

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Center
P. O. Drawer 1207
Pascagoula, Miss. 39568-1207

OREGON II Cruise 90-03 (187)
04/20-5/25/90

INTRODUCTION

The NOAA Ship OREGON II departed Pascagoula, Miss. on April 20, 1990 to conduct a SEAMAP ichthyoplankton survey in the U.S. Gulf of Mexico. Port calls were made in Pascagoula, Miss. on May 2 and 10th with the cruise terminating in Pascagoula, Miss. on May 25, 1990.

OBJECTIVES

1. Collect ichthyoplankton (primarily eggs and larvae of bluefin tuna) for abundance and distribution of commercially and recreationally important species.
2. Collect environmental data.
3. Deploy the Multiple Opening Closing Net and Environmental Sensing System (MOCNESS) to collect bluefin tuna larvae along thermal fronts of the loop current.
4. Evaluate the use of the OREGON II as a marine mammal platform and observe mammals along a predefined cruise track.

MATERIALS AND METHODS

Plankton samples were collected at half degree intervals along a predetermined cruise track on legs one and three with standard MARMAP bongo and neuston gear. The bongo gear consisted of two conical 61 centimeter (cm) frames with .333 micron mesh nets. Oblique tows were made at a towing speed of 1.5 to 2.0 knots and a towing wire angle of 45°. Bongo nets were set at 50 meters (m) and retrieved at 20 m per minute. Prior to retrieval the bongo nets sampled for 1 minute at maximum depth to stabilize the fishing gear. Sampling depths were between 37 and 200 m. A flowmeter was attached in front of each bongo net to compute the amount of water filtered. Neuston samples were collected with two .947 micron mesh nets attached on two 1 x 2 meter frames welded together to obtain two simultaneous samples. Neuston tows were 10 minutes in duration and towed at approximately 1.5 knots. The environmental data, bongo and right neuston net were given the same station number while the left neuston net received a different station number.

Bongo and right neuston samples were preserved in 10% formaldehyde then transferred to 95% ethanol after 48 hours. The left neuston samples were preserved in 95% ethanol then transferred to fresh 95% ethanol after 48 hours.

The second leg of the survey was devoted to testing and collecting plankton samples along the loop current frontal boundary using the MOCNESS gear off the stern. The frontal boundary was defined using XBT's. Once location of the frontal boundary was defined the MOCNESS sampled between northern (cooler water), current edge, and southern (warm core water) locations. Both the cool and warm water sets were placed about 10 miles distance from the current edge.

On the third leg of the survey a secondary objective was to conduct a marine mammal survey along the ichthyoplankton cruise track. The marine mammal survey was to determine the feasibility of conducting shipboard cetacean surveys in the Gulf, as well as test the OREGON II as a survey platform; and was supported by personnel and equipment from the Southwest Fisheries Center. Trained observers used 25x binoculars (Big Eyes), mounted on the flying bridge to conduct the survey. During all daylight hours, weather permitting, two observers manned the Big Eyes while a third observed the area close to the ship and also recorded data.

RESULTS

Table 1 illustrates the number of bongo and neuston stations sampled for leg 1 (Figure 1), leg 2 (Figure 2) and leg 3 (Figure 3). In addition Table 1 lists the number of stations where different types of environmental parameters were collected.

The right bongo, neuston and MOCNESS samples were returned to the NMFS Miami Laboratory for disposition. The left neuston sample was sent to the Gulf Coast Research Laboratory for storage. Selected samples were sent to ZSIOP, Szczecin, Poland with the remainder to be processed by the University of Miami. Chlorophyll and salinity samples were returned to the NMFS Mississippi Laboratory for processing. Additional water samples collected in surface, 30, 50, 60, 70, 80, and 100 m were tested for chlorophyll using the on board fluorometer. Results were sent to John Lamkin at the NMFS Miami Laboratory.

Fishing the MOCNESS system off the OREGON II was tested on the second leg. Several deficiencies were noted during operations which when corrected will provide better data and greater ease in working the MOCNESS system. A proper towing block and meter wheel is required to reduce cable snatching in rough seas and to accurately determine the amount of wire out. This will provide greater control of the MOCNESS during sampling operations. Handling was a problem in rough seas due to excessive swinging of the unit when bringing it back aboard. During retrieval the amount of time the MOCNESS is aloft should be reduced or eliminated to reduce its potential for damage.

On the third leg a secondary objective was to identify marine mammals and to test the feasibility of the OREGON II as a marine mammal platform. Marine mammal sightings on leg 3 are listed on Table 2. Water samples for analysis of brevetoxins were collected and sent to Pat Tester at the NMFS Beaufort Laboratory.

A total of 116 hours were spent viewing on the Big Eyes. Ninety one cetacean sightings including 13 identifiable species were recorded during this leg (Table 2). Stenella attenuata was the most frequently seen cetacean. Stenella clymene was sighted twice and photographed; this dolphin may be more common in the gulf than previously thought.

Four sea days were lost during cruise 187. On leg 1 one day was lost due to replacement of the Chief Scientist and mechanical problems. On leg 2 two days were lost due to mechanical problems and rough weather. On leg 3 the vessel returned one day early after completing all objectives. Six stations were lost due to inclement weather on leg 1.

CRUISE PARTICIPANTS

NAME	TITLE	ORGANIZATION
LEG 1		
Perry Thompson,	Chief Scientist,	NMFS Pascagoula, Miss.,
4/20-5/2/90		
Carol Roden,	Bio. Tech.,	NMFS Pascagoula, Miss., 4/20-5/2/90
Jim Benton,	Fishery Biologist,	NMFS Pascagoula, Miss., 4/20-5/2/90
Robin Carter,	Bio. Tech.,	NMFS Miami, Fla., 4/20-5/2/90
LEG 2		
Elmer J. Gutherz,	Chief Scientist,	NMFS Pascagoula, Miss.,
5/5-9/90		
Tom Leming,	Oceanographer,	NMFS Pascagoula, Miss., 5/5-9/90
Sharon Kelly-Fraga,	Fishery Biologist,	NMFS Miami, Fla., 5/5-9/90
Bill Richards,	Fishery Biologist,	NMFS Miami, Fla., 5/5-9/90
Jack Javech,	Fishery Biologist,	NMFS Miami, Fla., 5/5-9/90
John Lamkin,	NOAA Corps,	NMFS Miami, Fla., 5/5-9/90
Mike McGowan,	Cooperator,	University of Miami, 5/5-9/90
David Goldman,	Cooperator,	University of Miami, 5/5-9/90

LEG 3

Karen Lecke-Mitchell, Chief Scientist, NMFS Pascagoula, Miss.,
5/11-25/90

Wayne Hoggard, Fishery Biologist, NMFS Pascagoula, Miss.,
5/11-25/90

Ardetha Hollis, Student Aid, NMFS Pascagoula, Miss., 5/11-25/90

Sharon Kelly-Fraga, Fishery Biologist, Miami, Fla., 5/11-25/90

Darlene Johnson, Fishery Biologist, Miami, Fla., 5/11-25/90

Bob Pittman, Marine Mammal Observer, SW Fisheries Center, La Jolla,
Calif., 5/11-25/90

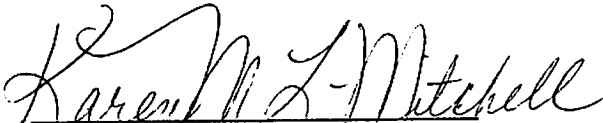
Jim Cotton, Marine Mammal Observer, SW Fisheries Center, La Jolla,
Calif., 5/11-25/90


Scott Benson, Marine Mammal Observer, SW Fisheries Center, La
Jolla, Calif., 5/11-25/90

Scott Sinclair, Marine Mammal Observer, SW Fisheries Center,
La Jolla, Calif., 5/11-25/90

Submitted By:

Approved By:


Karen Lecke-Mitchell
Field Party Chief


Walter R. Nelson, Director
Mississippi Laboratories

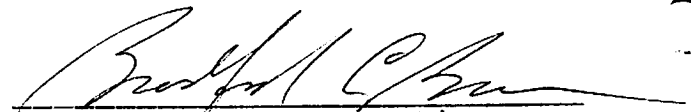

Bradford E. Brown, Acting
Southeast Science & Research
Director

Table 1. Number of stations at which plankton and environmental data were collected during cruise 187.

	Leg 1	Leg 2	Leg 3
Bongo	34		31
Neuston	72		67
MOCNESS		10	
CTD	67		61
DO	67		21
Chlorophyll	67		65
Hydro-cast	1		4
XBT	13	10	130
Secchi disk	16		17
Water color	25		31
Weather observations	72	8	67
Fluorometer readings			461
Water samples for brevitoxins			305

Table 2. Marine mammal sightings during leg 3 OREGON 11 cruise 187.

DATE	GENUS	SPECIES	LATITUDE	LONGITUDE	DEPTHS	SURFACE
					FMS	WATER TEMP.
5/12/90	<u>Stenella</u>	<u>frontalis</u>	29°21'20	86°21'00	129	23.0
	Unknown dolphin		29°19'00	86°19'00	130	22.9
	<u>Stenella</u>	<u>frontalis</u>	28°37'40	85°38'00	113	23.4
	<u>Tursiops</u>	spp.	28°34'90	85°35'20	111	23.7
	<u>Tursiops</u>	spp.	28°30'90	85°30'80	109	23.9
	<u>Tursiops</u>	spp.	28°25'80	85°25'00	107	23.9
5/13/90	Unknown whale	medium	25°59'20	85°00'10	1500	27.2
	Unknown dolphin		25°56'40	85°00'20	1700	27.2
	Unknown dolphin		25°06'30	85°00'30	1800	27.2
5/14/90	Unknown whale	small	26°28'90	85°59'90	1750	26.5
	<u>Stenella</u>	<u>attenuata</u>	26°28'90	85°59'90	1750	26.9
5/15/90	<u>Stenella</u>	<u>attenuata</u>	28°01'00	86°00'40	550	25.8
	<u>Stenella</u>	<u>attenuata</u>	28°12'60	86°00'20	325	25.3
	Unknown dolphin		28°22'30	86°00'10	250	25.2
	Unknown dolphin		28°46'00	86°16'10	190	25.0
	Unknown dolphin		28°49'90	86°20'60	196	25.0
	Unknown dolphin		28°54'90	86°25'40	202	24.8
	<u>Kogia</u>	spp.	28°54'90	86°25'40	202	24.8
	<u>Physeter</u>	<u>macrocephalus</u>	28°58'40	86°25'40	207	27.0
	<u>Kogia</u>	spp.	29°00'50	86°34'30	222	25.2
	5/16/90	<u>Mesoplodon</u>	spp.	27°00'00	86°59'00	1650
5/17/90	<u>Feresa</u>	<u>attenuata</u>	26°50'60	87°58'50	1500	27.8
	Unknown dolphin		26°57'80	87°59'20	1500	27.0
	<u>Kogia</u>	<u>simus</u>	27°01'20	87°58'60	1510	27.6
	Ziphiidae		27°00'40	88°07'30	1450	27.0
	<u>Stenella</u>	<u>attenuata</u>	27°00'20	88°11'70	1450	27.2
	Unknown dolphin		26°59'70	88°17'40	1440	28.2
	<u>Stenella</u>	<u>attenuata</u>	26°59'80	88°32'00	1300	28.2
	<u>Stenella</u>	<u>attenuata</u>	26°59'80	88°32'00	1300	28.2
	<u>Stenella</u>	<u>attenuata</u>	26°59'80	88°36'70	1300	28.2
	<u>Stenella</u>	<u>attenuata</u>	26°59'80	88°36'70	1300	28.2
	<u>Stenella</u>	<u>attenuata</u>	26°59'90	88°50'00	1250	28.1
	<u>Stenella</u>	<u>attenuata</u>	27°00'50	88°52'00	1250	28.1
	<u>Ziphius</u>	<u>cavirostris</u>	27°00'50	88°53'00	1250	28.1
	Unknown dolphin		27°00'10	88°55'70	1240	27.5
	<u>Kogia</u>	<u>simus</u>	26°59'90	88°59'30	1240	27.8
5/18/90	<u>Feresa</u>	<u>attenuata</u>	26°00'00	89°28'00	1800	26.8
	Unknown dolphin		26°00'70	89°31'40	1800	26.6
	<u>Stenella</u>	<u>attenuata</u>	26°00'00	89°54'40	1600	27.1
	<u>Physeter</u>	<u>macrocephalus</u>	26°25'50	89°59'90	1500	27.5
	<u>Stenella</u>	<u>attenuata</u>	26°26'60	89°59'90	1500	27.3
	<u>Physeter</u>	<u>macrocephalus</u>	26°44'40	90°00'10	1450	27.2
	Unknown dolphin		26°53'60	90°00'30	1450	27.5
	<u>Globicephala</u>	spp.	27°00'60	90°03'60	1450	27.1
	<u>Kogia</u>	spp.	27°02'40	90°08'30	1400	27.2
	<u>Grampus</u>	<u>griseus</u>	27°02'40	90°09'20	1400	27.0
	<u>Stenella</u>	<u>attenuata</u>	27°02'10	90°14'90	1150	26.9
	<u>Stenella</u>	<u>clymene</u>	27°01'80	90°18'20	1200	26.3
5/19/90	Unknown dolphin		26°17'20	90°59'60	1200	26.4
	Unknown whale	medium	26°14'40	90°59'60	1250	26.4
5/20/90	<u>Stenella</u>	<u>clymene</u>	26°08'30	90°59'50	1250	26.2
	<u>Stenella</u>	<u>attenuata</u>	27°00'00	92°30'00	800	26.2

Table 2. (Cont'd)

<u>DATE</u>	<u>GENUS</u>	<u>SPECIES</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>DEPTHS</u> <u>FMS</u>	<u>SURFACE</u> <u>WATER TEMP.</u>
5/21/90	<u>Kogia</u>	<u>simus</u>	27°33'10	93°26'10	290	26.8
	<u>Tursiops</u>	spp.	27°33'10	93°26'10	290	26.8
	<u>Tursiops</u>	spp.	28°00'20	92°50'00	53	27.6
	<u>Stenella</u>	<u>frontalis</u>	28°00'20	92°50'00	53	27.6
	<u>Stenella</u>	<u>frontalis</u>	27°59'60	92°31'00	66	27.7
	<u>Stenella</u>	<u>frontalis</u>	27°59'60	92°31'00	66	27.7
5/22/90	<u>Stenella</u>	<u>frontalis</u>	28°00'40	90°43'50	115	25.6
	Unknown dolphin		28°00'20	90°31'10	165	26.3
	<u>Tursiops</u>	spp.	27°59'40	90°28'80	198	26.5
	<u>Tursiops</u>	spp.	27°59'80	90°18'30	260	26.6
	<u>Kogia</u>	spp.	27°59'80	90°18'30	260	26.6
	<u>Stenella</u>	<u>attenuata</u>	28°00'40	90°07'20	300	26.5
	Unknown dolphin		28°02'50	89°58'20	288	27.2
	<u>Tursiops</u>	spp.	28°02'50	89°58'20	288	27.2
	<u>Grampus</u>	<u>griseus</u>	28°07'50	89°54'10	290	27.4
	<u>Grampus</u>	<u>griseus</u>	28°08'20	89°52'50	246	27.2
	<u>Grampus</u>	<u>griseus</u>	28°12'30	89°49'80	231	26.9
	Unknown dolphin		28°12'30	89°49'80	231	26.9
	Unknown whale	large	28°17'10	89°46'90	260	26.5
	<u>Grampus</u>	<u>griseus</u>	28°17'10	89°46'90	260	26.5
	<u>Tursiops</u>	spp.	28°21'50	89°44'40	280	26.7
5/23/90	<u>Pseudorca</u>	<u>crassidens</u>	27°59'40	87°59'40	1300	26.7
	<u>Kogia</u>	<u>simus</u>	27°46'30	87°45'60	1500	26.8
	Unknown dolphin		27°40'00	87°42'00	1500	26.8
	<u>Stenella</u>	<u>attenuata</u>	27°57'00	87°41'80	1450	26.8
	<u>Stenella</u>	<u>attenuata</u>	28°00'00	87°43'00	1400	26.8
	<u>Stenella</u>	<u>attenuata</u>	28°16'00	87°55'00	1300	26.9
5/24/90	<u>Physeter</u>	<u>macrocephalus</u>	29°03'60	88°03'30	570	25.5
	<u>Kogia</u>	<u>simus</u>	28°59'10	88°11'70	570	25.2
	<u>Kogia</u>	<u>simus</u>	28°54'60	88°20'70	540	25.4
	<u>Physeter</u>	<u>macrocephalus</u>	28°50'90	88°20'70	540	25.3
	<u>Grampus</u>	<u>griseus</u>	28°49'80	88°42'90	425	26.2
	Unknown cetacean		28°49'70	88°52'00	325	26.6
	Unknown whale	small	28°49'60	88°55'40	352	26.9
	<u>Tursiops</u>	spp.	28°49'00	88°57'70	230	27.1
	<u>Tursiops</u>	spp.	28°43'00	89°07'50	225	27.1
	<u>Globicephala</u>	spp.	28°41'90	88°53'90	510	26.4
	Unknown dolphin		28°40'60	88°48'60	560	26.2
	<u>Physeter</u>	<u>macrocephalus</u>	28°40'00	88°40'00	720	26.4

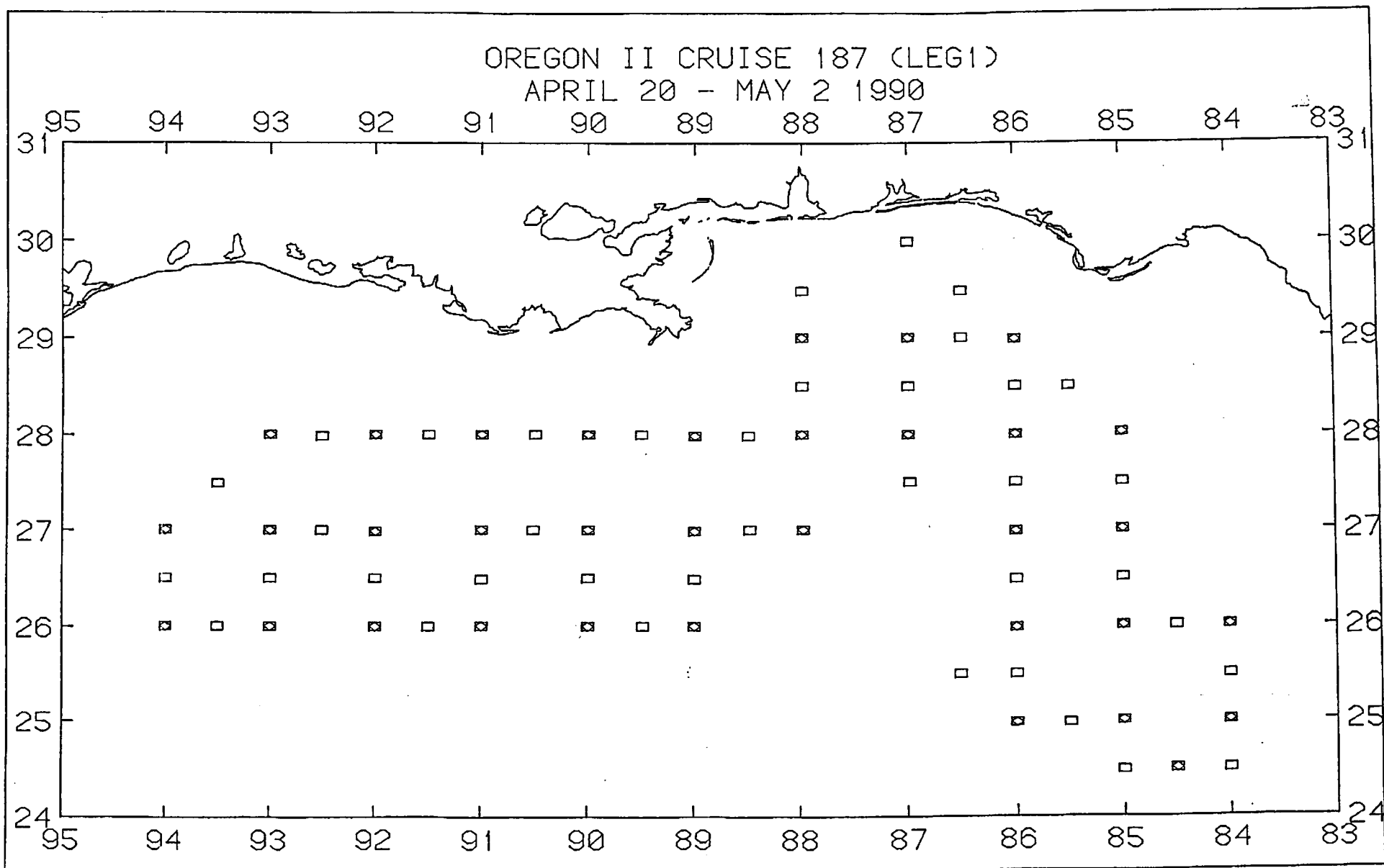


Figure 1. Location of stations occupied during leg 1 of the OREGON II SEAMAP ichthyoplankton survey, cruise 187. Collection gear included bongo nets, diamond symbols and neuston nets, rectangular symbols.

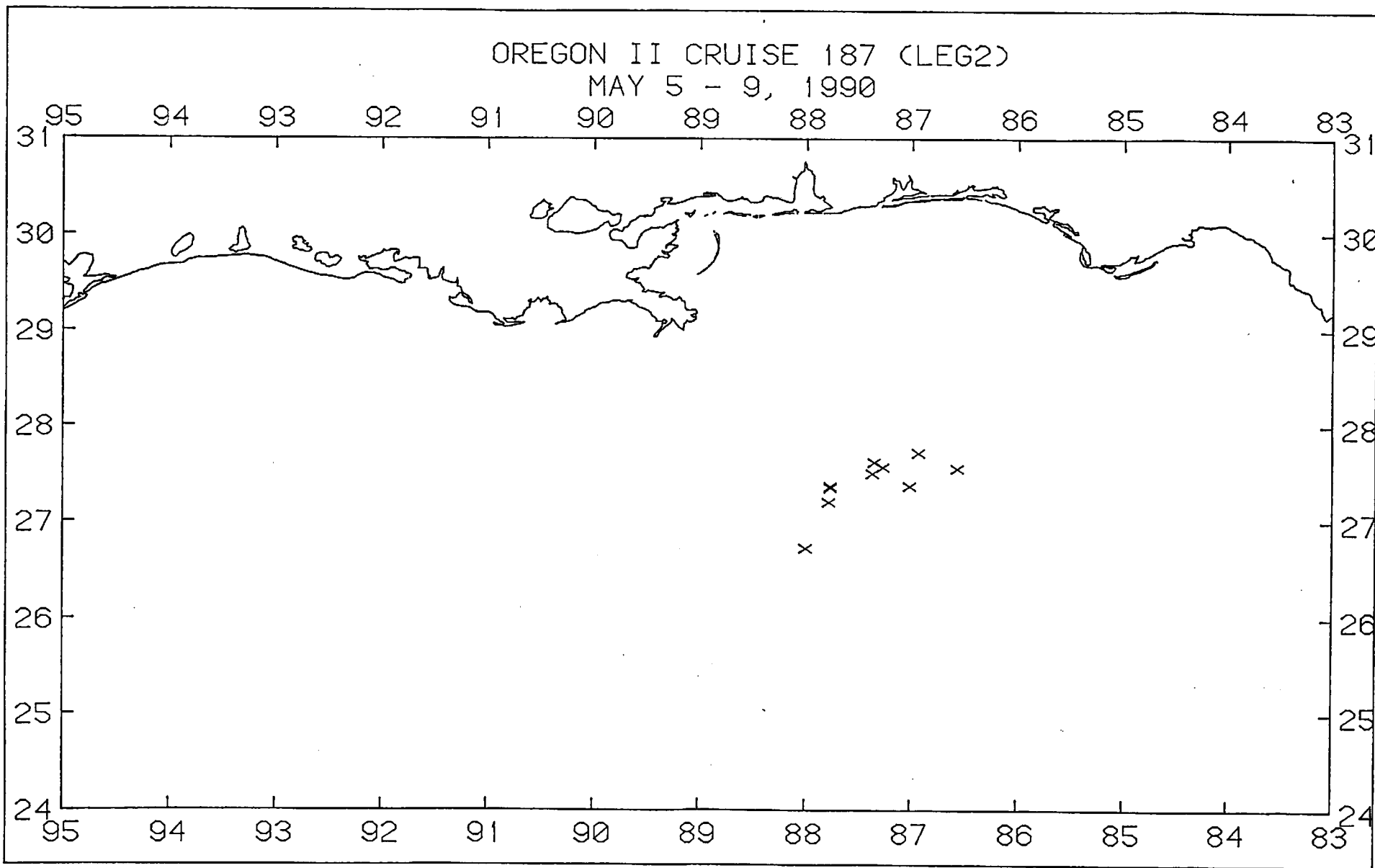


Figure 2. Location of stations occupied by the MOCNESS gear during leg 2 of cruise 187.

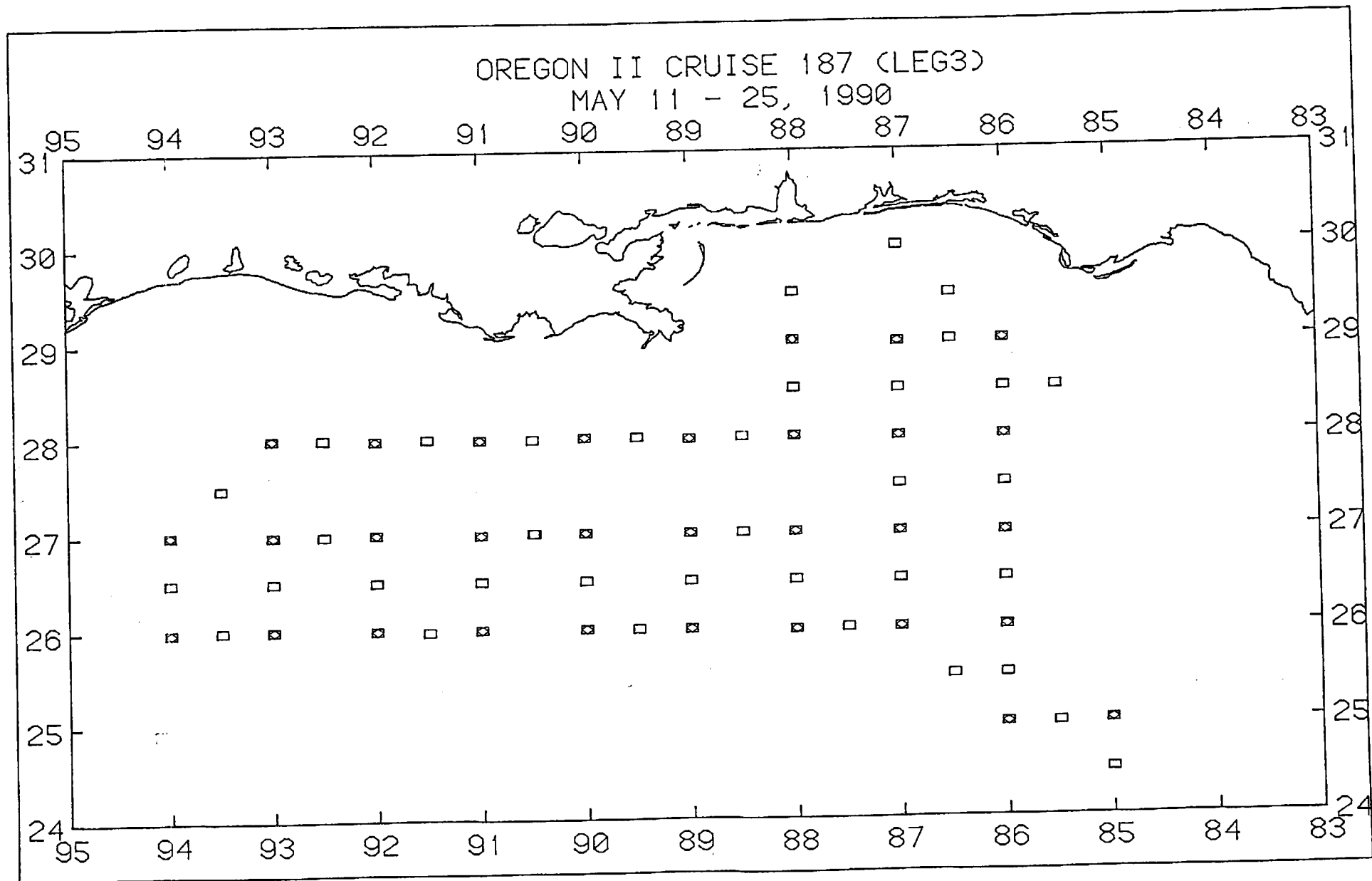


Figure 3. Location of stations occupied during leg 3 of the OREGON II SEAMAP ichthyoplankton survey, cruise 187. Collection gear included bongo nets, diamond symbols, and neuston nets, rectangular symbols.