

# CRUISE RESULTS

UNOLS R/V *Hugh R. Sharp*  
Cruise No. S1 09-01 (Parts I – III)  
Sea Scallop Survey

**Submitted to:** NOAA, NEFSC

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### CRUISE PERIOD AND AREA

The cruise period was 9 May – 2 July 2009. The cruise was conducted in three parts: Part I was from 9-20 May, Part II was from 8-19 June, and Part III was from 22 June – 2 July. The area surveyed was from North Carolina to Georges Bank. Sampling depths ranged from 32 to 113 meters (17 to 62 fathoms). Approximate station locations are shown in Figures 1 and 2.

### OBJECTIVES

The objectives of the survey were to: 1) determine the distribution and relative abundance of the sea scallop, *Placopecten magellanicus*; 2) conduct paired tows with F/V Nordic Pride and F/V Kathy Marie to develop dredge calibrations between a standard dredge, a prototype dredge, and a towed digital camera system (Habcam) during Parts I and II; 3) conduct a demonstration of the Habcam capabilities aboard the *Hugh R. Sharp* during Part III on consecutive operations with opportunistic scallop dredge hauls; and 4) collect additional biological samples for other programs.

### METHODS

Operations and gear for cruise S1 09-01 Parts I – III conformed with the Cruise Instructions for the Sea Scallop Survey, dated 25 March 2009; Addendum 1 dated 4 May 2009; Addendum 2 dated 18 May 2009; and Addendum 3 dated 16 June 2009. As an exception to the Cruise Instructions, Part III returned a day early due to scheduling logistics.

Pre-selected random stations were sampled using a modified 2.44 meter (8') wide New Bedford type scallop dredge rigged with 5.1 cm (2 inch) diameter rings and lined with at 3.8 cm (1½ inch) polyethylene stretched mesh liner. Tow duration was 15 minutes; tow speed was 3.8 knots; and the dredge was fished using a 3.5:1 wire out to depth scope. A recording inclinometer was

mounted on the dredge to collect bottom contact time data. Tow distance was recorded using differential GPS.

The entire catch was sorted at each standard station into biological and habitat components. Live whole and clapper shells of both sea and Iceland scallops were measured on Limnoterra boards to the nearest millimeter (mm). Selected fish species caught incidentally in the dredge were also measured to the nearest (mm). Weights and total numbers were recorded for all other fish species at each station. The weights and total numbers of cancer crabs and starfish were recorded at every third station. Habitat portions were estimated by volume and discarded.

Surface temperatures were measured using the hull-mounted temperature sensor and logged by the Scientific Computer System (SCS) at all stations. Temperature and conductivity profiles were made at approximately every third station using a conductivity, temperature, and depth instrument (CTD). A bottom salinity sample was obtained twice a day to calibrate the CTD. Water samples were also taken for fluorometer calibrations.

## RESULTS

The survey sampled at 451 stations with 172, 166 and 113 dredge hauls made on Parts I, II and III, respectively. The dredge flipped 40 times (stations were re-towed in most cases).

Bottom temperatures were collected at 123 stations using the CTD system. Bottom water samples for CTD calibration were taken at 40 stations.

The HabCam surveyed 23 standard stations in parallel with R/V *Hugh R Sharp* and collected 485,451 images with a footprint of approximately 1 m<sup>2</sup> each. 85,572 images were collected in Closed Area I; 216,809 images in Closed Area II; and 183,070 images on the Canadian side of the Northeast Peak of Georges Bank. The Habcam collected 302,381 additional images between stations.

A total of 3,685 requested samples were collected to support 6 internal and external investigations (Table 1).

## DISPOSITION OF DATA

Catch data and hydrographic data will be analyzed at the NEFSC Laboratory in Woods Hole, Massachusetts. The various collections were forwarded to researchers listed in Table 1. Resulting data will be audited, edited, and archived in an Oracle database.

## SCIENTIFIC PERSONNEL

### National Marine Fisheries Service, NEFSC, Woods Hole, MA

TK Arbusto<sup>3</sup>

Cristina Bascunan<sup>1</sup>

Larry Brady<sup>1,2</sup>

Dvora Hart<sup>3</sup>

Kevin MacIntosh<sup>3</sup>, Chief Scientist<sup>1</sup>

Shad Mahlum<sup>1,2</sup>

Victor Nordahl<sup>1</sup>, Chief Scientist<sup>3</sup>

Gary Pearson<sup>1</sup>

Stacy Rowe, Chief Scientist<sup>2</sup>

### National Marine Fisheries Service, NEFSC, Sandy Hook, NY

Shayla Williams<sup>1</sup>

### National Marine Fisheries Service, NERO, Hampton, VA

Steven Ellis<sup>1</sup>

### Woods Hole Oceanographic Institute, Woods Hole, MA

Scott Gallagher<sup>3</sup>

Richard Taylor<sup>3</sup>

Amber York<sup>3</sup>

### Contractors, ITS, Woods Hole, MA

Heath Cook<sup>3</sup>

Jakub Kircun<sup>2,3</sup>

Geoff Shook<sup>1,2</sup>

Francine Stroman<sup>2</sup>

Melanie Underwood<sup>3</sup>

### Teacher at Sea Program

Delores Garay<sup>1</sup>

Jeff Lawrence<sup>2</sup>

Elise Olivieri<sup>1</sup>

Duane Sanders<sup>2</sup>

Spring, TX

Park Hill, OK

Staten Island, NY

Loveland, OH

Volunteers

Nikki Bruno<sup>2</sup>

Joseph Gattozzi<sup>2</sup>

Brendan McKnight<sup>3</sup>

James Patterson<sup>2</sup>

Glynn Rountree<sup>1</sup>

Kenneth Rowe<sup>3</sup>

Robert Seeley<sup>3</sup>

Keiichi Uchida<sup>2</sup>

Austin Ward<sup>1</sup>

Virginia Zakrezewski<sup>2</sup>

Freehold, NJ

Bridgton, ME

West Point Military Academy, West Point, NY

New Bedford, MA

Arlington, VA

West Point Military Academy, West Point, NY

Mass Maritime Academy, Buzzards Bay, MA

Tokyo, Japan

Machipong, VA

Sayreville, NJ

<sup>1</sup>9-20 May

<sup>2</sup>8-19 June

<sup>3</sup>22 June – 2 July

Table 1. Special samples obtained for various investigators on UNOLS R/V *Hugh R. Sharp* Sea Scallop Survey, during 9 May – 2 July 2009.

<b>Investigator and Affiliation</b>	<b>Samples Saved</b>	<b>Approximate Number</b>
Michael Fine, Virginia Commonwealth U, VA	Cusk-eels	1 indiv.
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Various species	18 indiv.
Deborah Hart, NMFS, NEFSC, Woods Hole, MA	Scallop shells/meat weights	1166/1093 indiv.
	Sea scallop, diseased	4 indiv.
	<i>Asterias</i> spp.	1256 exam.
	<i>Leptasterias</i> spp.	2 indiv.
Cheryl Milliken, Falmouth High School, Falmouth, MA	Various species	14 indiv.
Anne Richards, NMFS, NEFSC, Woods Hole, MA	Sea scallop	104 indiv.
Keiichi Uchida, Tokyo U of Marine Sci. and Tech., Japan	Conger eel	27 indiv.

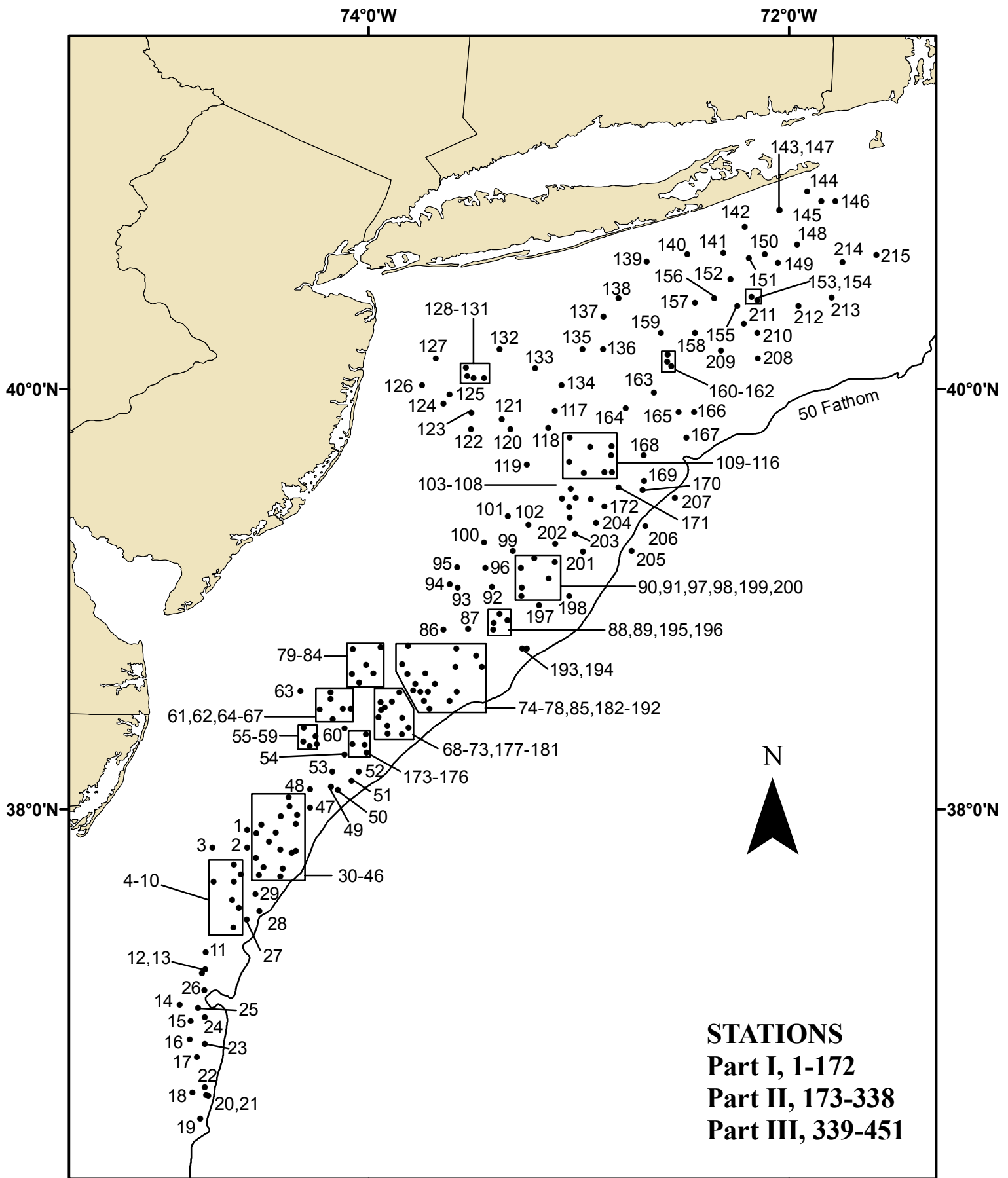


Figure 1. Dredge tows made from UNOLS R/V *Hugh R Sharp* (09-01), during NOAA Fisheries Service, Northeast Fisheries Science Center sea scallop survey, May 9 - July 2, 2009.

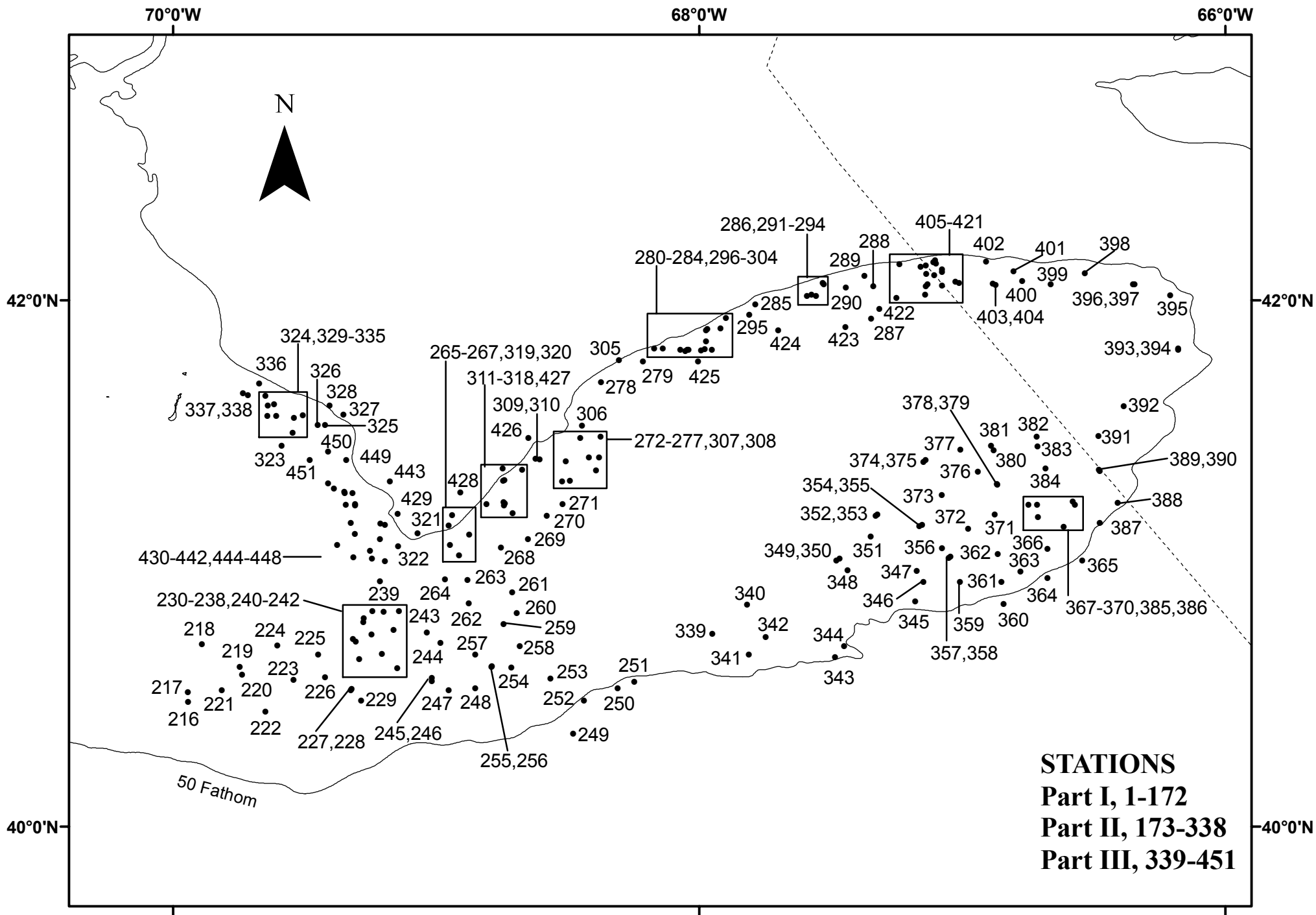


Figure 2. Dredge tows made from UNOLS R/V *Hugh R Sharp* (09-01), during NOAA Fisheries Service, Northeast Fisheries Science Center sea scallop survey, 9 May - 3 July 2009.