Oil and Sea Turtles

BIOLOGY, PLANNING, AND RESPONSE

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# Table of Contents

Introduction

## Chapters

Acknowledgments  
Introduction  
1 Sea Turtle Taxonomy and Distribution  
   - Key Points  
   - What Is a Sea Turtle?  
   - Sea Turtle Species and Their Geographic Distribution  
   - For Further Reading  
2 Life History and Physiology  
   - Key Points  
   - Life History  
   - Physiology  
   - For Further Reading  
3 Natural and Human Impacts on Turtles  
   - Key Points  
   - Natural Mortality Factors  
   - Anthropogenic Impacts  
   - For Further Reading  
4 Oil Toxicity and Impacts on Sea Turtles  
   - Key Points  
   - Toxicity Basics  
   - Indirect Effects of Oil on Sea Turtles  
   - For Further Reading  
5 Response Considerations for Sea Turtles  
   - Key Points  
   - Open-Water Response Options  
   - Shoreline Cleanup  
   - Indirect Response Impacts  
   - Preventative Measures  
   - Application of Sea Turtle Information for Spill Response and Planning
Figure 1.10  A flatback turtle on Abutlion Island, Lownedal Island group, Western Australia

Figure 2.1  A loggerhead hatchling in sargassum

Figure 3.1  A green turtle with fibropapilloma tumors at the base of its flippers

Figure 3.2  Trawl-caught sea turtles off Cape Canaveral, Florida

Figure 3.3  On a nesting beach in North Carolina homeowners placed sandbags to halt erosion, rendering previous turtle nesting sites inaccessible to sea turtles

Figure 3.4  A hawksbill turtle entangled in plastic line and fishing net

Figure 3.5  This X-ray image of a juvenile green turtle shows fishing hooks and other tackle in throat

Figure 4.1  A juvenile green turtle oiled during a spill in Tampa Bay, Florida, in 1993

Figure 4.2  Conceptual framework of sea turtle behavioral responses to oil exposure

Figure 4.3  Conceptual framework for the effects of oil exposure to sea turtles

Figure 5.1  Schematic of Section 7 endangered species consultation process

Figure 5.2  Conceptual framework for considering chemical dispersant effects to sea turtles

Figure 5.3  Decision flowchart for evaluating in-situ burning as a spill response option

Figure 5.4  A sea turtle nest endangered by the 1993 Bouchard B155 oil spill in Tampa Bay

Figure 5.5  An Environmental Sensitivity Index map for Florida's turtle habitat areas

Figure 5.6  Times when oil near or on nesting beaches will have the most and least effect on turtles, by species

Figure 5.7  An oiled green turtle recovered by the Israeli Sea Turtle Rescue Center in August 1999

Figure 6.1  Sources of oil spilled in tropical areas, 1992–2001

Figure 6.2  Types of oil and fuels spilled in tropical incidents, 1992–2001

Figure 6.3  Causes of incidents in tropical areas, 1992–2001

Figure 6.4  A nesting beach oiled after the 1993 Bouchard B155 spill in Tampa Bay, Florida

Figure 6.5  A juvenile green turtle oiled during the 1993 Bouchard B155 spill in Tampa Bay, Florida

Figure 6.6  Juvenile green turtle recovered during the Morris J. Berman barge spill in the waters off Culebra, Puerto Rico
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Introduction

Few animals in the world’s oceans evoke the kind of wonder inspired by sea turtles. Ancient in their origins, sea turtles are bestowed with a mystical quality that in part derives from their longevity as inhabitants of the world’s oceans and in part from their uncanny ability to navigate over vast expanses of water to return to their natal beaches.

However, few animals are at greater risk from an unfortunate confluence of global changes, widespread disease, and a host of problems of human origin. The latter category includes inevitable human population growth and the consequences of habitat destruction, impairment and entanglement in plastic trash, the persistent belief that turtle flesh and turtle eggs confer nearly supernatural health benefits, the inherent beauty and rarity of turtle shell jewelry, and even the indirect impacts of the breakdown of indigenous social mores within the populations of far-flung islands where turtles also dwell. Among these many risks to the continued existence of turtles is that from oil spills.

Admittedly, in the spectrum of threats facing sea turtles, oil spills do not rank very high. They are generally rare events, affecting a limited geographic area. Oil is not the most toxic material that could be spilled in a sensitive marine environment, which in places include turtle habitat. Oil may even be released naturally from seeps and vents. Yet in 1979 a massive oil spill resulting from a drilling platform blowout in the Gulf of Mexico threatened one of the only known nesting beaches of a particularly threatened sea turtle, the Kemp’s ridley. The spill ultimately resulted in minor impacts to the Kemp’s ridley population, but a major tragedy was averted.

The 1979 Gulf of Mexico incident emphasized the tenuous nature of existence for threatened sea turtles in the world’s oceans, and how a single catastrophic oil spill might serve as the synergistic “tipping point” that could prove devastating to externally stressed populations.

Those of us who work on environmental issues related to oil and chemical spill response often think about our job in the context of game theory and “minimum regret.” We identify courses of action that do not eliminate risk, and in fact expand the area we consider at risk; but, ultimately, we minimize the regret we may feel about our course of action by explicitly considering the consequences of unlikely events. The probability of an incident affecting sea turtles may well be low—that is, mathematically negligible—but the result of such a low-probability event occurring at just the wrong time of year and at the wrong location could be catastrophic and unacceptable for a given popula-
tion. Therefore, we plan for such an occurrence, while hoping we never need to invoke the plans we make.

The guidance document you hold is a part of that planning effort. It is the third in a series of publications prepared by NOAA’s Office of Response and Restoration to provide response-relevant information on specific warm-water resources at risk. Previous publications include oil impacts to coral reef and mangrove ecosystems. Our intent is to present a basic overview of sea turtle biology, summarize what is known about the effects of oil on sea turtles, review potential response actions in the event of a release, and present case histories from previous spills that potentially could or actually have affected sea turtles. Our audience is intended to include spill responders and planners, resource managers, sea turtle rehabilitators, veterinarians—and anyone who is interested in the continued survival and health of one of the ocean’s most intriguing inhabitants.

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