A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

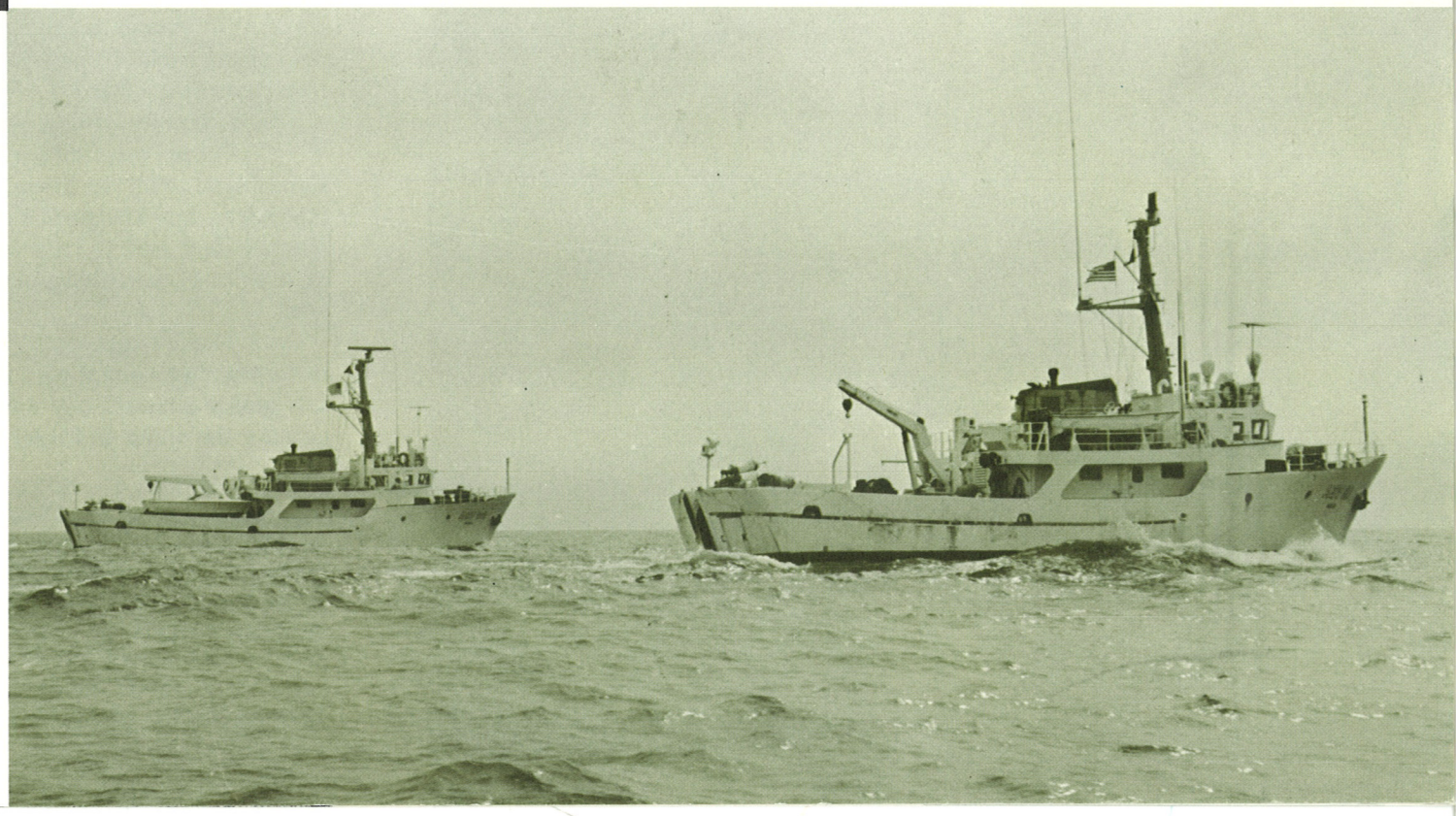
National Oceanic and Atmospheric Administration

Welcome Aboard!

NOAA Ships

RUDE & HECK

ASV 90 ASV 91



J. C. DAVIS

Welcome Aboard!

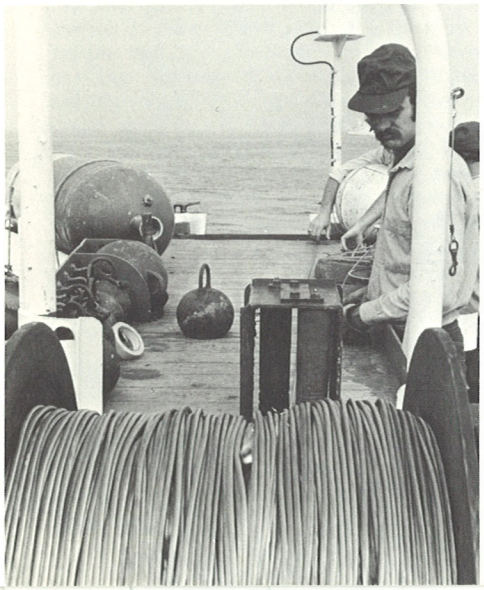
A message from the Captain:

On behalf of the officers and men of the NOAA ships *Rude* and *Heck*, I welcome you aboard. I hope your visit will be both enlightening and enjoyable.

These are unique ships, designed and built to sweep our ocean highways for dangerous underwater obstructions, and so help with the work of exploring, describing, and using the seas.

The officers and crews of the *Rude* and *Heck* are at your disposal and will gladly answers any questions concerning the ships and their activities.

Commanding Officer
Rude and *Heck*



The ships *Rude** and *Heck* are twin specialists among the scientific fleet used by NOAA, the U.S. Commerce Department's National Oceanic and Atmospheric Administration, to explore and map the sea. Designated Auxiliary Survey Vessels (ASV) 90 and 91, respectively, the *Rude* and *Heck* are operated by NOAA's National Ocean Survey, and commanded by officers of the NOAA Corps. The commanding officer has the distinction of being skipper of two ships.

Both ships are equipped with some of the most technically advanced depth-sounding and navigation equipment available, including side-searching sonar, depth-sounders, radar, radar ranging units, and electronic position-fixing systems. Because scuba divers are used to inspect submerged obstructions detected by the vessels, the ships carry diving and diver-support gear.

The field office, berthing, and mess areas of the ships are air-conditioned for crew comfort. Each vessel carries a complement of two officers and eight men, and can be provisioned for eight days.

Propulsion is provided by twin 400-shp diesel engines guarded by shrouds similar to Kort nozzles. Independent auxiliary propulsion controls 50 horsepower to each propeller for dragging operations through a V-belt drive system linked to the master hydraulic system, powered from the ship's service generator. Maximum range of the *Rude* and *Heck* is 800 nautical miles.

Each vessel carries a 20-foot high-speed wire-drag tender and a 16-foot work launch. These are used mainly to help deploy wire-drag cables, weights, and floats, and to investigate snagged obstructions. Launches are equipped with their own depth-sounding and communications equipment.

The 90-foot, 190-ton vessels are unique among United States ships in that they were designed and built specifically to conduct wire-drag surveys of coastal areas. This technique, developed in the 19th century for Great Lakes surveys, was adapted to coastal use by the former Coast and Geodetic Survey early in this century.

Wire-drag surveys consist of using two ships steaming along parallel courses as much as two miles apart towing a submerged cable; the cable snags on such narrow, hidden obstructions as sunken wrecks, pinnacle rocks, and other potential hazards to navigation. Even the advent of today's narrow-beam, side-looking sonars has not displaced wire-drag surveys, which continue to detect objects which are not readily "visible" to sonar detectors.

The NOAA ships *Rude* and *Heck*

*Pronounced "roody."

were built by Jakobson Shipyard, Inc., of Oyster Bay, Long Island, New York, under the supervision of the U.S. Maritime Administration with an inspection force and administrative assistance from the former Coast and Geodetic Survey. Their keels were laid September 10, 1965. The *Rude* was launched August 17, 1966, the *Heck* November 1, 1966. Both ships were commissioned on March 29, 1967, and are based at the National Ocean Survey's Atlantic Marine Center in Norfolk, Virginia.

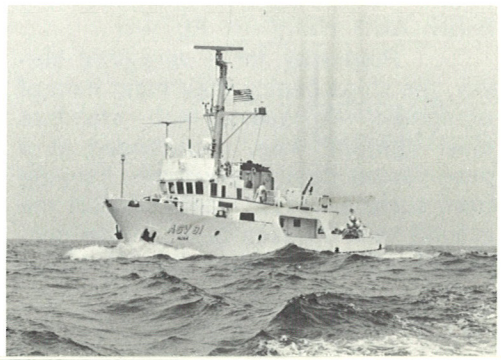
The *Rude* is named for Captain Gilbert T. Rude of the former Coast and Geodetic Survey, who developed the Rude Star Finder, the most widely used navigational device for locating celestial bodies. The *Heck* is named for Coast and Geodetic Survey Captain Nicholas H. Heck, who, with J. B. Hawley, developed the wire-dragging techniques which have been in service since 1904.

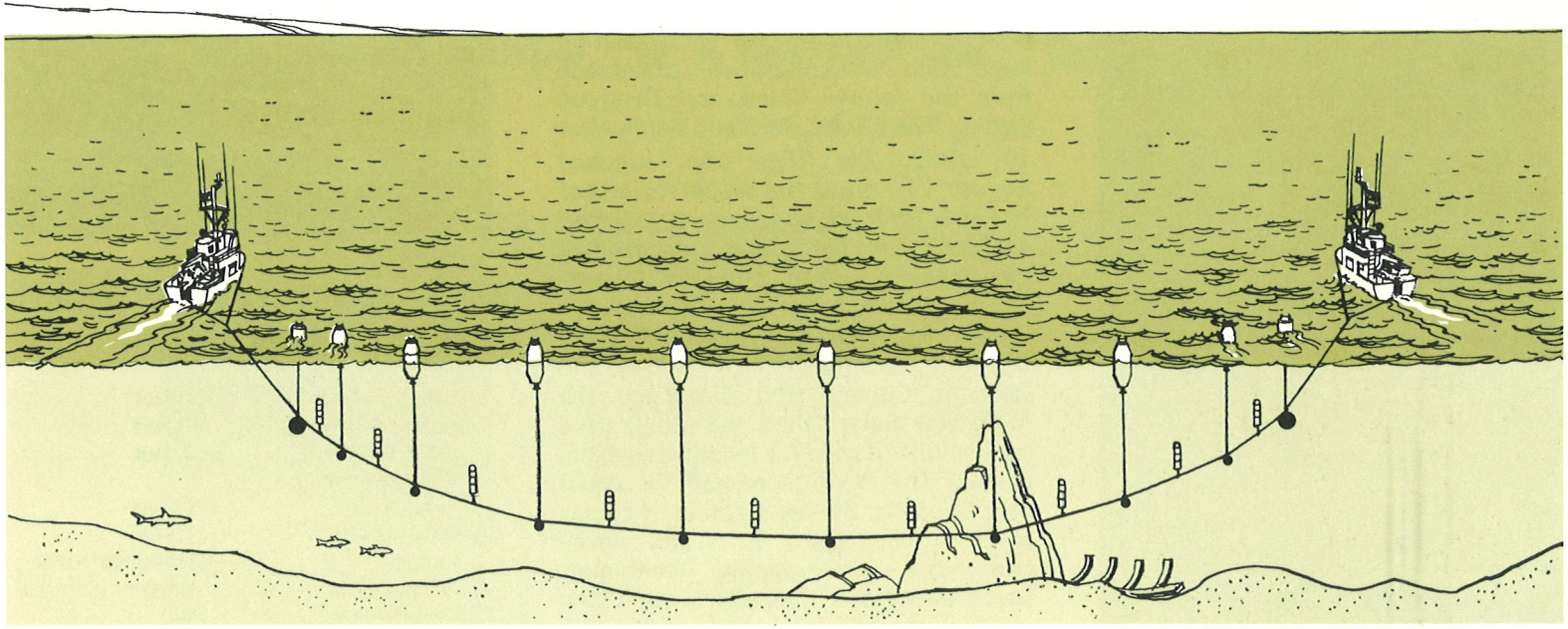
The *Rude* and *Heck* are the second pair of wire-drag vessels built in the United States. The first were the Coast and Geodetic Survey ships *Hilgard* and *Wainwright*, which, in 24 years' service, became a familiar sight to thousands along the Atlantic coast from Maine to Florida, and in the Gulf of Mexico. The *Hilgard* and *Wainwright* were decommissioned in 1966, to make way for the new pair of wire-drag ships, the *Rude* and *Heck*.

NOAA SHIPS RUDE & HECK

General Description

Length, overall	**90 feet**
Beam, molded	**22 feet**
Draft, full load	**7 feet**
Displacement, full load	**190 tons**
Cruising speed	**12 knots**
Range	**800 nautical miles**
Endurance	**8 days**
Complement	**10**

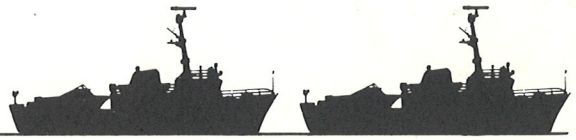




RUDE AND HECK IN ACTION

Preparing for a wire-drag survey, the ships deploy their main item of equipment — a quarter-inch, stainless steel "ground wire," suspended at a pre-selected depth by weights hanging from surface buoys. Floats support the ground wire between buoys. Once connected, the twin ships steam parallel courses, usually from a few hundred yards to two miles apart, across the area to be surveyed. During the towing, the deployed drag-wire and marker buoys describe a gentle "U" shape; however, when the ground wire snags a hidden obstruction, the surface buoys move into a "V" shape. The ships' launches then find the obstruction, and measure least depth over the hazard. A scuba diver often examines the obstruction in detail. Those near enough to the surface to constitute a hazard to navigation are marked by the Coast Guard with a buoy and entered on National Ocean Survey nautical charts. The obstruction may then be considered for removal by appropriate agencies.

NOAA, The Marine Environment, and Oceanic Life



NOAA, the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce, is a reflection of the pervasive link between man, the marine environment, and oceanic life. Created in 1970 by combining existing environmental science, oceanographic, and marine fisheries organizations, NOAA is the national focus for non-military efforts in the ocean, atmospheric, and marine biological sciences, and their associated technologies.

NOAA's National Ocean Survey charts our coastal and Great Lakes waters, monitors and predicts tides and tidal currents, and develops full bathymetric and geophysical descriptions of the world ocean. Its **National Oceanographic Instrumentation Center** tests and evaluates new marine environmental sensors in the laboratory and the open sea. Its **National Data Buoy Center** is developing a prototype system of automatic ocean buoys for obtaining essentially continuous marine environmental data. The **Office of Fleet Operations** manages NOAA's research and survey ships and their coastal facilities.

The **Environmental Research Laboratories** of NOAA conduct programs aimed at improving our understanding of the physical processes and mineral resources of the marine environment. The **Atlantic Oceanographic and Meteorological Laboratories** in Miami, Florida, have been associated with studies of plate tectonics, continental drift theory, the Gulf Stream and other major current systems, coastal processes, air-sea interaction, and experimental weather modification. The **Pacific Oceanographic Laboratory,** in Seattle, Washington, studies the Pacific system of crustal plates and other significant physical features, air-sea interactions, and ocean dynamic and coastal zone processes. Its **Joint Tsunami Research Effort** at the University of Hawaii, Honolulu, explores the generation, propagation, and destructive transformation of these earthquake-generated waves. Tsunami watches and warnings for the Pacific area originate at the Honolulu Observatory of the **Earth Sciences Laboratories.** The **Marine Minerals Technology Center,** in Tiburon, California, is investigating methods of tapping the mineral resources of the ocean floor, with emphasis on developing environmentally acceptable procedures.

NOAA's **National Marine Fisheries Service** conducts broad research and service programs aimed at improving our comprehension and uses of the ocean's living resources. Laboratories on every coast investigate the behavior, population dynamics, environmental interrelationships, and fishery potential of regionally significant species, and provide data in support of internationally negotiated conservation measures for offshore fishing grounds. The agency also provides support to the Nation's fishing industry through technological innovation and resource development, marketing information services, and a consumer-protecting voluntary inspection program for fishery products. As with physical oceanographers, fisheries scientists are becoming increasingly concerned with the impact on commercial and marine game fish resources of man-generated pollution, environmental change, and coastal zone usage.

The **National Weather Service** provides a wide variety of marine and oceanographic reports and forecasts to users of the ocean, coastal zone, and Great Lakes. The agency's marine weather services include maps of warning display locations, continuous-transmission VHF broadcasts, high-seas weather broadcasts, and special forecasts of sea state, water temperature, surf, and other information. As NOAA's key element in providing natural hazards watches and warnings, the National Weather Service originates and transmits timely warnings against hurricanes and other maritime disturbances, tornadoes, severe thunderstorms, floods, winter storms, and other phenomena.

The **Environmental Data Service,** through its **National Oceanographic Data Center,** processes and archives the world's largest collection of marine environmental data. Its **National Climatic Center** in Asheville, North Carolina, holds some 40 million marine weather observations, and the collection of the **National Geophysical Data Center,** in Boulder, Colorado, includes some marine geophysical data. The data archived in these centers is readily retrievable in a variety of useful forms.

The **National Environmental Satellite Service** is applying the expertise gained from a decade of meteorological satellite operations to developing a fully environmental satellite capability. A leader in the search for better ways to use the data products of earth-orbiting instruments, the Satellite Service has begun to create special "wet" products such as sea-surface temperature maps and monitoring systems for major current systems.

NOAA/PA 71029 1972