

# PLIGHT OF T

*Student Works to Protect Mar*



# THE DOLPHINS

*in the Mammals in the Philippines*

BY JOE HLEBICA

*Dolar was surprised to learn in the 1990s that little research had been done on the marine mammals in the Philippines, and there were no ongoing studies of this significant group, in spite of the fact that the native dolphin and whale fishery had been growing for over a decade.*

“I was riding in a small outrigger canoe, sitting right down on the surface of the water, a very different perspective than you get from the deck of a large ship. Suddenly, we were surrounded by an enormous number of spotted dolphins, skimming the surface and leaping through the air. It was a thrilling experience,” recalls Scripps graduate student Louella Dolar when describing her first close encounter with a large group of dolphins.

The year was 1991, and Dolar, a Philippine native, embarked on the first survey of dolphin populations ever conducted in the Philippines. By this time, she had been involved with the study of these intriguing

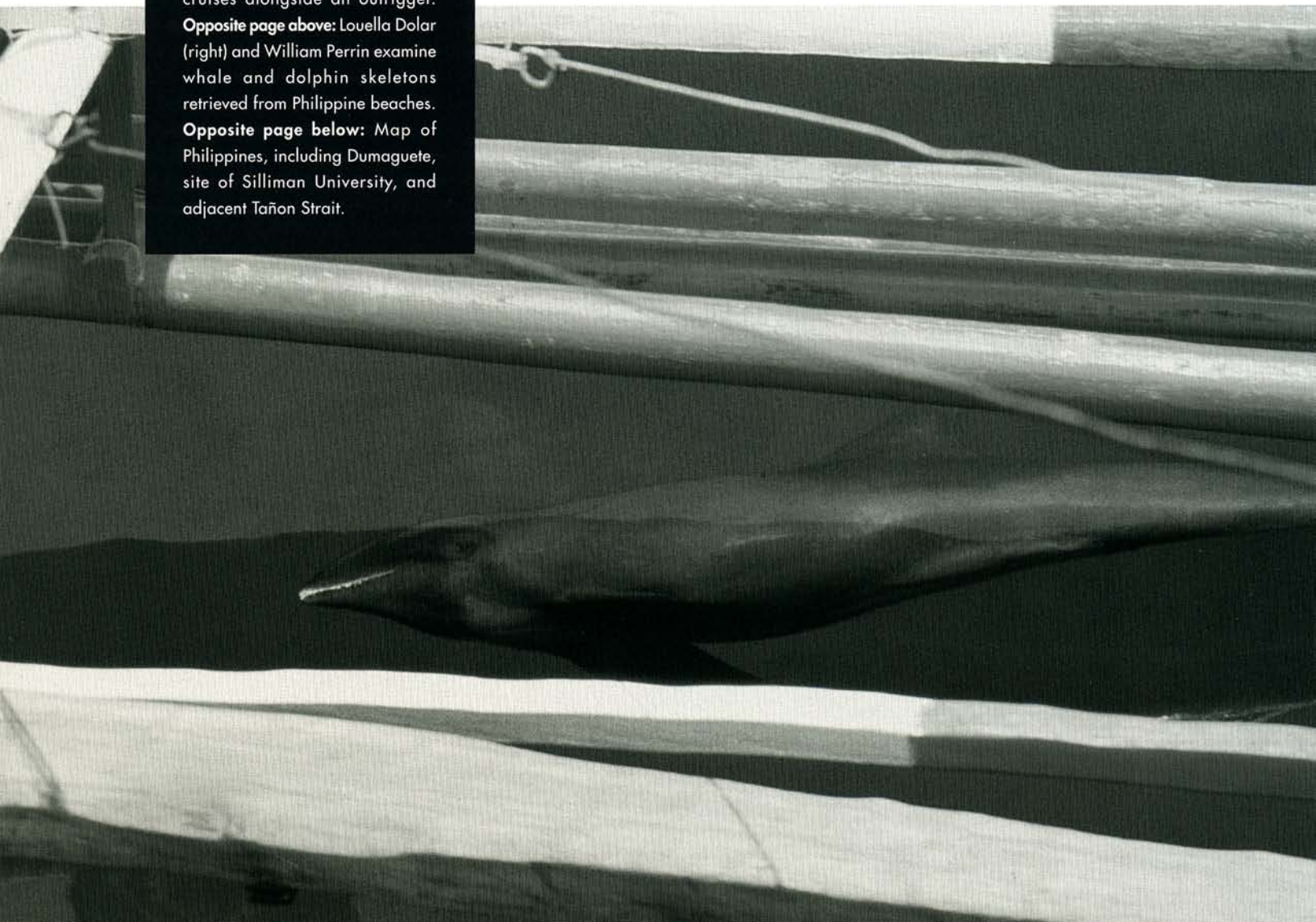
marine mammals for more than two years, since working on her master's program at Silliman University in the Philippines. In the Silliman biology laboratory, she and her colleagues were tackling a broad range of environmental and development-oriented studies, including assessment of natural resources, community-based conservation measures, aquaculture, and captive breeding of endangered species.

Dolar was surprised to learn in the 1990s that little research had been done on the marine mammals in the Philippines, and there were no ongoing studies of this significant group, in spite of the fact that the native dolphin and whale fish-

**Below:** Melon-headed whale cruises alongside an outrigger.

**Opposite page above:** Louella Dolar (right) and William Perrin examine whale and dolphin skeletons retrieved from Philippine beaches.

**Opposite page below:** Map of Philippines, including Dumaguete, site of Silliman University, and adjacent Tañon Strait.





ery had been growing for over a decade. She was amazed both by the large numbers of these cetaceans she observed while out on the water, and the lack of information about them in the scientific literature. Dolphins and whales were often grouped with fishes, and were not generally identified as mammals, even by native fishermen whose livelihoods depended in part on dolphin and whale hunting as

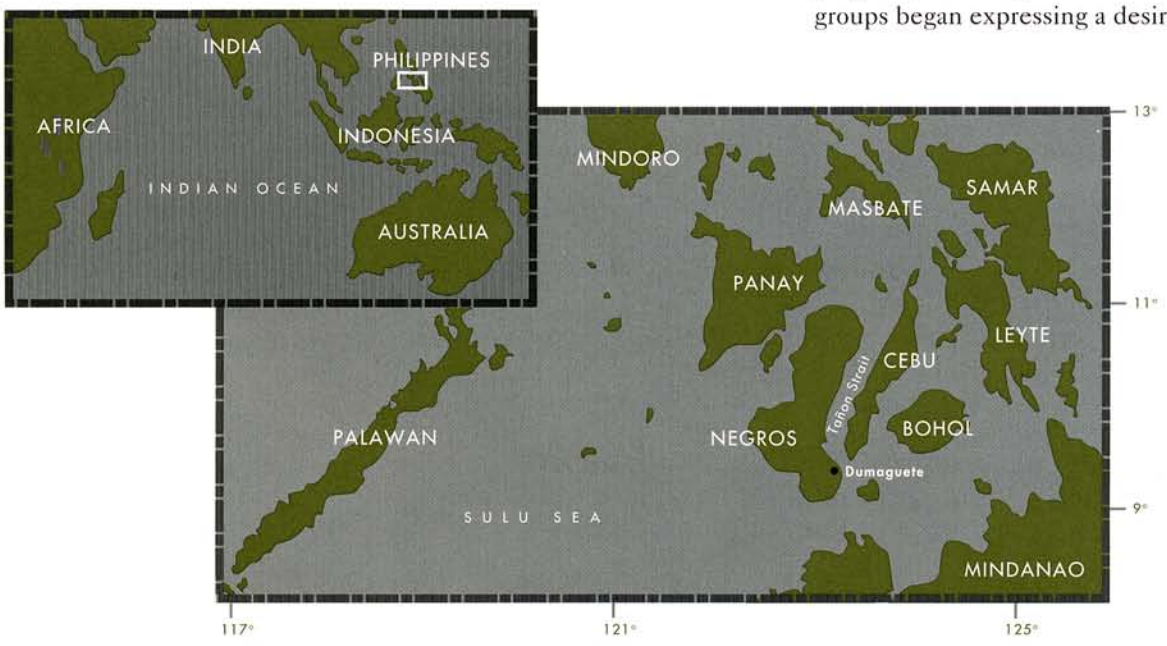
the market for meat from these animals grew. Not surprisingly then, Dolar's initial independent reports on the number and variety of dolphin species in local waters were considered exaggerated.

Dolar gained her initial experience in cetacean studies in 1989 during a three-month internship at the Smithsonian Institution. Under the instruction of James G. Mead, she took part in a program collecting the remains of whales and dolphins stranded on U.S. beaches for the institution's collections.

“When I first went to the Smithsonian, I knew very little about marine mammals. The institution's extensive cetacean specimen collection was a real eye-opener. Working there was a great basic introduction to marine-mammal research. Learning to work with very large specimens was quite different from working with small animals in little laboratory dishes. What I learned about skull structures from the Smithsonian's collections allowed me, when I returned to the Philippines, to be able to identify species based on bones I found on the beaches there.”

For the 1991 population study, Dolar and colleagues were joined by Stephen Leatherwood of the United States, chairman of the Cetacean Specialist Group of the World Conservation Union. In two weeks the group identified 15 species. So encouraged was Dolar by the results of this first survey that she continued to monitor populations informally after the study ended.

As a result of Dolar's survey program, interest grew and other groups began expressing a desire to





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get involved. Leatherwood’s efforts at garnering international attention proved successful and he eventually enlisted the help of several conservation organizations. With attention at the international level, the Philippine government acknowledged the significance of native cetacean populations and the threat posed to them by hunting and incidental catches. Eventually, a Fisheries Administrative Order declared full protected status for dolphins, and in 1992 the government Bureau of Fisheries passed a law prohibiting their capture.

But according to Dolar, much remained to be done. Recognizing the need to continue her education, she applied to graduate programs in the United States and was accepted at Scripps. In his letter of reply to Dolar’s application, noted zoologist and Scripps researcher Gerald Kooyman expressed support for her interest in wildlife conservation. Now Dolar’s advisor, Kooyman has observed firsthand the phenomenal diversity of Philippine wildlife, as well as the threat of unrestrained exploitation there. Of Dolar’s accomplishments, he enthusiastically reports that “there really hasn’t been anyone else quite like her doing what she has done in the Philippines. She has been in a unique position to work directly with the native fishermen—who have welcomed her—to gather the data needed for these cetacean population studies.”

Dolar’s influence has had a far-reaching impact in her homeland. Using her pioneering work as a prototype, the Philippine government organized a Marine Mammal Task Force within its Department of



Environmental and Natural Resources for the study of native cetaceans in early 1993.

Now working in the Kooyman laboratory at the Center for Marine Biotechnology and Biomedicine at Scripps, Dolar has proposed a doctoral thesis entitled "Distribution, Abundance, and Trophic Ecology of Small Cetaceans in the Eastern Sulu Sea and Adjacent Waters, Philippines." She makes yearly forays to the Philippines to continue her surveys of dolphin populations and to collect samples of stomach contents from dolphins that have been taken in incidental catches by driftnet fishermen. Back in the laboratory at Scripps, she sorts and analyzes the samples.

"This is a very tedious process in which I sort thousands of otoliths [the ear bones of fishes, which can be used to identify species] and squid beaks from the digested contents of cetacean stomachs. I have taken otoliths to Richard Rosenblatt, H. J. Walker, and Cynthia Klepadlo of the Scripps Marine Vertebrates Collection, and they have identified them based on their collection of otoliths, which is one of the world's most extensive. Positive identifications such as these are needed in order to determine the species of fishes being fed upon by dolphins in the Philippines.

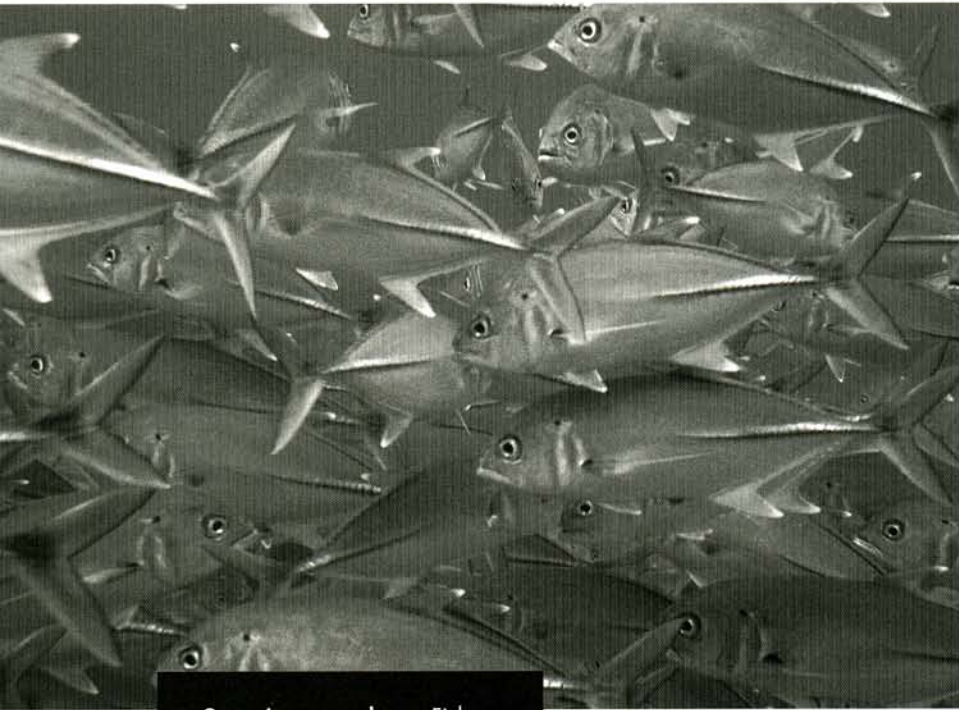
This, along with her population counts, will help determine the



and behavior of the short-finned pilot whale *Globicephala macrorhynchus* in the Tañon Strait. With this relatively conspicuous whale as its "flagship" species, this study is part of a project sponsored by the Whale and Dolphin Conservation Society to establish a wildlife sanctuary for the protection of all cetaceans found in the area.

"However," Dolar cautions, "my country is a nation where subsistence is the major concern of almost everyone; laws and decrees will not work unless an alternative livelihood is offered." She and others see ecotourism as a possible alternative to whaling and, though Philippine-government approval of the Tañon sanctuary is still pending, local governments have already initiated and encouraged controlled whale-watching activities there. In the meantime, former whaling grounds around nearby Pamilacan Island were declared a whale sanctuary in 1995, a distinctive achievement in the conservation of Philippine wildlife.

Addressing a recent meeting of the American Cetacean Society, Dolar reported: "We invited experienced native whalers to join us on our initial population surveys. One of them eventually stayed with us for an entire season. In doing so, he



**Opposite page above:** Fishermen in the Philippines are beginning to see the value of preserving natural resources, including dolphins (above right). Fishes, including jacks (above), are numerous in Philippine waters. **Opposite page below:** Lovella Dolar joins a local fisherman in search of dolphins.

feeding habits, number, and distribution of Philippine dolphins—essential information for effective protection of their populations.

A study proposed by Dolar in 1994 is now under way in the Philippines. It focuses on the social structure, movements, home range,

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## Hubbs Observations Lead to Gray Whale Sanctuary

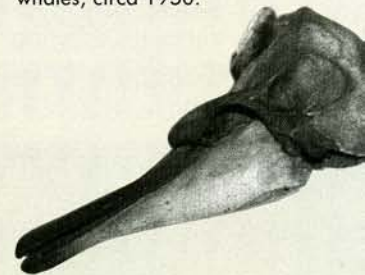
**E**minent Scripps scientist Carl Leavitt Hubbs contributed significantly to fish and marine mammal research during his 84 years, publishing extensively on a variety of subjects including whales. Hubbs often participated in conferences on whales and their habits, and placed an emphasis on the conservation of these impressive animals.

Toward the end of his life, Hubbs recollected his first winter at Scripps: "At that time no one gave any serious thought to the gray whale, and the general assumption was that the species—if not extinct—had at least very largely abandoned its runs along the California coast to and from its traditional breeding grounds in the lagoons of Baja California. My first inkling that the parade of the gray whales along the coast of southern California had not totally ceased came in 1945 and 1946, when Henry Kritzer, a visiting postdoctoral fellow at Scripps, reported to me his sighting of a few individuals about the kelp beds of Pt. Loma [off San Diego]. This exciting news led me to establish a gray whale monitoring project atop the roof of Ritter Hall at Scripps where we installed, in a small rooftop enclosure, an 18.5-power binocular. Willing associates and drafted graduate students took turns with me on 15-minute watches hourly throughout daylight, to count the whales going by, plot their positions and speed, and to note down their behavior."

In 1956, he and colleague Gifford C. Ewing began urging Mexican officials to establish a sanctuary for gray whales in the lagoons of Baja California, Mexico. The plan was finally implemented in 1972 when the Mexican government established a refuge at Scammon's Lagoon in Baja California, a principal calving ground for the now-thriving gray whale. 🌐



Carl Hubbs (right) and Sam Hinton spotting whales, circa 1950.



## Whales, Dolphins, and Porpoises

**W**hales, dolphins, and porpoises, comprising the order Cetacea, are among the most popular of the sea's creatures. Their graceful forms, remarkable intelligence, and intriguing habits have made cetaceans the object of human wonder since the dawn of history.

Believed to have evolved from a common terrestrial ancestor that walked the earth some 60 million years ago, they represent a unique and highly successful experiment in natural selection. Not only did their land-dwelling ancestors venture into the sea, but they subsequently diversified into scores of species which now occupy global aquatic habitats from polar oceans to tropical reefs, and, in the case of one dolphin family, even range into river basins far from the sea.

Of the world's roughly 80 cetacean species, 18 have been documented in the Philippines by researchers affiliated with Scripps. A few of these species are also found in southern California waters,

including the short-finned pilot whale *Globicephala macrorhynchus* (left). This species occasionally occurs along our shores in late winter and early spring, when spawning squid provide an ample food source in relatively shallow water.

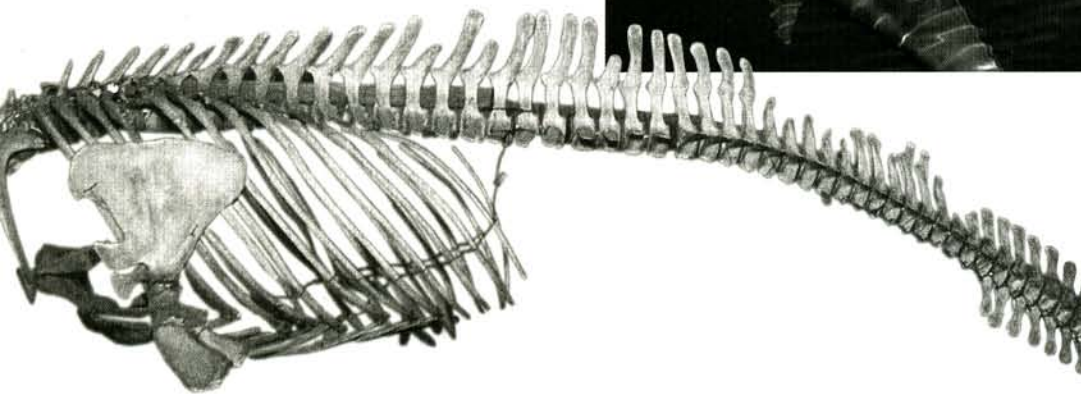
Currently the "flagship" species of a program to establish government-protected reserves for cetaceans in the Philippines, the short-finned pilot whale is also protected in the United States—as are all marine mammals—by the Marine Mammal Protection Act passed in 1972. 🌐



Short-finned pilot whales

was persuaded that he could not only make a living at this alternative trade, but that he could actually make a better living from the cetacean resource without destroying it. It has been our hope that individuals like this will spread the word among their peers and that whale spotting will gradually take the place of whale hunting as a viable livelihood.”

Dolar also reports that in 1993 a Philippine publisher produced an English-language guidebook of



native cetaceans, simultaneously setting up a whale-watching tour. There are presently four such tours being conducted on a regular basis, as whale watching grows in popularity among Filipinos.

Dolar’s goal is to expand her work on cetaceans to include other countries in Southeast Asia, where the study of marine mammals remains in its infancy. She shares this interest with her husband, William Perrin, a senior scientist at the Southwest Fisheries Science Center in La Jolla, and associate adjunct professor of zoology at Scripps. Perrin has long been involved in programs for the conservation of marine mammals in Asia and elsewhere. Together, they organized the first international symposium on marine mammal conservation for Southeast Asia in the summer of 1995.

Following this successful symposium, the Malaysian and Philip-

pine governments organized a joint venture for the conservation of marine mammals. The object of this venture is to expand Dolar’s population survey strategy for developing countries and use it throughout Southeast Asia to assist governments that seek a balance between continued economic development and wildlife conservation.

For Dolar, the desired outcome is “to help form a core group of Southeast Asian biologists seeking to combine their expertise with scientists from other parts of the world in order to strengthen international collaboration in marine mammal research.” 🌐



**From top:** Melon-headed whales swim in warm Philippine waters; Skeleton of melon-head studied by Dolar; Whale watching has become a viable ecotourism industry in the Philippines (left), a region of immense diversity.