Table: Summary of Early Exploratory and Fishery-Independent Caribbean Surveys Conducted by NMFS Pascagoula.

Vessel and Cruise Number	Year	Survey Name	Spatial Coverage	Administered By	Survey Objectives	Temporal Coverage	Depth Range	Number of Stations	Survey Design Methodology and Gear	Data Outputs	Pros and Cons	Utility for Stock Assessment
Oregon 62	1959	EXPLORATORY SHRIMP TRAWLING CRUISE	Puerto Rico and the Virgin Islands	USDOI, Fish and Wildlife Service, Bureau of Commercial Fisheries, Pascagoula, MS	1) To evaluate the shrimp trawling potential of the area around Puerto Rico and the Virgin Islands.	09/16/1959-10/17/1959	27-823 m	72	Depth recorder used to look for smooth bottom then trawl with shrimp net.	?	No formal survey design	?
Silver Bay 50	1963	EXPLORATORY FISHING TRIP AND FAUNAL SURVEY	From the East Coast of Florida to Mayaguez, Puerto Rico	USDOI, Fish and Wildlife Service, Bureau of Commercial Fisheries, Pascagoula, MS	1) To fill a serious gap in knowledge of the resources of the western Atlantic by performing a preliminary overall survey of the fauna of waters of the lower Bahamas and off the north coast of Hispaniola. 2) To conduct a brief re-survey of the scallop potential on the Florida east coast scallop bed.	09/25/1963-10/26/1963	27-2740 m	103	Dredges, trawls, longlines	?	No formal survey design	?
Oregon 107	1966	EXPLORATORY FISHING AND GEAR TESTING CRUISE	In the Lesser Antilles Between Puerto Rico and Trinidad	USDOI, Fish and Wildlife Service, Bureau of Commercial Fisheries, Pascagoula, MS	1) To initiate field studies on the application of fish pumps to harvest anchovies, herrings, and sardine-like fishes. 2) To determine seasonal distribution and relative abundance of swordfish and tuna. 3) To survey the fishery potential of Dominica, W. I., in cooperation with the Smithsonian Institution and the UN Special Fund Caribbean Fisheries Project. 4) To collect zoogeographic data for developing resource potential estimates.	02/15/1966-04/01/1966	N/A	84	Extensive observations were made on the attraction of small schooling fishes to night lights and their susceptibility to capture with an experimental 6" (1500 gpm) fish pump.	?	No formal survey design	?
Oregon II 90(78-05)	1978	EXPLORATORY SURVEY OF EXPLOITED AND LESS EXPLOITED COMMERCIAL FISHING AREAS	Puerto Rico to American Virgin Islands; off St. Kitts Island and off St. Lucia Island.	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To make a comparative survey of heavily exploited and less exploited commercial fishing areas using SCUBA divers and underwater television while using the OREGON II as the floating platform at the request of the Caribbean Fishery Management Council. 2) To perform television observations of the bottom and its related fauna where groupers congregate to spawn. 3) To assess the shelf area south of St. Thomas and St. John for conchs using the Remote Underwater Fishery Assessment System (RUFAS). 4) To locate a charted seamount with line fishing conducted. 5) To dredge and trawl for possible exploitable resources (coral, lobster, and shrimp) in water deeper than 40 fathoms.	07/21/1978-08/19/1978	13-731 m	250	SCUBA, underwater television, dredge, trawl, handlines	?	No formal survey design	?
Oregon II 97(79-04)	1979	EXPLORATORY SURVEY OF SHALLOW AND DEEP FISH REEF FISH HABITATS AND POPULATIONS	In the Western Gulf of Mexico and Off Puerto Rico and the Virgin Islands	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To conduct a reef fish habitat survey in the western Gulf of Mexico. 2) To assist the Miami swordfish tournament as the communication center. 3) To perform a shallow and deepwater reef fish survey off Puerto Rico and the Virgin Islands.	06/13/1979-08/03/1979	77-549 m	52	Underwater television, bottom longline, traps, handlines	Standard data, lacking some env data	No formal survey design	Possibly length data

Oregon II 108	1980	EXPLORATORY CRUISE FOR SNAPPER-GROUPER STOCKS	In the Caribbean Sea Specifically, Puerto Rico, Culebra, and St. Thomas Islands	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To evaluate availability and distribution of snapper/grouper resources in deep water (100-375 fms). 2) To determine if precious corals occur on offshore grounds off Culebra and St. Thomas Islands (50-175 fms). 3) To determine presence of deep-water shrimp north of Puerto Rico and St. Thomas. 4) To provide a one day demonstration cruise (07/18/1980) for dignitaries from the Caribbean area.	06/17/1980-07/24/1980	91-685 m	165	Bottom longlines, traps, handlines, and one surface longline	Standard data, lacking some env data	No formal survey design	Possibly length data
Oregon II 119	1981	EXPLORATORY SURVEY OF DEEP WATER SNAPPER-GROUPER STOCKS	Puerto Rico, Culebra, and St Thomas, U.S. Virgin Islands	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To evaluate availability and distribution of snapper-grouper resources in deep water (100-240 fms) off Puerto Rico and the U.S. Virgin Islands. 2) To obtain biological data from snapper-grouper species caught. 3) To obtain bottom contour data to estimate area of habitat. 4) To obtain hydrographic data from all fishing stations.	07/13/1981-07/22/1981	91-464 m	15	Bottom longlines, traps, handlines	Standard data, lacking some env data	No formal survey design	Possibly length data
Oregon II 129	1982	SAMPLING CRUISE FOR DEEP WATER STOCKS OF SNAPPER AND GROUPER	Puerto Rico, Culebra and St. Thomas Islands	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To sample snapper and grouper resources on deep water reefs (50-250 fms) with bottom and off-bottom longlines and traps. 2) To collect species, size and weight composition data as a function of gear, depth and habitat. 3) To collect biological data from selected snapper and grouper specimens including scales, otoliths, sex and maturation stage.	08/26/1982-09/30/1982	70-589 m		Bottom longline, off-bottom longline, fish traps, handlines, shrimp traps	Standard data, some env data	No formal survey design	Possibly length data
Oregon II 132	1983	PELAGIC FISHERY ASSESSMENT SURVEY	In the South and West Coasts of Puerto Rico and the U.S. Virgin Islalnds	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To determine the availability of oceanic fish species utilizing pelagic longline gear on the south and west coast of Puerto Rico and the U.S. Virgin Islands. 2) To deploy and test the effectiveness of aggregating structures for surveys of coastal and oceanic pelagic fish species on the south and west coasts of Puerto Rico and the U.S. Virgin Islands. 3) To collect biological samples for bio-profiles task personnel from pelagic fish species that are harvested (near the aggregating structures) by sport fishing vessels and/or commercial fishing vessels. 4) To collect ichthyoplankton and neuston samples at longline station sites. 5) To collect meteorological and physical data at each longline and fish attractant structure site. 6) To collect chlorophyll samples for the University of Puerto Rico. 7) To collect biological samples from tuna species to determine if histamine producing bacteria are present.	01/06/1983-02/11/1983	91-677 m	143	Pelagic longline, trolling around FADs, bongo, bottom longline, off-bottom longline, fish traps	Standard data, some env data	No formal survey design	Possibly length data

Delaware II 84-04	1984	SURVEY OF DEEP WATER SNAPPER-GROUPER STOCKS	Puerto Rico, Culebra and St. Thomas Islands	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To sample snapper and grouper resources around Puerto Rico and the U.S., Virgin Islands with standardized traps, on-and-off-bottom longlines, and handlines within the 20-250 fm depth range, with empahasis from 100-250 fms. 2) To collect species, size, and weight composition data as a function of gear, depth, and habitat. 3) To collect biological data from selected snapper and grouper specmens including scales, otoliths, and gonads. 4) To collect temperature profile and acoustic bottom topographic data at selected stations. 5) To collect ichthyoplankton samples at selected stations in support of the Offshore Thermal Energy Research Project (OTEC). 6) To deploy FADS at stations selected by the Virgin Islands Department of Conservation and Cultural Affairs, Division of Fish and Wildlife. 7) To develop a temperature profile of the Grappler Seamount for the Center for Energy and Environmental Research (CEER).	04/10/1984-05/15/1984	37-457 m	182	Bottom longline, off-bottom longline, fish traps, MOCNESS	Standard data, some env data	No formal survey design	Possibly length data
Chapman 85-07(08)	1985	EXPLORATORY CRUISE TO ASSESS 13 DEEP WATER REEF FISH SITES AND TO PROVIDE PLATFORM SUPPORT FOR A COOPERATIVE SUBMERSIBLE STUDY	Puerto Rico, Culebra, St. Thomas, St. Johns and St. Croix Islands	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To categorize deep-water benthic habitats around Puerto Rico and the U.S. Virgin Islands in terms of bottom type, topography and faunal components. 2) To map and survey dive areas using echo sounders to define potential dive sites. 3) To provide quantitative abundance indices of fishes and invertebrates within each habitat type based on catch rate. 4) To provide specimens caught in traps, trawls, and bottom longlines to University of Puerto Rico researchers. 5) To provide trap and longline catch per unit effort data for comparison with submersible population numbers from each habitat, and for comparison with historical catch effort data to evaluate population trends. 6) To locate Fish Attraction Devices (FAD's) deployed, in 1984 south of St. Johns and east of St. Croix to assess the condition of the structures and their potential for attracting fish.	09/22/1985-10/30/1985	46-720 m	171	Bottom longline, off-bottom longline, fish traps, shrimp trawl	Standard data, some env data	No formal survey design	Possibly length data, habitat data
Oregon II 168(87-06)	1987	EXPLORATORY SURVEY FOR SQUID	In the Caribbean in Selected Areas Around Puerto Rico and the U.S. Virgin Islands	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To survey selected sites for squid with a high opening fish trawl. 2) To collect specimens to verify species identifications based on video records from the 1985 Johnson Sea Link II submersible survey of Puerto Rico and the Virgin Islands. 3) To collect CPUE and size/sex data from all species caught using bottom longlines. 4) To collect algae samples from selected hard bottom sites using a small dredge.	07/28/1987-08/28/1987	37-1006 m	?	Forty foot shrimp trawl, high-opening fish trawl, dredge, bottom longline	?	No formal survey design	?
Delaware II 88-13	1988	SURVEY ICHTHYOPLANKTON AND YELLOWFIN TUNA STOCKS.	In the Coastal Waters of Puerto Rico, St. Thomas and St. Croix	USDOC, NOAA, NMFS, SEFSC, Pascagoula, MS	1) To collect ichthyoplankton samples with standard bongo, neuston and opening/closing bongo nets to assess recruitment patterns on reefs in the U.S. Virgin Islands and Puerto Rico. 2) To collect hydrographic data from the surface to 290 m using an STD, and collect surface chlorophylls at each sample site. 3) To assess yellowfin tuna populations in waters off St. Croix. 4) To record marine trash within the survey area.	11/15/1988-12/21/1988	0-290 m	107	Bongo, neuston, pelagic longline	Standard data, some env data	Systematic sampling grid near 100 ftm contour	?