

Appendix 1: 1999–2000 Expeditions Schedule



NOTE: Learn about each of these *Expeditions* on-line:
<http://sustainableseas.noaa.gov>

1999

- APRIL 16–APRIL 25 Gulf of the Farallones National Marine Sanctuary
- APRIL 27–MAY 6 Cordell Bank National Marine Sanctuary
- MAY 9–MAY 22 Monterey Bay National Marine Sanctuary
- MAY 25–JUNE 4 Channel Islands National Marine Sanctuary
- JUNE 18–JUNE 29 Olympic Coast National Marine Sanctuary
- JULY 8–JULY 13 Stellwagen Bank National Marine Sanctuary
- JULY 26–AUGUST 6 Gray's Reef National Marine Sanctuary
- AUGUST 16–AUGUST 28 Florida Keys National Marine Sanctuary
- SEPTEMBER 1–SEPTEMBER 13 Flower Garden Banks National Marine Sanctuary

2000

- JANUARY 10–JANUARY 25 Hawaiian Islands Humpback Whale National Marine Sanctuary
- JUNE 5–JUNE 24, JULY 14–JULY 19 Channel Islands National Marine Sanctuary
- JUNE 26–JULY 12 Monterey Bay National Marine Sanctuary
- JULY 27–AUGUST 31, SEPTEMBER 1–17 West Florida Shelf and Florida Keys National Marine Sanctuary



Appendix 2: About the Ocean



The Sea's Water

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Coverage

- The seven oceans cover 71% (360 million square kilometers) of the Earth's surface and contain 97% of the Earth's supply of water.
- Earth is actually covered by only one layer of water. Even though the ocean is broken up into seven ocean parts, all of them are connected, one flowing into another.
- There are 1,365,336,000,000,000,000,000 liters (361,200,000,000,000,000,000 gallons) of sea water in the ocean. If all that water were piled on top of the United States, the land would be submerged under 140 kilometers (88.2 miles) of water.

Temperature

- Almost all of the deep ocean is only a little warmer than freezing, 3.8° C (39° F).

Currents

- The Kuroshio Current, off the shores of Japan, is the fastest-moving ocean current on Earth. It can travel between 40 and 120 kilometers (25 and 75 miles) a day, 2-5 kilometers (1-3 miles) per hour, and extends some 1,000 meters (3,300 feet deep). The Gulf Stream moves nearly as fast.

Saltiness

- If the ocean's total salt content were dried, the salt would cover all of the continents to a depth of about 1.5 meters (5 feet).

Depth

- At the deepest point in the ocean, the pressure is more than 1,260 kilograms per square centimeter (8 tons per square inch). That's equivalent to one person trying to hold 50 jumbo jets.
- The average depth of the ocean is 4 kilometers (2.5 miles).
- The area of the Pacific Ocean exceeds that of all the land.
- The deepest spot in the ocean is in the Mariana Trench (W Pacific SW of Guam) at 11.7 kilometers (36,198 feet). It is so deep that if Mount Everest were to be placed here, its peak would still be one kilometer below the surface of the ocean.

Exploration

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- The oceans are still relatively unexplored, to the extent that more is known about the surface of Venus than the bottom of the deepest seas.
- In 1976 one of the world's largest sharks, the megamouth, was seen for the first time; while the last five years has seen the discovery of a new species of beaked whale off the South American coast.

Life in the Sea

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- There may be as many as 18 million diatoms in a cubic meter of sea water.
- In the world's oceans are:
 - about 57 species of sea grasses
 - less than 1,000 species of cephalopods (squids, octopi, and pearly nautilus)

- more than 1,400 species of sea anemones
- about 1,500 species of brown algae
- more than 6,000 species of echinoderms—sea stars, sea urchins, sea cucumbers, and sea lilies
- about 13,000 species of fishes
- about 50,000 species of molluscs
- Two-thirds of the phyla, the major grouping below the kingdom level, are exclusively or dominantly marine.
- It is widely believed that the cheetah is the fastest creature on Earth, but the sailfish (a relative of the tuna and a highly prized sports fish) has been clocked at 110 kilometers (68 miles) per hour!

Fisheries

- Global fish consumption exceeds that of cattle, sheep, poultry or eggs, and is the biggest source of wild or domestic protein in the world.
- 86% of fish landings in 1989 were marine.
- 15 of the world's 17 largest fisheries are overfished or in trouble.

Health of the Sea

- Less than 30% of the coral reefs in Japan, Philippines, and Costa Rica are in good or excellent condition.
- The Great Auk, Steller's Sea Cow, Panamanian Fire Coral, San Diego Mud Snail, and Eelgrass Limpet are now extinct.

People and the Sea

- Oceans, although we may not realize it, are of great importance for all life (including people) on Earth. They provide food, resources, transportation, and recreational activities, and for these reasons should be treated with respect and care.
- While forests have been called the "lungs of the world," the oceans and seas also absorb huge quantities of carbon dioxide, thereby helping to regulate the Earth's climate. Changes in the winds and sea currents in the Pacific Ocean, for example, can be responsible for droughts and flooding across the southern hemisphere and possibly even further afield.
- Sewage, pulpmill wastes, fertilizers, soaps, detergents, radioactive wastes, synthetic fibers, plastics, oils, tars, greases, and insecticides are all pollutants man has placed in our Earth's oceans. We can help lessen the waste by recycling and buying less harmful, more environmentally-safe products.

Sources: National Oceanographic Data Center, Ocean Voice International, BBC Online