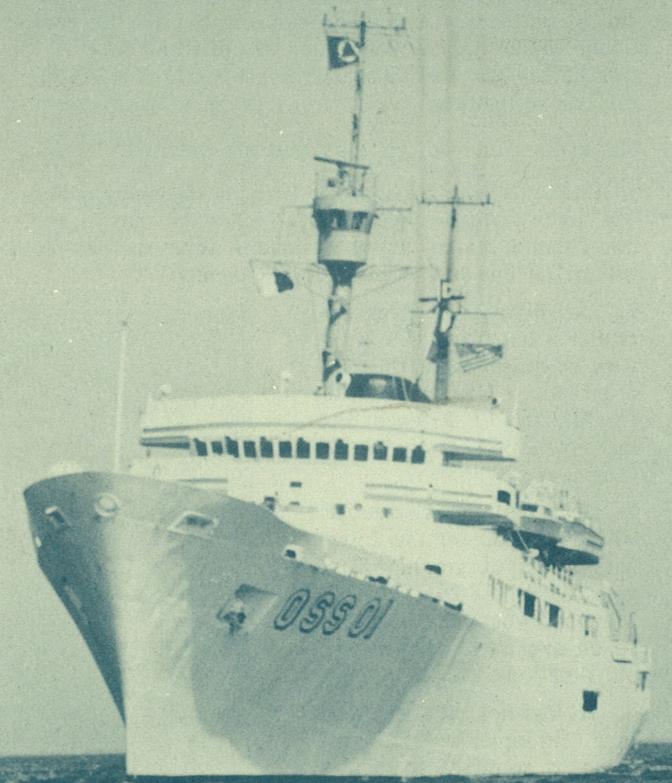


**USC&GSS
OCEANOGRAPHER
PROPOSED
GLOBAL
EXPEDITION**



U.S. DEPARTMENT OF COMMERCE
Environmental Science Services Administration

Ship's Track and Voyage Highlights USC&GSS OCEANOGRAPHER

In the spring of 1967, the USC&GSS **Oceanographer** departs the east coast of the United States on a round-the-world transit to her permanent Seattle base. The eight-month, 35,000-nautical-mile journey should be productive, both in terms of data collected and analyzed, and in terms of information and opinion exchanged. The ship's scientific complement will be filled by ESSA officers and scientists, and by guest scientists from participating institutions.

Oceanographer will run trackline gravity, magnetics, and water depth recordings, with routine underway oceanographic and meteorological measurements. Areas in the Atlantic, Indian, and Pacific Oceans have been selected to receive intensive study on this voyage. The ship's track has been planned to cross data-sparse areas, and to supplement earlier expeditions, like the International Indian Ocean Expedition (IIOE), and more recent efforts, like the Eastern Tropical Pacific (EASTROPAC) investigation.

Ship's track and voyage highlights are described below.

1. En route from the U. S. to England, **Oceanographer** will make a detailed geophysical survey of part of the mid-Atlantic Ridge. Emphasis of this seven-day survey will be on fine bathymetric development.

2. At Plymouth, **Oceanographer's** scientists will meet with scientists from the Hydrographic Department of the Ministry of Defence, and the National Institute of Oceanography.

3. **Oceanographer's** scientists will participate in the International Hydrographic Congress, April 18-29, 1967, in Monaco, where the ship will be on display to scientists of other nations.

4. A logistics stop at Massaua, Ethiopia, will be nostalgic to some of the ship's complement. The Coast and Geodetic Survey has conducted several successful technical aid projects in Ethiopia.

5. **Oceanographer's** second intensive investigation will be around the Maldiva and Laccadive Islands, in the Arabian Basin. Emphasis will be on geophysical studies, including trackline seismic reflection profiling.

6. In the Andaman Sea, **Oceanographer** will continue the work begun by the USC&GSS **Pioneer** during her 1964 participation in the IIOE. Heat flow measurements will be made to determine whether the earth-ocean heat exchange is sufficient to produce counter-circulations of water. Conventional and multisensor oceanographic stations will be occupied to supplement data obtained with the thermoprobe, gravity meter, magnetometer, and echo sounder.

7. After her Penang stop, **Oceanographer** will occupy oceanographic stations along the 92°E meridian between 5°N and 5°S. Conventional Nansen casts and a new multisensor package will be used in this 10-day investigation to supplement data from similarly positioned IIOE stations occupied by **Pioneer**.

8. From Freemantle, **Oceanographer** will sail along the 1,000-fathom contour, following the Australian continental shelf south of the Tropic of Capricorn. This 15-day geophysical investigation will include trackline seismic reflection profiling. Data for the mile-deep contour of the continental escarpment are needed by Institute for Oceanography personnel conducting continental drift studies.

9. At Sydney, ship's scientists will exchange visits with scientists from the Division of Fisheries and Oceanography, of the Commonwealth Scientific and Industrial Research Organisation.

10. At Wellington, **Oceanographer's** scientists will exchange visits with scientists from the New Zealand Oceanographic Institute.

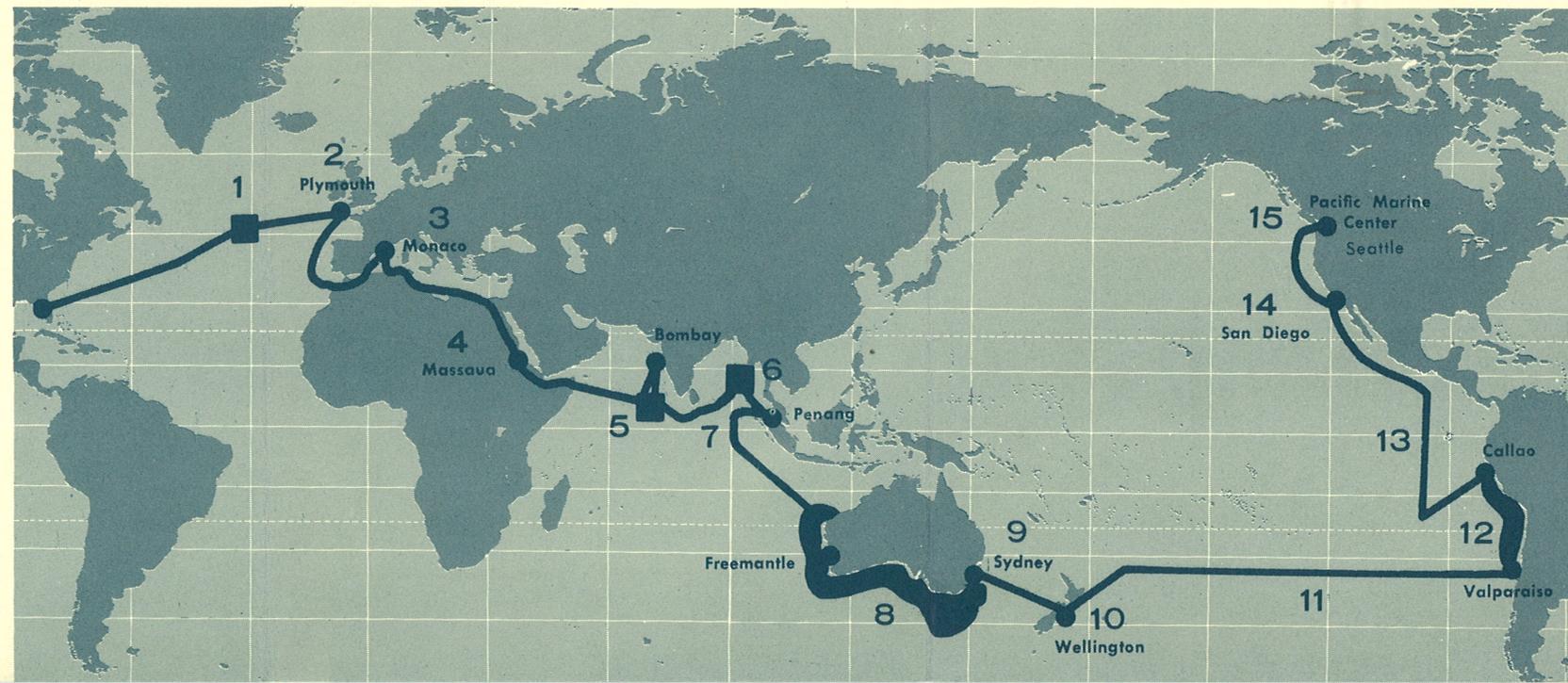
11. **Oceanographer** will sail eastward along the 35°S parallel, occupying oceanographic stations at approximate 60-mile intervals across a data-sparse region of the Pacific.

12. Oceanographic and geophysical surveys will be run from Valparaiso to Callao, and will criss-cross the Peru-Chile Trench.

13. From Callao, **Oceanographer** will participate with several nations and several U. S. institutions and agencies in the cooperative EASTROPAC (Eastern Tropical Pacific) investigation. The ship will occupy oceanographic stations along the 95°W meridian, between 22°S and 12°N.

14. At San Diego, **Oceanographer's** scientists will exchange visits with scientists from Scripps Institute of Oceanography.

15. **Oceanographer** arrives at her permanent base at the Coast and Geodetic Survey's Pacific Marine Center, in Seattle.



OSS 01—GENERAL DESCRIPTION

At 3800 tons and an overall length of 303 feet, **Oceanographer** is the largest research ship built by the United States. Her range is 13,000 nautical miles at a sustained speed of 16 knots, and she carries up to 150 days' provisions. The ship's steel hull is ice-strengthened for polar operations.

Oceanographer combines a complete oceanographic research capability with certain unique features of design. Automation of engine room controls uses a shipboard computer located in the oceanographic laboratory. The computer is available for processing oceanographic and meteorological data. Sounding equipment includes a vertically stabilized narrow-beam transducer system, and combination horizontal/vertical sonar, as well as conventional echosounding gear. Loran A and Loran C systems and satellite navigation equipment provide a high degree of position-fixing accuracy. Communications equipment is replete, and includes an APT (Automatic Picture Transmission) receiver to read out ESSA weather satellite photographs.

All enclosed living and working space is air conditioned, and up to 12 visiting scientists can be accommodated. Laboratory space is ample; modular furnishings permit rearrange-

ment for particular projects. An underwater observation chamber with viewing ports is located below the bow waterline. Equipment and instrumentation carried aboard the ship support the full range of oceanographic and meteorological investigation.

OCEANOGRAPHY AT ESSA

The oceanographic phases of ESSA's program are conducted by the Coast and Geodetic Survey and the Institute for Oceanography. The Coast Survey is principally responsible for the operation and maintenance of ESSA's research fleet and facilities and for oceanographic services—hydrographic surveys, measurement of tides and currents, and nautical charting. The Institute for Oceanography conducts ESSA's oceanographic research programs, which include tidal and tsunami investigations, air-sea interaction studies, the ocean-survey (SEAMAP) program, and projects in marine geology and physical oceanography.

The interplay between the two functions is apparent: much of the Institute's work is laying the foundation of future, routine operations of the Coast Survey, and the geophysical, oceanographic, and marine geological data gathered during survey operations are studied by Institute scientists.

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