

Oil and Sea Turtles

BIOLOGY, PLANNING, AND RESPONSE



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to monitor and assess coral health, map coral reef ecosystems, conduct research to better understand biological, social, and economic factors that effect coral reefs, partnerships to reduce the adverse affects of fishing, coastal development, and pollution, and identify coral reef areas for special protection.

If I have omitted acknowledging the contributions of others, please forgive the oversight and understand that their efforts are nonetheless deeply appreciated.

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-



An oiled green turtle recovered by the Israeli Sea Turtle Rescue Center in August 1999. This and one other turtle were cleaned, rehabilitated, and released about two months later. Photo courtesy of Yaniv Levy, Israeli Sea Turtle Rescue Center, Hofit, Israel.

tion. Therefore, we plan for such an occurrence, while hoping we never need to invoke the plans we make.

**NOAA -
National Oceanic
and Atmospheric
Administration.
(U.S. Department of
Commerce).**

RAR - resources at risk.

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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