseed et al., *Legal Bedrock for Rebuilding America's Ocean Ecosystems*, 324 SCI. 183-84 (Apr. 2009) (arguing that expanding the public trust doctrine beyond state law to federal law in the Exclusive Economic Zone would require federal agencies to hold marine resources in trust for present and future generations).

If you have any questions, wish to meet to discuss this matter, or feel this notice is in error, please contact us at the numbers provided below. Thank you for your concern.

Sincerely,



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Attachments

cc: Roy Crabtree, Director, NMFS SERO

## LIST OF ATTACHMENTS

1. 60-Day Notice Letter from Caribbean Conservation Corporation, Center for Biological Diversity, Defenders of Wildlife, Earthjustice, Gulf Restoration Network, and Turtle Island Restoration Network, to Hon. Gary Locke, Secretary of Commerce, U.S. Department of Commerce, and James Balsiger, Acting Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration (December 16, 2009).
2. Fla. Fish & Wildlife Conserv. Comm'n, Fish & Wildlife Research Inst., *2009 Nesting Season for Loggerheads Continues Long-term Declining Trend*, [http://research.myfwc.com/features/view\\_article.asp?id=27537](http://research.myfwc.com/features/view_article.asp?id=27537).
3. ELIZABETH GRIFFIN WILSON, OCEANA, POTENTIAL IMPACTS OF DEEPWATER HORIZON OIL SPILL ON SEA TURTLES (June 2010).
4. Russell J. Hall et al., U.S. Fish & Wildlife Serv., *Residues of Petroleum Hydrocarbons in Tissues of Sea Turtles Exposed to the Ixtoc I Oil Spill*, 19 J. WILDLIFE DISEASES 106 (1983).
5. NOAA / BP Oil Spill Response, [http://response.restoration.noaa.gov/dwh.php?entry\\_id=809](http://response.restoration.noaa.gov/dwh.php?entry_id=809) (July 22, 2010).
6. NMFS, Marine Life and the Gulf of Mexico Oil Spill: Deepwater Horizon, <http://www.nmfs.noaa.gov/pr/health/oilspill.htm> (July 22, 2010).
7. DEEPWATER HORIZON (MC -252) SEA TURTLE LATE-TERM NEST COLLECTION AND HATCHLING RELEASE PROTOCOLS FOR THE FLORIDA PANHANDLE AND ALABAMA IN RESPONSE PLAN (Ken Rice – Mobile Sector) (June 18, 2010).
8. U.S. Fish and Wildlife Service, Sea Turtle Late-Term Nest Collection and Hatchling Release Plan, Frequently Asked Questions (June 6, 2010).
9. DEEPWATER HORIZON UNIFIED COMMAND, U.S. CONSOLIDATED FISH AND WILDLIFE COLLECTION REPORT (July 21, 2010), <http://www.deepwaterhorizonresponse.com/go/doctype/2931/55963>.

**Caribbean Conservation Corporation • Center for Biological Diversity •  
Defenders of Wildlife • Earthjustice  
Gulf Restoration Network • Turtle Island Restoration Network**

**Via U.S. Mail and Electronic Mail**

December 16, 2009

Honorable Gary Locke  
Secretary of Commerce  
U.S. Department of Commerce  
1401 Constitution Avenue, N.W., Room 5516  
Washington, D.C. 20230  
glocke@doc.gov

Dr. James W. Balsiger  
Acting Assistant Administrator for Fisheries  
National Oceanic and Atmospheric Administration  
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**RE: 60-Day Notice of Intent to Sue: Violations of the Endangered Species Act  
Related to the Management of the Gulf of Mexico Reef Fish Fishery**

Dear Secretary Locke and Dr. Balsiger:

On behalf of the Caribbean Conservation Corporation (“CCC”), Center for Biological Diversity (“CBD”), Defenders of Wildlife (“Defenders”), Turtle Island Restoration Network (“TIRN”), and the Gulf Restoration Network (“GRN”), this letter serves as a 60-day notice of intent to sue the National Marine Fisheries Service/NOAA Fisheries (“NMFS”) for its violations of Sections 7 and 9 of the Endangered Species Act (“ESA”) (16 U.S.C. § 1531 *et seq.*) related to the management and regulation of the Gulf of Mexico Bottom Longline Fishery (“Fishery” or “Bottom Longline Fishery”).

As detailed below, NMFS is in violation of Section 7 of the ESA, 16 U.S.C. § 1536, because it is failing to ensure that the ongoing operation of the Gulf of Mexico Bottom Longline Fishery is not likely to jeopardize the continued existence of loggerhead sea turtles and other listed species. NMFS also is in violation of Section 9 of the ESA, 16 U.S.C. § 1538, for authorizing the unlawful take of sea turtles in the Bottom Longline Fishery. NMFS’s violations stem from its reliance on the Biological Opinion for “The Continued Authorization of Reef Fish Fishing under the Gulf of Mexico Reef Fish Fishery Management Plan, including Amendment 31, and a Rulemaking to Reduce Sea Turtle Bycatch in the Eastern Gulf Bottom Longline Component of the Fishery” (“2009

Biological Opinion”), finalized on October 13, 2009. The 2009 Biological Opinion is fundamentally flawed and cannot be relied upon to ensure that the Bottom Longline Fishery meets the requirements of the ESA. The 2009 Biological Opinion fails to use the best available science, omits key factors from consideration, and fails to establish a rational connection between the facts found and conclusions made. Consequently, the 2009 Biological Opinion represents a violation of the most basic requirements of the ESA to conserve listed species, and is arbitrary and capricious, an abuse of discretion, and not in accordance with law, in violation of the ESA and the Administrative Procedure Act (“APA”), 5 U.S.C. § 706(2).

This letter is provided pursuant to the 60-day notice requirement of the citizen suit provision of the ESA, to the extent such notice is deemed necessary by a court. *See* 16 U.S.C. § 1540(g). If NMFS does not take action within 60 days to remedy its violations of ESA Sections 7 and 9, our organizations will pursue litigation.

## **Background**

The operation of the Bottom Longline Fishery is authorized and managed by NMFS pursuant to the federal fishery management plan for the Gulf of Mexico Reef Fish Fishery. While the overall Gulf of Mexico commercial Reef Fish Fishery includes several types of gear, the Bottom Longline Fishery accounts for most grouper and tilefish landings as well as most take of threatened and endangered sea turtle species. The Fishery employs longline gear set along the ocean bottom to target a variety of reef fish species. This gear consists of a mainline made of steel cable or monofilament ranging anywhere from 4 to 9 nautical miles (“nm”) with up to 2,100 hooks attached to gangions along the mainline (generally 100-200 hooks per nm of mainline). Once deployed, the hooks are left to “soak” for 3 hours or more before being hauled out of the water to collect any catch.

The Bottom Longline Fishery operates primarily off Florida’s west coast in an area relied upon by several sea turtle species for vital foraging habitat. Loggerhead sea turtles, in particular, appear to rely on this area and frequently are caught, injured, and killed by the Fishery.

### Prior Mismanagement of the Bottom Longline Fishery

On February 15, 2005, NMFS issued a biological opinion on the continued authorization of the Gulf of Mexico reef fish fishery as managed under the Reef Fish Fishery Management Plan. The 2005 Biological Opinion concluded that the Reef Fish Fishery – composed of the bottom longline, commercial vertical line, and recreational vertical line fisheries – was not likely to jeopardize the continued existence of the Atlantic population of loggerhead sea turtles.<sup>1</sup> The 2005 Biological Opinion’s incidental take

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<sup>1</sup> NMFS, Biological Opinion on the Continued Authorization of Reef Fish Fishing under the Gulf of Mexico (GOM) Reef Fish Fishery Management Plan (RFFMP) and Proposed Amendment 23 (Feb. 15, 2005) (“2005 Biological Opinion”) at 93. Since the 2005 Biological Opinion was issued, NMFS has received a petition to list the Western North Atlantic subpopulations of loggerheads as a distinct population segment and reclassify



statement (“ITS”) authorized the Bottom Longline Fishery to take up to 85 loggerheads (including 42 lethal takes) over a 3-year period.<sup>2</sup> The total 3-year incidental take limit for all three combined fisheries was 203 loggerhead turtles (including 78 lethal takes).<sup>3</sup>

Though the 2005 Biological Opinion required that NMFS analyze and report bycatch levels in the Fishery on an annual basis, NMFS failed to do so until late summer 2008. NMFS’s belated analysis of its observer data showed that the Bottom Longline Fishery had far exceeded the take limits contained in the 2005 Biological Opinion for loggerhead sea turtles, capturing at least 782 loggerheads between June 2006 and December 2007. Despite the documented capture and death of these ESA-protected species, NMFS delayed any alteration of Fishery operations until May 2009 when it published an emergency rule prohibiting bottom longline fishing east of 85°30’ W longitude in waters 50 fathoms or shallower.<sup>4</sup> This action came only after our organizations filed a notice of intent to sue the agency on January 14, 2009, and filed suit on April 15, 2009.

#### Loggerhead Sea Turtles’ Imperiled Status

The Western North Atlantic loggerhead sea turtle population – the population segment affected by the bottom longline fishery – is experiencing a dangerous decline. Nesting populations of loggerhead sea turtles throughout the Gulf of Mexico and southeast U.S. have declined significantly over the past decade.<sup>5</sup> The annual loggerhead nests counted at index nesting beaches in Florida show a decline of more than 40 percent over the last decade.<sup>6</sup> Data from the recent 2009 nesting season indicate that this was the fourth lowest nesting year on record for loggerhead sea turtles in Florida.

The decline in Florida loggerhead sea turtle nesting has implications for the global status of loggerheads. The South Florida loggerhead nesting assemblage, together with the important Oman assemblage in the Arabian Sea, accounts for 80-90 percent of the world’s loggerhead nesting activity.<sup>7</sup>

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them as endangered under the ESA. Oceana and Center for Biological Diversity, Petition Pursuant to the Endangered Species Act to Designate the Western North Atlantic Subpopulations of the Loggerhead Sea Turtle (*Caretta caretta*) as a Distinct Population Segment and to Reclassify the Western North Atlantic Subpopulations as Endangered (Nov. 15, 2007). On March 5, 2008, NMFS and the U.S. Fish and Wildlife Service issued a positive 90-day finding on the petition. 73 Fed. Reg. 11849. A final determination on the petition was due in November 2008.

<sup>2</sup> 2005 Biological Opinion at 94.

<sup>3</sup> *Id.*

<sup>4</sup> NMFS, Temporary Rule – Gulf Reef Fish Longline Restriction, 74 Fed. Reg. 20229 (May 1, 2009).

<sup>5</sup> NMFS. 2008. Final Recovery Plan for the Northwest Atlantic Population of Loggerhead Sea Turtles (*Caretta caretta*), Second Revision.

<sup>6</sup> Witherington, B. et al. 2009, Decreasing annual nest counts in a globally important loggerhead sea turtle population, *Ecological Applications* 19(1): 30-54. *See also id.* 48 (“The incidental capture of sea turtles in commercial and artisanal fisheries is considered to be the most significant factor affecting the conservation and recovery of the loggerhead sea turtle.”), citing NMFS and USFWS (2007), Loggerhead sea turtle (*Caretta caretta*) 5-year review: Summary and evaluation.

<sup>7</sup> Witherington et al. 2009 at 30; 2005 Biological Opinion at 41.

Researchers have concluded that bycatch of loggerheads by various fisheries, particularly the removal of immature turtles, is a major contributing factor to the decline in Florida loggerhead nesting.<sup>8</sup> The incidental take of reproductively valuable subadults and adults in the Gulf of Mexico bottom longline fishery is particularly worrisome given the loggerhead's downward population trend. Scientists have also found that loggerhead population numbers are profoundly affected by the removal of juvenile loggerheads, which have high reproductive potential.<sup>9</sup>

Sublethal effects on captured loggerheads may also carry implications for the fitness of the population. Entanglement in longlines, trailing gear, and injuries from hooking can affect a turtle's ability to feed, swim, avoid predators, and reproduce.<sup>10</sup> A turtle hooked or entangled in bottom longline gear will generally not be able to surface for breath. Even if the turtle is brought to the surface before it drowns, the severe respiratory and metabolic stress it experiences from the forced submergence weakens the turtle, which may require as much as 20 hours to recover. During this recovery period, the turtle will generally stay near the surface, where it may be vulnerable to recapture in fishing gear as well as to other harms, such as vessel strikes or predation.<sup>11</sup> Unfortunately, not all turtles are able to recover from such extreme physical harm and physiological stress, and many die after being released.

The best available science demonstrates that loggerhead sea turtles are vulnerable to incidental capture year-round, as the area used by the Fishery is important year-round foraging habitat for this species.<sup>12</sup> In 2008 and in 2009, scientists from the Florida Wildlife Conservation Commission ("FWCC" or "the Commission") and Mote Marine Laboratory presented NMFS with a summary of satellite tracking data that shows the prevalence of loggerheads off the west coast of Florida.<sup>13</sup> The Commission's data "show that the shelf waters of the eastern Gulf of Mexico off Florida provide habitat for important numbers of loggerhead sea turtles, including individuals with the highest reproductive value (subadults and adults)."<sup>14</sup>

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<sup>8</sup> Witherington et al. 2009 at 50.

<sup>9</sup> See, e.g., Crouse, D. et al. 1987, A Stage-Based Population Model for Loggerhead Sea Turtles and Implications for Conservation, *Ecology*, 68(5): 1412-23; Crowder, L., et al. 1994, Predicting the Impact of Turtle Excluder Devices on Loggerhead Sea Turtle Populations, *Ecological Applications*, 4(3):437-445 (finding population growth is most sensitive to survival of large juveniles).

<sup>10</sup> 2005 Biological Opinion at 57-59.

<sup>11</sup> *Id.* at 59-60.

<sup>12</sup> See, e.g., Witherington et al. 2009; Letter from Gil McRae, Fish and Wildlife Research Institute, to Roy Crabtree, NOAA Fisheries Southeast Region (Dec. 9, 2008).

<sup>13</sup> Letter from Gil McRae, Fish and Wildlife Research Institute, to Roy Crabtree, NOAA Fisheries Southeast Region (Dec. 9, 2008); Letter from Gil McRae, Fish and Wildlife Research Institute, Fla. Fish and Wildlife Conservation Comm'n, to Roy Crabtree, NOAA Fisheries Southeast Region (May 11, 2009); Letter from Tony Tucker, Sea Turtle Conserv. and Research Program, Mote Marine Lab, to Roy Crabtree, NOAA Fisheries Southeast Region (May 14, 2009) (letter misdated as May 2008).

<sup>14</sup> *Id.* at 2.

Finally, the best available science shows that the loggerhead sea turtle, and particularly the Western North Atlantic loggerhead, cannot withstand continued high levels of bycatch if it is to survive and recover. An analysis of potential causes of the decline in nesting female loggerheads in Florida found that “the factor that best fits the nesting decline is fisheries bycatch. . . .”<sup>15</sup> If the Florida loggerhead nesting decline continues at its current rate, scientists estimate that by 2017 loggerhead nest counts will have decreased by 80 percent from 1998 levels. Such a drastic decline over a period of just 19 years – less than half the loggerhead’s 45-year generation time – would warrant IUCN Critically Endangered status.<sup>16</sup> Indeed, a team of sea turtle biologists, including NMFS biologists, has determined that the Western North Atlantic loggerhead population segment is “currently at risk of extinction.”<sup>17</sup> The same team concluded that fisheries bycatch was the primary source of mortality for Western North Atlantic loggerheads.<sup>18</sup>

#### NMFS’s New Management Measures and the 2009 Biological Opinion

In order to lift the temporary fishery closure put in place in May 2009 for the protection of loggerhead sea turtles, NMFS and the Gulf of Mexico Fishery Management Council developed revised management measures for the Bottom Longline Fishery. These included an interim rule promulgated pursuant to the ESA and longer term measures to be implemented under proposed Amendment 31 to the Reef Fish Fishery Management Plan (“FMP”).

On August 13, 2009, the Gulf Council voted in favor of submitting Amendment 31 to the Reef Fish FMP to NMFS for review and approval under the Magnuson-Stevens Fishery Conservation and Management Act. If approved, Amendment 31 would (1) prohibit the use of bottom longline gear shoreward of a line approximating the 35–fathom contour during the months of June through August; (2) reduce the number of longline vessels operating in the fishery through an endorsement program that would grant vessel permits only to those ships with a demonstrated history of landings, on average, of at least 40,000 pounds of reef fish annually with fish traps or longline gear during 1999–2007; and (3) restrict the total number of hooks that may be possessed onboard each reef fish bottom longline vessel to 1,000, only 750 of which may be rigged for fishing.<sup>19</sup> Due to the Council process and various rulemaking requirements, these measures are not expected to go into effect until May 2010.

On October 21, 2009, NMFS issued a rule pursuant to the ESA (“ESA Rule”) lifting the May 2009 temporary closure and providing interim authority and management

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<sup>15</sup> Letter from Gil McRae, Florida Fish and Wildlife Conservation Commission, to Roy Crabtree, NMFS SERO (Dec. 9, 2008); *see also* Witherington et al. 2009 at 48

<sup>16</sup> Witherington et al. 2009 at 51.

<sup>17</sup> Loggerhead Biological Review Team, Loggerhead Sea Turtle 2009 Status Review Under the US ESA (August 2009) at 164.

<sup>18</sup> *Id.* at 73.

<sup>19</sup> *See* 74 Fed. Reg. 53889, 53890 (Oct. 21, 2009) (“ESA Rule”) (describing Council action and need for interim management measures).

measures under which the Bottom Longline Fishery must operate until Amendment 31 is implemented.<sup>20</sup> The ESA Rule incorporates the hook restriction from Amendment 31 and prohibits bottom longline fishing in eastern Gulf of Mexico waters shallower than 35 fathoms.<sup>21</sup> NMFS anticipates that this rule will remain in place until the long-term regulatory measures contained in the Reef Fish FMP Amendment 31 are implemented.

NMFS issued a new biological opinion (“2009 Biological Opinion”) on the effects of the Reef Fish Fishery’s operations under the ESA Rule and Amendment 31 on October 13, 2009, concluding that the operation of the Reef Fish Fishery under these management measures was not likely to jeopardize the continued existence of the loggerhead sea turtle or any other listed species. NMFS explains in the 2009 Biological Opinion that its jeopardy analysis is based on the number of adult female loggerheads killed by the Fishery from 2011 onward relative to the size of the entire adult female population of Western North Atlantic loggerheads and the relative contribution of the Reef Fish Fishery compared to other sources of loggerhead mortality.<sup>22</sup>

The 2009 Biological Opinion states:

the proposed action is anticipated to result in the take of up to 1,152 loggerhead sea turtles, of which 631 are expected to be lethal, for the period 2009 through 2011. After that (i.e., from 2012 forward), the proposed action is anticipated to result in the take of up to 1,043 loggerhead sea turtles triennially, of which 566 are expected to be lethal.<sup>23</sup>

These numbers include take by three sectors of the overall Reef Fish Fishery – commercial bottom longline, commercial vertical line, and recreational vertical line – as well as vessel strikes by vessels operating within the Reef Fish Fishery. Whereas the 2005 Biological Opinion allowed the entire Reef Fish Fishery to take 203 loggerheads every 3 years, including 85 takes by the Bottom Longline Fishery, the 2009 Biological Opinion authorizes the Reef Fish Fishery to take more than 1,000 loggerheads every 3 years, including 623 to 732 takes by the Bottom Longline Fishery.

The 2009 Biological Opinion acknowledges that the Western North Atlantic loggerhead population is “in decline and likely to continue to decline,” is “experiencing more mortality than it can withstand,” and that the predicted continued decline is “largely driven by mortality of juvenile and adult loggerheads from fishery bycatch that occurs throughout the North Atlantic Ocean.”<sup>24</sup> The Biological Opinion also notes that the population “*is likely to continue to decline until large mortality reductions in all fisheries*

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<sup>20</sup> 74 Fed. Reg. at 53889.

<sup>21</sup> *Id.*

<sup>22</sup> *Id.* at 132-36.

<sup>23</sup> 2009 Biological Opinion at 129.

<sup>24</sup> *Id.* at 131, 135.

***and other sources of mortality (including impacts outside U.S. jurisdiction) are achieved.***<sup>25</sup>

The 2009 Biological Opinion nonetheless finds that the Reef Fish Fishery is not likely to “appreciably reduce” the loggerhead’s chances at survival and recovery because the impact of the number of turtles that NMFS estimates will be captured and killed in the Reef Fish Fishery is small when compared to other sources of mortality.

## **Violations of the ESA**

NMFS is in violation of Section 7 of the ESA by failing to ensure that the ongoing operation of the Gulf of Mexico Bottom Longline Fishery is not likely to jeopardize the continued existence of loggerhead sea turtles and other listed species and by failing to use its authority to conserve federally protected species. NMFS also is in violation of Section 9 of the ESA for authorizing the unlawful take of sea turtles in the Bottom Longline Fishery. Because NMFS’s conclusions in the 2009 Biological Opinion are arbitrary and capricious, and not in accordance with applicable law, that opinion cannot be relied upon as to meet these legal requirements. The following describes particular violations of the ESA that NMFS has committed by reopening the Fishery based on this flawed Biological Opinion.

### ESA Sections 2(c) and 7(a)(1)

Section 2(c) of the ESA establishes that it is “the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.” 16 U.S.C. § 1531(c)(1). The ESA defines “conservation” to mean “the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.” *Id.* § 1532(3). Similarly, Section 7(a)(1) of the ESA directs that the Secretary review “programs administered by him and utilize such programs in furtherance of the purposes of the Act.” *Id.* § 1536(a)(1).

NMFS’s continued authorization of the Fishery is violating Sections 2(c) and 7(a)(1) of the ESA because NMFS has not used its authorities to further the purpose of listed species conservation. Specifically, as noted above, the 2009 Biological Opinion acknowledges that the Western North Atlantic loggerhead population is “in decline and likely to continue to decline,” is “experiencing more mortality than it can withstand,” and that the predicted continued decline is “largely driven by mortality of juvenile and adult loggerheads from fishery bycatch that occurs throughout the North Atlantic Ocean.”<sup>26</sup> And indeed, this decline is expected to continue “***until large mortality reductions in all***

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<sup>25</sup> *Id.* at 136 (emphasis added).

<sup>26</sup> *Id.* at 131, 135.

*fisheries* and other sources of mortality (including impacts outside U.S. jurisdiction) are achieved.”<sup>27</sup>

Rather than require the necessary reductions in mortality from this fishery (as well as others), NMFS has authorized the Fishery to continue to operate in a way that is expected to capture over 1,000 loggerhead sea turtles every three years. At the same time, it is continuing to authorize numerous other federal fisheries that also are expected to result in the take of thousands of loggerhead sea turtles. By taking this action even while acknowledging that it may forestall the recovery of an already declining population, NMFS is clearly failing to use all the resources necessary to bring the loggerhead back to the point where ESA protection would no longer be necessary.

#### ESA Section 7(a)(2)

Section 7(a)(2) of the ESA requires federal agencies to “insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species . . . determined . . . to be critical . . . .” 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). To accomplish this goal, agencies must consult with the delegated agency of the Secretary of Commerce or Interior whenever their actions “may affect” a listed species. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). Where, as here, NMFS is both the action agency and the consulting agency, different branches of NMFS must undertake internal consultation with each other. At the completion of consultation, NMFS as the consulting agency issues a biological opinion that determines whether the action is likely to jeopardize the continued existence of the species or destroy or adversely modify critical habitat. If so, the opinion must specify reasonable and prudent alternatives that will avoid the likelihood of jeopardy and allow the action to proceed. 16 U.S.C. § 1536(b).

Even after the procedural requirements of a consultation are complete, however, the ultimate duty to ensure that an activity does not jeopardize a listed species lies with the action agency. An action agency’s reliance on an inadequate, incomplete, or flawed biological opinion cannot satisfy its duty to avoid the likelihood of jeopardy to listed species. *See, e.g., Florida Key Deer v. Paulison*, 522 F.3d 1133, 1145 (11th Cir. 2008); *Pyramid Lake Tribe of Indians v. U.S. Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990); *Stop H-3 Ass’n. v. Dole*, 740 F.2d 1442, 1460 (9th Cir. 1984) (action agency must independently ensure that its actions are not likely to cause jeopardy). Thus, the substantive duty to insure against jeopardy to listed species remains in effect regardless of the status of the consultation. While the action agency may most readily fulfill this substantive duty by implementing a federal action that the consulting agency properly has determined not to cause jeopardy, or by implementing a valid reasonable and prudent alternative that results from a properly completed consultation, an action agency is “technically free” to choose an

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<sup>27</sup> *Id.* at 136 (emphasis added).

alternative course of action if it can independently ensure that the alternative will avoid jeopardy. *See Bennett v. Spear*, 520 U.S. 154, 170 (1997).

The 2009 Biological Opinion is a deeply flawed document on which NMFS may not reasonably rely. For example, the opinion fails to properly analyze the “effects of the action” when added to a comprehensive environmental baseline. 50 C.F.R. § 402.02. First, the 2009 Biological Opinion fails to comprehensively and accurately describe the environmental baseline. As noted above, the 2009 Biological Opinion clearly states that the Western North Atlantic loggerhead population is “in decline and likely to continue to decline,” is now “experiencing more mortality than it can withstand,” and “is likely to continue to decline until large mortality reductions in all fisheries and other sources of mortality (including impacts outside U.S. jurisdiction) are achieved.”<sup>28</sup> Indeed, this decline has been precipitous, with nesting in Florida falling over 40% during the last decade and scientists projecting a possible 80% decline from 1998 levels by 2017. Yet the Biological Opinion assumes a static baseline in its jeopardy analysis, comparing the number of adult female loggerheads expected to be killed by the Reef Fish Fishery to the size the Western North Atlantic loggerhead population today. In light of the ongoing nature of the Fishery, NMFS was required to project its impacts going forward, not simply in a snapshot manner.

Moreover, the 2009 Biological Opinion incorporates that flawed baseline into a patently unlawful jeopardy analysis, comparing the discrete risk posed by the Reef Fish Fishery with the overall, grim state of affairs presented by all risks to loggerhead sea turtles, rather than adding the effects of the Reef Fish Fishery to this baseline as required by the ESA and its implementing regulations. The Ninth Circuit examined NMFS’s approach in a prior case and soundly rejected it as contrary to ESA purposes and requirements: “Under this approach, a listed species could be gradually destroyed, so long as each step on the path to destruction is sufficiently modest. This type of slow slide into oblivion is one of the very ills the ESA seeks to prevent.” *Nat’l Wildlife Fed’n v. NMFS*, 481 F.3d 1224, 1235 (9th Cir. 2005).

In addition, the 2009 Biological Opinion is not based on the best available science and fails to make a rational connection between the facts found in the analysis and its ultimate “no jeopardy” conclusion. As one especially egregious example, NMFS fails to address or meaningfully consider satellite tracking data indicating that loggerheads are present in the action area year-round, and frequently occur at depths greater than 35 fathoms.<sup>29</sup> In addition, although NMFS acknowledges that capture in the Bottom Longline Fishery may have significant sublethal effects on loggerhead and other sea turtles as a

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<sup>28</sup> 2009 Biological Opinion at 131, 135-36.

<sup>29</sup> Letter from Tony Tucker, Mote Marine Laboratory, to Roy Crabtree, NMFS (May 14, 2009) at 2; Letter from Gil McRae, Florida Fish and Wildlife Conservation Commission, to Roy Crabtree, NMFS (May 11, 2009) at 1-2; Girard, C., A.D. Tucker, B. Calmettes (2009), Post-nesting migrations of loggerhead sea turtles in the Gulf of Mexico: dispersal in highly dynamic conditions, *Marine Biology*; 2008 McRae letter, *supra* note 15.

result of the forced submergence these animals suffer, it does not incorporate such considerations into its jeopardy analysis.

For these reasons, among others, the 2009 Biological Opinion incorrectly concludes that the continued operation of the Reef Fish Fishery is not likely to jeopardize the continued existence of the loggerhead sea turtle. In its capacity as the expert consulting agency, NMFS has acted in violation of the ESA and APA in producing an invalid biological opinion. In its duty as the action agency authorizing the operation of the Fishery, NMFS also has an independent duty to ensure that its actions avoid the likelihood of jeopardy. By authorizing the continued operation of the Bottom Longline Fishery based on the 2009 Biological Opinion, NMFS does not meet this legal standard. *See, e.g., Pyramid Lake Tribe of Indians*, 898 F.2d at 1415; *Stop H-3 Ass'n.*, 740 F.2d at 1460. NMFS has therefore violated and remains in violation of Section 7(a)(2) of the ESA.

### ESA Section 9

Section 9 of the ESA prohibits any “person” from “taking” threatened and endangered species. 16 U.S.C. § 1538. The definition of “take,” *id.* § 1532(19), states that “take” means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The prohibition applies to NMFS here because “[t]he statute not only prohibits the acts of those parties that directly exact the taking, but also bans those acts of a third party that bring about the acts exacting a taking. . . . [A] governmental third party pursuant to whose authority an actor directly exacts a taking of an endangered species may be deemed to have violated the provisions of the ESA.” *Strahan v. Coxe, et al*, 127 F.3d 155, 163 (1st Cir. 1997). NMFS provides the authorization for the operation of all sectors of the Gulf of Mexico Reef Fish Fishery, as well as all other federal fisheries. The agency’s continued authorization of the Bottom Longline Fishery, which is known to regularly result in the capture and mortality of sea turtles throughout the year, absent a valid incidental take authorization, violates ESA Section 9. Because such take is ongoing, NMFS is in violation of ESA Section 9.<sup>30</sup>

A federal agency, and private entities such as fishermen acting under federal authorization, may take listed species only in accordance with an Incidental Take

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<sup>30</sup> To the extent NMFS relies upon the ESA Rule, as codified at 50 C.F.R. § 223.206(d), as authorization to allow incidental take of loggerhead sea turtles in the Bottom Longline Fishery, such authorization is inapplicable. The ESA Rule wholly relies upon the unlawful 2009 Biological Opinion to establish an exception to the Section 9 take prohibition. As discussed above, reliance on this invalid document cannot satisfy NMFS’s duties under the ESA. Regardless, the uplisting of the loggerhead sea turtle to endangered status appears both appropriate and imminent based on the pending petition for uplisting and NMFS’s own recent statements—and indeed should have occurred already. NMFS has acknowledged that the Western North Atlantic loggerhead is “at risk of extinction” in its Loggerhead Sea Turtle 2009 Status Review. Under the ESA, a species must be listed as Endangered if it is “in danger of extinction throughout all or a significant portion of its range.” Should NMFS follow through on its scientific finding and change the status of the Western North Atlantic loggerhead as Endangered, any take authorization provided for this fishery by 50 C.F.R. § 223.206(d) would no longer be applicable. NMFS’s own delay in addressing the uplisting issue can provide no shield for its unlawful action here.



Statement (“ITS”) in a valid biological opinion. Pursuant to Section 7(b)(4) of the ESA, a biological opinion which concludes that the agency action will not jeopardize a listed species must include an ITS which specifies the impact of any incidental takes, provides reasonable and prudent measures necessary to minimize the impact of those takes, and sets forth terms and conditions that must be followed in order to ensure the action is not likely to cause jeopardy. 16 U.S.C. § 1536(b)(4). If the terms and conditions of the ITS are satisfied, the federal agency and any permittee are exempted from Section 9’s take prohibitions. *Id.* § 1536(o)(2). If any term or condition for the biological opinion is not fulfilled, however, all subsequent take is in violation of Section 9.

Because of the deficiencies in the 2009 Biological Opinion, any takes of sea turtles in the Fishery are without the protection of a valid ITS and therefore are in violation of Section 9. In addition, to the best of our knowledge, it appears likely that NMFS has violated the mandatory terms and conditions of the 2009 Biological Opinion through its failure to ensure that “observer coverage is sufficient to produce a statistically reliable sample of the bottom longline component of the Gulf reef fish fishery,”<sup>31</sup> a requirement that NMFS estimates will translate to observer coverage of at least 2.9 to 6.5 percent of bottom longline trips.<sup>32</sup> Although we have been unable to obtain any information regarding current observer coverage levels from NMFS, these levels have not historically been met, reaching only about 1.3 percent coverage in the Bottom Longline Fishery in prior years. Moreover, NMFS has consistently failed to provide evidence of how or when these required levels will be achieved.

Because there is no legal take authorization for the Bottom Longline Fishery due both to the flaws in the 2009 Biological Opinion and to NMFS’s apparent non-compliance with even this flawed Biological Opinion’s mandatory terms and conditions, NMFS is acting in violation of Section 9 of the ESA.

## **Conclusion**

As this letter makes clear, we believe that the continued operation of the Gulf of Mexico Bottom Longline Fishery violates the ESA. If NMFS does not act within 60 days to correct the violations described in this letter, our organizations will pursue litigation in Federal Court against NMFS. We will seek injunctive and declaratory relief, and legal fees and costs regarding these violations. An appropriate remedy that would forestall litigation would be for NMFS to immediately reinstate formal consultation pursuant to ESA Section 7(a)(2) and ensure federally protected species receive sufficient protection while consultation occurs. During reinstatement of consultation, NMFS should, at a minimum, maintain the ESA Rule; implement and maintain a level of observer coverage that is at least adequate to satisfy the terms and conditions of the 2009 Biological Opinion; and make publicly available real-time information regarding the level of observer coverage for

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<sup>31</sup> See 2009 Biological Opinion at 149, Term and Condition No. 5.

<sup>32</sup> Carlson, J., NMFS Southeast Fisheries Science Center, Revised Estimation of Observer Coverage Required in the Reef Fish Bottom Longline Fishery based on Interactions with Sea Turtles (Sept. 2009).

the Bottom Longline Fishery and any takes that occur within the Bottom Longline Fishery as well as other components of the Reef Fish Fishery.

If you have any questions, wish to meet to discuss this matter, or feel this notice is in error, please contact us at the numbers provided below. Thank you for your concern.

Sincerely,



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Attachments

cc:

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Robert Shipp, Chair, Gulf of Mexico Fishery Management Council



FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION  
**FISH AND WILDLIFE RESEARCH INSTITUTE**

## 2009 Nesting Season for Loggerheads Continues Long-term Declining Trend

Loggerhead sea turtle nest numbers in 2009 represented the fourth lowest count since the Index Nesting Beach Survey began in 1989.

Loggerhead sea turtle nest numbers in 2009 represented the fourth lowest count since the Index Nesting Beach Survey began in 1989 (see Figure 1). An updated analysis of Florida's long-term loggerhead sea turtle nesting data reveals that nest counts have declined 24 percent from 1989 to 2009, and 38 percent from 1998 to 2009. The steep decline in loggerhead nest numbers followed a modest (25 percent) increase that occurred between 1989 and 1998. The study was conducted as part of the Florida Fish and Wildlife Conservation Commission's (FWC) Index Nesting Beach Survey.

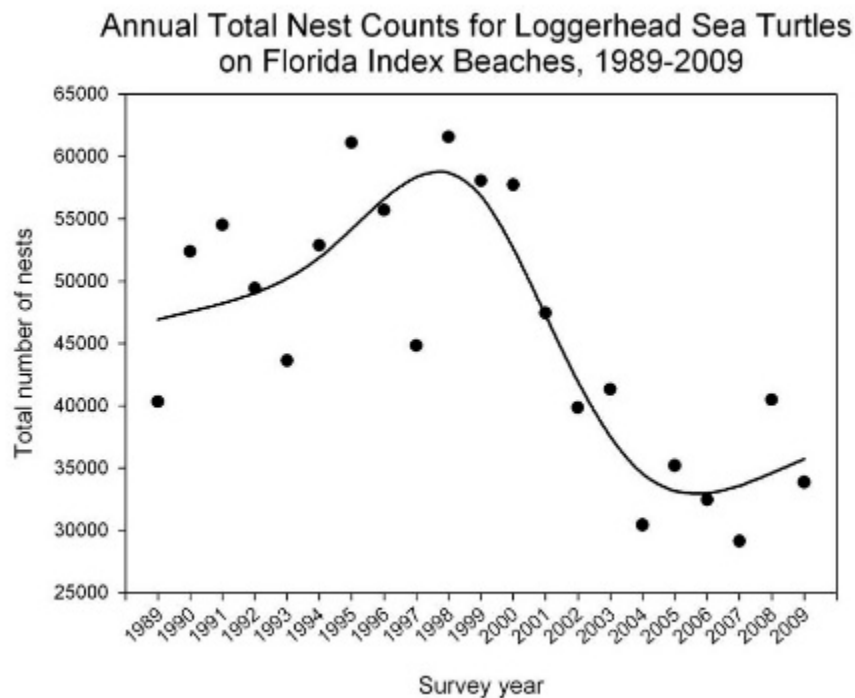


Figure 1: Annual total nest counts for loggerhead sea turtles on Florida Index beaches, 1989 – 2009. The trend line was estimated by fitting a 5-knot restricted cubic spline curve to the total counts via negative binomial regression.

The index nesting data used in this analysis comprise nest counts made by hundreds of participants who survey turtle tracks and nests at specific Florida beaches. The participants hold a Florida Marine Turtle Permit and are specially trained in sea turtle nest identification. Participants are also required to follow a rigorous protocol to ensure nest counts reveal unbiased trends. Scientists at the FWC's Fish and Wildlife Research Institute coordinate the nest counts.

Nest counts for green turtles and leatherback turtles in Florida show an opposite trend from loggerhead turtles over the same period. In 2009, the number of leatherback nests on index beaches was the highest since the trend-monitoring program began in 1989. These two species nest on many of the same beaches in Florida as the loggerhead, but in much smaller numbers.

[Follow this link for more information on how nesting-trend data are collected, and for trends in nesting by green turtles and leatherback turtles.](#)

[Following this link to request a copy of the journal article, "Decreasing annual nest counts in a globally important loggerhead sea turtle population" published in 2009 in the journal, \*Ecological Applications\*.](#)

Florida accounts for more than 90 percent of the loggerhead nesting in the United States with a nesting aggregation that is considered to be one of the two largest remaining in the world. Although loggerhead sea turtles nest at many locations around the world, approximately 80 percent of the world's population is believed to nest on the beaches of Florida and Oman (on the Arabian Peninsula).

Loggerheads have many threats to their survival. Artificial lighting on nesting beaches causes hatchlings from nests to crawl inland rather than toward the water. On developed beaches, coastal armoring meant to protect buildings from erosion has resulted in the loss of nesting habitat near natural dunes. Throughout the state's waters, collisions with boats are the most common identifiable cause of trauma in sea turtles that wash up dead on Florida beaches.

Some threats to Florida's loggerheads occur far from the state's waters and beaches. During the approximately 30 years it takes for a loggerhead sea turtle to mature, a turtle is likely to have traveled widely in the Atlantic Ocean basin where major sources of incidental mortality exist. These threats include drowning in fishing trawls that are pulled to catch shrimp, and hooking and entanglement by open-ocean longlines set to catch reef fish, sharks, tuna, and swordfish. Occasionally, mass strandings of dead or sick loggerheads occur without clear evidence of what disease, toxin, or event was responsible.

In Florida, FWC is continuing efforts to manage errant lighting that could result in mortalities of sea turtle hatchlings on developed beaches. Although Florida's booming human population and coastal growth are challenges for sea turtle protection, FWC has expanded efforts to guide coastal construction practices and commercial fishing activities, and facilitate the rescue and rehabilitation of sick and injured sea turtles.

In order to help protect and manage Florida's sea turtles outside of Florida waters, FWC provides nesting data to the National Oceanic and Atmospheric Administration's National Marine Fisheries Service and the U.S. Fish and Wildlife Service. Both federal agencies have management oversight beyond Florida's jurisdiction. Floridians interested in doing their part to help Florida's sea turtles can learn more about sea turtles and threats to their survival by visiting the [Sea Turtles](#) section.

Funding for FWC's Index Nesting Beach Survey program is provided by the U.S. Fish and Wildlife Service.

# Potential Impacts of Deepwater Horizon Oil Spill on Sea Turtles

**By Elizabeth Griffin Wilson**

June 2010

## Introduction

Sea turtles have been swimming the oceans for more than 100 million years. They have persisted through natural predators, climatic changes and even the mass dinosaur extinction. They have proven to be important ecologically, economically and culturally both in the United States and abroad. Nonetheless, modern day human activities are killing sea turtles at a faster rate than many populations can sustain.

In fact, each of the sea turtle species found in U.S. waters is listed as either “threatened” or “endangered” under the Endangered Species Act (ESA) – which means they may be driven to extinction in the foreseeable future. Five of the world’s seven species of sea turtles inhabit the Gulf of Mexico for some portion of their lives: green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), Kemp’s ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and loggerhead (*Caretta caretta*).

A variety of human actions including commercial fishing, coastal development, and direct harvest have led to the decline of sea turtle populations and the need for ESA listings. Sea turtle protection measures have resulted in increased numbers for some sea turtle populations. For other populations, however, the outlook is increasingly grim. Each of the five sea turtle species that can be found in the Gulf of Mexico are now at risk of significant harm from the Deepwater Horizon oil spill.

Species	Population Status Under Endangered Species Act
Green	Endangered (Florida & Mexico's Pacific coast breeding colonies); Threatened (all other areas)
Hawksbill	Endangered
Kemp’s Ridley	Endangered
Leatherback	Endangered
Loggerhead	Threatened

**Table 1.** U.S. Sea Turtle Populations Status

## Turtles Face a Wide Variety of Threats from the Spill

As of June 9, 32 oiled sea turtles have been found in the Gulf of Mexico.<sup>1</sup> More than 320 sea turtles have been found dead or injured since the spill began April 20.<sup>2</sup> While scientists have not yet determined the cause of death for many of these turtles, this number is higher than usual.

While some sea turtles that are dead or injured are found by search crews or wash up on the beach "strand," many others will not. This is because currents often carry the carcasses out to sea or carcasses can sink or be eaten by predators. In the coming months, we can expect to continue seeing elevated levels of sea turtle standings and also to discover oiled turtles at sea. In addition, there are at least three other ways to assess the impact of the oil spill on Gulf sea turtles.

First, there could be reduced nesting due to injuries to mature females or nesting beaches being covered in oil. Nest monitoring programs should be able to report any emerging trends as the season progresses.

Second, if oil washes up on the beach after the nests are already laid; hatching success rates will be likely impacted. This will become apparent through nest monitoring programs once the nests start to hatch, approximately two months after the eggs are laid.

Finally, when the hatchlings join the rest of the population out at sea, they will face direct oil exposure, contaminated prey and oil impacts on their habitat. It is difficult to estimate how long it will take for these types of impacts to show up in the population. If adult females are killed, nesting numbers could start to decline almost immediately. Kemp's ridley sea turtles do not reach sexual maturity until they are 7-15 years old so the impacts of large numbers of hatchlings being lost to the oil spill could take a decade or more to begin to influence nesting numbers. For loggerhead and green sea turtles, which don't reach maturity to some time after 20 years of age, it could take even longer to see impacts.

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<sup>1</sup>Deepwater Horizon Response. Consolidated Fish and Wildlife Collection Report. June 8, 2010. [http://www.deepwaterhorizonresponse.com/posted/2931/FWNnumbers\\_Web\\_8June\\_final.600867.pdf](http://www.deepwaterhorizonresponse.com/posted/2931/FWNnumbers_Web_8June_final.600867.pdf)  
<sup>2</sup> Deepwater Horizon Response. Consolidated Fish and Wildlife Collection Report. June 8, 2010.

## Oil Related Injuries

Sea turtles can suffer both internal and external injuries from contact with oil or chemical dispersants. Sea turtles are vulnerable to the effects of oil at all life stages—eggs, post-hatchlings, juveniles, and adults.<sup>3</sup> They are especially at risk because they do not avoid oiled waters according to studies.<sup>4</sup>

Depending on the circumstances of the oil spill, sea turtles could become coated in oil or inhale volatile chemicals when they surface to breathe, swallow oil or contaminated prey, swim through oil, or come in contact with it on their nesting beaches. This contact with oil is dangerous to sea turtles in a variety of ways:

- Oil or dispersants on the sea turtle's skin and body can cause skin irritation, chemical burns, and infections.<sup>5</sup> Oil exposure for just 4 days can cause sea turtles' skin to continually fall off in sheets. This condition persists even after they are removed and treated from the exposure.<sup>6</sup>
- Inhalation of volatile petroleum compounds or dispersants can damage the respiratory tract and lead to diseases such as pneumonia.<sup>7</sup>
- Ingesting oil or dispersants may cause injury to the gastrointestinal tract, which may affect the animals' ability to absorb or digest foods.<sup>8</sup> Turtles of all life stages exposed to tarballs have been found with tar blocking their digestive systems leading to toxic exposure and "floating syndrome" where gas prevents the turtle from diving and therefore feeding. This can lead to starvation.<sup>9</sup>
- Chemicals that are inhaled or ingested may damage liver, kidney, and brain function, cause anemia and immune suppression, or lead to reproductive failure or death.<sup>10</sup>
- Oil on developing sea turtle nests has been shown to increase egg mortality and lead to potential deformities in the hatchlings that do survive.<sup>11</sup> Viscous, weathered oil on beaches is an additional obstacle hatchlings must overcome to reach the water safely before predators end their chances of survival.<sup>12</sup>

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3 Shigenaka, G. et al. 2003. Oil and Sea Turtles, biology, planning and response. NOAA publication. Available at: [http://response.restoration.noaa.gov/book\\_shelf/35\\_turtle\\_complete.pdf](http://response.restoration.noaa.gov/book_shelf/35_turtle_complete.pdf)

4 Shigenaka, G. et al. 2003.

5 National Oceanic and Atmospheric Administration, U.S. Department of Commerce. NOAA's Oil Spill Response. Effects of Oil on Marine Mammals and Sea Turtles. [http://response.restoration.noaa.gov/book\\_shelf/1887\\_Marine-Mammals-Sea-Turtles-fact-sheet.pdf](http://response.restoration.noaa.gov/book_shelf/1887_Marine-Mammals-Sea-Turtles-fact-sheet.pdf)

6 Shigenaka, G. et al. 2003.

7 National Oceanic and Atmospheric Administration, U.S. Department of Commerce. NOAA's Oil Spill Response. Effects of Oil on Marine Mammals and Sea Turtles.

8 National Oceanic and Atmospheric Administration, U.S. Department of Commerce. NOAA's Oil Spill Response. Effects of Oil on Marine Mammals and Sea Turtles.

9 Shigenaka, G. et al. 2003.

10 National Oceanic and Atmospheric Administration, U.S. Department of Commerce. NOAA's Oil Spill Response. Effects of Oil on Marine Mammals and Sea Turtles.

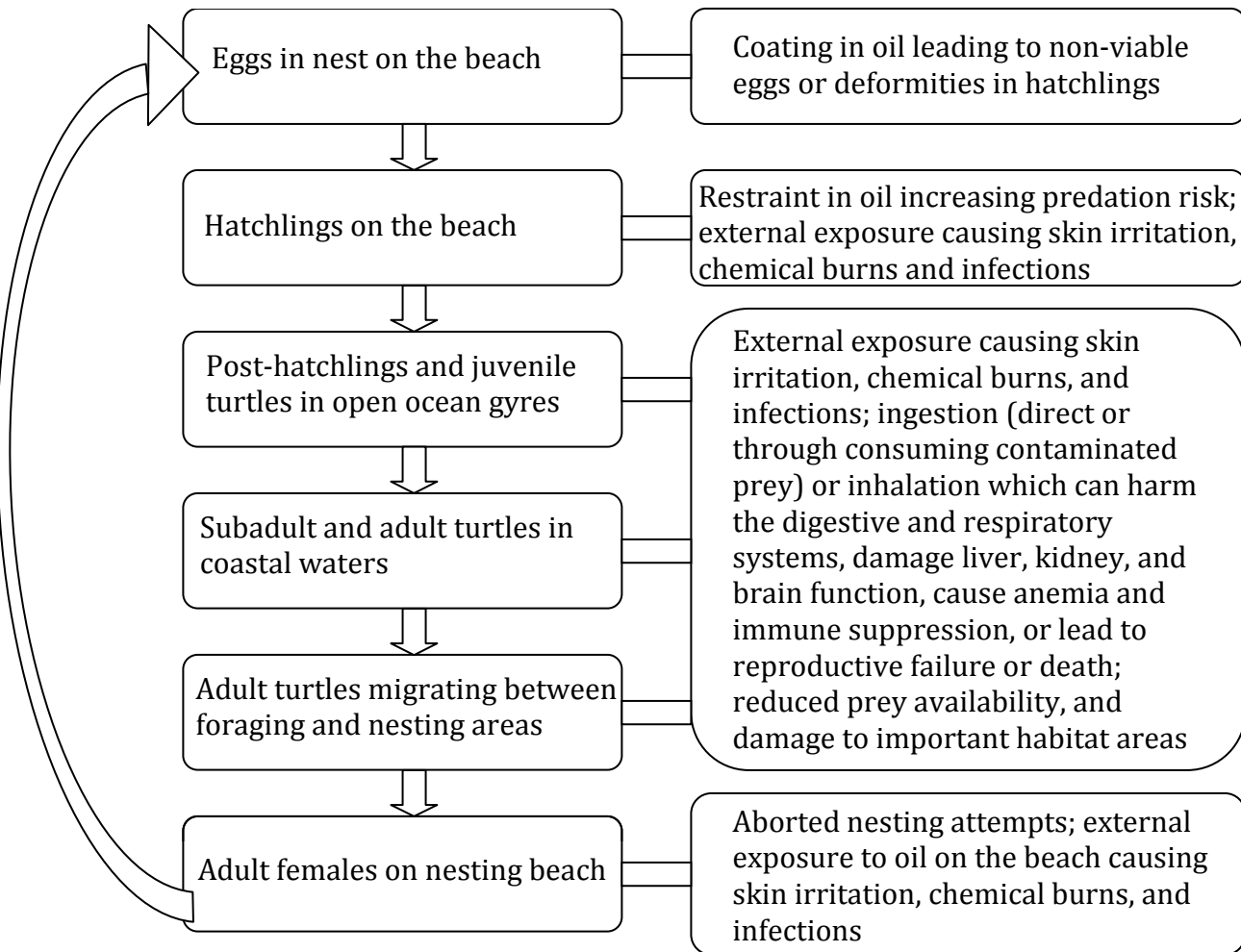
11 Shigenaka, G. et al. 2003.

12 Shigenaka, G. et al. 2003.

In addition to injuries from direct contact with the oil or from consuming contaminated prey, oil spills can also be harmful to sea turtles by destroying important sea turtle habitat areas and reducing available prey.<sup>13</sup> Some important sea turtle habitats that can be impacted by oil include sargassum sea weed mats, sea grass beds and coral reefs. Declines in sea grass, as well as invertebrates and sponge populations, as a result of oil exposure reduce the available food supply to sea turtles.<sup>14</sup>

### Stages of the Sea Turtle Life Cycle

### Primary Oil Related Threats



**Figure 1.** Oils Spill Related Threats to Sea Turtles at Various Life Stages<sup>15</sup>

<sup>13</sup> Shigenaka, G. et al. 2003.

<sup>14</sup> Shigenaka, G. et al. 2003.

<sup>15</sup> Oil spill threats summarized from Shigenaka, G. et al. 2003 and NOAA, U.S. Department of Commerce. NOAA's Oil Spill Response. Effects of Oil on Marine Mammals and Sea Turtles.



## Specific Concerns for Gulf Sea Turtle Species

The five species of sea turtles found in the Gulf of Mexico vary in distribution, life history, and behavior but they have one important thing in common. All five could be put in harm's way by the Deepwater Horizon oil spill. The spill comes at an especially inopportune time, sea turtle nesting season. Additional information on nesting locations, nesting seasons, hatchling incubation times, and ages to maturity for Gulf sea turtle species can be found in Table 2.

### Sea Turtles of the Gulf of Mexico

Species	Nesting Locations in Gulf	Female Nesting Season	Hatchling Emergence	Age at Maturity
Green ( <i>Chelonia mydas</i> )	limited numbers on Padre Island, TX; significant nesting on Gulf coast of Mexico	depends on location but generally June-Sept. with peak June-July	~2 months after nesting; Aug -Nov	20-50 years
Hawksbill ( <i>Eretmochelys imbricata</i> )	Yucatan Peninsula, MX near Ciudad del Carmen, Campeche, and very northern end of the peninsula near El Cuyo; some nests also recorded in Bahia Honda State Park, FL	varies with locality but generally between April and November	~60 days; June-Jan	unknown, upwards of 30 years
Kemp's Ridley ( <i>Lepidochelys kempi</i> )	95% of nesting occurs in the areas of Rancho Nuevo, Tepehuajes, and Barra del Tordo in Tamaulipas, Mexico; some nesting has also been noted in Veracruz, MX, Texas, Alabama and the Gulf coast of Florida; rare nesting in NC, SC, Gulf and Atlantic coast of FL	May-July	50-60 days after nesting; late June to Sept	7-15 years
Leatherback ( <i>Dermochelys coriacea</i> )	some nesting in Florida; also some in TX and Gulf coast of Mexico	March to July	60-65 days after nesting; May to September	6-10 years
Loggerhead ( <i>Caretta caretta</i> )	nesting concentrated from NC to SW Florida but some nesting does occur in AL, TX, Gulf coast of FL, eastern coast of the Yucatan, & northern Cuba; nesting has been recorded on Chandeleur Islands of LA	early April-September	about two months after nesting; late June-mid November	20-30 years

**Table 2.** Reproductive Characteristics of Gulf of Mexico Sea Turtles<sup>16</sup>

16 Sources for information in table: U.S. Fish & Wildlife Service, National Marine Fisheries Service, the Southeast Fisheries Science Center, the Status of the World's Sea Turtles (SWOT) project and Dow et al. (2007). Sea Turtle Nesting in the Wider Caribbean Region. WIDECAST Technical Report No. 6.

## **Kemp's ridleys:**

Kemp's ridleys, the smallest sea turtles in the world, are named after Richard M. Kemp, a fisherman from Key West, Fla., who first submitted the species for identification in 1906.<sup>17</sup> Most Kemp's ridley nesting occurs at Rancho Nuevo in Tamaulipas, Mexico, just south of the Texas border on the Gulf of Mexico.<sup>18</sup> Occasional nesting also occurs in other parts Mexico, Texas, Alabama and Florida.<sup>19</sup> Tracking studies have shown that in the United States, adult female Kemp's ridleys that nest along the Texas coast typically migrate eastward along the Louisiana coastline towards the Mississippi River Delta, where they may forage for months.<sup>20</sup> Kemp's ridleys feed opportunistically, taking advantage of whatever food is easily available including crabs, jellyfish, snails, and fish.<sup>21</sup>

The nesting of endangered Kemp's ridley sea turtles is exponentially increasing, which has been taken as a good sign for the population as a whole. The 2010 nesting season for Kemp's ridley sea turtles started just after the Deepwater Horizon spill.

Females could be impacted by oil during migrations to the nesting beach or between nesting events. Nesting beaches could be already covered in oil when females approach them to nest, or oil could wash up on to beaches where nests have previously been laid. If the turtles do nest successfully, in a few short weeks, the Gulf will have vulnerable hatchling sea turtles that could be swimming into areas with oil.

In addition, most Kemp's ridley sea turtles reside year-round in the Gulf of Mexico. The mouth of the Mississippi river, an area being impacted by the spill, is an important foraging area for Endangered Kemp's ridley sea turtles.

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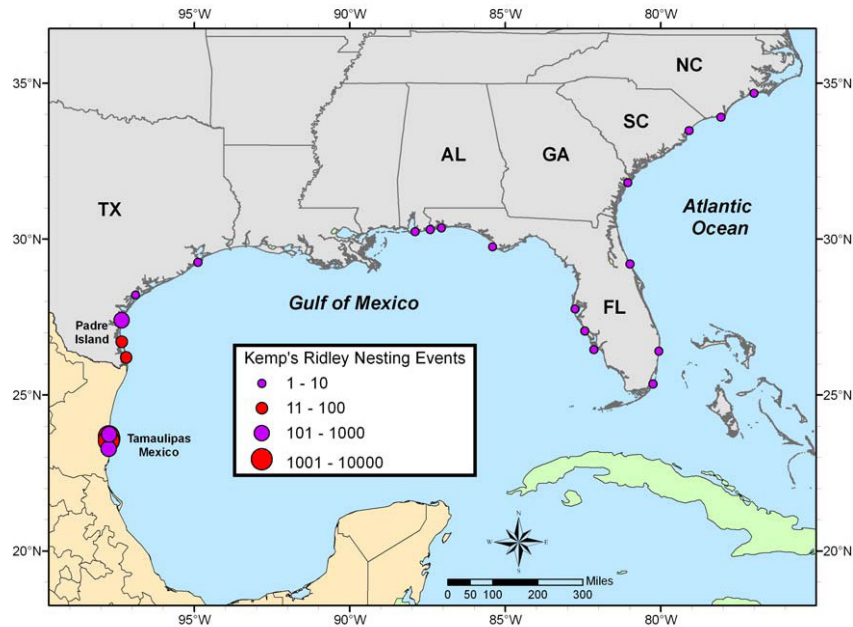
17 National Marine Fisheries Service. 2008. Kemp's ridley turtle (*Lepidochelys kempii*). <http://www.nmfs.noaa.gov/pr/species/turtles/kempstridley.htm>

18 National Marine Fisheries Service and U.S. Fish and Wildlife Service. 2007. Kemp's ridley sea turtle (*Lepidochelys kempii*) 5-year review: Summary and evaluation. 8pp.

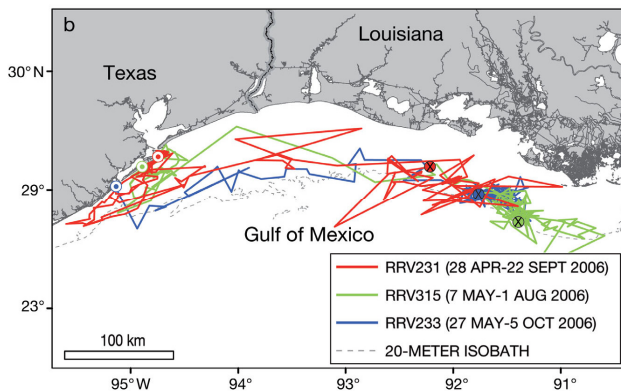
19 Complete graphic from National Marine Fisheries Service, U.S. Fish and Wildlife Service, and SEMARNAT. 2010. Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Second Revision. National Marine Fisheries Service. Silver Spring, Maryland.

20 Texas A&M University at Galveston Sea Turtle and Fisheries Ecology Research Lab. 2008. Satellite tracking TAMUG Kemp's ridley nesters 2007-2008: Caillie (RRV255). Data obtained from [seaturtle.org](http://www.seaturtle.org) 8/18/08. [http://www.seaturtle.org/tracking/index.shtml?tag\\_id=75421](http://www.seaturtle.org/tracking/index.shtml?tag_id=75421).

21 Witzell, W.M., Schimdt, J.R. 2005. Diet of immature Kemp's ridley turtles (*Lepidochelys kempii*) from Gullivan Bay, Ten Thousand Islands, Southwest Florida. *Bulletin of Marine Science* 77(2):191-199.



**Figure 2.** Major nesting beaches in the State of Tamaulipas, Mexico, and proportion of total nests documented for each beach in 2007 (Source: J. Pena, GPZ), and location of nests recorded in U.S. (Source: Padre Island National Seashore, FWS, Florida Marine Research Institute, Georgia Department of Natural Resources, South Carolina Department of Natural Resources, and North Carolina Wildlife Resources Commission).<sup>22</sup>



**Figure 3.** Satellite tracking data showing the migration of Kemp's ridley sea turtles tagged on their Texas nesting beach to the region of the Deepwater Horizon oil spill during 2006.<sup>23</sup>

<sup>22</sup> Complete graphic from National Marine Fisheries Service, U.S. Fish and Wildlife Service, and SEMARNAT. 2010. Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Second Revision. National Marine Fisheries Service. Silver Spring, Maryland.

<sup>23</sup> Seney EE, Landry AM Jr (2008) Movements of Kemp's ridley sea turtles nesting on the upper Texas coast: implications for management. *Endang Spec Res* 4:73-84

## Loggerheads:

Loggerhead sea turtles at various developmental stages and in numerous locations could be harmed by this oil spill. Loggerheads call a wide range of temperate and tropical habitats in the Atlantic, Pacific and Indian oceans home. In the United States, loggerheads nest on beaches along the Atlantic Ocean and Gulf of Mexico from Texas to North Carolina. The beaches of southern Florida host the second largest loggerhead nesting colonies in the world and account for more than 90 percent of their nesting in the United States.<sup>24</sup> However, Data show that loggerhead nesting subpopulations in the North Atlantic are declining and that the single greatest manmade threat to this population is the risk of being killed as bycatch in commercial and artisanal fisheries.<sup>25</sup>

Loggerhead sea turtles are currently proposed by the federal government for uplisting to “endangered” from “threatened” under the Endangered Species Act. The Gulf of Mexico, especially the west coast of Florida is an important habitat area for these animals. Loggerheads nest from Breton National Wildlife Refuge in southeast Louisiana, east along the Gulf coast of Florida to the Keys.<sup>26</sup> Nesting has also been recorded along the Texas coast and in Mexico.

Loggerheads can be found year-round in a variety of areas in the Gulf of Mexico. The shallow waters off the west coast of Florida are a very important loggerhead foraging area.<sup>27</sup> This is illustrated by the fact that loggerhead sea turtles have commonly been caught in this area by fishing gear (Figure 4). Loggerheads nesting along the west coast of Florida have even been documented migrating to the direct area of the Deep Horizon oil spill<sup>28</sup> Even some loggerheads that nest along the Atlantic coast of Florida make their way to foraging grounds in the Gulf of Mexico (Figure 5).<sup>29</sup>

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24 National Marine Fisheries Service and U.S. Fish and Wildlife Service. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*), Second Revision. National Marine Fisheries Service, Silver Spring, MD. 5 pp.

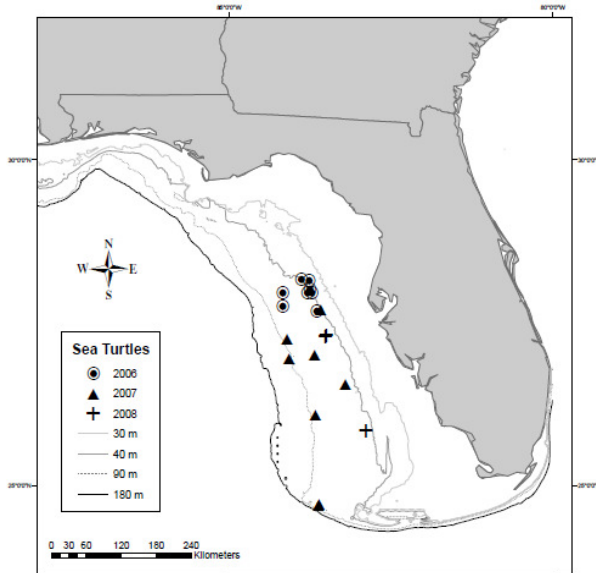
25 National Marine Fisheries Service, Office of Protected Resources and U.S. Fish and Wildlife Service; Southeast Region. 2007. Loggerhead Sea Turtle (*Caretta caretta*) 5-Year Review: Summary and evaluation. 36 pp.

26 Brost, B. 2007. Loggerhead nesting in Florida: Personal communication. In SWOT Report—State of the World's Sea Turtles, vol. 2 (2007).|Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, Marine Turtle Program. Loggerhead Nesting in Florida. [http://research.myfwc.com/features/view\\_article.asp?id=11812](http://research.myfwc.com/features/view_article.asp?id=11812) ; Reynolds, M., Share the Beach. 2007. Loggerhead nesting in Alabama. In SWOT Report—State of the World's Sea Turtles, vol. 2 (2007).|Reynolds, Mike. Share the Beach. 2005. Alabama Sea Turtle Nesting Report. In The State of the World's Sea Turtles Report, vol. 2 (2007).; Shaver, D. 2008. Personal communication. In SWOT - State of the World's Sea Turtles - vol. 4. 2009.

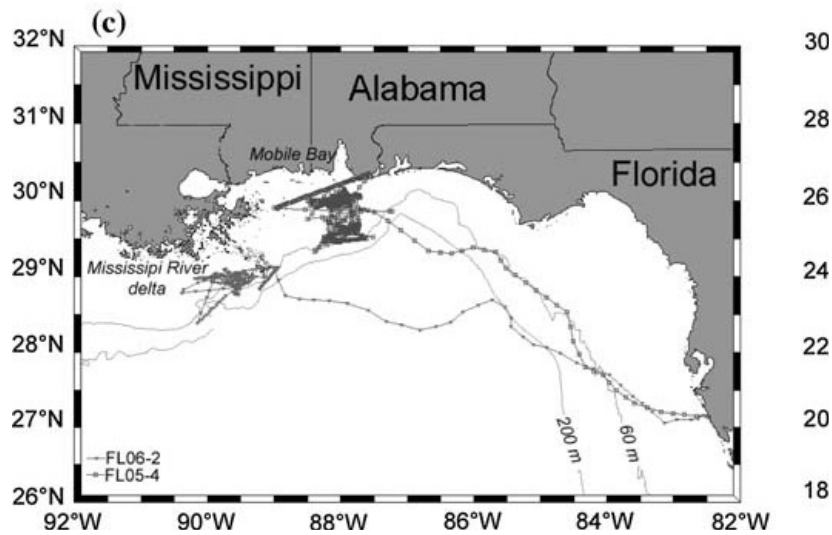
27 Girard, C., A. D. Tucker, and B. Calmettes. 2009. Post-nesting migrations of loggerhead sea turtles in the Gulf of Mexico: dispersal in highly dynamic conditions. *Marine Biology* 156: 1827-1839.

28 Girard, C., A. D. Tucker, and B. Calmettes. 2009

29 Two examples of this can be viewed on the Caribbean Conservation Corporation's website at [http://www.cccturtle.org/satellitetrackingmap.php?page=satflg\\_lumiere](http://www.cccturtle.org/satellitetrackingmap.php?page=satflg_lumiere) and [http://www.cccturtle.org/satellitetrackingmap.php?page=satfl-cape\\_hokie](http://www.cccturtle.org/satellitetrackingmap.php?page=satfl-cape_hokie)



**Figure 4.** Sea turtle take locations by year in the Gulf of Mexico observed in bottom longline reef fish sets.<sup>30</sup>



**Figure 5.** Satellite tracking data showing the migration of 2 loggerhead sea turtles tagged in Sarasota County, Florida to the region of the Deepwater Horizon oil spill.<sup>31</sup>

30 National Marine Fisheries Service, Southeast Fisheries Science Center. 2009 Estimated Takes of Sea Turtles in the Bottom Longline Portion of the Gulf of Mexico Reef Fish Fishery July 2006 through December 2008 Based on Observer Data. NMFS Southeast Fisheries Science Center Contribution PRD-08/09-07

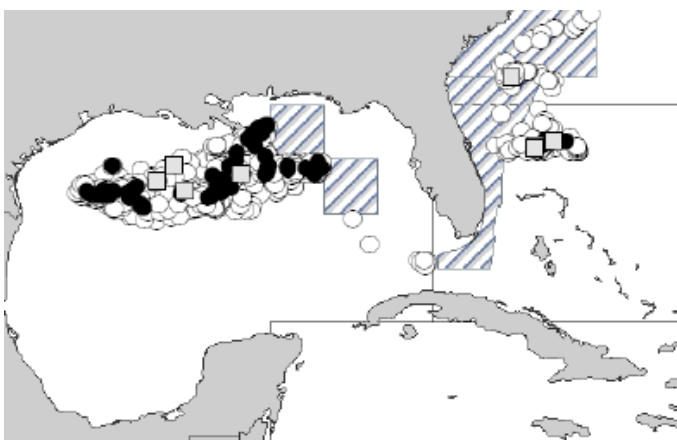
31 Girard, C., A. D. Tucker, and B. Calmettes. 2009.

## Leatherbacks:

Leatherbacks are the largest sea turtles in existence. Leatherbacks can grow up to 6.5 feet in and weigh up to 2,000 pounds.<sup>32</sup> Most leatherback nesting in the United States occurs in Puerto Rico, the U.S. Virgin Islands, and Florida, but they can be found swimming as far north as the Canadian waters of the Gulf of Maine.<sup>33</sup>

Of all sea turtles, leatherbacks spend the most time in the open ocean. Their bodies are built for diving into cold waters to depths of as much as 3,200 feet to find their jellyfish prey.<sup>34</sup> Leatherbacks can be found in the Gulf of Mexico following blooms of jellyfish, their main prey.<sup>35</sup> Leatherbacks are more than twice as abundant in the Gulf during the summer months than they are during the winter.<sup>36</sup>

Figure 6 shows the locations in the Gulf of Mexico where leatherback sea turtles were caught in pelagic longline fishing gear, thus demonstrating that leatherback sea turtles are commonly found in the area of the Deepwater Horizon spill.



**Figure 6.** Observed pelagic longline fishing effort and sea turtle takes during 2008, with the leatherback sea turtle interactions displayed as black dots.<sup>37</sup>

32 NOAA Fisheries, Office of Protected Resources. Leatherback Turtle. Retrieved 6/4/10 from <http://www.nmfs.noaa.gov/pr/species/turtles/leatherback.htm>

33 NOAA Fisheries, Office of Protected Resources. Leatherback Turtle. Retrieved 6/4/10 from <http://www.nmfs.noaa.gov/pr/species/turtles/leatherback.htm>

34 Bonin, F., Devaux, B., Dupré, A. 2006. *Turtles of the World*. John Jopkins University Press, Baltimore, MD.

35 e.g. Leary, T.R. 1957. A schooling of leatherback turtles, *Dermochelys coriacea coriacea*, on the Texas coast. *Copeia*. 3: 232.

36 Davis, R.W., Evans, W.E., and Würsig, B., eds. 2000. *Cetaceans, sea turtles and seabirds in the northern Gulf of Mexico: Distribution, abundance and habitat associations. Volume I: Executive Summary*. Prepared by Texas A&M University at Galveston and the National Marine Fisheries Service. U.S. Department of the Interior, Geologic Survey, Biological Resources Division, USGS/BRD/CR-1999-0006 and Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2000-002 27 pp.

37 Garrison, L.P., Stokes, L. and C. Fairfield. 2009. *Estimated Bycatch of Marine Mammals and Sea Turtles in the U.S. Atlantic Pelagic Longline Fleet During 2008*. NOAA Technical Memorandum NOAA NMFS-SEFSC-591: 63p.

## **Greens:**

Green sea turtles are primarily herbivores, feeding chiefly on grasses, plants and other vegetation. In U.S. Atlantic and Gulf of Mexico waters, green turtles are found close to shore from Texas to Massachusetts, as well as in the U.S. Virgin Islands and Puerto Rico. The majority of green sea turtle nesting in the southeastern United States occurs in Florida but some nesting has also be documented on Padre Island National Seashore and South Padre Island in Texas.<sup>38</sup> The inshore waters of south Texas are an important habitat area for juvenile green sea turtles.<sup>39</sup> Important feeding areas along the Gulf coast of Florida include St. Joseph Bay, Cedar Key, Crystal River, Homosassa, Florida Bay and the Florida Keys.<sup>40</sup>

While conservation efforts over the past several decades have helped green sea turtle populations in the Atlantic Ocean and Gulf of Mexico to rebound, this oil spill could change that. Green sea turtles nesting along the gulf coast or feeding in shallow gulf sea grass beds could now be impacted by the oil spill.

Seagrass beds in the Gulf of Mexico, which serve as important habitat for juvenile green sea turtles, could also be impacted. Trapped oil in sediments of sea grass can kill the seagrass, which is a significant component of green turtle diets.<sup>41</sup>

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38 National Park Service. The Green Sea Turtle, Padre Island National Seashore. Retrieved 6/4/10 from <http://www.nps.gov/pais/naturescience/green.htm>

39 National Park Service. The Green Sea Turtle, Padre Island National Seashore. Retrieved 6/4/10 from <http://www.nps.gov/pais/naturescience/green.htm>

40 NOAA Fisheries, Office of Protected Resources. Green Turtle Webpage. Retrieved 5/26/10 from <http://www.nmfs.noaa.gov/pr/species/turtles/green.htm>.

41 Shigenaka, G. et al. 2003.

## Hawksbills:

Hawksbill sea turtles are named for their distinctive beaks that curve sharply at the end. Juvenile hawksbills feed primarily on seagrass and algae, while adults use their strong beaks to eat invertebrates, sponges, oysters, corals and crustaceans such as crabs.<sup>42</sup> By feeding on sponges and other reef species, hawksbills help maintain healthy and balanced coral reef ecosystems.<sup>43</sup>

Hawksbills are not highly migratory and, more than any other sea turtle species prefer to remain closer to shore. In the United States, hawksbills are most commonly found offshore of Texas, Puerto Rico, the U.S. Virgin Islands, and Florida's Atlantic coast. Hawksbill nesting is relatively rare in U.S. waters but has been recorded in areas of Florida such as the Keys as well as in the Virgin Islands and Puerto Rico. Hawksbills may traverse the Gulf of Mexico in route from their nesting beaches in Mexico.<sup>44</sup>

The overall Atlantic hawksbill population has decreased by 80 percent since the early 1900s.<sup>45</sup>

In addition to having all the same oil related issues as other species of sea turtles, oil can also damage coral reefs which are a prime habitat area for hawksbill sea turtles. Direct contact with oil can lead to coral death or have sublethal effects, such as reduced photosynthesis, growth, or reproduction, as well as reduced larval development and viability.<sup>46</sup> Loss of coral reef, and the sponges associated with it, would lead to a reduction of food and shelter for hawksbill sea turtles.

There are 2 areas of coral reef in Gulf of Mexico that have been named National Marine Sanctuaries; the Flower Garden Banks and Florida Keys National Marine Sanctuaries<sup>47,48</sup> Both of these areas contain hawksbill sea turtles and could be impacted by the oil spill.

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42 Bonin, F., Devaux, B., Dupré, A. 2006. *Turtles of the World*. Johns Hopkins University Press, Baltimore, MD.

43 Spotila, J.R. *Sea Turtles: A complete Guide to Their Biology, Behavior, and Conservation*. Johns Hopkins University Press, Baltimore, MD. 2004.

44 NOAA. 2008. Hawksbill turtle. <http://www.nmfs.noaa.gov/pr/species/turtles/hawksbill.htm>.

45 International Union for Conservation of Nature. 2007. Marine turtle specialist group: 2007 Red List status assessment of the hawksbill turtle (*Eretmochelys imbricate*). 119 pp.

46 NOAA Coral Reef Conservation Program. *Coral Reefs and Oil Spills*. Retrieved 5/26/10

[http://coralreef.noaa.gov/aboutcrp/news/featuredstories/may10/oilspill\\_coral/](http://coralreef.noaa.gov/aboutcrp/news/featuredstories/may10/oilspill_coral/).

47 National Ocean Service, National Ocean and Atmospheric Administration. Hawksbill Turtle, Flower Garden Banks National Marine Sanctuary. Retrieved 6/4/10 from <http://www8.nos.noaa.gov/onms/park/Parks/SpeciesCard.aspx?refID=6&CreatureID=1293&pID=9>

48 National Ocean Service, National Ocean and Atmospheric Administration. Hawksbill Turtle, Florida Keys National Marine Sanctuary. Retrieved 6/4/10 from <http://www8.nos.noaa.gov/onms/park/Parks/SpeciesCard.aspx?refID=6&CreatureID=731&pID=8>



## Conclusion

Sea turtles pose a unique conservation challenge. They spend a small part of their lives on land and the rest in the water, making their populations difficult to quantify. They are slow to reach sexual maturity, which makes it difficult for them to build their population sizes, especially when their numbers are already severely compromised. Human activity, including destructive fishing practices, has decimated sea turtle populations. They are highly migratory, crossing political jurisdictions and numerous threats on their voyage from foraging grounds to nesting beaches and back. After 30 years of protection under the U.S. Endangered Species Act (ESA), all six species of sea turtles that inhabit U.S. waters still remain “endangered” or “threatened” with extinction.

Clearly, too little has been done to protect sea turtles from human-induced threats. Now a significant new threat has emerged, the Deepwater Horizon oil spill. The question is, will we step up to the conservation challenge or simply allow sea turtles to vanish from the world’s oceans.

## Recommendations

*It’s time for rapid action to clean up the spill, help injured wildlife, improve sea turtle management and end the expansion of offshore drilling. Oceana makes the following recommendations:*

### **Stop Offshore Drilling**


It is clear that the risks of offshore drilling greatly outweigh the benefits. Americans can never be fully compensated for the loss of national treasures such as sea turtles, caused by offshore drilling. For populations that are already struggling to rebuild, an oil spill such as the Deepwater Horizon could be the final blow. Many areas where drilling is occurring or being considered, such as the Gulf of Mexico and the Atlantic Ocean, are critical sea turtle habitats. Continuing to drill for oil and gas in these areas will lead to more spills and ultimately could result in extinction for these unique marine animals, and others.

### **Increase Sea Turtle Monitoring**

Fully documenting the toll that this spill has taken on sea turtles will require in-water monitoring of populations, as well as monitoring of nesting and hatching success. It will also require long-term monitoring of population dynamics including hatchling survival to adulthood and long term reproductive success. The National Oceanic and Atmospheric Administration will need to supplement ongoing programs to carry out this monitoring.

### **Improve Sea Turtle Management**

The U.S. Government needs to determine the cumulative impacts of human activities on sea turtles and reduce the number of sea turtles harmed to a level that will allow recovery of sea turtle populations. To allow for sea turtle recovery, we need to reduce bycatch in commercial fisheries, protect critical habitat areas, and prevent future oil spills.



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## RESIDUES OF PETROLEUM HYDROCARBONS IN TISSUES OF SEA TURTLES EXPOSED TO THE IXTOC 1 OIL SPILL

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**ABSTRACT:** Sea turtles found dead when the Ixtoc 1 oil spill reached Texas waters were necropsied and tissues were analyzed for residues of petroleum hydrocarbons. Two of the three turtles were in poor flesh, but had no apparent oil-caused lesions. There was evidence of oil in all tissues examined and indications that the exposure had been chronic. Comparisons with results of studies done on birds indicate consumption of 50,000 ppm or more of oil in the diet. Some possible mechanisms of mortality are suggested.

### INTRODUCTION

A massive blowout of the Ixtoc 1 oil well in Mexico's Bay of Campeche occurred on 2 June 1979. For a period of months the 10,000-15,000 barrels of oil released daily by the well drifted northward in the Gulf of Mexico. The first oiled bird found off U.S. shores was received by U.S. Fish and Wildlife Service personnel at South Padre Island, Texas on 11 August. Of the total of seven turtles (6 green turtles, *Chelonia mydas* and 1 Atlantic ridley, *Lepidochelys kempi*) collected during the spill episode, some were treated and one was released. Three turtles (2 green and 1 young ridley) were found dead in the Laguna Madre and were shipped frozen to Patuxent Wildlife Research Center for investigations to determine the cause of death. In summarizing these investigations it is intended to bring into focus the problems in determining the possible lethal effects of ingested oil. Also, the advances of our Center in detecting residues of petroleum hydrocarbons in tissues of wildlife found dead in the field are reported.

### MATERIALS AND METHODS

The turtles were thawed, measured, weighed, and examined. External oil was carefully removed from the regions of incisions. Alternate sets of dissecting instruments were employed to prevent the transfer of external oil to internal organs or cross contamination between organs. Samples of kidney, liver, and pectoral muscle of the *Chelonia* were removed and placed in chemically clean jars. Selected tissues including lung, esophagus, intestine, liver, and kidney were fixed in 10% buffered neutral formalin. The tissues were submitted to a commercial laboratory (American Histolabs, Inc., Rockville, Maryland 20852, USA) for processing and staining by the hematoxylin and eosin method for microscopic examination.

External oil from the whole young ridley was re-

moved by ultrasonic extraction for 10 min with 200 ml of pentane followed by a similar extraction with 200 ml of 40% methylene chloride in pentane. The combined extracts were removed under a gentle stream of nitrogen and the oil residue was weighed and analyzed.

For chemical analysis, about 4 g of pooled kidneys, 11 g of whole ridley and 20 g each of two liver and two muscle specimens were digested with 15 ml KOH at 30 C for 24 hr. The hydrocarbons were extracted with 4 × 25 ml diethyl ether.

Each sample was reconcentrated into pentane and cleaned up on a Florisil Column as previously described (Gay et al., 1980). The Florisil eluate was reduced to 5 ml in a rotary evaporator, transferred to 10-ml Mills tubes, and reduced to final volume (≥0.5 ml) on a Kontes tube heater for instrumental analysis.

The samples were analyzed by gas chromatography-mass spectrometry (GC-MS) by using a Finnigan Model 3200 interfaced to a Finnigan model 6100 data system. Each sample was introduced via splitless injection onto a 30-m × 0.25-mm J & W glass capillary column coated with SP-2100. The column was held initially at room temperature for 2 min, after which the oven temperature was raised to 160 C without programming and then programmed from 160 C to 200 C at 2 C/min. Column flow rate was 8.5 ml/min of helium. Ionization was at 70 eV. Operation of the mass spectrometer in the selected ion monitoring mode was controlled by the data system. Internal standards were used for quantitation. Perdeuteromethylnaphthalene was used for aromatic compounds and perdeuterohexadecane was used for the aliphatics. The lower limits of detection were 0.04 µg for the aliphatic and aromatic hydrocarbons, corresponding to 0.01 ppm in a 4-g sample.

### RESULTS AND DISCUSSION

External oil was present on all three turtles and large quantities were present on one. Even this amount of oil probably would not have prevented normal movement or have been otherwise fatal, however, and some of the external oil on the turtles may have accumulated following death.

*Chelonia* 10438 was a female with a 22-cm

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Received for publication 5 March 1982.

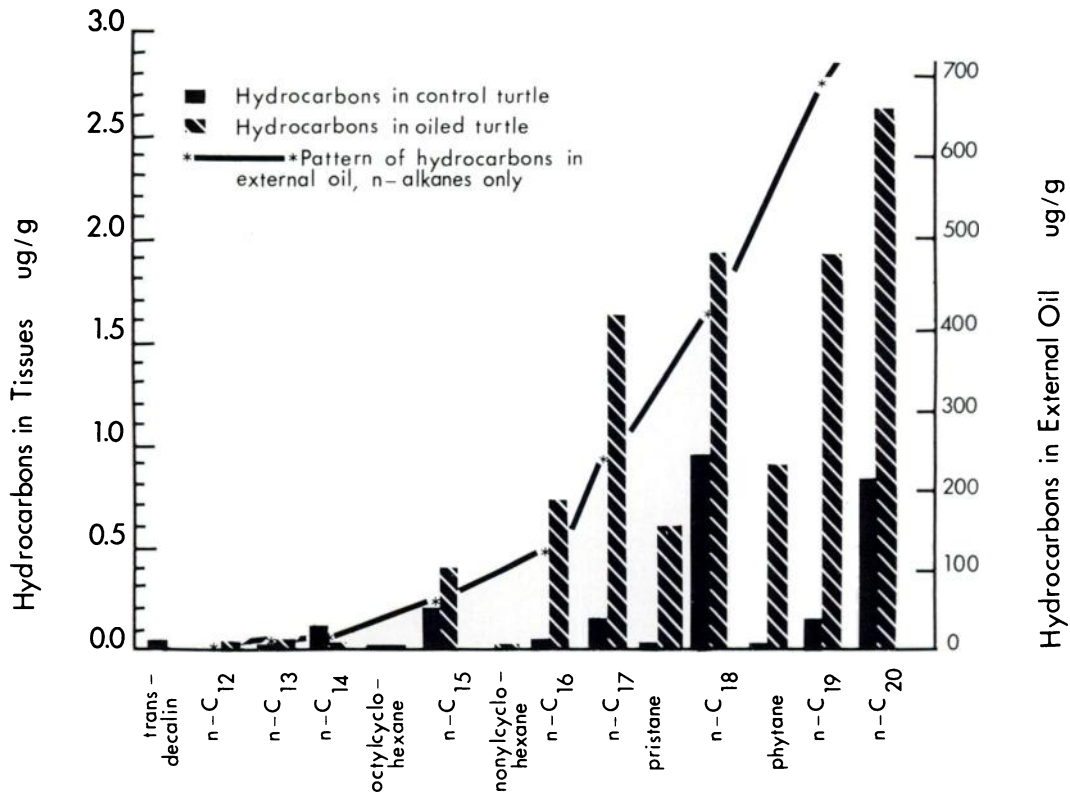


FIGURE 1. Concentrations of saturated hydrocarbons in control and oiled turtles, and in a sample of pollutant oil removed from the exterior of the oiled animal.

carapace and weighed 1,025 g. There was no mesenteric fat present; general body condition was judged to be poor. The surfaces of the oral and esophageal mucosa were brown and sticky, suggesting oil ingestion. The stomach was empty and the mucosa was sloughing due to autolysis. The terminal intestine contained about 10 cc of undigested plant material but no apparent oil. The kidneys were uniformly pale and the carcass had a uremic odor. The trachea and lungs were normal. Advanced decomposition precluded histopathological interpretation of liver and intestine. Lung and heart were histologically normal and there was no apparent oil-induced damage to the esophageal mucosa. There was mineralized debris in lumina of several renal collecting tubules suggesting mild renal dysfunction.

The *Lepidochelys* (10439) was small (carapace length 4.6 cm, 11 g) and was probably less than 1 yr old. There was oil in the mouth, and

esophagus, and there was oily-appearing material in the duodenum. The liver was very pale. The trachea, lungs, and kidneys were unremarkable. Microscopic examination of the liver revealed several foci of autolysed polymorphonuclear cells with hyper eosinophilic cytoplasm. Apparently autolysed aggregates of eosinophilic granulocytes were of unknown cause and pathological significance.

*Chelonia* 10440 was a 990-g individual of undetermined sex. There was no visceral fat present in the carcass. There was brown muddy material in the oral cavity and plant material in the stomach and intestine, but no oil was noted in the gastrointestinal tract. The trachea and lungs were normal. Microscopic examination was not done.

In summary, two of the turtles were in poor flesh and had petroleum in their upper alimentary systems; there was no evidence that the oil had caused alimentary lesions, and there was

TABLE 1. Total hydrocarbons in samples analyzed, with ratios of branch-chained hydrocarbons to corresponding normal alkanes.

Sample	Total resolved hydrocarbons ( $\mu\text{g/g}$ )	C <sub>17</sub> pristane	C <sub>18</sub> phytane
Control ridley	2.51	7.3	58.1
Oiled ridley	10.9	2.7	2.2
<i>Chelonia</i> kidneys	2.04	4.4	4.0
<i>Chelonia</i> muscle <sup>a</sup>	0.38	2.3	1.2
<i>Chelonia</i> muscle <sup>b</sup>	0.36	2.4	3.2
<i>Chelonia</i> liver <sup>a</sup>	0.58	1.5	2.8
<i>Chelonia</i> liver <sup>b</sup>	0.39	0.9	2.0
Pollutant oil <sup>c</sup>	2.932	4.0	1.8

<sup>a</sup> From specimen 10438.

<sup>b</sup> From specimen 10440.

<sup>c</sup> Removed from exterior of specimen 10439.

no evidence of pulmonary aspiration. Microscopic examination did not indicate the cause of death. Post mortem decomposition precluded detection of all but the most obvious of histopathological lesions and no lesions were apparent in any of the tissues except renal mineralization in 10439.

For chemical analyses it was necessary to obtain a control animal that had not been exposed to oil. We selected a young Atlantic ridley that died in hatching. Even in the unlikely event that it had been exposed to oil, its exposure would be neither as massive nor as direct as that of the turtles from the spill. Analysis of this animal revealed surprisingly high levels of hydrocarbons compared to avian tissues we had examined. High levels of these hydrocarbons may be characteristic of turtles but, more likely, they reflect the large amounts of lipids in the yolk of hatchlings. Whatever the source of the compounds, their presence is helpful in that it serves to illustrate the ways in which pollutant and naturally occurring hydrocarbons can be distinguished in tissues.

The concentrations of saturated hydrocarbons in the 10- to 20-carbon range are shown in Figure 1 for the control hatchling, the yearling ridley found dead during the spill and for the pollutant oil removed from the exterior of the exposed turtle. As indicated by the figure, the bulk of compounds in the oil had 15 carbons or more, with increasing amounts present as the 20-carbon compounds were approached. The control and oiled turtles seemed to vary randomly in the occurrence and concentrations of shorter-chain hydrocarbons. There were how-

TABLE 2. Petroleum hydrocarbons in kidneys and livers of sea turtles and of ducklings fed crude oil.

Compound	Hydrocarbon residues ( $\mu\text{g/g}$ )			
	Livers of ducklings fed up to 50,000 ppm crude oil <sup>a</sup>	Livers of sea turtles found dead <sup>b</sup>	Kidneys of ducklings fed up to 50,000 ppm crude oil <sup>a</sup>	Kidneys of sea turtles found dead <sup>c</sup>
n-C <sub>12</sub>	0.02	0.02	0.06	0.08
n-C <sub>13</sub>	0.05	0.02	0.15	0.10
n-C <sub>14</sub>	0.04	0.03	0.14	0.11
Octylcyclohexane	0.01	ND <sup>d</sup>	0.07	0.05
n-C <sub>15</sub>	0.09	0.05	0.16	0.15
Nonylcyclohexane	0.01	ND	0.05	0.01
n-C <sub>16</sub>	0.07	0.03	0.15	0.09
n-C <sub>17</sub>	0.21	0.10	0.14	0.54
Pristane	0.93	0.08	0.22	0.12
n-C <sub>18</sub>	0.09	0.05	0.09	0.29
Phytane	0.95	0.02	0.14	0.07
n-C <sub>19</sub>	0.04	0.02	0.12	0.12
n-C <sub>20</sub>	0.10	0.03	0.11	0.13
Naphthalene	0.02	0.02	0.02	0.09
1-methylnaphthalene	0.01	ND	0.01	0.01

<sup>a</sup> From data presented in graphical form by Lawler et al. (1979). Maximum levels in ducklings fed a variety of doses up to 50,000 ppm for 8 wk are given. Control ducklings averaged less than 0.01 ppm for all compounds.

<sup>b</sup> Mean of analyses from two *Chelonia mydas*.

<sup>c</sup> Kidneys from two *C. mydas* were analyzed as a single pool.

<sup>d</sup> ND, Not detected.

ever, strikingly greater concentrations of longer-chain compounds in the oil-exposed animal. Of particular interest are pristane and phytane. These compounds are usually rare in living systems; their magnification in the oil-exposed animal was much greater than that of the normal alkanes. The normal alkanes were about four times as concentrated in the exposed turtles as in the control, but the more complex hydrocarbons (cyclohexanes, pristane, phytane) were 15 times control levels. Thus, the elevated levels of hydrocarbons in the oiled turtle can be concluded to be of pollutant origin.

Pristane and phytane are not only characteristic of petroleum, but once in living tissues, they tend to be more persistent than the corresponding (n-C<sub>17</sub>, n-C<sub>18</sub>) normal alkanes; their relative abundance is increased when oil is degraded by marine organisms (Blumer et al., 1973) and great enhancement of pristane is seen in feeding studies (Lawler et al., 1978; Lawler et al., 1979). Ratios of pristane and phytane to the normal alkanes are shown in Table 1. The great dominance of the normal alkanes in the control animal should be noted, as should the characteristic ratios in the pollutant oil. With

both n-C<sub>17</sub>/pristane and n-C<sub>18</sub>/phytane, all tissues examined from animals exposed to oil showed enhancement of pristane and phytane, indicating a pollutant source for the hydrocarbons detected. Further, in the case of the C<sub>17</sub>/pristane ratios, all tissues except the kidneys had lower ratios than the pollutant oil, indicating selective accumulation of pristane over C<sub>17</sub> alkanes. There was an apparent relationship between these ratios and the total resolved hydrocarbons; higher residues were somewhat correlated with numerically higher ratios, suggesting that tissues such as muscle and liver which store little oil can be expected to contain relatively more pristane and phytane than the tissues such as kidney where larger amounts are found. Elimination of residues and retention of more persistent components such as observed among these tissues would be consistent with the amount of metabolic processing the residues might have been expected to receive before reaching the organs in question.

It can be concluded that the three animals found dead had petroleum hydrocarbons in all tissues examined and that there was selective elimination of portions of this oil. Both presence of residues in various tissues and selective elimination indicate that exposure to the oil was chronic; the turtles evidently did not encounter the oil shortly before death, but had been exposed to it for some time.

The data of Table 2 provide for a comparison of the concentrations of selected hydrocarbons in livers and kidneys of *Chelonia mydas* and published residues (Lawler et al., 1979) in mallard ducklings dosed with up to 50,000 ppm of South Louisiana crude oil. Liver levels are greater in the ducklings than comparable levels in the turtles, but concentrations in the kidneys are more or less equal. There is not a consistent relationship between residue concentrations and dose in the ducklings analyzed by Lawler et al. (1979); intermediate dose levels often produced the highest hydrocarbon residues. As a result, it is not possible to estimate the levels of petroleum that might have been in the turtles' diets. Nevertheless, the turtles may have been consuming 50,000 ppm or more, if it can be as-

sumed that the processes of tissue uptake and retention are similar in these two groups of animals.

Pattee and Franson (1982) fed 30,000 ppm Ixtoc I oil (wellhead sample) to American kestrels (*Falco sparverius*) for 28 days and noted no toxic signs. Birds on this dosage did, however, lose weight despite significant increases in food consumption. Prolonged exposure to oil may have caused the poor body condition observed in the turtles, perhaps disrupting feeding activity, as suggested by Gunkel and Gassman (1980). In such weakened condition, the turtles may have succumbed to some toxic component in the oil or some undiscovered agent.

#### ACKNOWLEDGMENTS

Fish and Wildlife Service personnel assigned to Region 2 in Albuquerque, New Mexico, particularly Al Fisher, helped get the turtles to our laboratory. Nancy C. Coon of the Patuxent Center assisted in various ways. The manuscript was reviewed by Martha Gay, Peter H. Albers, and D. Q. Thompson. Marilyn Whitehead typed the manuscript.

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Deepwater Horizon / BP Oil Spill Response  
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As the nation's leading scientific resource for oil spills, NOAA has been on the scene of the Deepwater Horizon/BP oil spill from the start, providing coordinated weather and biological response services to federal, state, and local organizations.

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**Deepwater Horizon / BP Oil Spill Response**

[GeoPlatform.gov/gulfresponse](http://GeoPlatform.gov/gulfresponse) [leaves OR&R site] is a new online tool that employs the Environmental Response Management Application (ERMA®) a web-based GIS platform that provides you with near-real time information about the response effort. The site offers you a "one-stop shop" for spill response information.

The site integrates the latest data the federal responders have about the oil spill's trajectory with fishery area closures, wildlife data and place-based Gulf Coast resources — such as pinpointed locations of oiled shoreline and current positions of deployed research ships — into one customizable interactive map.

**Updated daily**  
**Situation: July 21, 2010**

**NOAA Releases Data Report on Air Quality Measurements Near the Deepwater Horizon/BP Oil Spill Area**

Findings are consistent with EPA, OSHA data NOAA scientists today released a data report on air quality measurements taken in June in the vicinity of the [Deepwater Horizon/BP oil spill](#) area. The report, available [online](#), summarizes the levels of nearly 100 air pollutants measured with sophisticated air sampling instruments onboard a [NOAA WP-3D research aircraft](#).

Scientists found common air pollutants, such as ozone, nitrogen oxides and carbon monoxide, in amounts typical of urban areas in U.S. cities. However, 15 to 70 kilometers downwind from the oil spill, concentrations of certain hydrocarbons were much higher than found in typical polluted air. Particulate matter downwind of the oil slick was comparable to concentrations in moderately polluted urban air, but the particles were almost entirely organic material, as opposed to those typically found in urban particulate matter. Scientists also measured large amounts of black carbon in smoke from a controlled burn of crude oil on the water.

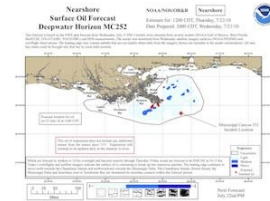
"Data from the NOAA flights are providing an important detailed and independent set of air quality data to assess air quality risks of workers at sea and the public ashore," said A. R. Ravishankara, director of the Chemical Sciences Division of [NOAA's Earth System Research Laboratory](#), who led the science team.  
[Read entire article.](#)

**NOAA Response**

- Fact Sheet: [What to Expect in South Florida from the](#)



**On board the NOAA Ship Thomas Jefferson**  
NOAA Corps Ensign Jasmine Cousins, junior officer onboard the NOAA Ship *Thomas Jefferson*, provides an overview of oil spill-related ship activities in the Gulf of Mexico.



**Trajectory Forecast Maps**

24, 48 and 72 hour oil spill trajectory forecasts. Updated daily.

Nearshore  
[ [24 Hour](#) | [48 Hour](#) | [72 Hour](#) ]



[Deepwater Horizon / BP Oil Spill](#) (Document format: PDF, size: 399.9 K)

NOAA provides coordinated scientific weather and biological response services to federal, state and local organizations. Experts from across the agency have mobilized to help contain the spreading oil spill and protect the Gulf of Mexico's many marine mammals, sea turtles, fish, shellfish, and other endangered marine life. NOAA spill specialists are advising the U.S. Coast Guard on cleanup options as well as advising all affected federal, state and local partners on sensitive marine resources at risk in this area of the Gulf of Mexico. Overflights are conducted on a daily basis (weather permitting) to provide field verification of model trajectories. NOAA's Office of Marine and Aviation Operations (OMAO) is supporting the response work in the Gulf with NOAA-owned ships and aircraft. Currently, NOAA has deployed six NOAA owned vessels in response to the Deepwater Horizon oil spill.

Please see [GeoPlatform.gov/gulfresponse](http://GeoPlatform.gov/gulfresponse) for further information on the federal response to the Deepwater Horizon Incident.

### Trajectories

Persistent ESE and SE winds at 10-15 knots are forecast to continue through Thursday then become NE on Friday. Overflights today indicate the surface oil is breaking up into numerous patches separated by clean water – for the first time no surface oil was observed in the vicinity of the source. Satellite analysis and overflights indicate that the leading edge continues to move northwestward towards the Mississippi Delta. The Delta and shorelines west to Terrebonne Bay are threatened by shoreline contacts within this forecast period. Trajectories also indicate some oil may move further northward threatening the Chandeleur Islands.

OR&R's modeling team continues to generate daily trajectories for the nearshore surface oil. The offshore trajectory maps (previously displayed on this page, showing oil interacting with the Loop Current) have been temporarily suspended because the northern end of the Loop Current has been pinched off into a large eddy (Eddy Franklin) so there is no clear path for oil to enter the Loop Current from the source. Also, there have been no reports of recoverable oil in the Loop Current or Eddy Franklin and the oil has moved to the North and away from the Eddy Franklin. We will continue to monitor the area with overflights, vessel observations, and satellite analysis. When the threat of shoreline impacts to the Florida Keys increases, we will resume producing the offshore trajectory maps.

The Loop Current is an area of warm water that comes up from the Caribbean, flowing past the Yucatan Peninsula and into the Gulf of Mexico. It generally curves east across the Gulf and then flows south parallel to the west Florida coast. An eddy is water that rotates.

### Closures

The July 13 closure remains in effect. ([See map.](#)) All commercial and recreational fishing including catch and release is prohibited in the closed area; however, transit through the area is allowed. The current closure measures 83,927 square miles (217,371 square kilometers) and covers about 35% of the Gulf of Mexico exclusive economic zone. The majority of federal waters in the Gulf of Mexico are open to commercial and recreational fishing. Modeling and mapping the actual and projected spill area is not an exact science. NOAA Fisheries Service strongly advises fishermen not to fish in areas where oil or oil sheens (very thin layers of floating oil) are present, even if those areas are not currently closed to fishing. Any changes to the closure are announced daily at 12 p.m. Eastern at [sero.nmfs.noaa.gov](http://sero.nmfs.noaa.gov) and take effect at 6 p.m. Eastern the same day.

### Sea Turtles and Marine Mammals (effective July 20, 2010)

A total of 708 sea turtles have been verified from April 30 to July 20 within the designated spill area from the Texas/Louisiana border to Apalachicola, Florida. Eight live oiled turtles were captured by directed on-water search teams operating as part of the Wildlife Branch of the Unified Area Command. One of those sea turtles with a smudge of oil was cleaned and released into unoiled waters. Four dead turtle strandings were reported (one each in Florida, Alabama, Mississippi and Louisiana). Fifty-six hatchling turtles were released in Florida from nests that were moved from the northern Gulf of Mexico. There are 207 live sea turtles in rehabilitation centers. These include 164 sea turtles captured as part of the on-water survey and rescue operations, and 43 turtles that stranded alive. A total of 184 stranded or captured turtles have had visible evidence of external oil since verifications began on April 30. These include 167 that are alive and 17 that are dead. All others have not had visible evidence of external oil.

### Emergency Fishing Closure - Updated Daily

For current information on the oil spill-related federal fishery closure please visit the [Southeast Regional Office Web site](#).



### Gulf Marine Forecast

More Deepwater Horizon decision support information available from the National Weather Service - New Orleans.



Of the 708 turtles verified from April 30 to July 20, a total of 477 stranded turtles were found dead, 58 stranded alive. Four of those subsequently died. Eleven live stranded turtles were released, and 43 live stranded turtles are being cared for at rehabilitation centers. Turtle strandings during this time period have been much higher in Louisiana, Mississippi, Alabama and the Florida Panhandle than in previous years for this same time period. This may be due in part to increased detection and reporting, but this does not fully account for the increase.

The NOAA Ship *Pisces* reported a dead 25-foot sperm whale on June 15, 2010, that was located 150 miles due south of Pascagoula, Mississippi and approximately 77 miles due south of the spill site last week. The whale was decomposed and heavily scavenged. Samples of skin and blubber have been taken and will be analyzed. The whale had not evidence of external oil. Sperm whales are the only endangered resident cetacean in the Upper Gulf of Mexico. There are no records of stranded whales in the Gulf of Mexico for the month of June for the period 2003-2007.

From April 30 to July 20, 66 stranded dolphins have been verified in the designated spill area. Of the 66 strandings, five were live strandings, three of which died shortly after stranding, one was released and one is in rehabilitation. Sixty-one dolphins were found stranded dead. Visible evidence of external oil was confirmed on four dolphins. We are unable at this time to determine whether the three dead stranded dolphins were externally oiled before or after death. Since April 30, the stranding rate for dolphins in Louisiana, Mississippi, Alabama and the Florida Panhandle has been higher than the historic numbers for the same time period in previous years. In part, this may be due to increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

A stranding is defined as a dead or debilitated animal that washes ashore or is found in the water. NOAA and its partners are analyzing the cause of death for the dead stranded and dead captured sea turtles and the stranded marine mammals. This report contains corrections based on new information. The status of one live dolphin was changed from oiled to unoiled based on further evaluation.

#### Assessment

To help determine the type and amount of restoration needed to compensate the public for harm to natural resources as a result of the spill, a [Natural Resource Damage Assessment](#) (Document format: PDF, size: 90.8 K) will be conducted by NOAA and our co-trustee agencies. Although many agencies are involved in this process, NOAA is a lead federal trustee for coastal and marine natural resources, including marine and migratory fish, endangered species, marine mammals and their habitats. The focus currently is to assemble existing data on resources and their habitats and collect baseline (pre-spill impact) data. Data on oiled resources and habitats are also being collected. For additional information, see the [DARRP Deepwater Horizon Web page](#).

#### Important Contacts

- **For NOAA media inquiries**, please contact [Ben Sherman](#), [John Ewald](#) or [Rachel Wilhelm](#) or phone 301.713.3066.
- **To offer suggestions to clean, contain, recover or stop the flow of oil** visit [Deepwater Horizon Response Suggestions](#). This Web site also provides procedures and forms for Alternative Response Tool Evaluation System (ARTES) proposals.
- **For response-related inquiries**, please phone the Joint Information Center (JIC) at 985.902.5231 or 985.902.5240.
- **To report oil on land, or for general community information**, please phone 866.448.5816.
- **To report oiled or injured wildlife**, please phone 866.557.1401.
- **To learn about volunteer opportunities** in all areas and what training is required, please phone 866.448.5816.
- **To discuss spill related damage claims**, please phone 800.440.0858.
- BP is asking fishermen for their assistance in cleaning up the oil spill. BP is calling this the **Vessel of Opportunities Program** and through it, BP is looking to contract shrimp boats, oyster boats and other vessels for hire to deploy boom in the Gulf of Mexico. **To learn more about the Vessel of Opportunity Program**, fishermen should phone 281.366.5511.

#### [More Information about this Incident](#)

##### Current Trajectory Maps • [top](#)

24, 48 and 72 hour trajectory forecast maps and offshore trajectory forecasts are produced once daily.

- [Field Guide to NOAA's Oil Trajectory Maps](#) A guide to understanding the oil trajectory maps produced during an incident.  
(Document format: **PDF**, size: **218.5 K**)
- [NOAA Trajectory Maps Presentation](#) A presentation about interpreting NOAA's trajectory maps.  
(Document format: **PDF**, size: **1.3 M**)
- [Deepwater Horizon 24Hr Trajectory Map 2010-07-21-2100](#)  
(Document format: **PDF**, size: **6.8 M**)
- [Deepwater Horizon 48Hr Trajectory Map 2010-07-21-2100](#)  
(Document format: **PDF**, size: **6.3 M**)
- [Deepwater Horizon 72Hr Trajectory Map 2010-07-21-2100](#)  
(Document format: **PDF**, size: **7.1 M**)
- [Loop Current Location Relative to Oil Slick 2010-07-21](#)  
(Document format: **PDF**, size: **502.4 K**)

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First published on April 21, 2010, and last revised on July 22, 2010.

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  - ▶ Listing of Species
  - ▶ Recovery of Species
  - ▶ Marine Mammal Conservation Plans
  - ▶ Cooperation with States
  - ▶ Interagency Consultation
  
- ▶ **Human Impacts**
  - ▶ Fisheries Interactions (bycatch)
  - ▶ Ocean Sound/Acoustics
  - ▶ Ship Strikes
  - ▶ Viewing Wildlife
  
- ▶ **International Cooperation**
  
- ▶ **Marine Mammal Health & Stranding**
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**Marine Life and the Gulf of Mexico Oil Spill: Deepwater Horizon**

**Sea Turtles, Marine Mammals, and Other Wildlife**

If you find an oiled, injured, or dead marine mammal, sea turtle, or bird, please contact the Wildlife Hotline: **1-866-557-1401**

**Marine Wildlife Documented:**

Species documented include those collected from directed captures and from strandings. They are documented by date observed as well as by disposition:

- Visibly Oiled
- Not Visibly Oiled
- Pending Further Data

**Note:** These documents are updated on a weekly basis to ensure daily data are verified.

Blank cells in the tables indicate no effort that day (e.g., weather conditions may have prohibited traveling offshore), meaning there were no vessels searching offshore for sea turtles and marine mammals.

**Sea Turtles**

**Turtles Documented by Species Current as of July 15, 2010**

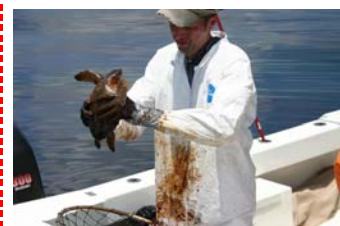
These totals include species that have been documented as:

- strandings
- collected via directed captures offshore

Turtle Species	Total
<a href="#">Green turtle</a> ( <i>Chelonia mydas</i> )	56
<a href="#">Hawksbill turtle</a> ( <i>Eretmochelys imbricata</i> )	5
<a href="#">Kemp's ridley turtle</a> ( <i>Lepidochelys kempii</i> )	524
<a href="#">Loggerhead turtle</a> ( <i>Caretta caretta</i> )	53
Unknown turtle species	30
<b>TOTAL</b>	<b>668</b>

**Turtles Documented by Date and Disposition Current as of July 15, 2010**

**Oil Spill in the Gulf of Mexico**

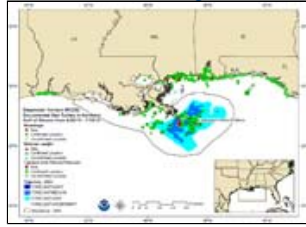


**Dr. Brian Stacy, NOAA veterinarian, cleans a young Kemp's ridley turtle**  
Photo: NOAA/GADNR

- [Marine Wildlife Documented in the Gulf](#)
- [FAQs on Gulf Wildlife](#)
- [Impacts of Oil on Marine Mammals & Sea Turtles](#) [pdf]
- [Probing the Deaths of Sea Turtles in the Gulf of Mexico](#)
- [NOAA Incident Response](#)
- [Interactive Map of Oil Spill](#)
- [Unified Command for the Oil Spill Response](#)
- [Fishery Closures](#)
- [Volunteer to Help](#)

(click for more details in larger view PDF document)

**Map of Sea Turtles Documented  
current as of July 20, 2010**



(Click image for larger size.)

(Maps updated daily, Monday-Friday)

**Marine Mammals: Dolphins and Whales**

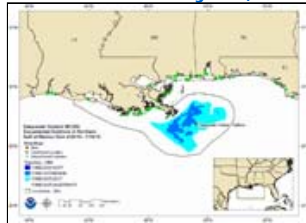
**Dolphins Documented by Species  
Current as of July 15, 2010**

Dolphin Species	Total
<a href="#">Bottlenose dolphin</a> ( <i>Tursiops truncatus</i> )	57
<a href="#">Spinner dolphin</a> ( <i>Stenella longirostris</i> )	4
<b>TOTAL</b>	<b>61</b>

**Dolphins Documented by Date and Disposition  
Current as of July 15, 2010**

(click for more details in larger view PDF document)

**Map of Dolphins Documented  
current as of July 20, 2010**



(Click image for larger size.)

(Map updated daily, Monday-Friday)

**Whales Documented by Species  
Current as of July 15, 2010**

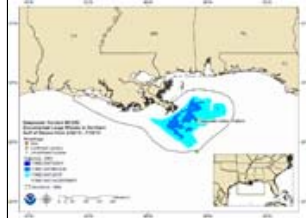
Whale Species	Total
<a href="#">Sperm whale</a> ( <i>Physeter macrocephalus</i> )	1
<b>TOTAL</b>	<b>1</b>

### Whales Documented by Date and Disposition Current as of July 15, 2010

One whale has been documented in the spill area:

- found on June 15, 2010
- dead 25-foot sperm whale
- did **not** show evidence of external oil
- ~77 miles due south of the spill site

### Map of Whales Documented current as of July 20, 2010



(Click image for larger size.)

(Map updated daily, Monday-Friday)

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### Joint Wildlife Report (Birds, Turtles, Marine Mammals) by State and Disposition: Current as of July 21, 2010

(click for more details in larger view PDF document)

(Wildlife Report updated daily, Monday-Friday)

**Note:** The information presented in the joint wildlife report comes from the same data as the expanded sea turtle and marine mammal reports above, which include more detailed information on the species composition.

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### FAQs

#### ■ What is being done to help wildlife in the Gulf of Mexico during the oil spill?

NOAA Fisheries staff are assisting the [Unified Command's Wildlife Branch](#) with marine mammal and sea turtle expertise and support.

Our staff coordinates the [national marine mammal and sea turtle stranding networks](#), which are composed of state and local wildlife organizations dedicated to assisting animals that are stranded or in distress and need care.

Many of our stranding network partners are assisting with the BP Deepwater Horizon oil spill response and are either on site or on call to be deployed as needed.

#### ■ How are marine mammals and sea turtles impacted by the oil?

[Cetaceans](#), [manatees](#), and [sea turtles](#) may be exposed to oil and/or dispersants. These toxic chemicals can affect them both externally and internally:

- externally
  - swimming in oil or dispersants can result in these toxic chemicals

coming in to contact with all external body parts such as skin and eyes

- internally
  - eating or swallowing oil
  - consuming prey that has also come in to contact with oil
  - breathing volatile compounds that the oil gives off

Sea turtles are at additional risk from oil washing ashore on nesting beaches where nesting females and/or their nests may be exposed to chemicals, which may result in decreased survival of eggs and/or developmental defects in hatchlings.

Further, oil has the potential to persist in the environment long after a spill and could have long-term impacts on sea turtles, marine mammals, and other wildlife such as fish and coral reefs. For more detailed information, see the [fact sheet on oil impacts](#) [pdf].

■ **What should I do if I find oiled marine mammals, sea turtles or birds?**

If you find an oiled, injured, or dead marine mammal, sea turtle, or bird, please contact the Wildlife Hotline at 1-866-557-1401.



**Bottlenose dolphins "strand feeding," a normal dolphin behavior** [pdf]

Photo: NOAA Southeast Fisheries Science Center

Note: Dolphins on the beach are not necessarily in distress; they may be "[strand feeding](#)" [pdf], a normal dolphin behavior (see photo on right).

■ **Were all of the [stranded animals included on the table](#) (shown above) exposed to the oil?**

No. Marine mammals and sea turtle strand for many different reasons, both from human causes (such as bycatch in commercial fishing gear) and natural causes (such as disease outbreaks).

Many of the stranded sea turtles and marine mammals reported since April 30th have not shown external signs of oil. The increased surveillance of the shoreline conducted by clean-up crews and the public has likely increased the likelihood of discovering marine mammals and sea turtles that have washed ashore. NOAA and our partners in the stranding networks are carefully examining and collecting samples from each carcass that is found in order to help determine what may have caused the animal to strand.

■ **What species can be found in the Gulf of Mexico?**

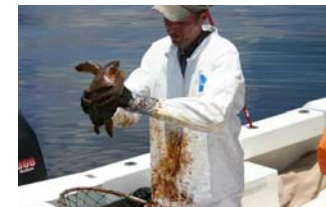
Nearly all species of sea turtles can be found in the Gulf of Mexico, along with many species of dolphins and whales. Please see our fact sheet for a full list of [species that can be found in the Gulf](#) [pdf].

■ **What is the "designated spill area"?**

The marine mammal and sea turtle response unit has defined the "designated spill area" as the geographic area where oiled animals are likely to strand based on the location and movement of the oil in the Gulf of Mexico and the distribution patterns of marine mammals and sea turtles. The current parameters of the "designated spill area" are the Texas/Louisiana border east to Apalachicola, Florida. This may change as the oil moves.

■ **Can NOAA rescue live animals impacted by the oil?**

NOAA and the stranding networks are attempting to locate and rescue as many live animals as possible that are affected by the oil spill.



**Dr. Brian Stacy, NOAA veterinarian, cleans a young Kemp's ridley turtle**

Photo: NOAA/GADNR

To rescue sea turtles, NOAA is working with partner agencies to implement an active surveillance and rescue operation to search for and rescue oiled turtles and take them to rehabilitation facilities for de-oiling and veterinary care.

Larger species such as dolphins pose significant logistical challenges that can

impede rescue efforts. Dolphins that strand alive on land can often be moved and transported to a facility; however, dolphins swimming in an oiled area are extremely difficult to catch, and the stress of a capture operation may place the animals at high risk of injury or death. Captures of free-swimming dolphins are usually only attempted as a last resort.

Very large species like whales pose even greater challenges as there are no facilities in existence that can accommodate their size and mass, and trying to capture a live free-swimming whale is extremely dangerous and almost impossible to accomplish.

- **Where will live animals go for rehabilitation?**

There are currently four approved primary de-oiling facilities in the northern Gulf (Louisiana, Mississippi, and Florida) that have the equipment and veterinary care necessary to triage and treat oiled marine mammals and sea turtles. The purpose of these primary facilities is to de-oil, triage, and stabilize rescued animals.

Secondary facilities have been identified to receive animals for longer-term after they have been stabilized at the primary de-oiling facilities. This system ensures that space and staff will be available at the primary de-oiling facilities to continue to receive new animals and provide focused care at the early, critical stages. Additional facilities are being prepared to receive and treat live animals if needed.

- **Can animals be rescued proactively--before they encounter the oil?**

Attempting to remove animals from the Gulf of Mexico that may encounter oil is not being contemplated by the Wildlife Branch of the Unified Command at this time.

NOAA is assisting the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission in implementing a plan to [relocate all sea turtle nests](#) from the northern Gulf of Mexico to ensure that hatchlings produced from these nests do not enter oiled northeastern Gulf of Mexico waters. The hatchlings will be released off the east coast of Florida.

Efforts to protect dolphins and whales pose significant challenges due to the size and mass of the animals, as well as their agility in the water. Since there is scientific evidence that suggests dolphins can detect oil (probably via their "echolocation" abilities), dolphins may actively move away from oiled areas on their own. There are limited marine mammal rehabilitation facilities available; those in existence need to be available for sick, injured, or oiled animals.



**Turtle Nest Excavation**  
Photo: U.S. Fish and Wildlife Service

Recent suggestions from the public to corral wild dolphins into secluded bays and care for them there until the oil is cleaned up is not practical or logistically feasible and poses several health and behavior risks to the animals.

NOAA and our partners will continue to explore viable options for reducing the risk of the oil spill on species in the Gulf of Mexico.

- **How does oil affect birds?**

Birds are likely to be exposed to oil as they feed in the water, rest on the water's surface, and on oiled beaches and marshes. Oiled birds can lose the ability to fly, dive for food, or float on the water, which could lead to drowning. Oil interferes with the water repellency of feathers and can lead to hypothermia. As birds clean their feathers (preen), they can ingest and inhale the oil on their bodies. This can kill the bird or lead to longer-term problems such as internal organ damage that can lead to death.

- **How does oil impact coral reefs?**

Laboratory studies, field studies, and previous oil spill events have shown

differing results for effects of oil and dispersants on coral reefs.

The notion that coral reefs do not suffer acute toxicity effect from oil floating over them is probably incorrect.

Direct contact with spilled oil can lead to coral death, but depends on coral species, growth form, life stage, and type/duration of oil exposure.

Longer exposure to lower levels of oil may kill corals, as well as shorter exposure to higher concentrations. Death may not be immediate, but may take place long after the exposure has ended. Instead of acute mortality, it is more likely that oil effects occur in sublethal forms, such as reduced photosynthesis, growth, or reproduction.

Early developmental forms, like coral larvae, are particularly sensitive to toxic effects, and oil slicks can significantly reduce larval development and viability. Coral communities may recover more rapidly from oil exposure alone than from mechanical damage. Recovery of coral reefs after oil exposure, however, may depend partly on the recovery of associated communities (e.g., nursery or foraging habitats, such as mangroves and seagrasses) that may be more seriously affected than the reef itself.


Recovery time depends on the type and intensity of the disturbance and can range from several years to decades. For more information, see the [coral reef fact sheet](#) [pdf].

■ **What about fish species affected by the oil spill?**

Fish can be impacted directly through uptake by the gills, ingestion of oil or oiled prey, effects on eggs and larval survival, or changes in the ecosystem that support the fish. Adult fish may experience reduced growth, enlarged livers, changes in heart and respiration rates, fin erosion, and reproductive impairment when exposed to oil. Oil has the potential to impact spawning success as eggs and larvae of many fish species are highly sensitive to oil toxins. For more information on fish in the Gulf of Mexico, please see the [fish stocks fact sheet](#) [pdf].

■ **Is NOAA working with any other agencies in this rescue effort?**



NOAA, as one of the Trustee Agencies, is working as part of the Unified Command for the BP Deepwater Horizon response. Through this formalized process, NOAA is working with numerous other Federal and State wildlife agencies along with the volunteer stranding networks in all aspects of the response, from oil clean up to directed surveys for live oiled animals. For the wildlife efforts, NOAA Fisheries' Protected Resources programs are assisting with implementation of the Incident Action Plan for marine mammals and sea turtles.

The University of California at Davis' [Oiled Wildlife Care Network](#)  (OWCN), which is part of the Wildlife Health Center in the School of Veterinary Medicine, is coordinating the marine mammal and sea turtle efforts on behalf of Unified Command and in partnership with NOAA. OWCN is one of the leading organizations dedicated to wildlife rescue and response during oil spills, is a long-standing member of NOAA's marine mammal stranding network, and drafted the official guidelines for responding to marine mammals in oil spills.

■ **Where can I find daily updates on strandings in the vicinity of the Deepwater Horizon/BP incident?**

[Daily updates on animal strandings](#) are posted on the Deepwater Horizon Response website.

**More Information on the Oil Spill**

- [NOAA's Incident Response](#)
- [NOAA Gulf Oil Spill Education Resources](#)
- [NOAA's Shoreline Cleanup and Assessment Technique](#) [pdf]
- State Wildlife Agencies:
  - [Alabama](#) 
  - [Florida](#) 



- [Louisiana](#) 
- [Mississippi](#) 
- [Texas](#) 
- [U.S. Fish and Wildlife Service](#)
- [Minerals Management Service](#)



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# Deepwater Horizon (MC-252) Incident

## MOBILE LOCATION

Please write in BLUE ink only

Name of Plan:	Deepwater Horizon (MC-252) Sea Turtle Late-Term Nest Collection and Hatchling Release Protocols for the Florida Panhandle and Alabama in Response Plan (Ken Rice) Mobile Sector
Section:	Planning, Environmental/Ops Wildlife
Submitted By:	<i>Van Beausoleil</i> <i>Van 93</i> <i>18 JUN 10</i>
(Name, Signature & Date)	
Reviewed by Planning Chief/ Deputy:	<i>M.L. Smith</i> <i>CDR, USCG - PSC</i>
(Name, Signature & Date)	<i>[Signature]</i> <i>6/18/2010</i>

**Approved by:**

RPIC	<i>[Signature]</i> <i>6/19/2010</i>
(Name, Signature & Date)	
FOSCR	<i>Reviewed Only: William Dilly</i> <i>CAPT</i>
(Name, Signature & Date)	<i>6/18/10</i>
SOSC-MS	<i>Russ T...</i> <i>6/18/10</i>
(Name, Signature & Date)	
SOSC-AL	<i>Philip S. Woods</i>
(Name, Signature & Date)	<i>[Signature]</i> <i>6/18/2010</i>
SOSC-FL	<i>SEAN LOUGHLIN</i>
(Name, Signature & Date)	<i>[Signature]</i> <i>6/18/10</i>
IC-DOI	<i>[Signature]</i> <i>6/18/10</i>
(Name, Signature & Date)	
IC-EPA	<i>Ken Rhame</i> <i>6/18/2010</i>
(Name, Signature & Date)	

**This plan has also been reviewed and agreed by:**

Agency/ Team/ Name:	Alabama - ADEM <i>Chris M...</i> <i>(ADNR)</i>
(Name, Signature & Date)	<i>[Signature]</i> <i>J.S. Brown - ADEM</i>
Agency/ Team/ Name:	Florida - FDEP <i>GE...</i> <i>18 JUN</i> <i>SSC</i>
(Name, Signature & Date)	<i>GEORGE HENDERSON</i>
Agency/ Team/ Name:	Mississippi - MDEQ <i>Russ T...</i> <i>MDEQ</i>
(Name, Signature & Date)	<i>[Signature]</i> <i>6/18/10</i>

**Deepwater Horizon (MC-252) Incident**  
**MOBILE LOCATION**

**Please write in BLUE ink only**  
**Original Plan Submittal & Copy Distribution**

Name of Plan:	Deepwater Horizon (MC-252) Sea Turtle Late-Term Nest Collection and Hatchling Release Protocols for the Florida Panhandle and Alabama in Response Plan (Ken Rice) Mobile Sector
Submitted By: (ICS Position, Signature & Date)	Planning, Environmental/Ops Wildlife

**Distributing Copies To:**  
**(to be completed by person submitting plan and verified by Planning Chief or Deputy)**

Section/ Unit	# Copies	Received by (ICS Position, Signature, Date)
<b>Environmental Unit</b>	2	
<b>Planning</b>	1	
<b>Mississippi</b>  1 Incident Commander 1 MDEQ	2	
<b>Alabama</b>  1 Incident Commander 1 ADEM	2	
<b>Florida</b>  1 incident Commander 1 MDEQ	2	
<b>EPA</b>	1	

**Sea Turtle Late-Term Nest Collection and Hatchling Release Protocols  
for the Florida Panhandle and Alabama in Response to the  
Deepwater Horizon (MC-252) Incident  
Date Prepared: 16 June 2010**

**Background:**

In the Northern Gulf, approximately 700 nests are laid annually in the Florida Panhandle (5-year average from 2005-2009 = 699 nests) and up to 80 nests are laid annually in Alabama. Most nests are laid by loggerheads; however, some Kemp's ridley, green, and leatherback turtle nests have also been documented. Hatchlings begin emerging from nests in early to mid-July. In 2010, approximately 50,000 hatchlings are anticipated to emerge from Northern Gulf sea turtle nests. Based on current knowledge, loggerhead hatchlings from the Gulf coast are believed to spend a few months between the coast and the currents in the Gulf but eventually they enter major currents (i.e., Loop Current eddies and then eventually the Loop Current), which eventually transport many of them out of the Gulf. Therefore, we believe that most, if not all, of the 2010 Northern Gulf hatchling cohort would be at high risk of encountering oil during this period without intervention.

Based on this information, representatives from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Florida Fish and Wildlife Conservation Commission recommend that nests produced on Florida Panhandle and Alabama beaches be collected near the end of incubation and transported to the Atlantic Coast of Florida for final incubation and subsequent release of hatchlings into the Atlantic. Although the loggerheads nesting and emerging from nests in the Florida Panhandle and Alabama are part of the Northern Gulf of Mexico Recovery Unit and differ genetically from loggerheads produced along the Atlantic Coast of Florida, they are part of the same currently proposed Distinct Population Segment (DPS). Evidence suggests that some portion of loggerheads produced on Northern Gulf beaches are transported into the Atlantic by currents. These turtles are assumed to make their way back to the Gulf of Mexico as subadults and adults. The option of moving Northern Gulf Coast nests to the Atlantic was selected as offering the highest probability of reducing the currently anticipated risks to hatchlings as a result of the BP Deepwater Horizon Oil Spill.

The activities identified in these protocols are extraordinary measures being taken in direct response to an unprecedented human-caused disaster. The protocols have been developed with careful consideration and examination of all relevant scientific information, balanced with the logistical requirements of relocating some 700-800 nests from the Gulf to the Atlantic. They involve significant manipulation of eggs and hatchlings and are

accompanied by definite but unquantifiable risks. These extraordinary measures and associated risks are not supportable under normal conditions. However, the continuing environmental disaster occurring in the Gulf of Mexico requires that we take extraordinary measures to prevent the loss of the entire 2010 cohort of hatchlings produced on Northern Gulf beaches. These protocols will apply to nests deposited on Florida Panhandle and Alabama beaches during the 2010 nesting season only. We do not intend to implement these protocols elsewhere or in future years in this area.

### **Summary of Planned Activities:**

All sea turtle nests in the Florida Panhandle and Alabama are currently being marked with stakes and flagging. Eggs will be allowed to incubate in situ until Day 51, 52, or 53\* of incubation (see details under Nest Collection below), at which time they will be excavated, relocated to Styrofoam boxes (to be provided), and flown to the Atlantic Coast of Florida. There they will be held in a secure facility at an off-beach location for the remainder of incubation. Upon emergence from nests, hatchlings will be released on Atlantic Coast beaches.

\*NOTE: The exact days of excavation are subject to change pending further analysis of historic nesting data.

### **Logistics Coordinators:**

One permitted contractor for the Florida Panhandle and one permitted contractor for Alabama will serve as Logistics Coordinators. Duties will include maintaining a list of nests laid in each State, respectively, date each nest was laid, sub-foot GPS coordinates for each nest, and the date each nest will reach Day 51, 52, or 53\* of incubation. The Logistics Coordinators will contact local permit holders to ensure each nest in their area that meets the Nest Collection criteria below is scheduled for collection and collected by 10 a.m. on the target date. The Logistics Coordinators will assist with nest collections as necessary and be responsible for ensuring that all targeted collections have taken place.

\*NOTE: The exact days of excavation are subject to change pending further analysis of historic nesting data.

### **Nest Collection:**

On Mondays, Wednesdays, and Fridays, nests will be collected according to the following criteria:

Monday - collect all nests that are at Days 52 and 53\* of incubation

Wednesday - collect all nests that are at Days 52 and 53\* of incubation

Friday - collect all nests that are at Days 51, 52, and 53\* of incubation

\*NOTE: The exact days of excavation are subject to change pending further analysis of historic nesting data.

The contents of a nest will be excavated by a designated sea turtle permit holder or permitted contractor. To collect a nest, find the location of the egg chamber by gently and systematically digging by hand, and probing with fingers only. Never use shovels or any other tools for either digging or probing. Once the eggs are located, carefully remove the sand from around the top eggs. Individual eggs should be gently lifted from the egg chamber and their existing orientation in the nest must be maintained as described below.

The contents of the nest will be placed into prepared Styrofoam boxes (to be provided) that are soaked, washed with water, allowed to completely dry, and drilled with appropriate air circulation holes before eggs are placed in them (see Appendix). Eggs should not be placed in boxes that have not been properly prepared. Eggs are to be shaded if collected after sunrise. The easiest way to do this is to lay an open umbrella on its side or place a towel over the top of the Styrofoam box holding the eggs.

Kemp's ridley clutches with 100 eggs or less should be placed into one Styrofoam box. Clutches from all other species, as well as Kemp's ridley clutches with more than 100 eggs, should be split into two boxes with an approximately equal number of eggs in each box.

A 3-inch layer of moist sand from the nest cavity or vicinity of the nest site should be placed into the bottom of each Styrofoam box. When moving eggs, be sure to maintain each egg's original orientation; do not rotate eggs in any direction and avoid abrupt movements. Place the eggs in the Styrofoam boxes by gently transferring them one at a time while continuing to maintain each egg's original orientation. **Take extreme care not to rotate the eggs in any way during handling.** As eggs are placed in a Styrofoam box, be sure they do not roll.

Each egg should be counted and placed in a row in the box. Care must be taken to ensure that the eggs are not packed too tightly. Eggs should be placed and stacked so that a 1-inch gap exists between the eggs and the side walls of the box (Figures 1 and 2). Do not put layers of sand between eggs when stacking.

The Logistics Coordinators will be responsible for selecting a sample of 40 nests over the nesting season to outfit with temperature probes. For these 40 sample nests, after

approximately half of the eggs have been placed in a Styrofoam box, a thermocouple probe will be placed through the side hole of the box. The probe should lie flat and be placed in the middle of the box between two rows of eggs and should be taped both on the inside and outside of the box (Figures 3 and 4). Be extremely careful not to disturb any of the eggs while inserting the probe. Leave at least 6 inches of the male connector end of the probe outside of the box so that it can be attached to the female end of the probe (which will be attached later at the incubation facility). If less than 6 inches of the male probe is outside the box, the probes may not reach each other, negating the possibility to monitor temperatures.

After the eggs are placed in a Styrofoam box, additional moist sand from the nest cavity should be added between the egg mass and the box walls. A 2 to 3-inch layer of moist sand should be placed on top of the eggs.

The sea turtle permit holder or permitted contractor that collects a nest will be responsible for preparing and attaching an identification tag to each Styrofoam box. The beach name, County, nest number, species, date laid, number of eggs, name of the collector, and the date of nest collection shall be written in permanent ink on a waterproof tag, which shall be placed in a ziplock bag and tied to the Styrofoam box with an electrical tie. A back-up label will be placed inside the Styrofoam box as well.

### **Ground Transport of Nests to Designated Airports:**

The Logistics Coordinators or their designees will be responsible for picking up nests from the permitted individuals collecting nests. The Logistics Coordinators or their designees will transport the nests in a climate-controlled vehicle to protect them from extremes of heat and cold (for simplicity, since transporters will likely not be measuring temperatures inside the vehicles they are driving, nests should be in a temperature controlled vehicle that is controlled to a temperature comfortable for a human; at no time shall the nests be left in an unattended vehicle). Styrofoam boxes must be carefully handled and not be tilted for any reason. Each scheduled morning's collection of nests must be delivered by 1:00 pm to a designated airport (to be identified) for air transport to the Atlantic Coast of Florida.

Any nests that do not arrive in time for the day's scheduled flight will be kept in a designated quiet, shaded, non-air conditioned, and well-ventilated location protected from extremes of heat and cold (not above 90°F and not below 50°F) until the next day's flight of nests to the Atlantic Coast. The holding location must be able to be secured from vandalism and be predator-proof, including ensuring the nest is secure from ant or other insect invasion. The Logistics Coordinators will be responsible for ensuring all nests awaiting the

next day's flight are appropriately tended overnight and for ensuring they get placed on the next day's flight.

### **Air Transport to the Atlantic Coast of Florida:**

Each day's collected nests will be air transported in a single aircraft to the Atlantic Coast of Florida. Air transport should be timed to arrive at the Atlantic coast airport (to be identified) no later than 5:00 pm each day. A designated sea turtle permit holder, FWC, FWS, or NOAA personnel, or permitted contractor will accompany the nests on each flight to ensure nests are carefully handled and securely placed inside the aircraft. Styrofoam boxes must not be tilted for any reason. Nests will be transported in a climate-controlled environment so as to protect them from extremes of heat and cold (not above 90°F and not below 50°F).

### **Transfer of Nests from the Atlantic Coast Airport to the Incubation Facility:**

Upon arrival at the Atlantic Coast airport, a permitted contractor will meet the plane and transport the nests directly to the designated incubation facility. Nests will be transported in a climate-controlled vehicle to protect them from extremes of heat and cold (for simplicity, since transporters will likely not be measuring temperatures inside the vehicles they are driving, nests should be in a temperature controlled vehicle that is set to a temperature comfortable for a human).

### **Final Incubation of Nests:**

Upon arrival at the designated incubation facility, Styrofoam boxes holding nests will be off-loaded and placed in a building that can be secured from vandalism and be predator-proof, including ensuring the nest is secure from ant or other insect invasion. The building must provide a quiet, shaded, non-air conditioned, and well-ventilated environment protected from extremes of heat and cold (not above 90°F and not below 50°F). A designated sea turtle permit holder or permitted contractor will be responsible for tending to these nests. Styrofoam boxes containing nests must be outfitted with enclosure screens or otherwise outfitted to ensure emerged hatchlings cannot escape the container or be harmed in any way.

Styrofoam box lids should be kept open once they are placed in the incubation facility. Nests will be lightly sprinkled with water from a watering can as needed to keep sand moist, but not wet. Fans and spritzers should be used if the air temperature gets too high. Vaseline should be strategically placed to make sure ants or other crawling insects do not



get into the Styrofoam boxes; no Vaseline will be placed on the Styrofoam boxes themselves.

Nests will be checked at least once each night (optimal time to be determined) for signs of impending emergence or to assess emergence progress. Nests will also be checked at least once during the daytime to assess the condition of all nests. Unhatched eggs will continue to be held in the Styrofoam boxes, which will continue to be checked for hatchlings twice a day for 72 hours after the first sign of emergence occurs in the box.

### **Nest Inventories:**

The permitted contractor responsible for tending to nests will also be responsible for completing a nest inventory following hatchling emergence. A nest inventory may only be conducted 72 hours after the first sign of emergence. A nest inventory form shall be completed and shall include all information contained on the nest tag that is attached to the incubation container (beach name, County, nest number, species, date laid, name of the collector, and the date of nest collection). Information to be recorded will include the number of live hatchlings, dead hatchlings, pipped live, pipped dead, and unhatched eggs.

### **Hatchling Releases:**

Due to the short duration of the hatchling frenzy period, hatchlings shall be released as soon as possible following emergence. All hatchlings found during darkness are to be released immediately. Otherwise, hatchlings must be left in their incubation container and released the following night. Hatchlings collected from excavated nests should never be held in water. The lid of the container should be placed loosely over the top to provide a near-dark environment. Emerged hatchlings being held in their incubation container should not be handled or disturbed until they are ready for release. Activity causes increased expenditure of limited energy stores.

Hatchling releases shall occur at designated locations (to be determined). Release locations shall be on a relatively dark beach without light sources directly visible from the beach. Recent studies have shown that in-water predators will shift locations to areas of higher hatchling prevalence, resulting in unnaturally high concentrations of predators and increased probability of hatchling mortality. In order to prevent this type of increased risk, release locations shall be varied regularly.

At the time of release, hatchlings should be placed just landward of the surf zone and allowed to crawl the short distance to the water on their own. Artificial lights shall not be used during hatchling releases. This applies to any members of the public observing such

releases, as well as all permitted personnel involved in the release. A quick check of the release area with a small red LED flashlight a short time after release will insure that all hatchlings have reached the water. Occasionally, individual hatchlings may need assistance in reaching the water. In such cases, they may be moved closer to the water's edge or placed in the shallows and allowed to swim off on their own. Individuals conducting the hatchling release should conduct a brief search of the surf zone and shallow water adjacent to the beach 10-15 minutes following the release to ensure that all hatchlings have departed.

## FIGURES



Figure 1. Excavating a nest.

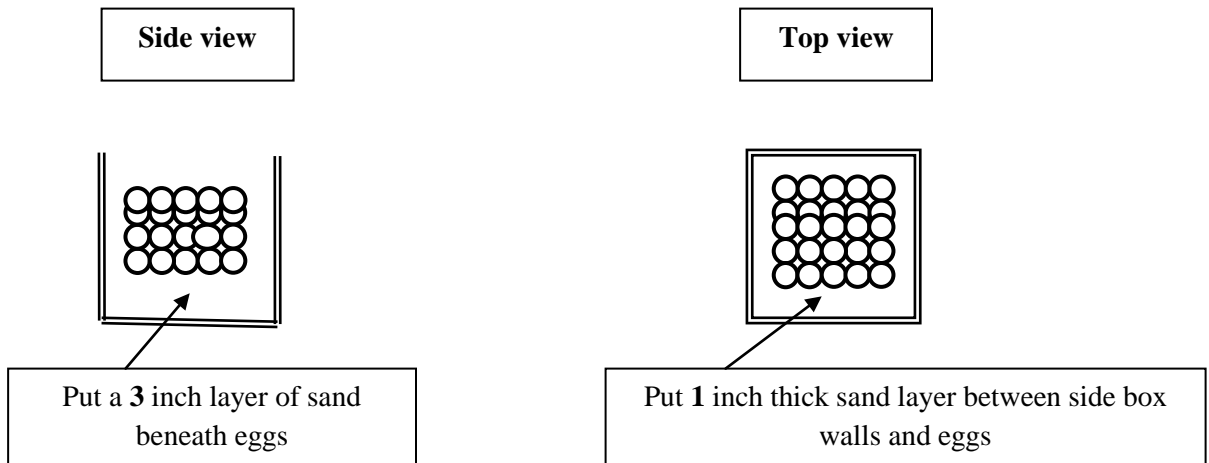


Figure 2. Arrangement of sand and eggs in the Styrofoam box from side view (A) and view from top of box (B).



Figure 3. Eggs packed with probe.



Figure 4. Styrofoam box showing placement of temperature probe (••••) from side view (A) and view from top of box (B).

## APPENDIX

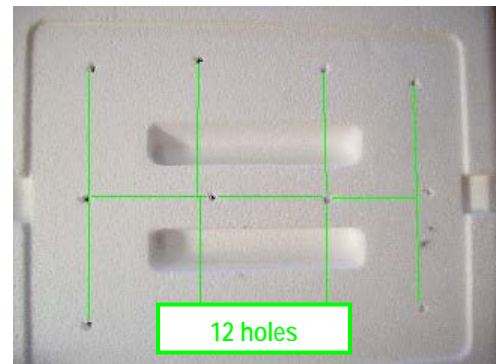
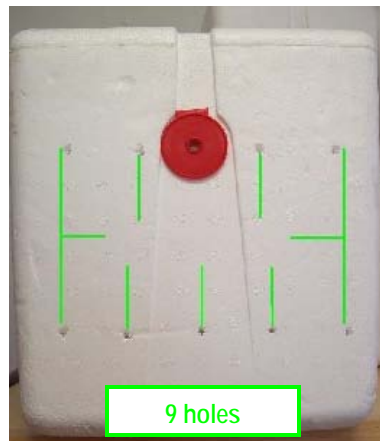
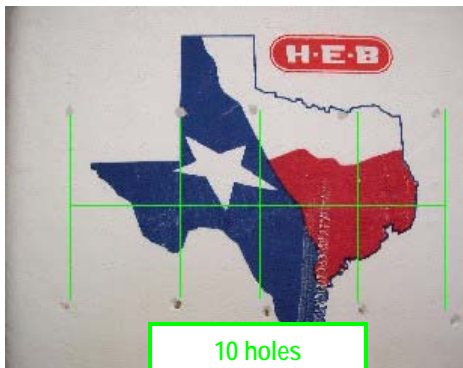
### Incubation Boxes

You will need:

- Foam coolers
- Electric drill
- 3/16" drill bit
- Ivory soap & bottle brush
- Utility knife (to remove handles)
- Leatherman

Directions:

- 1) Fill boxes with water and allow to soak overnight.
- 2) Carefully pour out water as the weight may break the cooler and allow to air dry (DO NOT leave boxes outside overnight to dry).
- 3) Using a utility knife and/or Leatherman, remove all handles and clips (to ensure no one attempts to use the handles with a nest enclosed).
- 4) Drill holes in boxes using 3/16" drill bit.
  - Drill 10 holes (two rows of 5 holes) on each 14" side of the box (see left diagram below).
  - Drill 9 holes (one row of 4 holes and one row of 5 holes) on each 11" side of the box (see center diagram below).
  - Drill 12 holes (three rows of 4 holes) on the lid and the bottom of the box (see right diagram below).
- 5) Scrub boxes with Ivory soap with a clean bottle brush and rinse well.
- 6) Allow boxes to air dry (DO NOT leave boxes outside overnight to dry).
- 7) Store boxes in a cool/dry area.



## **U.S. Fish and Wildlife Service Sea Turtle Late-Term Nest Collection and Hatchling Release Plan Frequently Asked Questions**

06/26/2010

### **Q: What are you doing to plan for oil spill impacts to sea turtle nests along the northern Gulf Coast?**

A: All sea turtle nests laid along the northern Gulf coast are being visibly marked to ensure that nests are not harmed during oil spill cleanup operations that may be undertaken on these beaches. In addition, a sea turtle late-term nest collection and hatchling release plan specifically developed for the response to the Deepwater Horizon/BP oil spill is being implemented to provide the best possible protection for sea turtle hatchlings from nests in Alabama and the Florida panhandle.

### **Q: Who developed the plan and protocols?**

A: The plan was developed by sea turtle experts with the U.S. Fish and Wildlife Service (Service), NOAA's National Marine Fisheries Service (NOAA Fisheries), and Florida Fish and Wildlife Conservation Commission (FWC) in consultation with numerous sea turtle scientific experts and review of the available literature.

### **Q: What do the plan and protocols do?**

A: The plan takes a proactive approach toward minimizing the anticipated oil-spill impacts by ensuring nests are marked in a manner that will prevent damage from beach clean-up operations and by coordinating the collection of nests at a point in the incubation cycle where transport of the incubating eggs is less likely to result in the loss of viable eggs. These nests will be handled under a very strict protocol, packed in specially prepared Styrofoam boxes, and then transported to the east coast of Florida. Once there, the nests will be held in a secure, climate controlled facility until incubation is complete. As hatchlings emerge, they will be collected each night and transported and released on an east central Florida beach where they will be allowed to make their way to the ocean.

### **Q: How many nest or hatchlings are estimated to be in the plan's target area?**

A: In the northern Gulf area, approximately 700 nests are laid annually in the Florida Panhandle and up to 80 nests are laid annually in Alabama. Most nests are made by loggerhead sea turtles; however, some Kemp's ridley, green, and leatherback turtle nests have also been documented. Hatchlings begin emerging from nests in early to mid-July. In 2010, approximately 50,000 hatchlings are anticipated to be produced from northern Gulf sea turtle nests.

### **Q: How do you know which nests to relocate?**

A: Trained and permitted sea turtle nest surveyors are conducting surveys daily. As new nests are found they are flagged, dated, and logged, and GPS coordinates are taken and entered into a central database. Collection of nests during the end of the incubation period can then be timed based on this information and ongoing monitoring.

**Q: Are there sufficient resources available to implement the plan?**

A: There are sufficient resources to fully implement the plan. However, the implementation of this plan requires a significant coordinated effort by all agencies and partners over an approximately four month period that must be sustained to accomplish the goals.

**Q: What are your expectations of success?**

A: In developing this plan we realized early that our expectations for success must be rooted in the knowledge that doing nothing would most likely result in the loss of most, if not all, of this year's northern Gulf of Mexico hatchling cohort. Translocating such a large number of nests late in incubation has never been attempted, and some additional mortality beyond natural levels must be expected. However, translocating these nests will give the greatest number of hatchlings the best opportunity to survive and contribute to the ongoing recovery of their species.

**Q: Are there risks to the eggs and hatchlings associated with this plan?**

A: The plan is not without risks. While these risks may not be supportable under normal conditions, the current situation in the Gulf of Mexico requires that we take extraordinary measures and associated risks to prevent the possible loss of the entire 2010 cohort of hatchlings produced on northern Gulf beaches.

The protocols were developed with careful consideration and examination of all relevant scientific information, consultation with experts, and balanced with the logistical requirements of collecting and translocating some 700-800 nests from the northern Gulf to the Atlantic. They involve significant manipulation of eggs and hatchlings and are accompanied by definite, but unquantifiable risks.

**Q: Is releasing the hatchlings on the east coast a problem for the hatchlings?**

A: Careful review of existing scientific literature and discussions with experts suggest that some portion of loggerheads produced on northern Gulf beaches are transported naturally into the Atlantic by currents. The plan by-passes a portion of this passive migration process and places the hatchlings in a safer environment for their growth and development.

**Q: Are you going to develop and implement similar plans for nesting beaches along Florida's southwest coast? If not, why?**

A: This plan applies to nests deposited on Florida Panhandle and Alabama beaches during the 2010 nesting season only. We do not intend to implement these protocols elsewhere or in future years in this area.

The 2010 cohort in the northern Gulf area is at the highest risk for encountering oil after entering the ocean.

Based on what is known to date regarding the projected path of the oil spill, and our understanding of movement of hatchlings emerging from nests laid on southwest Florida beaches we believe the threat to hatchlings emerging from nests along this coastline is not likely to result in loss of the entire 2010 hatchling cohort. In addition, the loggerhead turtles produced on southwest Florida beaches are part of a larger subpopulation that also nests on

Florida's Atlantic Coast beaches and, therefore, the likelihood that all or a significant portion of the 2010 cohort of this nesting subpopulation would be lost is highly improbable.

**Q: The spill is still not under control or stopped. What if the threats become greater?**

A: We are constantly monitoring the situation and should things change we are prepared to consider additional options.

**Q: Where can I find the plan?**

A: The plan is available on-line at <http://www.fws.gov/northflorida> under the Emergency Section 7 consultation link.

**Q: What can I do to help?**

A: If you observe or find a sea turtle that appears oiled or injured, please immediately call 1-866-557-1401. Individuals are urged not to attempt to help injured or oiled sea turtles, but to report the sightings to the toll-free number. If you are interested in volunteering to aid in the recovery effort, call 1-866-448-5816. Four Gulf-coast states have also setup websites for volunteers; those are available at our website at <http://www.fws.gov/home/dhoilspill/whatyou.html>.

**Q: Can I donate money to help in the sea turtle oil-spill response?**

A: Please review the [information on the state volunteer websites](#) for information on donating funds for wildlife oil-spill response.



# Deepwater Horizon Response Consolidated Fish and Wildlife Collection Report

Date: July 21, 2010

Operational

Period

92

To report injured or dead wildlife in the impact area call: 1-866-557-1401

This report covers the consolidated numbers reported through the report date from noon to noon.

These are the consolidated numbers of collected fish and wildlife that have been reported to the Unified Area Command from the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), incident area commands, rehabilitation centers and other authorized sources operating within the Deepwater Horizon/BP incident impact area.

At this phase in the response, field-level staff will document all injured or dead fish and wildlife encountered in the impact area. This document reflects only the initial, field-level, evaluation and does not reflect a final determination of the cause of injury, or death. Not all of the injured or dead fish and wildlife reflected in these numbers were necessarily caused by the Deepwater Horizon/BP incident. Official designations of cause of death will be determined at a later date.

Part of the long-term assessment process is to carefully examine and determine the cause of death or injury for impacted fish and wildlife. Some fish and wildlife reported here have likely died or been injured by natural causes, not due to the oil spill. Due to the increased number of trained people evaluating the spill impacted areas, it is also likely that we will recover more naturally injured or dead fish and wildlife than normal.

Once found or captured, collected fish and wildlife are given an identifying number that will follow it throughout the evaluation process. Collected fish and wildlife are given an initial examination to search for broken bones, external oil or other injuries. As needed, this may be followed by a more thorough examination to search for less obvious injuries, such as oil in the mouth, throat or eyes. An additional step may include a partial or full necropsy (an autopsy for animals) to help determine the exact cause of death if possible.

\*\* These numbers are accurate to the best of our knowledge at the time the report was created. The numbers of injured and dead fish and wildlife, as well as the cause of injury or death, are not official until verified. The categories on this report -- visibly oiled, no visible oil or pending -- are not an official determination of cause of death.

**NOTE:** It is normal for reported numbers to fluctuate between "visibly oiled," "no visible oil" and "pending." If staff are unable to make a determination at a field location, the number will be placed in the pending column and evaluated as soon as possible. Once a determination is made, the number will be moved from "pending" to the appropriate column.

Birds	Consolidated #'s Collected Alive							
	Visibly Oiled		No Visible Oil		Pending		Total	
	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
	Alabama	2	87	0	0	0	0	2
Florida	4	170	0	0	0	0	4	170
Louisiana	42	1008	0	0	0	0	42	1008
Mississippi	2	69	0	0	0	0	2	69
Texas	0	0	0	0	0	0	0	0
On-Water	0	0	0	0	0	0	0	0
<b>Total</b>	<b>50</b>	<b>1334</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>1334</b>

Consolidated #'s Collected Dead							
Visibly Oiled		No Visible Oil		Pending		Total	
Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
5	73	8	277	0	1	13	351
0	152	6	450	0	0	6	602
12	632	7	397	0	0	19	1029
0	190	6	252	0	8	6	450
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
17	1047	27	1376	0	9	44	2432

Consolidated #'s Total Collected							
Visibly Oiled		No Visible Oil		Pending		Total	
Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
7	160	8	277	0	1	15	438
4	322	6	450	0	0	10	772
54	1640	7	397	0	0	61	2037
2	259	6	252	0	8	8	519
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
67	2381	27	1376	0	9	94	3766

Consolidated #'s Released
Total
35
14
484
18
0
0
551

Sea Turtles	Collected Alive							
	Visibly Oiled		No Visible Oil		Pending		Total	
	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
	Alabama	0	5	0	2	0	0	0
Florida	0	2	0	12	0	0	0	14
Louisiana	0	3	0	6	0	0	0	9
Mississippi	0	0	1	29	0	0	1	29
Texas	0	0	0	0	0	0	0	0
On-Water	5	157	0	11	0	0	5	168
<b>Total</b>	<b>5</b>	<b>167</b>	<b>1</b>	<b>60</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>227</b>

Collected Dead							
Visibly Oiled		No Visible Oil		Pending		Total	
Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
0	6	0	5	2	74	2	85
0	1	0	0	0	50	0	51
0	5	0	2	0	92	0	99
0	1	0	75	4	166	4	242
0	0	0	0	0	0	0	0
0	4	0	0	0	1	0	5
0	17	0	82	6	383	6	482

Total Collected							
Visibly Oiled		No Visible Oil		Pending		Total	
Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
0	11	0	7	2	74	2	92
0	3	0	12	0	50	0	65
0	8	0	8	0	92	0	108
0	1	1	104	4	166	5	271
0	0	0	0	0	0	0	0
5	161	0	11	0	1	5	173
5	184	1	142	6	383	12	709

Released	# Nests Transported		# Hatchlings Released	
Total	Collected Yesterday	Total	Collected Yesterday	Total
1	1	2	0	0
0	9	28	38	168
0	0	0	0	0
10	0	0	0	0
0	0	0	0	0
1	0	0	0	0
12	10	30	38	168

Mammals* * includes Dolphins	Collected Alive							
	Visibly Oiled		No Visible Oil		Pending		Total	
	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
	Alabama	0	0	0	1	0	0	0
Florida	0	1	0	2	0	0	0	3
Louisiana	0	0	0	1	0	0	0	1
Mississippi	0	0	0	0	0	0	0	0
Texas	0	0	0	0	0	0	0	0
On-Water	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>

Collected Dead							
Visibly Oiled		No Visible Oil		Pending		Total	
Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
0	0	0	3	0	3	0	6
0	0	0	1	0	0	0	1
0	2	0	34	0	0	0	36
0	1	0	14	0	3	0	18
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	1
0	3	0	53	0	6	0	62

Total Collected							
Visibly Oiled		No Visible Oil		Pending		Total	
Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
0	0	0	4	0	3	0	7
0	1	0	3	0	0	0	4
0	2	0	35	0	0	0	37
0	1	0	14	0	3	0	18
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	1
0	4	0	57	0	6	0	67

Released
Total
1
0
0
0
0
0
1

Other Reptiles	Collected Alive							
	Visibly Oiled		No Visible Oil		Pending		Total	
	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
	Alabama	0	0	0	0	0	0	0
Florida	0	0	0	0	0	0	0	0
Louisiana	0	0	0	0	0	1	0	1
Mississippi	0	0	0	0	0	0	0	0
Texas	0	0	0	0	0	0	0	0
On-Water	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>

Collected Dead							
Visibly Oiled		No Visible Oil		Pending		Total	
Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
0	0	0	0	0	1	0	1
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	1

Total Collected							
Visibly Oiled		No Visible Oil		Pending		Total	
Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total	Collected Yesterday	Total
0	0	0	0	0	1	0	1
0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	1
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	2	0	2

Released
Total
0
0
0
0
0
0
0
0

END REPORT