U. S. DEPARTMENT OF COMMERCE • NOAA-Fisheries
Southeast Fisheries Science Center • 75 Virginia Beach Drive • Miami, Florida 33149

CRUISE REPORT

Meso-American System Transport & Ecology Research
M.A.S.T.E.R Cruise

Cruise 0701: NOAA Ship GORDON GUNTER
January 8 - February 5, 2007

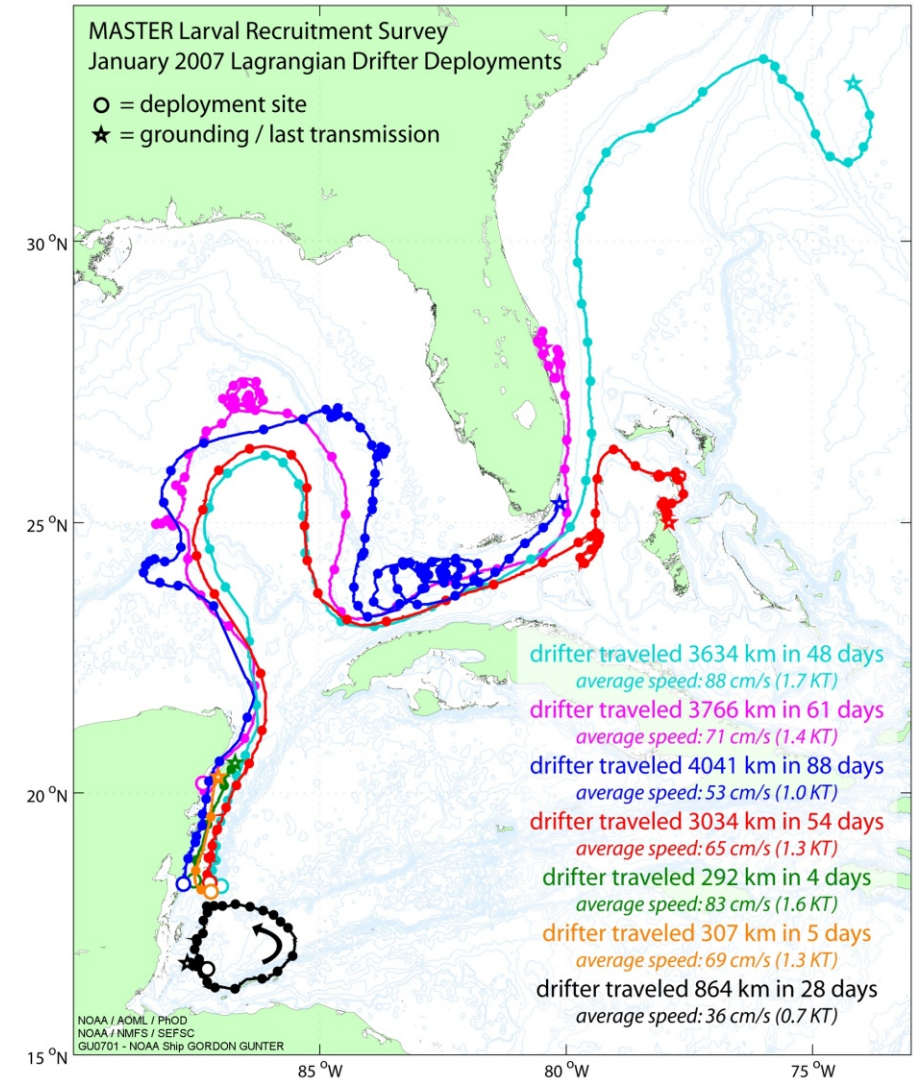


Figure 1. MASTER Cruise drifter tracks.

Introduction

The NOAA Ship Gordon Gunter departed Pascagoula Mississippi on January 8, 2007 for the Meso-American System Transport & Ecology Research Cruise (MASTER Cruise). The cruise was a joint international effort between NOAA's Southeast Fisheries Science Center and the Atlantic Oceanographic and Meteorological Laboratory, El Colegio de La Frontera Sur (ECOSUR) in Chetumal, Centro de Investigacion y de Estudios Avanzados (CINVESTAV) in Merida, Mexico, and the University of Belize. The cruise was directed at surveying the coral reef fish larval distribution and physical oceanography of the western Caribbean coast from the Yucatan Channel to the waters of southern Belize (Figure 1). Known grouper spawning locations were specifically targeted such as the one shown below at Mahahual, Mexico (Figure 2).

Figure 2. Spawning aggregation of; Nassau grouper (*Epinephelus striatu)* Mahahual, Mexico.

Reef fish populations are part of one of the most complex ecosystems in the marine environment. They are also the most heavily exploited part of the ecosystem and have been pushed to extremely low levels throughout South Florida and the wider Caribbean. Despite the importance of these populations, relatively little is known about most stages of their life cycles or their interaction with small and mesoscale oceanographic patterns. Important information such as adult spawning behavior, location, and depth of spawning aggregations and recruitment is mostly unknown. Little is known about the status of these fish populations in the western Caribbean along the Meso-American reef system, though stocks there are generally considered to have suffered relatively less exploitation. There are also significant gaps in our understanding of the complex circulation patterns along the western Caribbean's Yucatan coast where the Caribbean Current and the Loop Current connect and flow into the Gulf of Mexico (Figure 3).

This area plays a potentially important but still unknown role in the route of subtropical gyre circulation which drives the biological production and transport of larvae throughout this region. This research project is designed to provide a baseline study of the fisheries oceanography of the western Caribbean during winter spawning and to provide a basis for future fisheries management decisions.

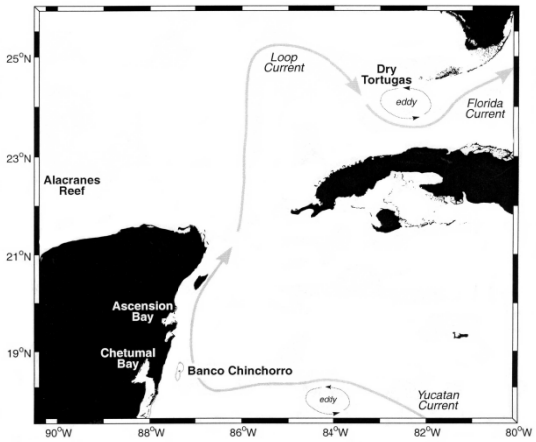


Figure 3. Circulation patterns of the Yucatan coast and the Gulf of Mexico.

Objectives

Two broad questions drive this research:

1. What is the level of larval dispersal and recruitment connectivity within and amongst the Mesoamerican reef, the Dry Tortugas, and the Florida Keys National Marine Sanctuary's reserves?
2. Is there evidence of self-recruitment within these marine reserves?

Specific objectives of this cruise:

- Map large-scale larval transport/export and distribution using a one- and a ten-meter MOCNESS;
- Map currents and eddies along the Yucatan Peninsula and the Quintana Roo and Belize coasts with shipboard ADCP;
- Map temperature/salinity fields from Yucatan Channel to southern Belize;
- Collect ichthyoplankton samples at known snapper and grouper spawning aggregations;

Objectives (continued)

- Collect light trap, settlement trap, and tidal net samples from the inshore areas of marine reserves at Xcalak and Banco Chinchorro;
- Measure depth of chlorophyll maximum and map surface chlorophyll;
- Use these data to model the major flow-regime along the Yucatan Peninsula and the physical processes affecting larval transport and/or retention onto and along the coral reef tracks;
- Deploy satellite-tracked drifters to measure current flow and identify gyre circulation patterns;
- Ground-truth satellite imagery provided by ROFFS – Roffer's Ocean Fishing Forecasting Service, Inc.

Materials and Methods

Stations were selected to provide a map of larval fish distribution from the Yucatan channel south along the coast of Belize and to resolve dynamic oceanographic features (Figs 7 and 10). ROFFS provided daily updates of oceanographic features and fronts and these are included as Addendum I. AOML provided MODIS color images. Ichthyoplankton tows were conducted by Multiple Opening and Closing Net Environmental Sensing System (MOCNESS). Both one and ten meter nets were used (Figure 4).

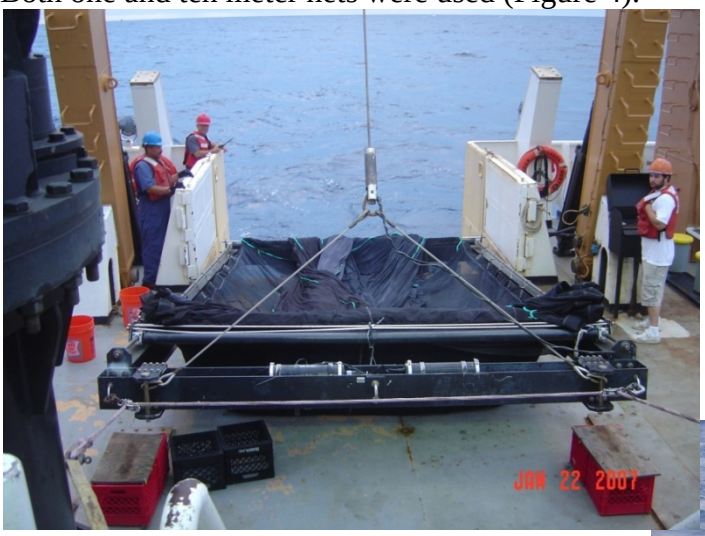


Figure 4. 10 meter MOCNESS deployment.

Each ichthyoplankton station consisted of a tow to 100 m with discrete sampling depths of 100-75, 75-50, 50-25, and 25-0 meters. All zooplankton samples were preserved in ethanol. A two meter juvenile fish trawl was used at selected stations. Neuston samples were not collected due to winch limitations.

CTD's were conducted/deployed using a standard 24 bottle rosette with dual Temperature, Conductivity, and Oxygen sensors, a fluorometer and lowered Acoustic Doppler Current Profiler (Figure 5). CTD casts were made to the bottom or 1800 meters. Casts were limited to this depth by the amount of cable on the hydro-winch. Oxygen and chlorophyll samples were measured.

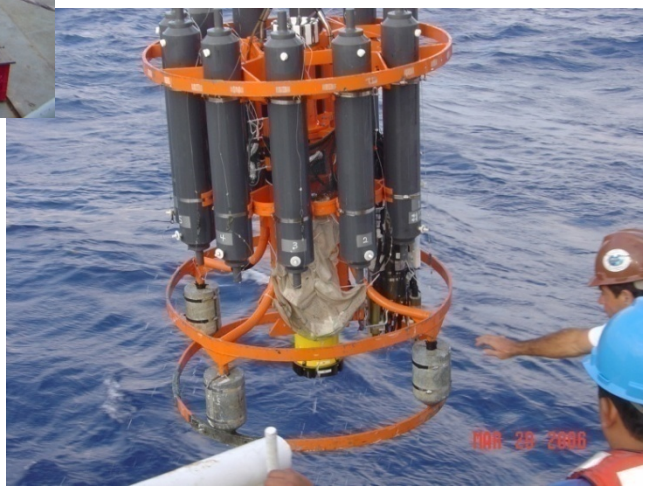


Figure 5. CTD deployment.

Currents were measured by the hull-mounted ADCP and the self-contained lowered ADCP attached to the CTD frame. Temperature, salinity, and chlorophyll fields were derived from CTD casts as well as the flow-through system on the Gordon Gunter. Both 10-meter and 1-meter MOCNESS tows were collected from the Yucatan Channel south to Belize. Copies of ADCP data, CTD casts, and XBT's were provided to ECOSUR at the end of the cruise. Copies have also been provided to the NOAA Coal Reef Conservation Program, and data will be on file at the SEFSC Library with a copy of this report. CTD and MOCNESS stations are listed in Addendum II.

Results and Discussion

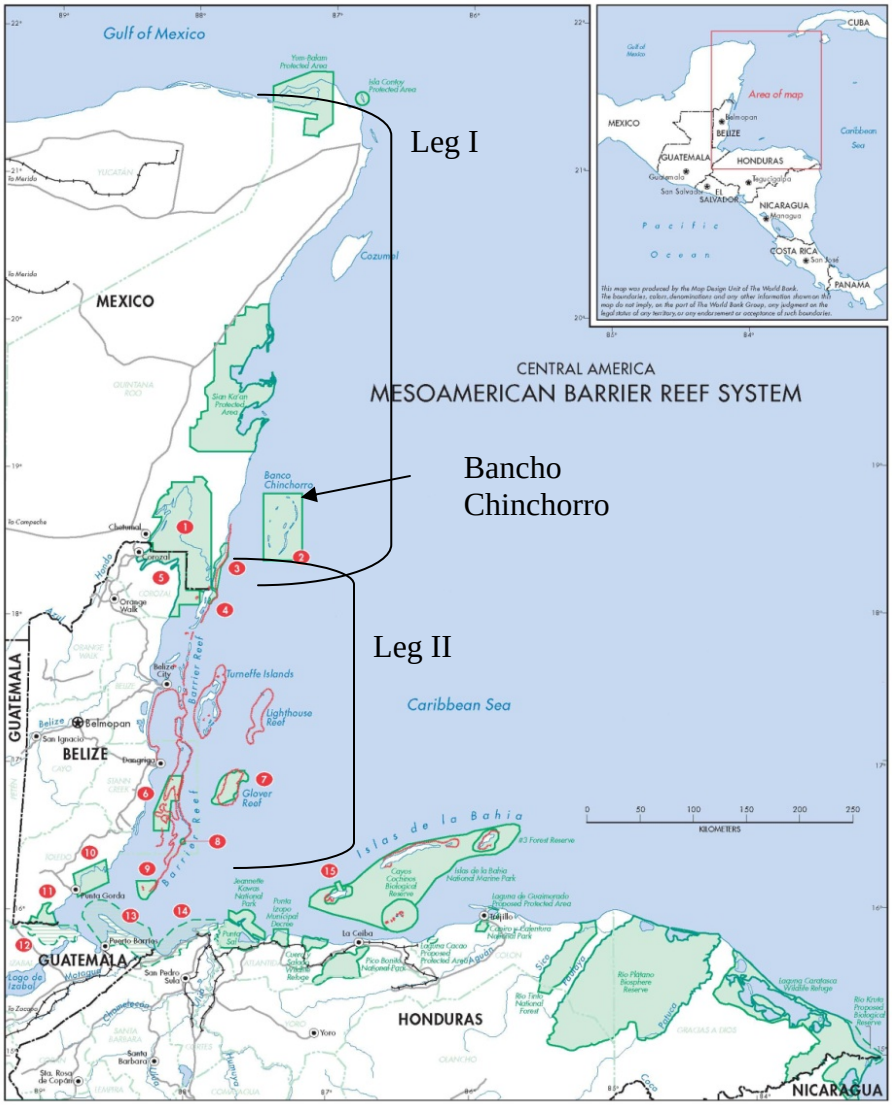


Figure 6. Map of cruise area showing Meso-American reefs and Biosphere Reserves (Map: World Bank).

Ninety-four 1-meter and 7 ten-meter MOCNESS tows, 16 juvenile fish trawls, and 101 CTD casts were conducted between the Yucatan Channel and Gladden Spit Belize. Sixteen light trap and settlement trap stations were collected over a two-week period coinciding with the GORDON GUNTER collections at Arrecifes de Xcalak Marine Reserve, and Banco Chinchorro's Biosphere Reserve. The cruise was divided into two legs. The first leg (Figures 6 and 7) focused on the area from the Yucatan Channel south to Bancho Chinchorro. Leg 2, in cooperation with the University of Belize and Conservation International, focused on the area from the northern border of Belize south to Glovers Reef, with emphasis on known grouper spawning sites (Figures 6 and 10.)

LEG 1

The first leg of the cruise began at the Yucatan Channel and sampled an area south to just north of Banco Chinchorro. Preliminary ADCP data-derived flow fields from 2007 indicated a strong generally northward flow, throughout the first leg as was noted in 2006. All satellite deployed drifters indicated a strong northerly flow as did ADCP measured currents. A strong northward flow was also found in the Cozumel channel. This can be seen in the satellite analysis shown Figure 7. The satellite analysis for 9 January 2007 shows northward flowing currents with some eddy formation in the Caribbean current to the east of Cozumel. The stations and ship track are shown in white. Zooplankton collections were made with the one and 10 meter MOCNESS. The first transect covered the northward flowing Yucatan Channel, and the second was adjusted to the east to sample a northern moving cyclonic gyre which can be seen in the satellite analysis. The previously planned track was resumed along an east-west line south of Cozumel.

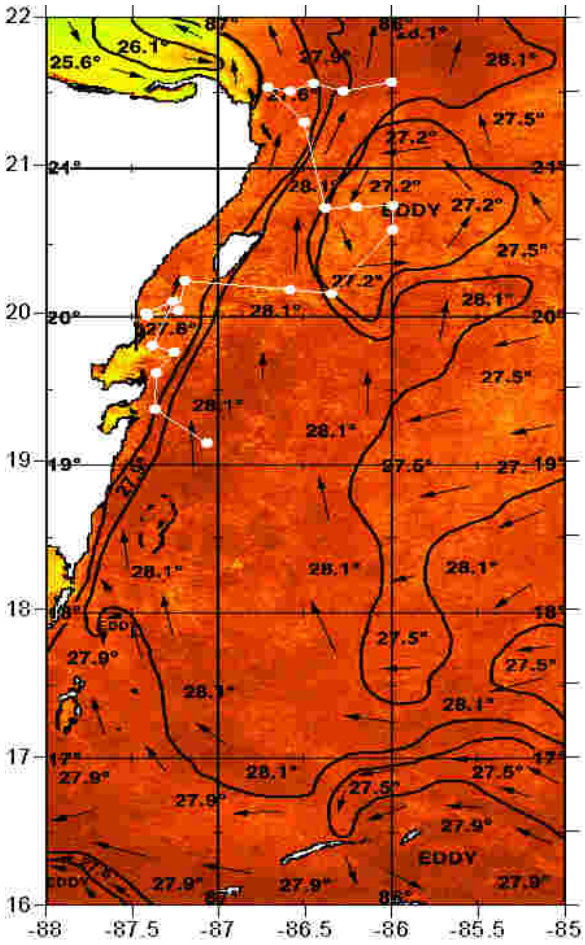


Figure 7. Strong northerly flow.

However, an unusual southerly flowing feature was noted during the transect southeast of Cozumel where satellite imagery, drifter tracks, and shipboard ADCP indicated a probable cyclonic flow pattern (Figure 8). A southward flow was also noted southwest of Cozumel. The MODIS color image below depicts the unusual formation of a cyclonic flow field of as yet undetermined vorticity. When this feature was noted by the shipboard ADCP, the cruise track was rerouted. A satellite tracked drifter was deployed and additional biological and physical measurements were collected. Preliminary analysis depicted below (Figure 9) showing the depth of the 12^0 isotherm indicates significant cyclonic flow just north of Punta Allen, and southwest of Cozumel. The drifter can be seen to follow the cyclonic flow before becoming entrained in the strong northern flow in the Cozumel Channel. Because of subsequent cloudy conditions it was not possible

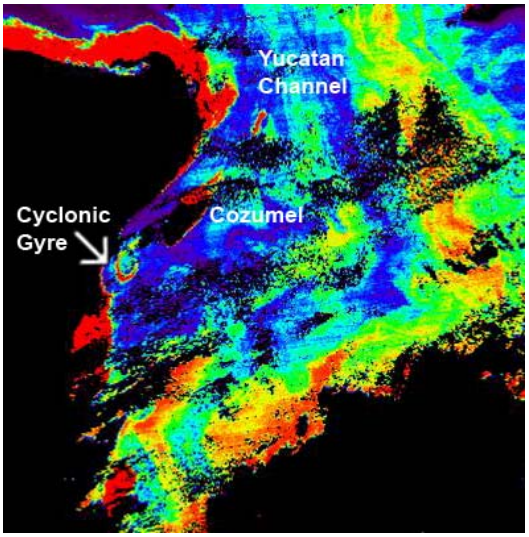


Figure 8. Satellite image of a southerly flow.

LEG I (continued

to determine the duration of this flow but transitory features such as these may have a large impact on local recruitment and larval transport. Additional MOCNESS tows were added to biologically characterize this area.

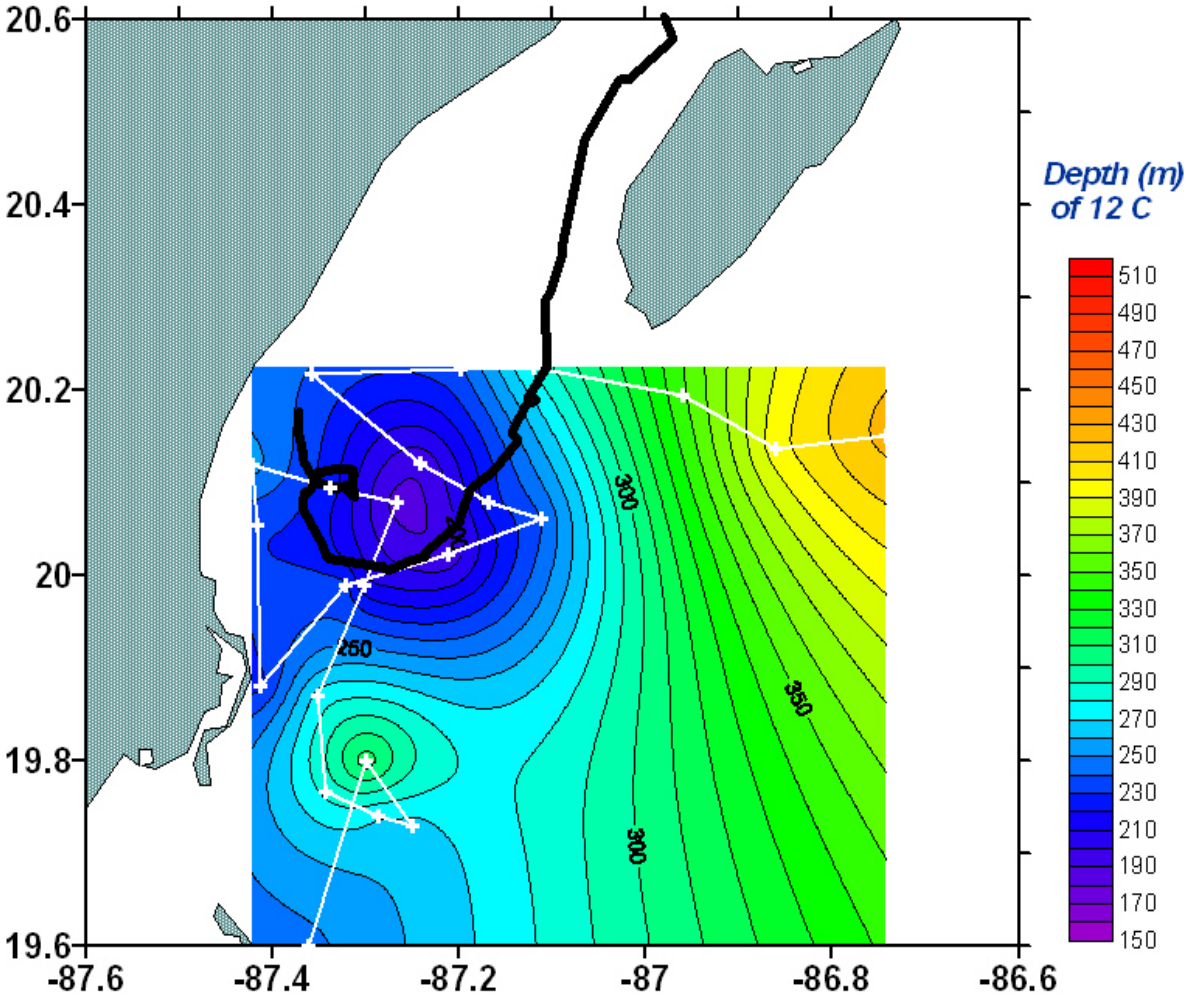


Figure 9. Preliminary analysis showing the depth of the 12^0 isotherm.

LEG II

Leg II began at Mahual, and sampled the channel between Xcalack and Banco Chinchorro, and around the Banco Chinchorro Biosphere Reserve. Sampling was concurrent with shore based collections at both Xcalak and Banco Chinchorro. The ship then proceeded south along the track line noted in Figure 10.

Initially all measured current flow fields indicated a strong northward flow throughout the Xcalack Channel, and west and South of Banco Chinchorro. Northward flow continued to be strong until about 18^0. Continuing satellite analysis indicated the possible development of the Honduran gyre and the ship's track was diverted to that area. Samples were collected in the gyre and a drifter deployed. Sampling continued as planned along the reef system of Belize throughout the second leg.

As the ship sampled back to the north, it was noted that by 25 January, flow was considerably different south of Banco Chinchorro at approximately 18^0 north. Currents had shifted from a strong northerly flow to a strong westerly flow in an onshore direction with weaker flow to the south. This shift in current direction may be caused by increased vorticity associated with eddy development north of Honduras at 17^0 N. As this cyclonic gyre developed, it appears to pull water from the Caribbean current westward and southward. Both the initial strong northern flow and the gyre can be seen in the satellite tracked drifter deployments (Figure 11). This major shift in the flow of the Caribbean current occurred in less than seven days. During this time current flow just south of Banco Chinchorro Reserve was measured due west by shipboard ADCP. Additional drifter plots and initial current vectors are plotted in Addendum III. MOCNESS samples from both legs are being sorted and identified by ECOSUR. Status of samples from 2006 and 2007 are included in Addendum IV. All samples from 2006 have been sorted, and approximately 50% have been identified to date. Major families are noted based upon initial identification of over 10,000 larvae. Scaridae, Myctophidae, Labridae, and Gobiidae are the most abundant families from those samples identified. There are 385 zooplankton samples to be sorted from 2007 and 45% have been sorted to date. Also see initial cruise results, 2006 pages 17-24 this report.

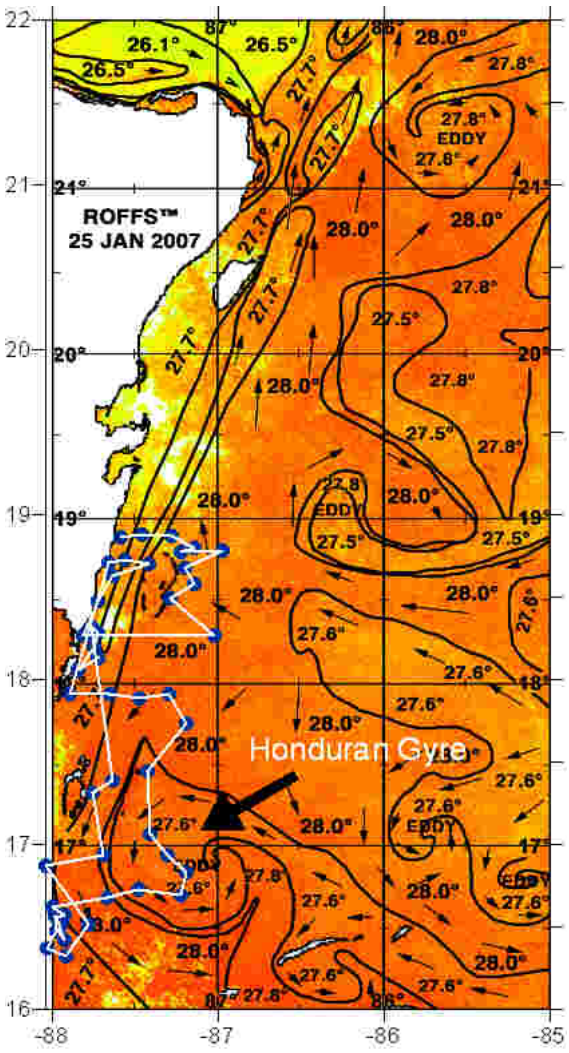


Figure 10. Ship's track and the Honduran

LEG II (continued)

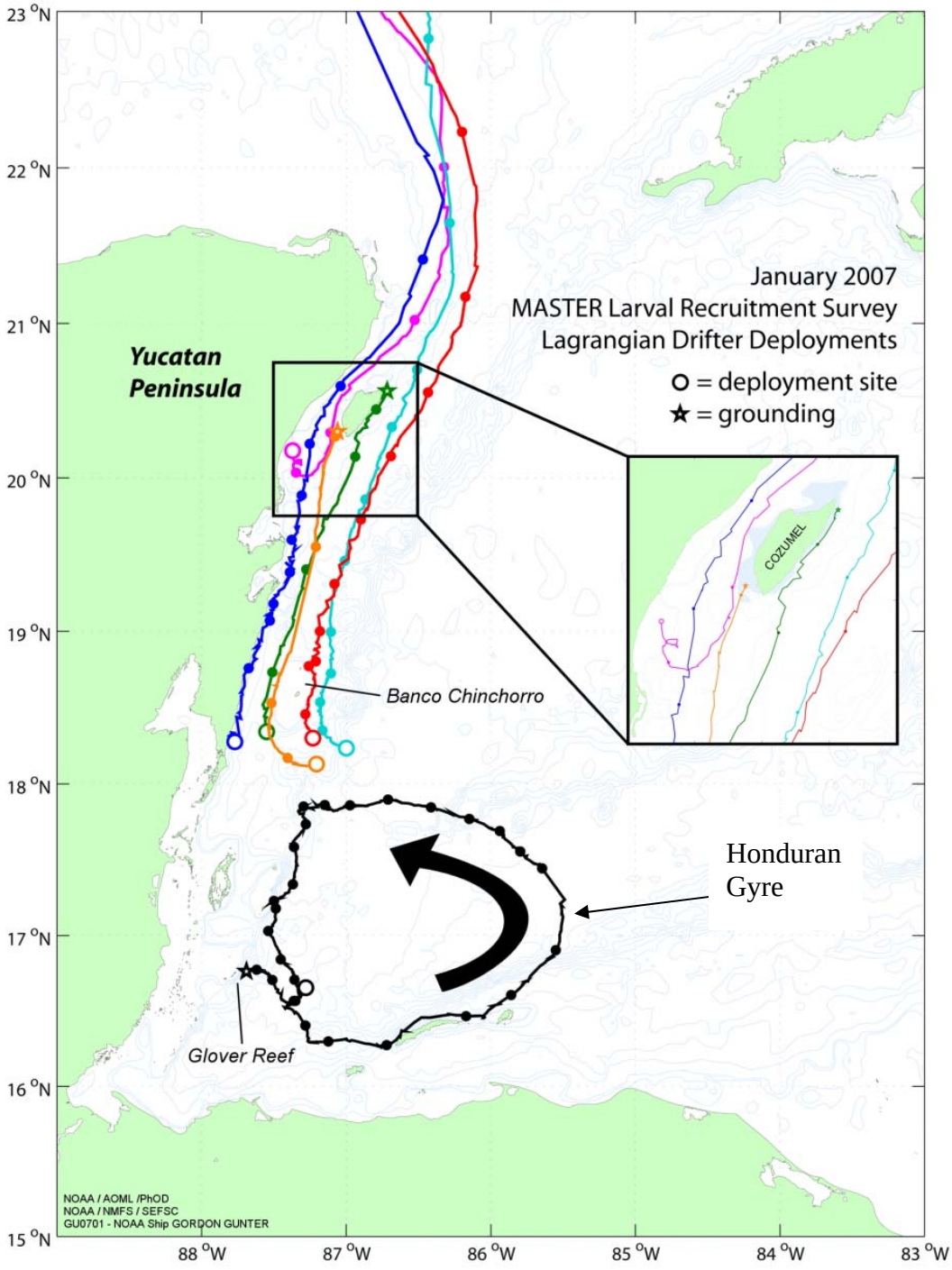


Figure 11. Satellite drifter tracks showing Honduran gyre circulation (Black) and Caribbean current flow.

BANCO CHINCHORRO

Concurrent with the MASTER Cruise, a research team was stationed at Banco Chinchorro Biosphere Reserve in cooperation with Comision Nacional de Areas Naturales Protegidas Reserva de la Biosfera Banco Chinchorro. Inshore samples were collected using light traps and settlement traps. Collections were also made at Arrecifes de Xcalak Reserve, at the southern border of the Yucatan (Figure 6). Three types of gear were utilized; light traps (Jones 2006), channel nets (Shenker *et al.* 1993), and settlement traps (Steel *at al.* 2002), and they were deployed at Arrecifes de Xcalak Reserve as shown below.

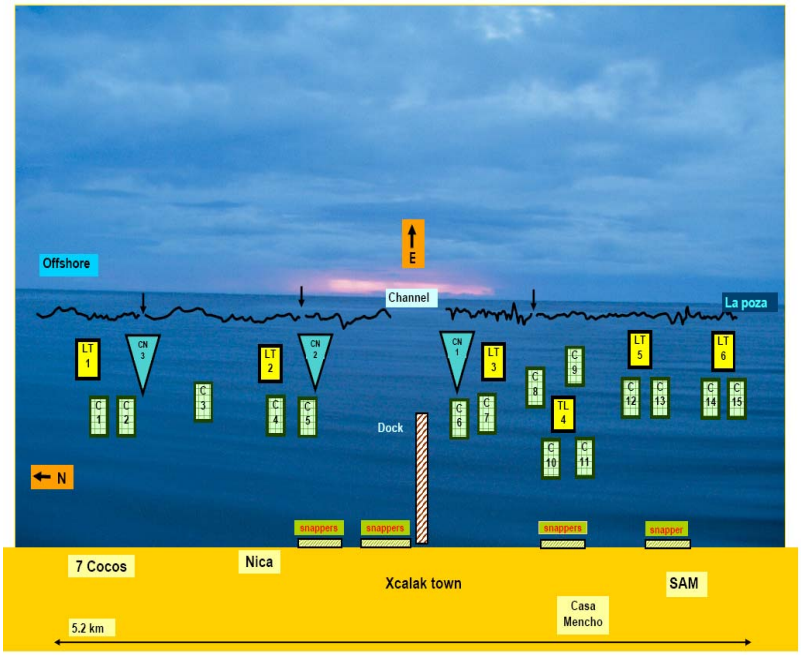


Figure 12. Light traps and channel nets deployed at Banco Chinchorro.

Light Traps: six and nine light traps were sampled in the coral reef lagoon in Xcalak and Banco Chinchorro respectively. The traps were set 100 m or 150 m apart (Figure 12). Each trap has a built in fluorescent light and an automatic timer that turns on at sunset, and turns off at 4 a.m. The samples were collected every morning and all the plankton was fixed in 96% Ethanol. The traps were serviced daily, with the rechargeable batteries changed and resetting the timer. The traps were sampled seven nights in Xcalak and nine nights in Banco Chinchorro. Light trap design is detailed in Addendum VII.

Channel Nets: Three channel nets were deployed to catch the inflow of larvae into natural reef openings or reef channels into the Xcalak reef lagoon. The rectangular frame measured 1.20 m x .9 m and had a 1 mm mesh. A digital flow meter (General Oceanic) was attached to record the volume filtered. The flow meter data was documented each day upon deployment (between 6-7 pm) and at morning collection. The samples collected were fixed in 96% Ethanol.

Settlement Traps: Twenty settlement traps were deployed in the reef lagoon in between light traps. These traps (15 ft x 1 ft x 6 in) float in the water column and comprise of a 2-mm mesh inside that attracted larvae to hide within. A snorkeler used a collecting bag that envelops the trap underwater to collect any larvae that are using the traps as refuge. The snorkeler swims the trap to the boat and any larvae collected is fixed in 96% ethanol.

Current meters were placed in both sampling sites and recovered after the cruise. Data is being analyzed by Dr. Laura Carrillo Bibriezca at El Colegio de La Frontera Sur (Figure 13).

BANCO CHINCHORRO (continued)

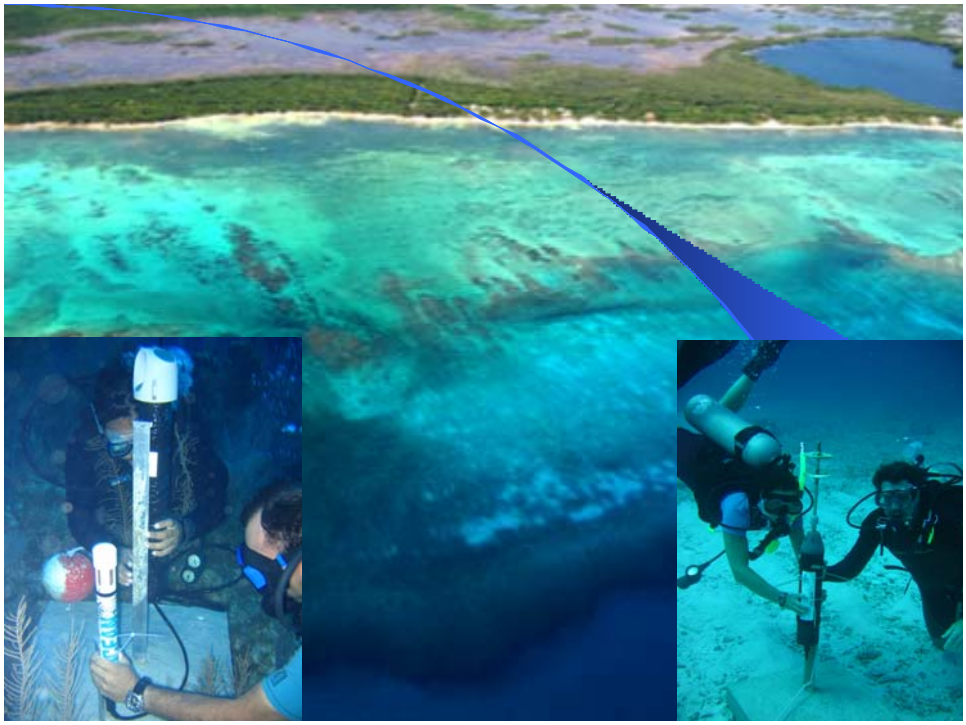


Figure 13. Deployment of current meters at Xcalak.

Light trap samples have been sorted and are being identified. The list of samples is given in Addendum V. Larval reef fish MOCNESS samples have been sorted for 2006 and sorting from 2007 is 30% complete. Over 30,000 fish were sorted from the 2006 samples. Identification to family has been completed for approximately 20%. Status of sorting, biomass measurements and number of larvae are given in Addendum VI.

LIST OF PERSONNEL

Leg I: January 11-19, 2007 -- Key West to Majahual Mexico

Name	Sex	Organization	Title	Citizenship
LT Gildardo Alarcon Daowz	M	SRE Mexico	Observer	Mexico
Keith Martin	M	NOAA	Technician	USA
Elizabeth Johns	F	AOML	Physical Oceanographer	USA
Grant Rawson	M	AOML	Physical Oceanographer	USA
John Lamkin	M	SEFSC	Chief Scientist	USA
LTJG Natasha Davis	F	NOAA Corps	Officer	USA
Estrella Malca	F	SEFSC	Biologist	USA
Anne Morgan	F	UM	Biologist	USA
Akihiro Shiroza	M	SEFSC	Biologist	Japan
Edgar Tovar	M	Mexico	Biologist	Mexico
Ivan Castellanos Osorio	M	ECOSUR	Biologist	Mexico
Laura Carrillo Bibriezca	F	Mexico	Physical Oceanographer	Mexico
Javier Gonzalez	M	Mexico	Physical Oceanographer	Mexico
Aurora Beltrans	F	Mexico	Biologist	Mexico
Francisco Alemany	M	Spain	Biologist	Spain

Leg II: January 21 – January 31, 2007 -- Majahual, Mexico to Key West, Florida

Lt. Gildardo Alarcon Daowz	M	SRE Mexico	Observer	Mexico
Keith Martin	M	NOAA	Technician	USA
Annie Morgan	F	UM	Biologist	USA
Elizabeth Johns	F	AOML	Physical Oceanographer	USA
Grant Rawson	M	AOML	Physical Oceanographer	USA
John Lamkin	M	SEFSC	Chief Scientist	USA
Estrella Malca	F	SEFSC	Biologist	USA
Akihiro Shiroza	M	SEFSC	Biologist	Japan
LTJG Natasha Davis	F	NOAA Corps	Officer	USA
Ivan Castellanos Osorio	M	ECOSUR	Biologist	Mexico
Elsa Falfan Vasquez	F	CINVESTAV	Biologist	Mexico
Uriel Ordonez	M	CINVESTAV	Biologist	Mexico
Laura Carrillo Birbriezca	F	Mexico	Physical Oceanographer	Mexico
Javier Gonzalez	M	Mexico	Physical Oceanographer	Mexico
Maria De Carmen Garcia	F	Mexico	Reserve Manager	Mexico

List of personnel

Banco Chinchorro

Lourdes Vasquez Yeomans
Jose A Cohuo
Monica Lara
Dave Jones

Recommendations for Improved Scientific Support

These comments were developed as part of the GORDON GUNTER 0601 cruise report and are included here again to maintain attention to needed improvements in scientific capability. In general, the scientific party of Cruise 0601 agrees that the *NOAA Ship Gordon Gunter* is a solid research platform and has great potential for improved oceanographic data gathering capabilities. Given the current resources, we were able to accomplish a great deal during the cruise. Below is a list of suggestions we think are important for future cruises as well as for general upgrading of the ship's capabilities. We believe that implementation of these suggestions would strengthen this valuable NOAA asset and raise its capabilities to the level of comparably sized UNOLS research vessels.

1) There are not enough winches available for collecting gear. With both MOCNESS and CTD we could not deploy a neuston net. This is a significant problem when sampling for tuna and billfish. There needs to be at least one additional winch available. The neuston net does not require large amounts of cable. A small electric winch with hydro wire would be sufficient

2) Upgrade the small oceanographic winch to a 6000 meter capable winch designed to take loads associated with standard 24 bottle frame and rosette with ADCP. Otherwise overhaul and move small winch to centerline facing aft to use for deploying MOCNESS via A-frame (fantail deployment) freeing up the Desh-5 for CTD.

3) Spool Desh-5 with at least 6000 m of .322 conductor cable. Load winch under tension and gear winch for use at speeds of 60 meters per minute. Slow winch speeds significantly increase time on station and increased difficulties for vessel station keeping

4) Install larger diameter turning block on J-frame for use with CTD.

5) Regarding all winches used for scientific purposes (CTD, MOCNESS, trawl, etc.), route wire tension, speed, and meters out readings to all winch control stations and to SCS data stream.

6) Upgrade ship's depth sounding capabilities. Knowing the depth of the bottom is critical to CTD operation. Vessel must be able to sound full ocean depth (5000 m) without difficulty. On all shipboard sounders, log depth and data quality flag to SCS data stream.

7) Install cleats (2) inside railing on either side of port quarterdeck CTD deployment area for leading CTD deployment and recovery lines. These cleats may be removable.

8) Correct air lock troubles with TSG flow-through system seawater inlet. This has been an ongoing problem for years. AOML engineers would be happy to aid in suggesting most the desired route and design for scientific flow-through plumbing.

9) Add remote inlet temperature sensor to TSG flow-through system. The internal TSG temperature recorded to SCS is over one degree higher than the ambient SST. Log flow rate of flow-through system to SCS data stream.

10) Repair and recalibrate the ship's CTD, CTD pylon, and associated CTD sensors.

Recommendations for Improved Scientific Support (continued)

11) This cruise has demonstrated the need for a backup CTD and sensors. Ship should have a second CTD and spare sensors aboard and available.

12) Install a working XBT system on the ship. The *Gunter* may be able to work with AOML to upgrade their existing AMVER SEAS system to include XBT launching capabilities. XBT data would then be transmitted directly via the AMVER SEAS data stream in near real-time (with meteorological and oceanographic observational data).

13) Cut a canvas cover for the ship's CTD package to protect this valuable equipment from UV radiation, salt spray, and deck generated debris (rust, scale, paint). Store the ship's CTD on the boat deck when not in use.

14) Repair and rebuild the ship's folding crane.

15) Modify hydraulics and reposition inboard stops on the ship's A-frame to allow for extended inboard range. This would simplify deployment and recovery of scientific instrumentation on the fantail (e.g. at present, use of the ship's crane is required, in addition to the A-frame, for every MOCNESS deployment and recovery).

16) If a spare transducer well is available, install 12kHz transducer with associated line scan recording equipment for tracking acoustic pingers (attached to lowered equipment) and for communicating with moored acoustic releases.

Submitted by:

Dr. John T. Lamkin,
Field Party Chief
Early Life History Lab, NOAA-SEFSC

Approved by:

Dr. John W. Watson, Acting Director
Mississippi Laboratories

Approved by:

Dr. Bonnie Ponwith, Director
Southeast Fisheries Science Center

2006 CRUISE INITIAL RESULTS

Initial analyses of the first cruise in 2006 suggest several patterns in the distribution of larvae in the strata. Highest larval abundance (in number of larvae per 1,000 cubic meters) were found in the upper 50 meters (Figures L1, L2, L3, L4, and L5), with mean abundance values for the depth strata ranging from 113 to 218 larvae/1,000m^3 (Table L1). Contour analysis reveals distinct features in the data that vary with the vertical strata. From the surface to a depth of 100 meters, several features of high larval abundance were present (Figure L1). Two features were located just south of the island of Cozumel, with one to the southeast and another to the southwest along the coast. Further south, below 19 degrees north latitude, two additional peaks were found in the general location of Banco Chinchorro. In general, lower values of abundance were found north of Cozumel. Values of larval abundance ranged from 20 to 296 larvae/1000m^3 (Table L1). Although the data has been presented here, it is important to remember that the data in Figure L1 was collected during the downcast when the sampling gear is not flown in the ideal configuration. Figure L2 represents data collected from 100 to 75 meters. Relatively high values of larval abundance were found east and south of Bahia de Ascension as well as southwest of Cozumel along the Yucatan Coast. As with the previous figure, slightly lower values of abundance dominated in the north, with the exception of one station at the northernmost extent of the study area in the central Yucatan Straits (Fig. L2). Values ranged from 2 to 350 larvae/1,000m^3 (Table L1). Data sampled from 75 to 50 meters (Fig. L3) shows less distinct features, but the high larval abundance along the Yucatan Coast southwest of Cozumel persists. Values of larval abundance ranged from 13 to 471 larvae/1000m^3 (Table L1). In depths ranging from 50 to 25 meters (Figure L4), only one distinct feature is found at the southern boundary of the study area, at approximately 18.3 degrees north latitude, 87.25 degrees west longitude. The

2006 CRUISE INITIAL RESULTS (continued)

highest values of larval abundance are found at this location, with a minimum of 15 larvae/1000m^3 and a maximum of 1,664 larvae/1000m^3 (Table L1). High larval abundances are also found in the vertical strata extending from 25 meters to the surface, with a range of values from 1 to 1471 larvae/1000m^3 (Table L1). Maximum larval abundance was found in an offshore feature at approximately 19 degrees north latitude (Figure L5).

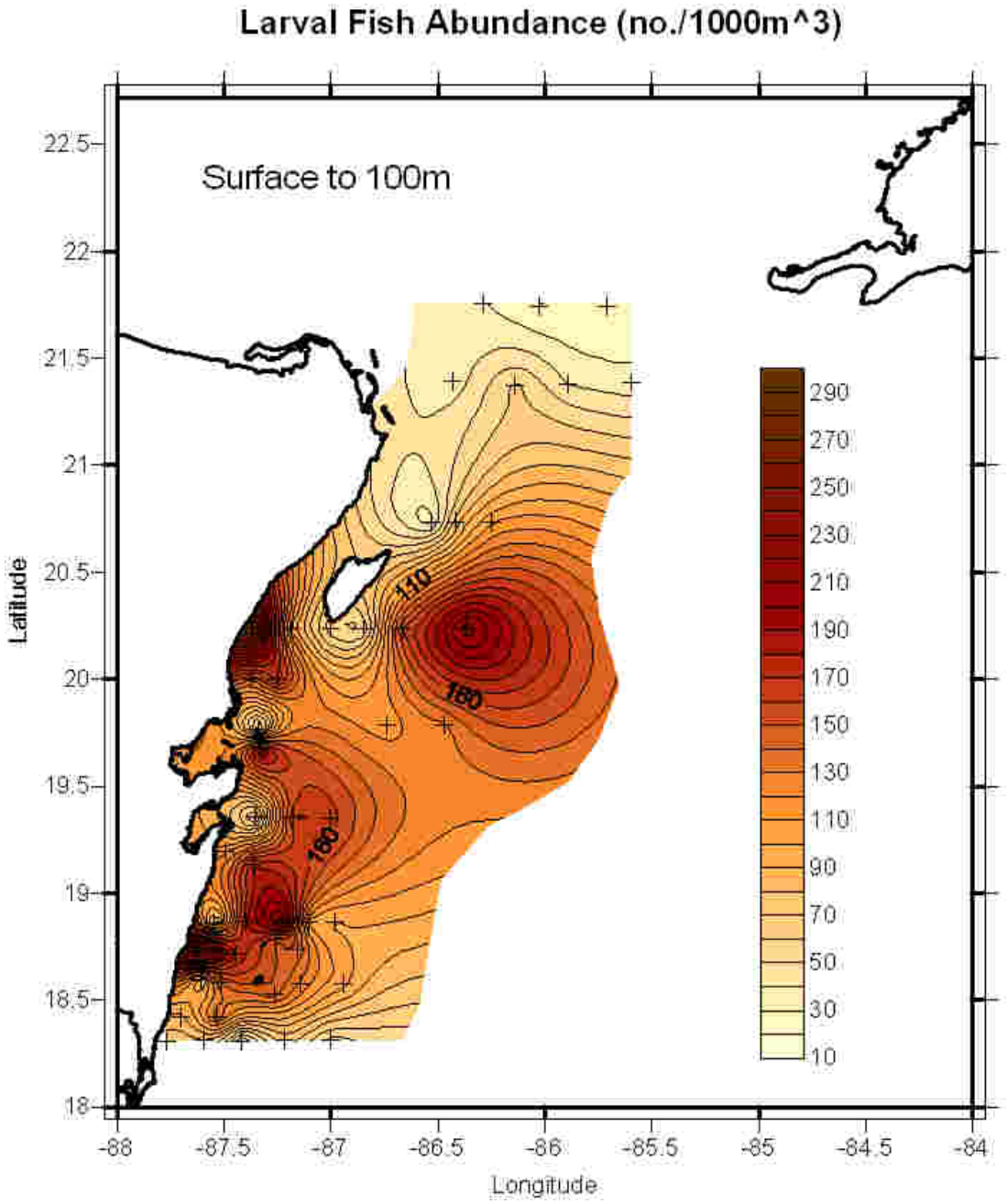


Figure L1. Larval abundance contours (in number of individuals per 1000 cubic meters) collected during the downcast of the MOCNESS, from the surface to 100 meters.

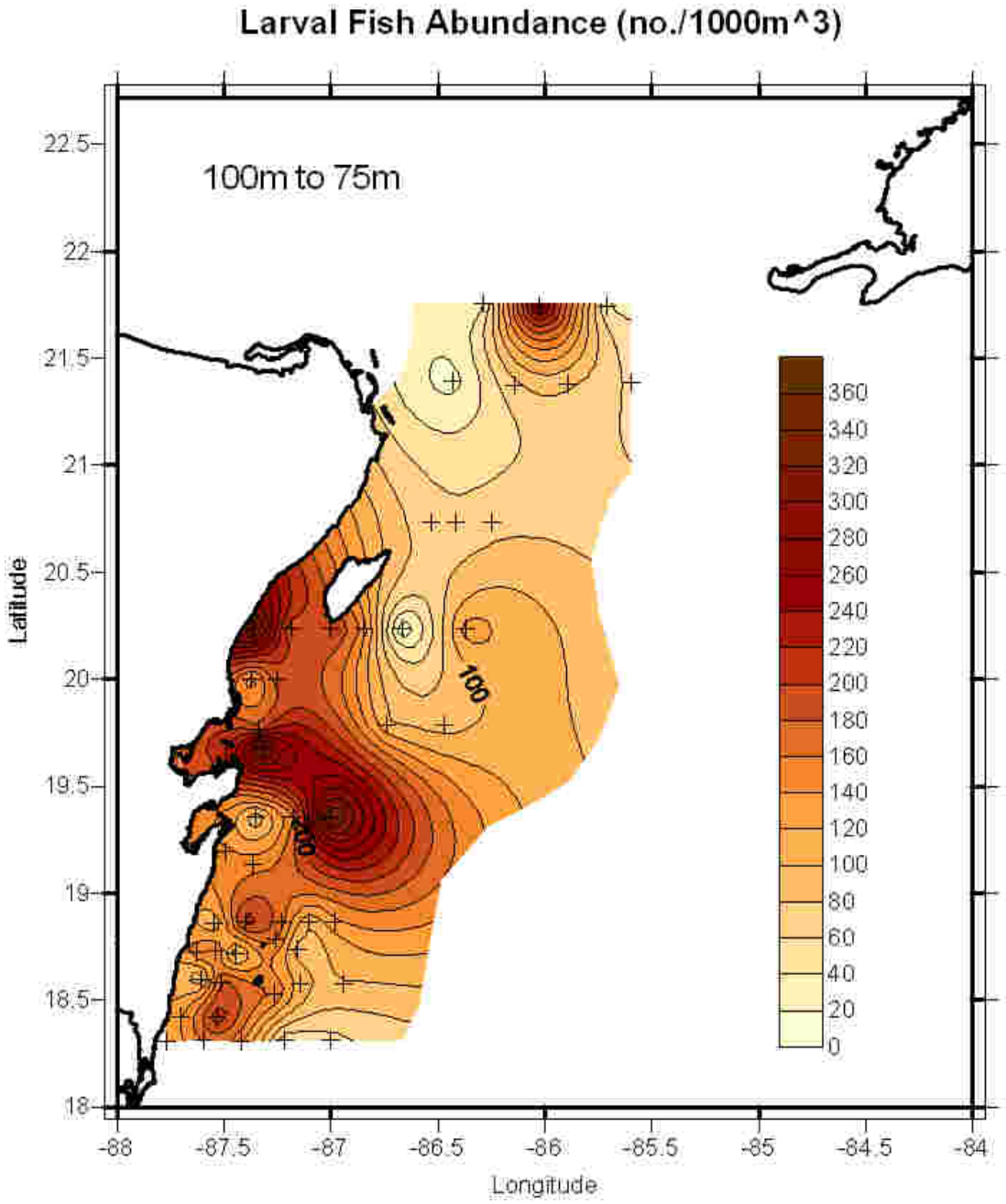


Figure L2. Larval abundance data (in number of individuals per 1000 cubic meters) collected from 100 to 75 meters.

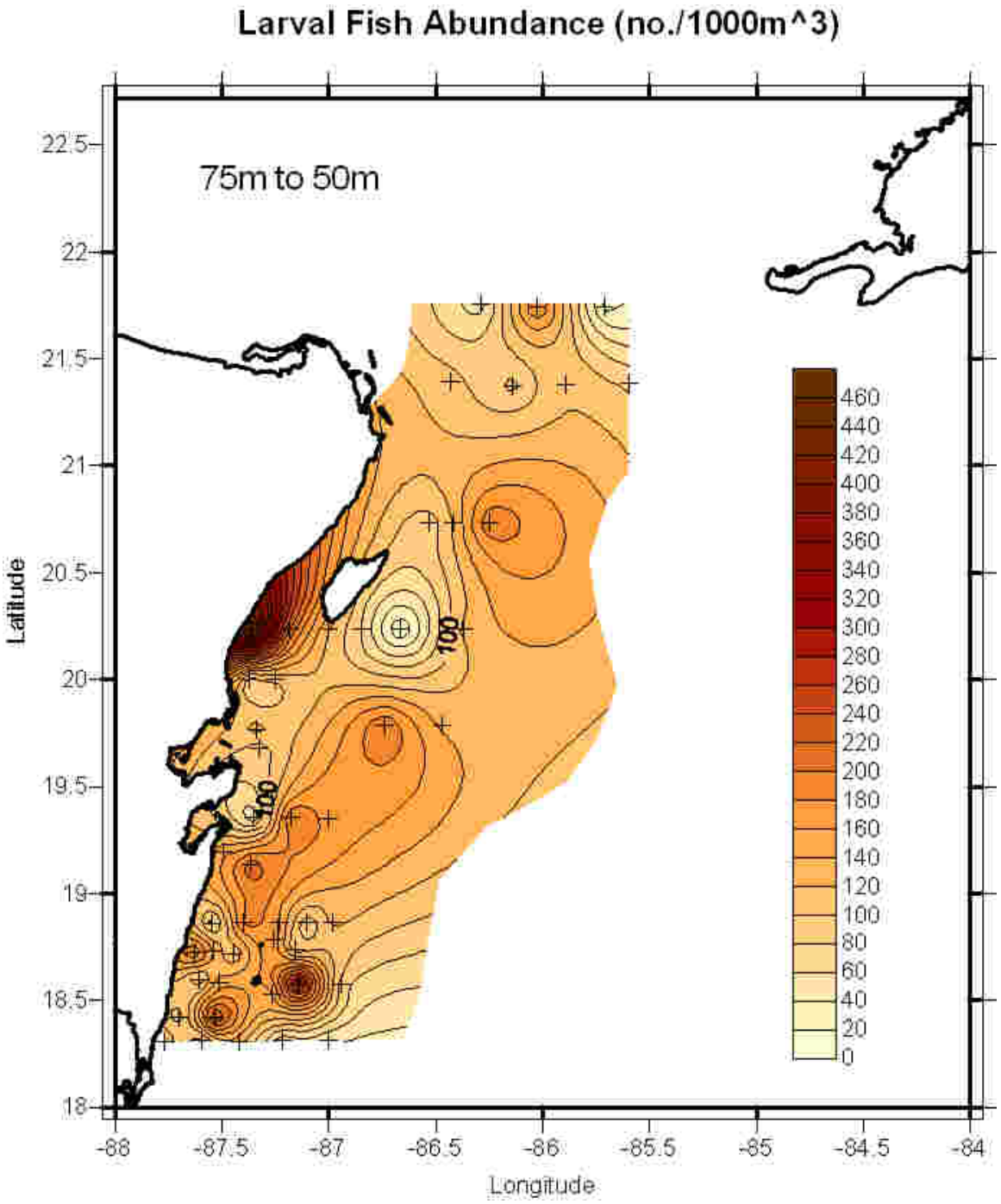


Figure L3. Larval abundance data (in number of individuals per 1000 cubic meters) collected from 75 to 50 meters.

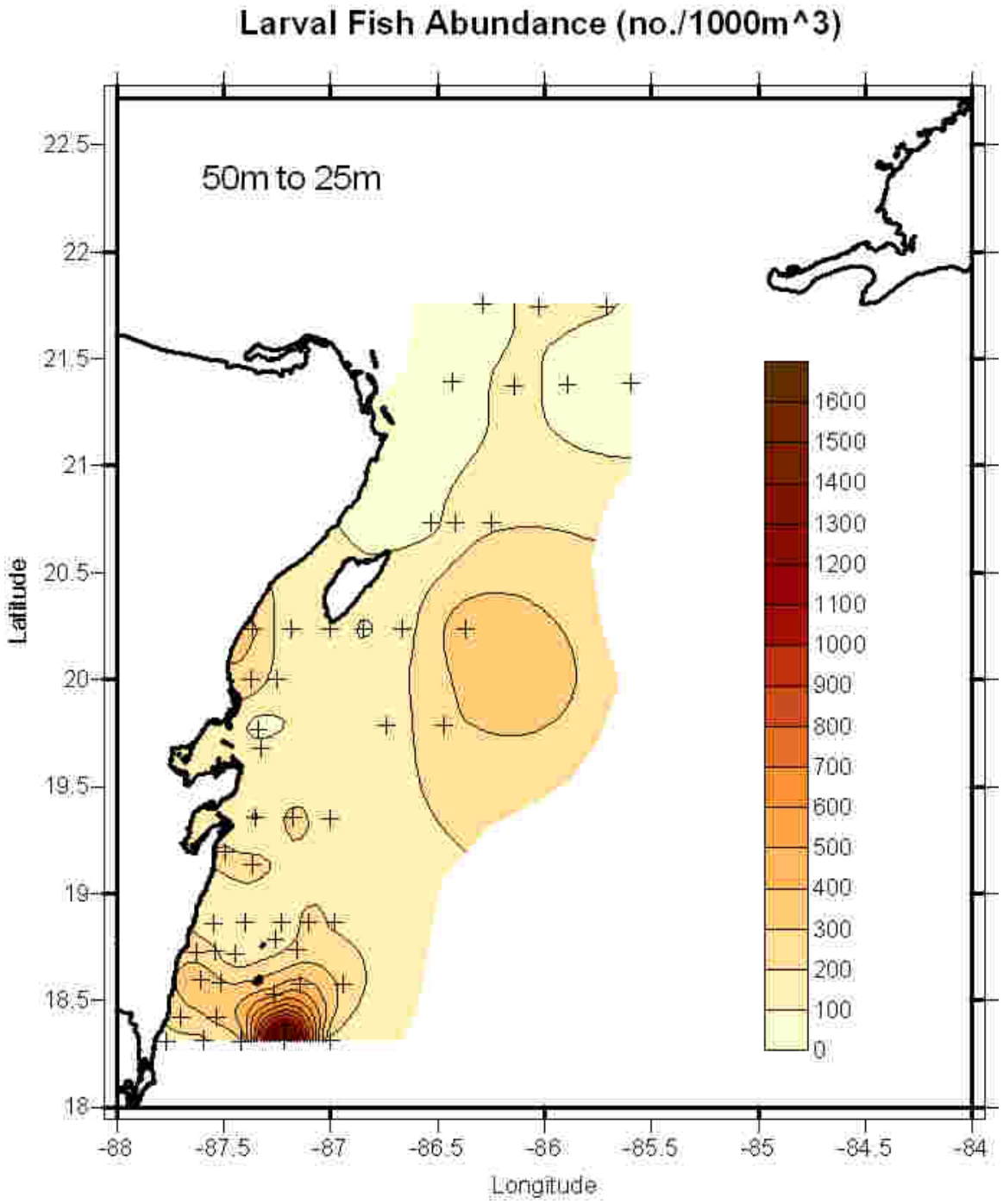


Figure L4. Larval abundance data (in number of individuals per 1000 cubic meters) collected from 50 to 25 meters.

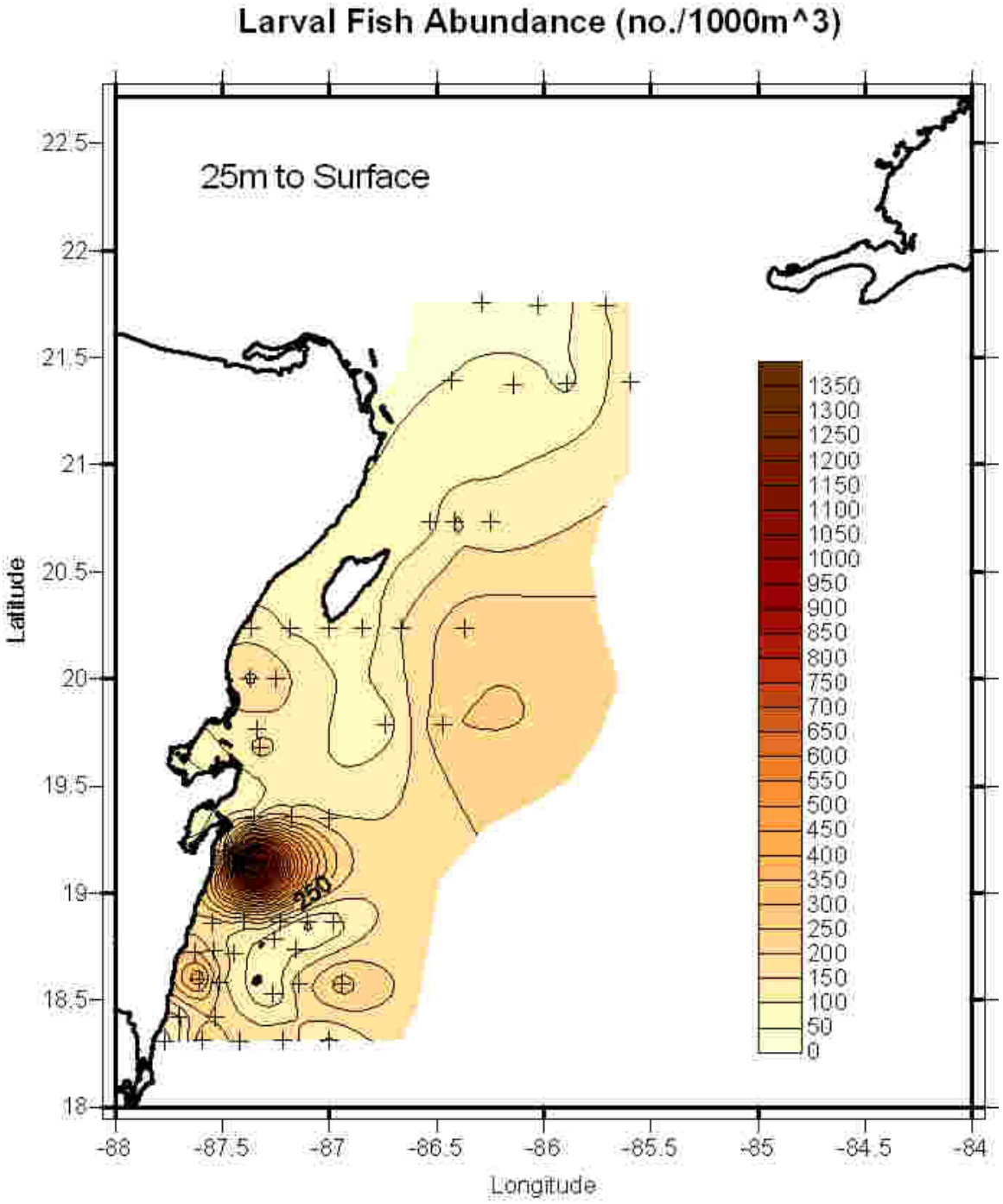
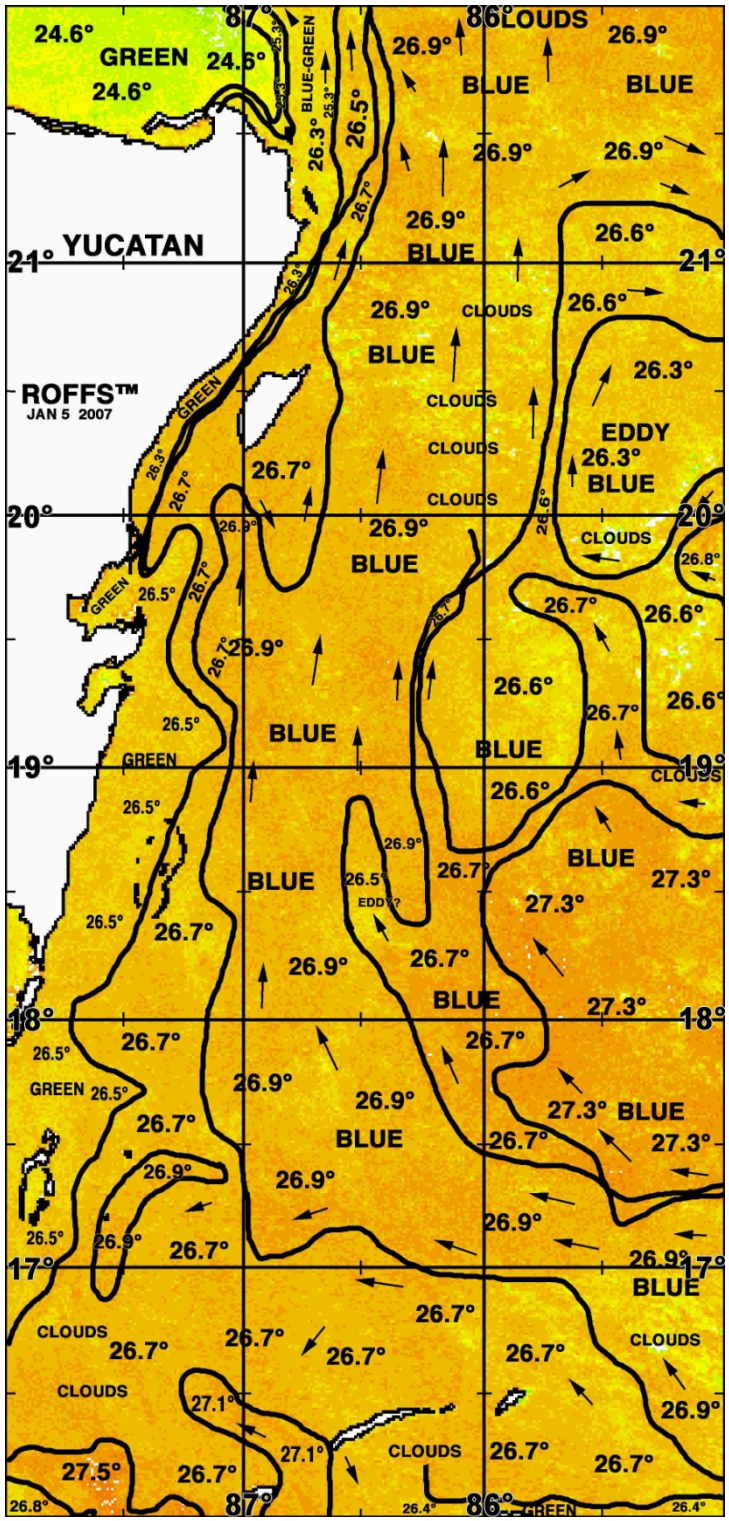


Figure L5. Larval abundance data (in number of individuals per 1000 cubic meters) collected from 25 to 0 meters.

Vertical Strata	0 to 100m	100 - 75m	75 - 50m	50 - 25m	25 - 0m
Minimum abundance	20.11	1.86	12.82	15.20	1.25
Maximum abundance	296.14	349.95	470.90	1663.81	1471.39
Mean	113.60	135.97	135.29	218.47	165.20

Table L1. Minimum, maximum, and mean larval abundance for each of the MOCNESS sampling nets.



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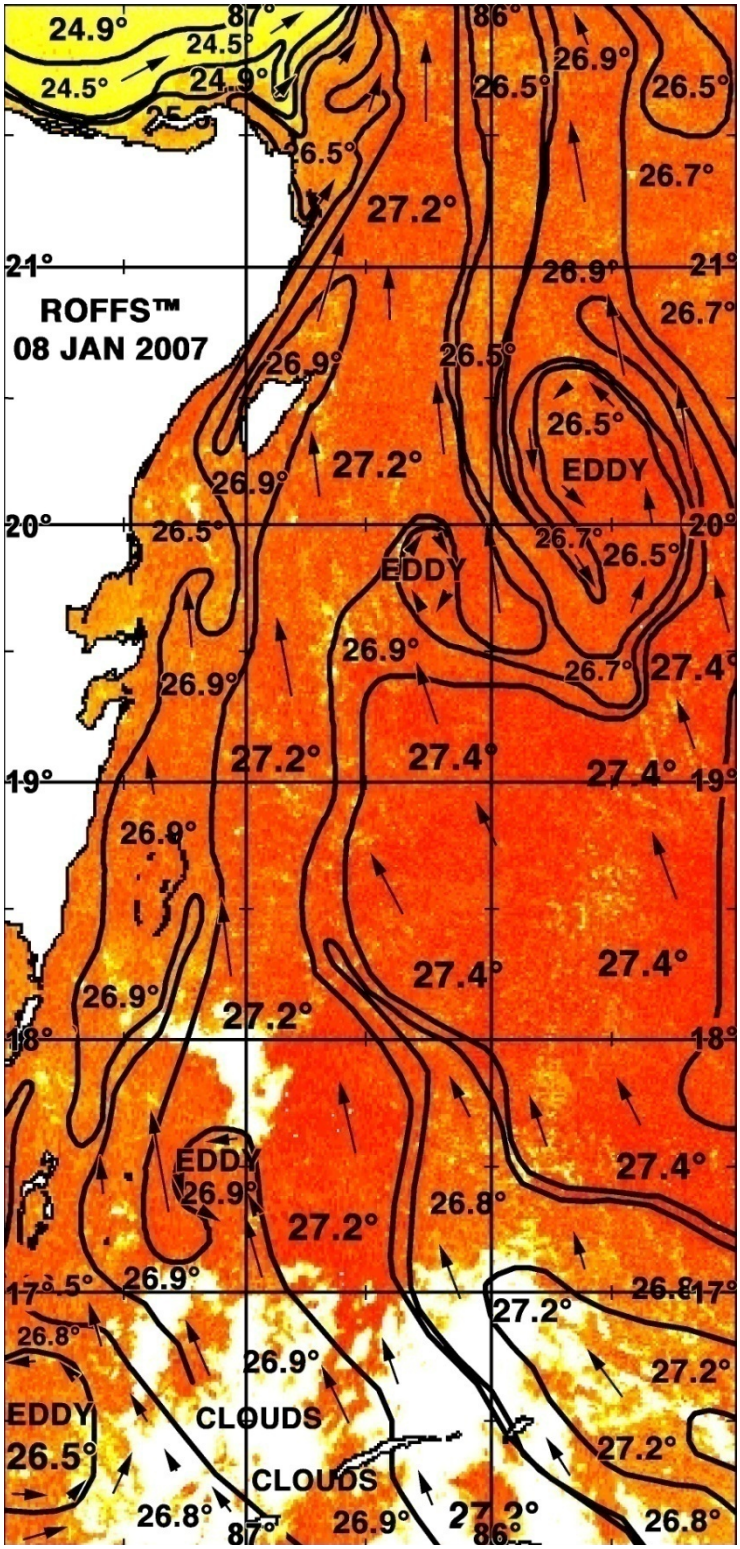

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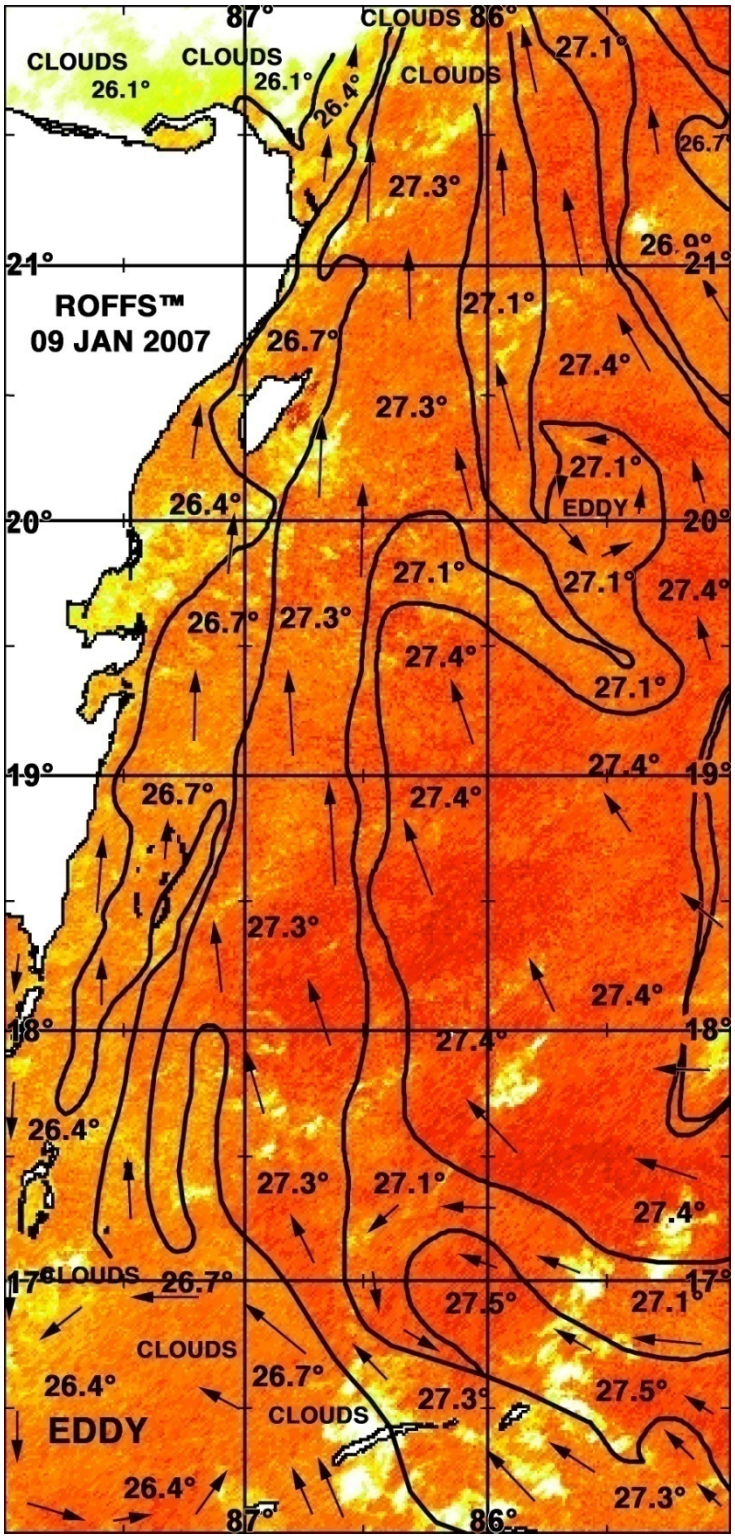

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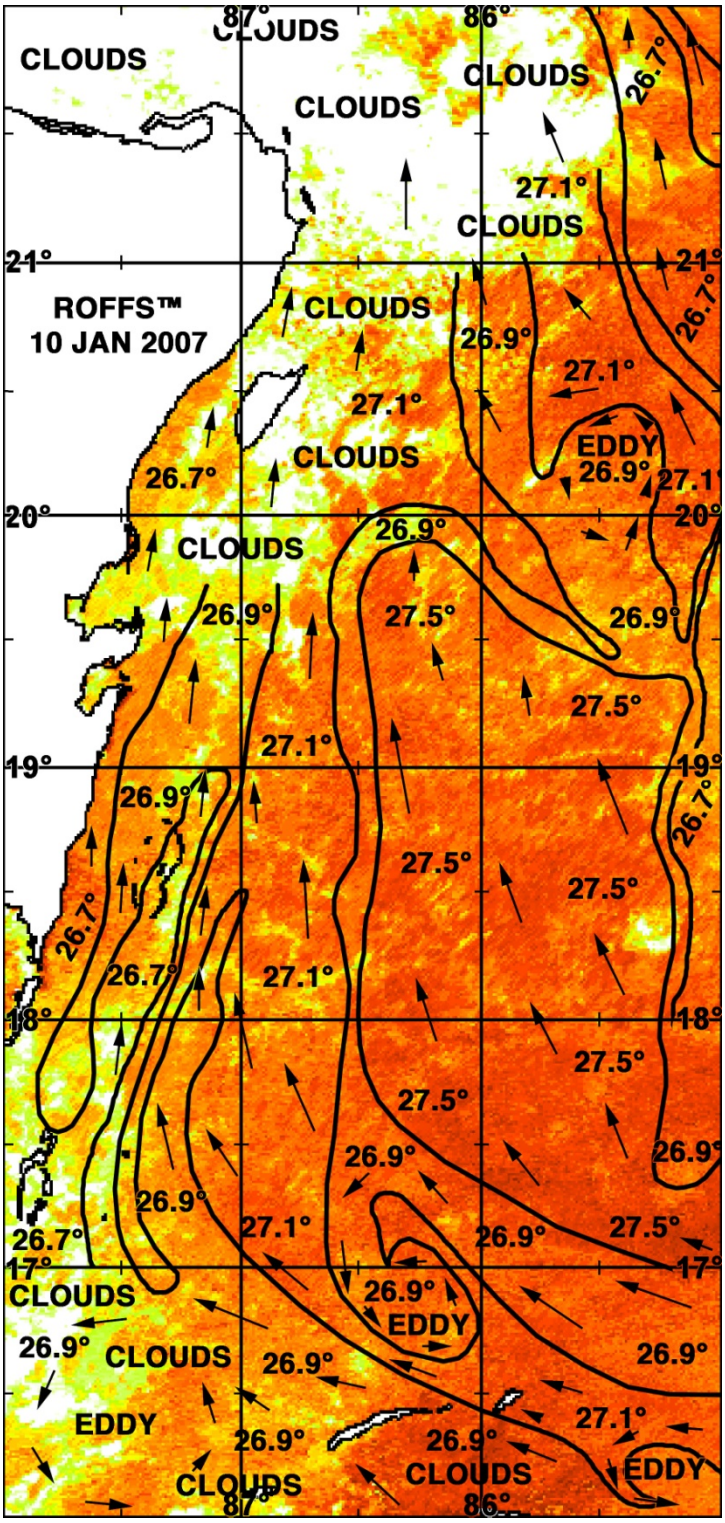

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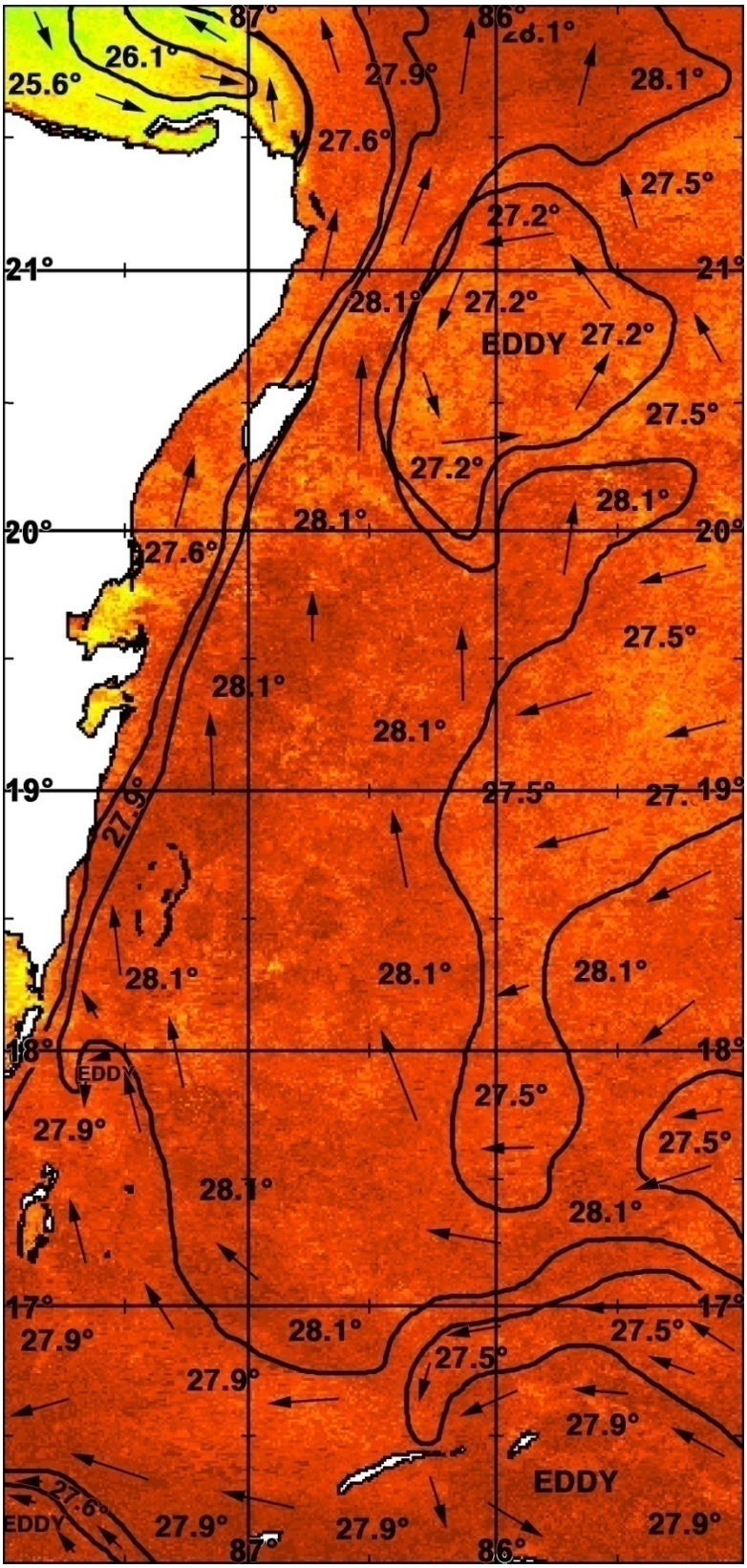

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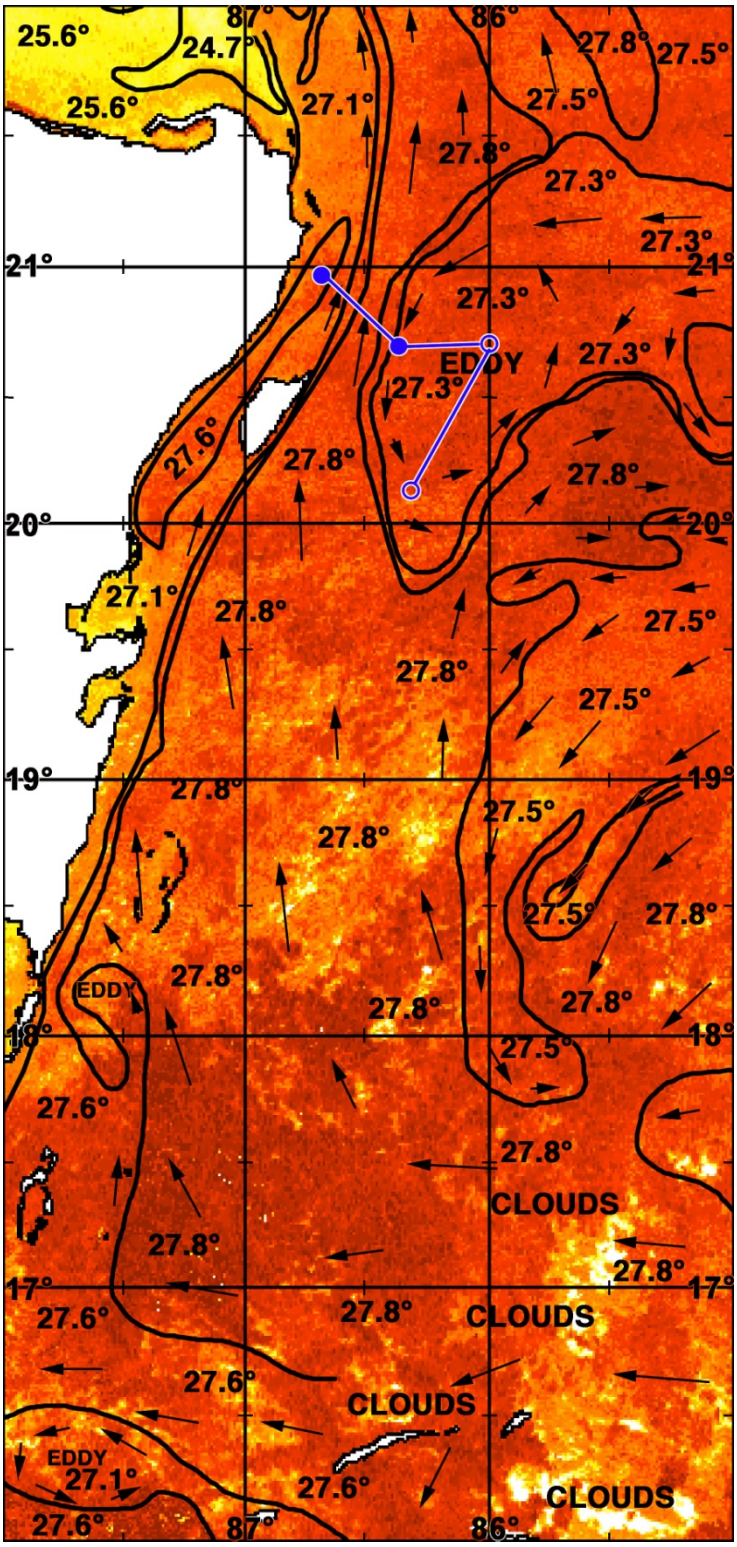

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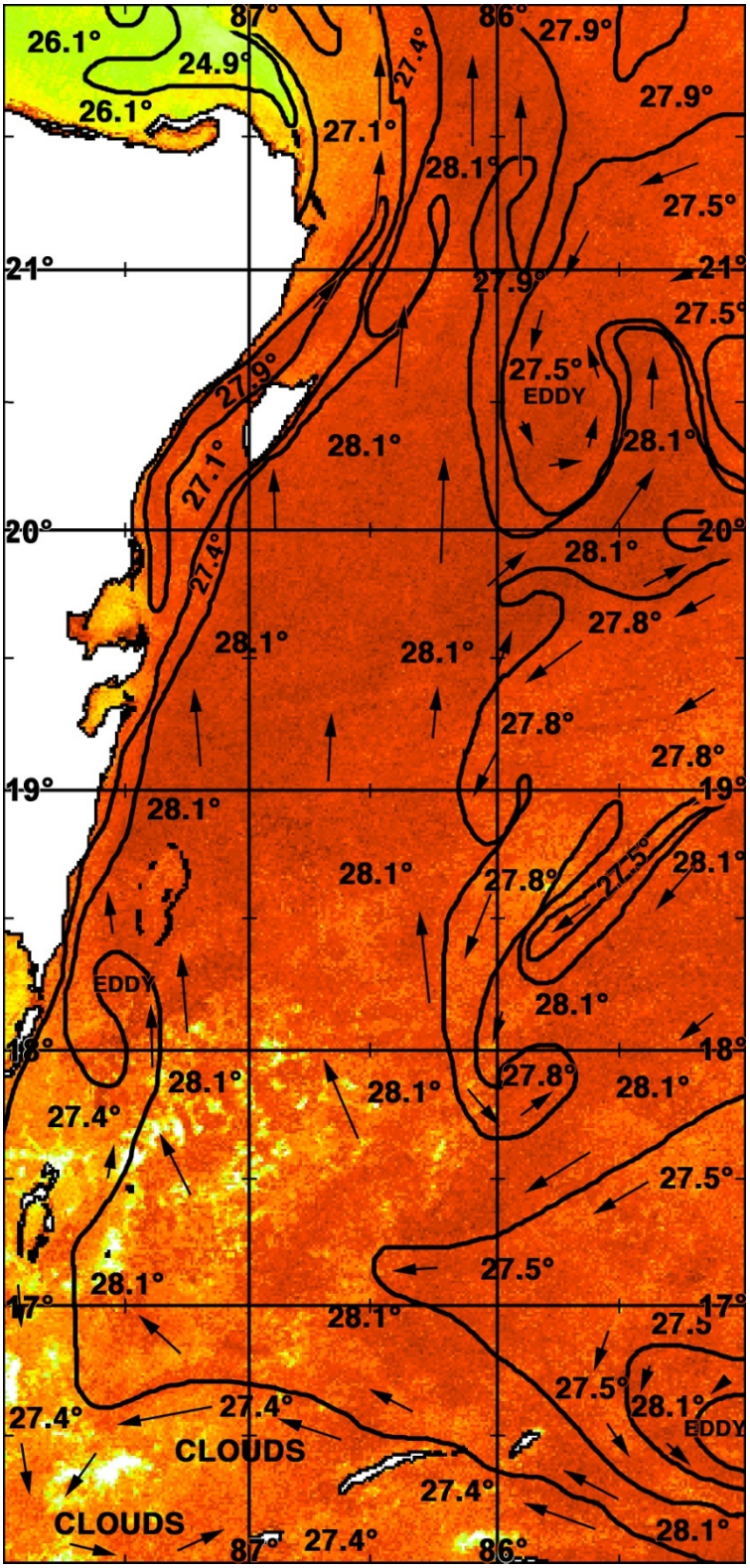

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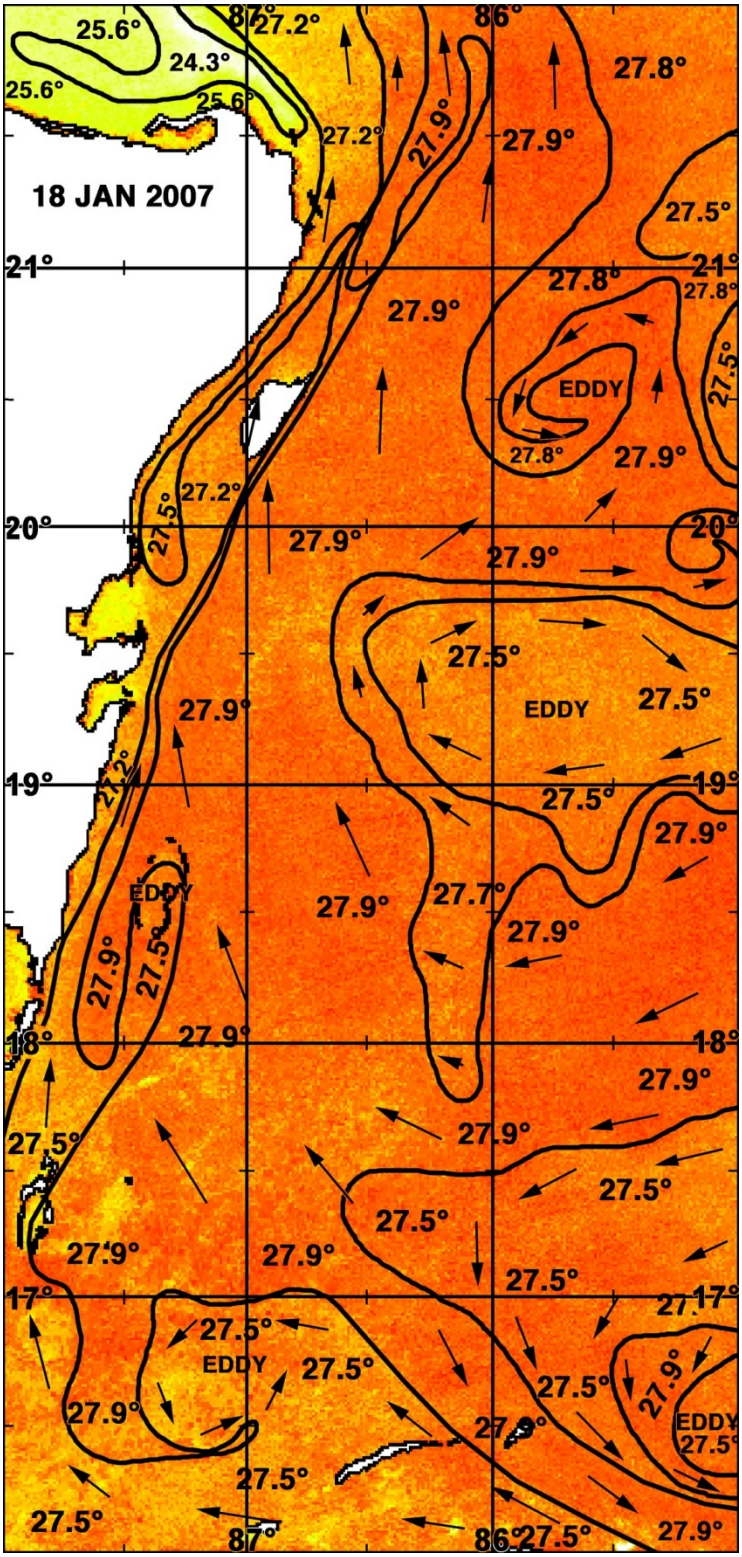

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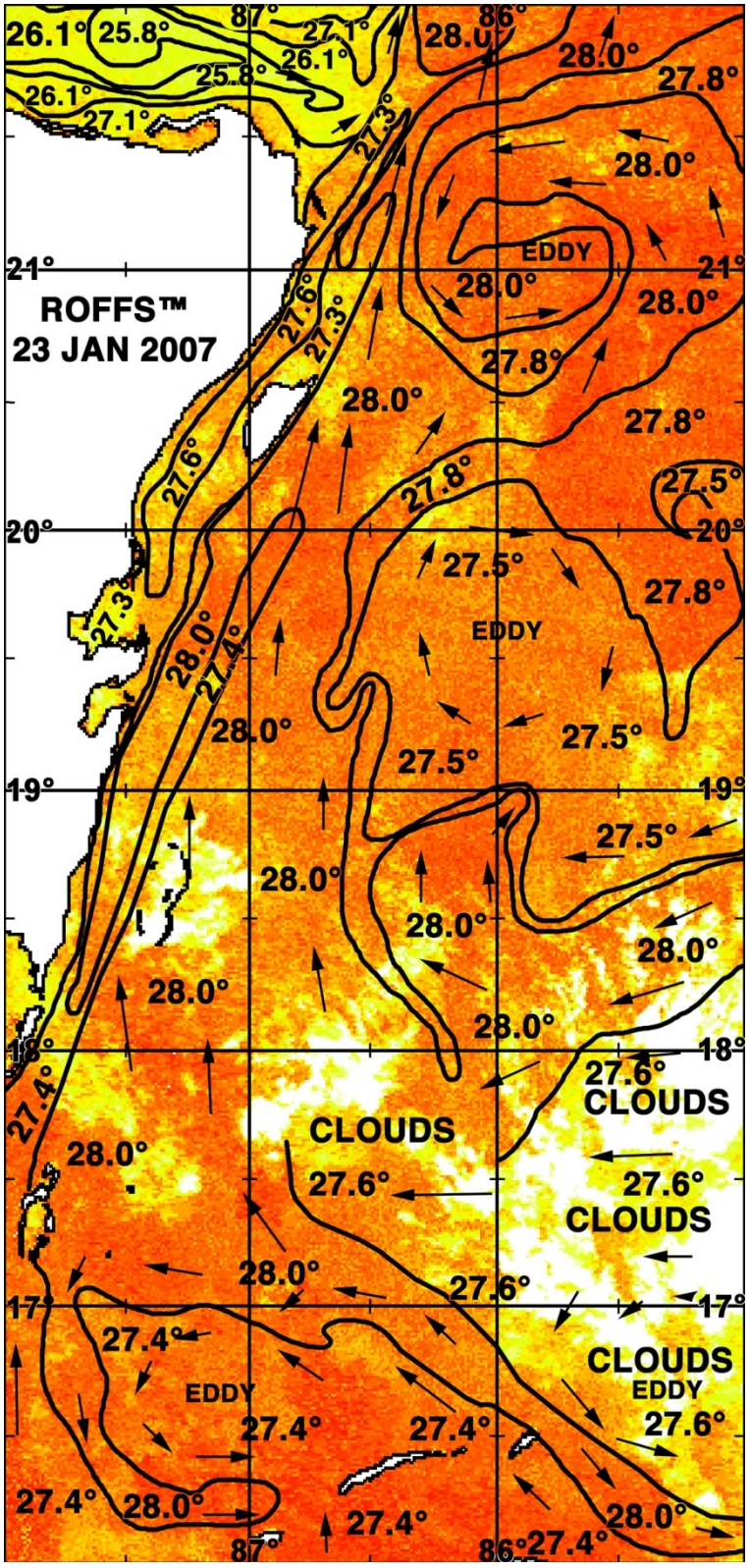

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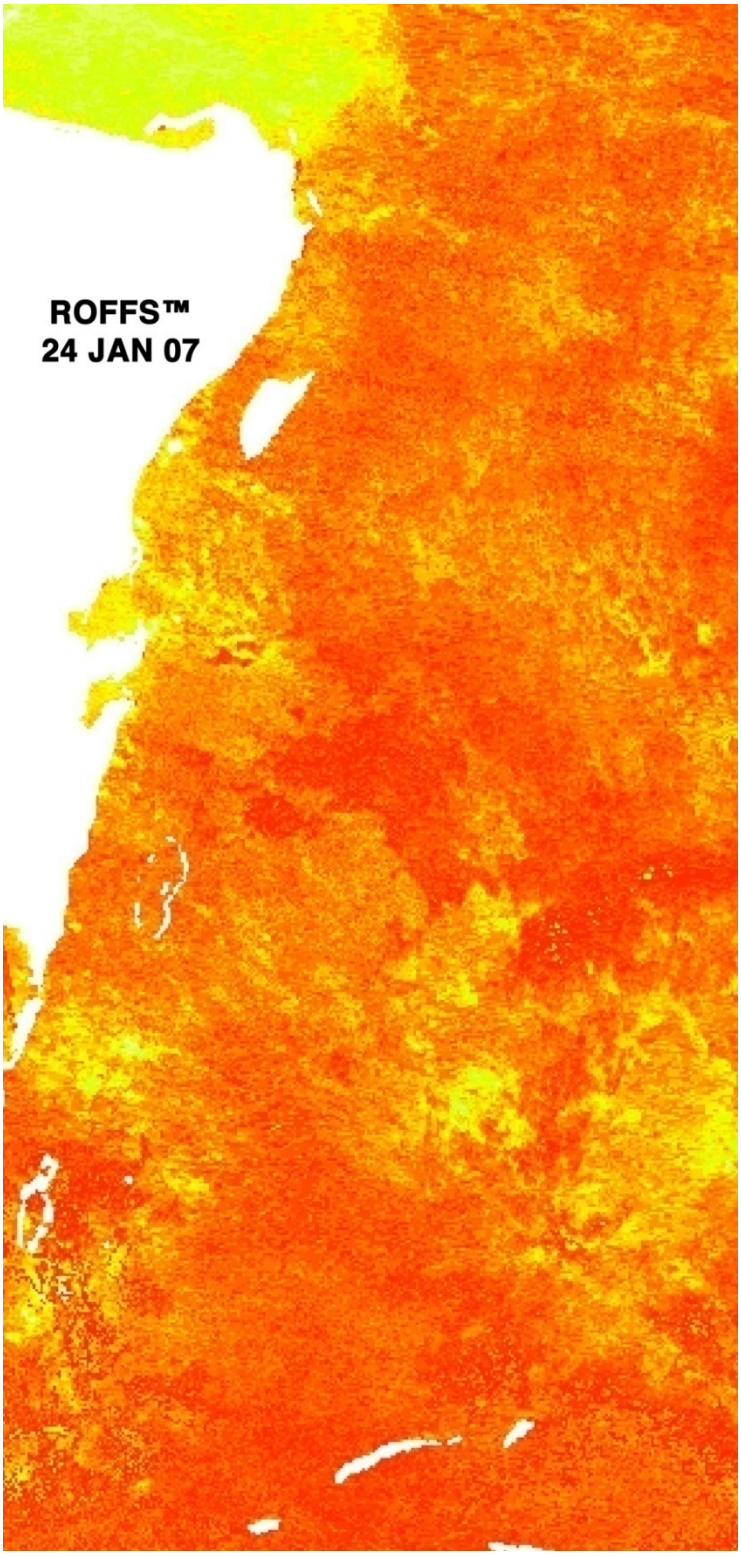

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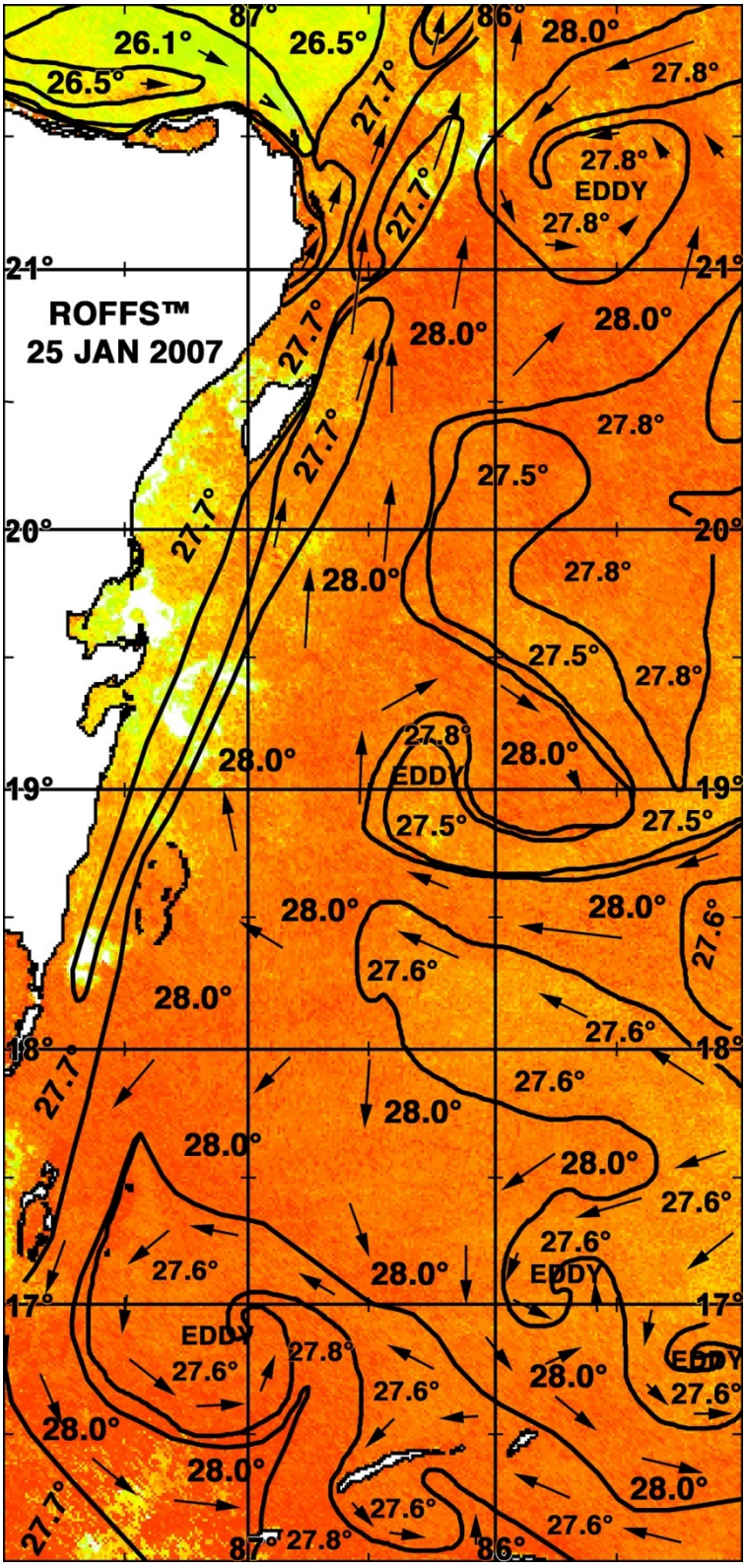


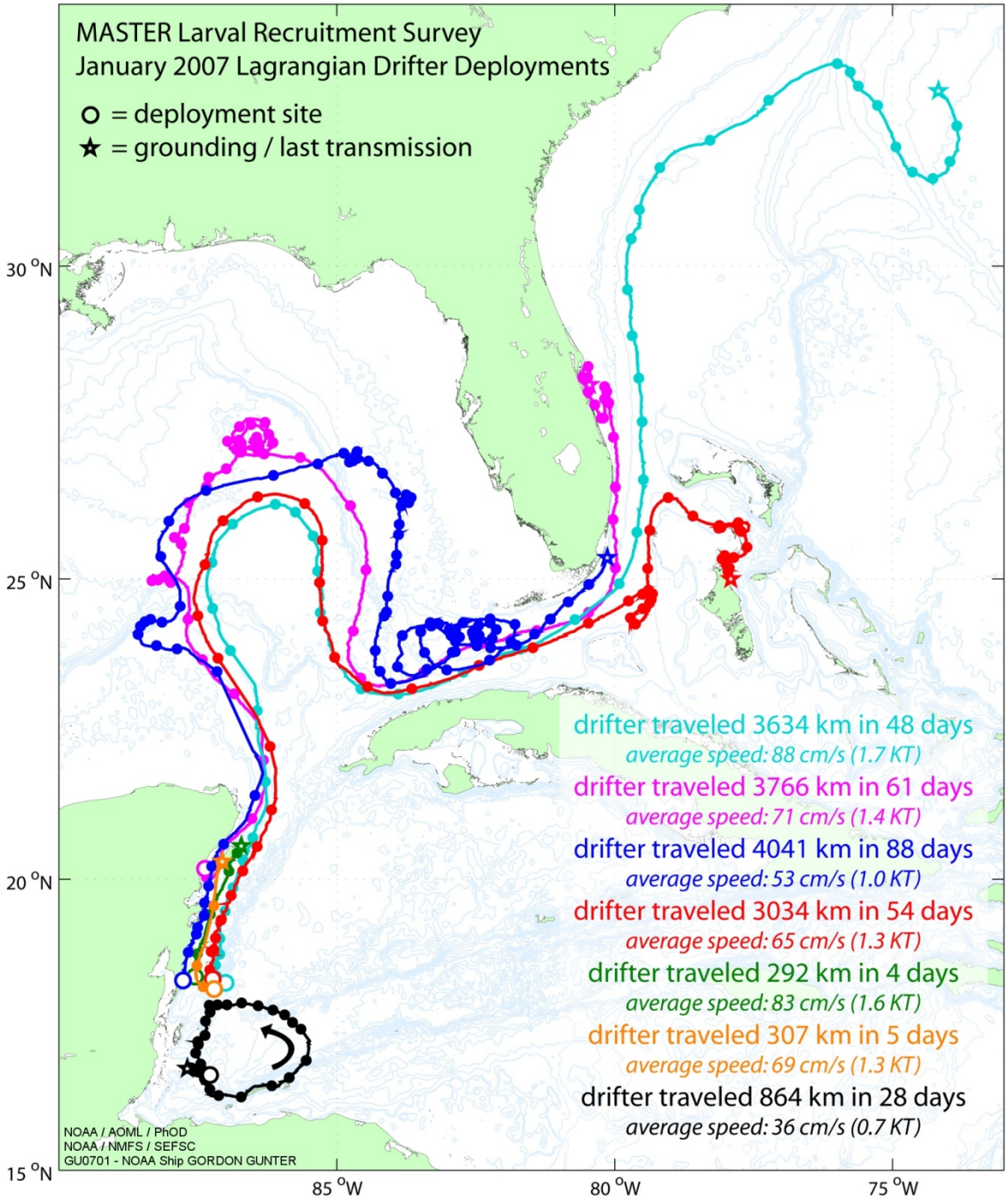
ROFFS Report 11

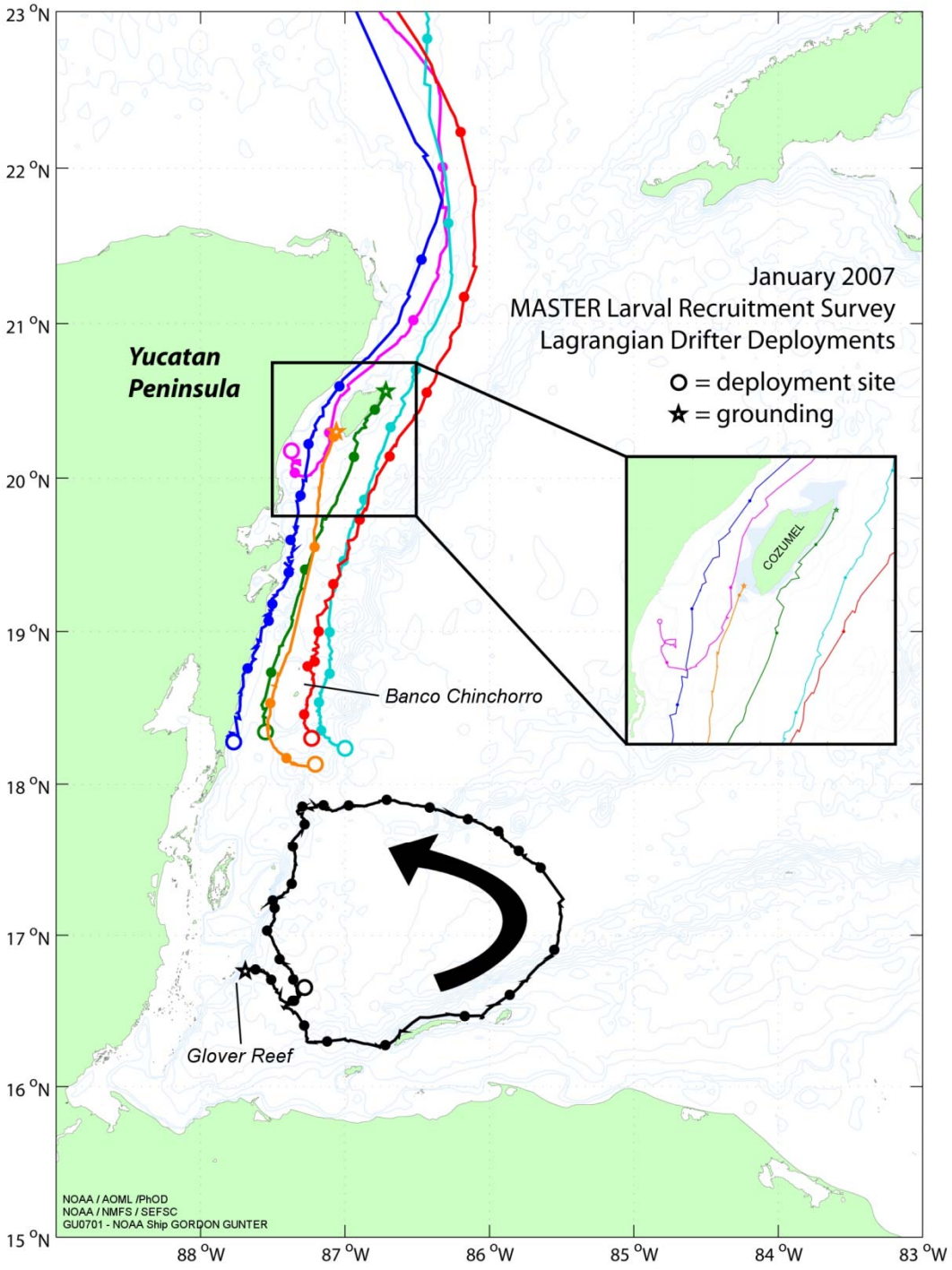
Addendum II

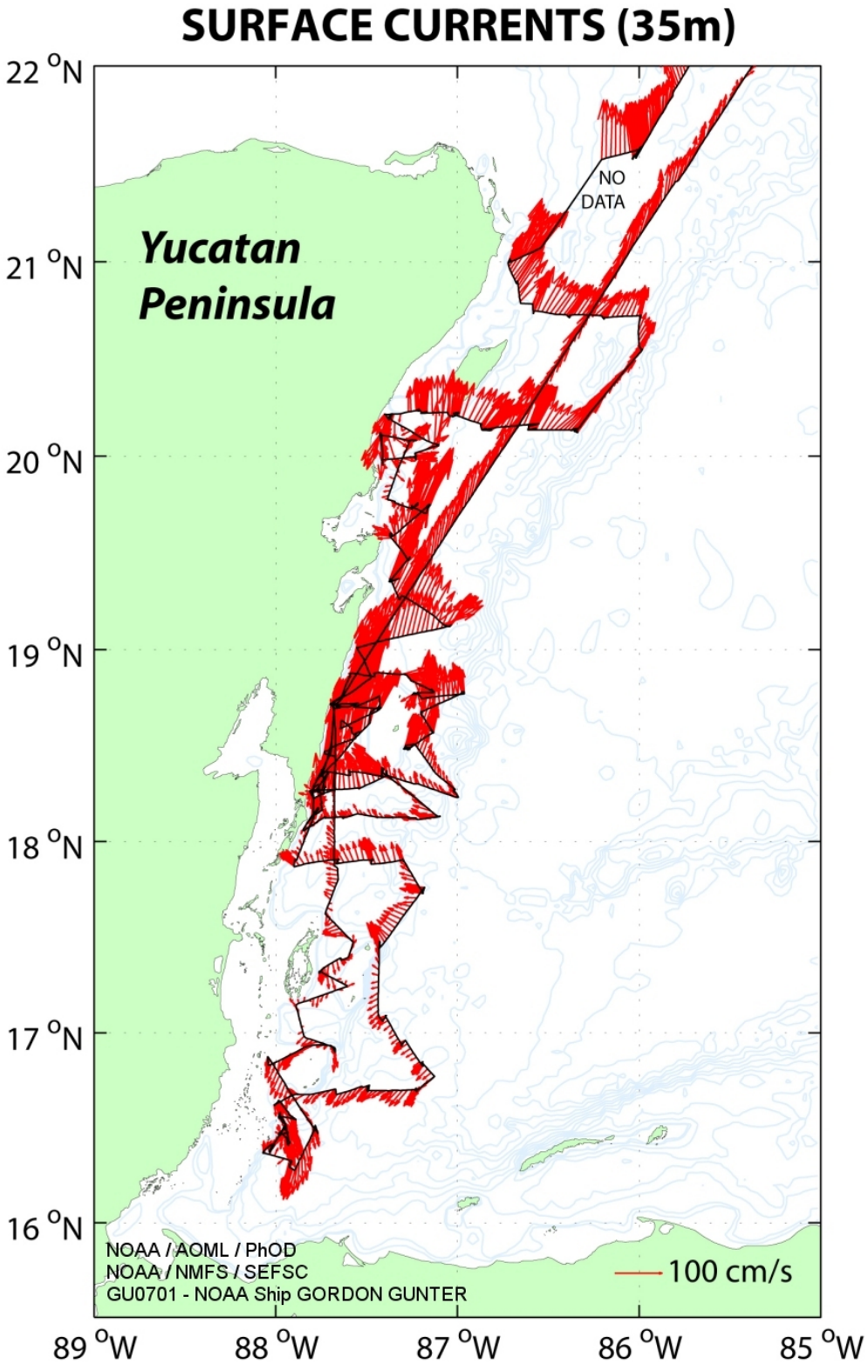
GG0701 - Post Cruise Station List

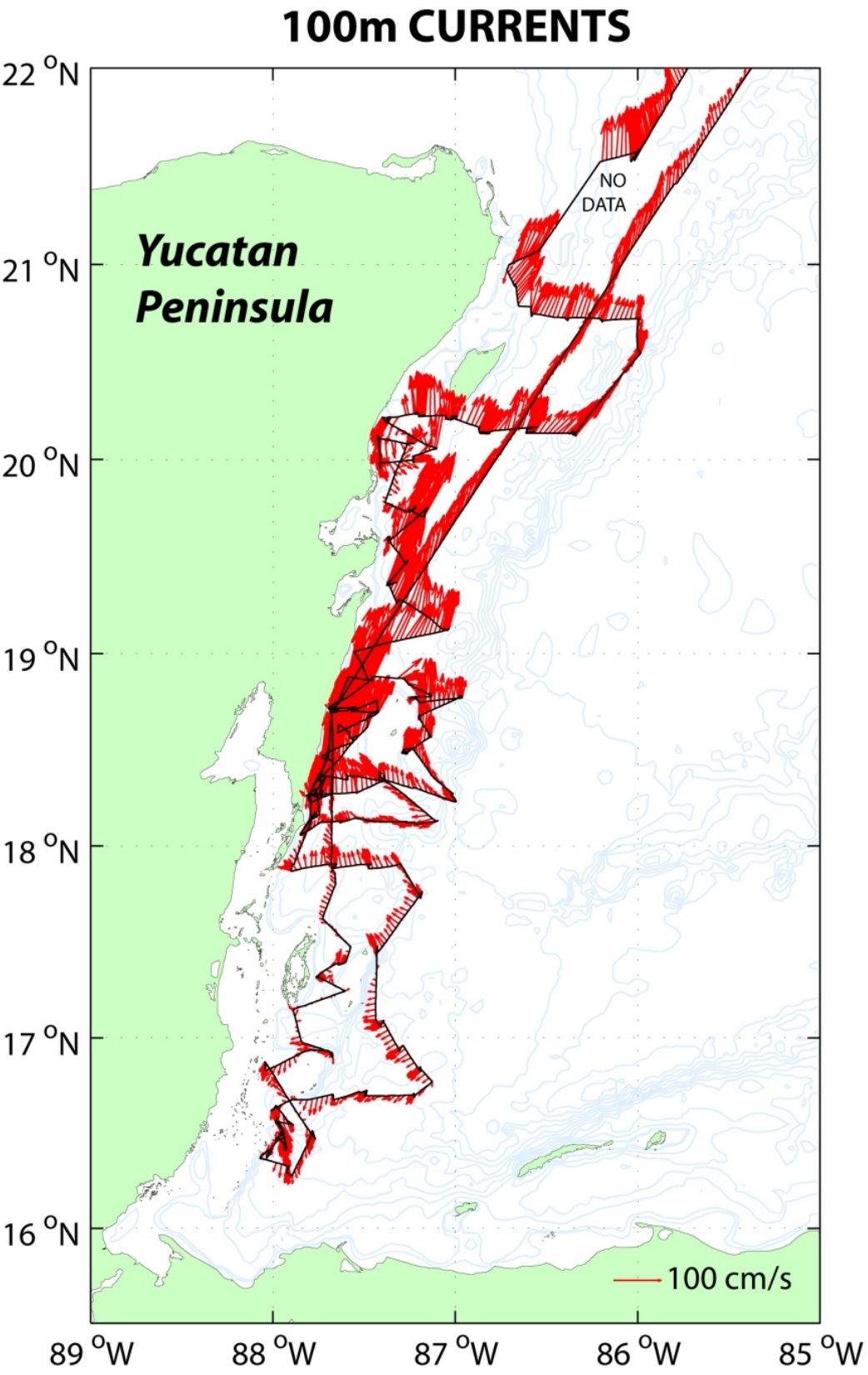
Station No.	Date (ship time/Central Time)	Max Depth sampled (m)	MOC	MOC Nets sampled	CTD	LAT DEG	LAT MIN	LON DEG	LON MIN	DECIMAL LAT	DECIMAL LON
001	14-Jan-2007	100	1	8	x	21	33.851	086	0.004	21.5642	-086.0001
001	14-Jan-2007	100	10	5	x	21	35.351	085	59.065	21.5892	-085.9844
002	14-Jan-2007	100	1	5	x	21	29.791	086	16.888	21.4965	-086.2815
002	14-Jan-2007	93.3	10	5	x	21	34.211	086	16.743	21.5702	-086.2791
003	14-Jan-2007	50	1	4							
004	14-Jan-2007	20	1	1	x	21	30.194	086	35.400	21.5032	-086.5900
005	15-Jan-2007	7	1	1	x	21	31.377	086	43.041	21.5230	-086.7174
006	15-Jan-2007	50	1	3	x	21	17.538	086	30.381	21.2923	-086.5064
007	15-Jan-2007	Juvenile Fish Trawl	1	1	x					20.9880	-086.7178
008					x						
009					x						
010	15-Jan-2007	100	1	4	x	20	42.800	086	23.000	20.7133	-086.3833
011	16-Jan-2007	96	1	5	x	20	43.309	086	12.391	20.7218	-086.2065
012	16 Jan 2007	99.6	1	4	x	20	43.430	085	59.752	20.7238	085.9959
013	16-Jan-2007	99.6	1	5	x	20	33.746	085	59.832	20.5624	-085.9972
014	16-Jan-2007	100	1	5	x	20	7.742	086	20.977	20.1290	-086.3496
014	16-Jan-2007	100	10	4	x	20	8.129	086	27.088	20.1355	-086.4515
015	16-Jan-2007	97	1	5	x	20	9.563	086	35.185	20.1594	-086.5864
015	16-Jan-2007	100	10	4	x						
016	17-Jan-2007	Juvenile Fish Trawl	1	1	x	20	8.030	086	51.675	20.1338	-086.8613
017	17-Jan-2007	Juvenile Fish Trawl	1	1	x	20	13.315	087	1.180	20.2219	-087.0197
018	17-Jan-2007	99.9	1	5	x					20.2225	-087.1992
019	17-Jan-2007	Juvenile Fish Trawl	1	1	x					20.2170	-087.3311
020	17-Jan-2007	100	1	5	x	20	0.961	087	14.014	20.0160	-087.2336
021	17-Jan-2007	100	1	5	x	19	58.980	087	24.845	19.9830	-087.4141
022	18-Jan-2007	100.7	1	5	x	20	0.071	087	25.510	20.0012	-087.4252
023	18-Jan-2007	101.1	1	5	x	20	4.889	087	15.783	20.0815	-087.2631
024	18-Jan-2007	100.2	1	5		19	46.661	087	22.940	19.7777	-087.3823
025	18-Jan-2007	100.3	1	5	x	19	44.032	087	15.669	19.7339	-087.2612
026					x						
027	18-Jan-2007	100.2	1	5	x	19	35.900	087	21.700	19.5983	-087.3617
028											
029	18-Jan-2007	100.2	1	5						19.3533	-087.3689
030											
031	19-Jan-2007	98.6	1	5	x	19	7.528	087	4.202	19.1255	-087.0700
032	21-Jan-2007	100.5	1	5		18	51.484	087	35.370	18.8581	-087.5895
033	21-Jan-2007	100	1	5	x	18	52.660	087	27.418	18.8777	-087.4570
034	21-Jan-2007	90	1	5	x	18	52.116	087	16.861	18.8686	-087.2810
035	21-Jan-2007	100	1	6	x	18	47.600	087	8.510	18.7933	-087.1418
036	22-Jan-2007	100.4	1	5	x	18	46.143	087	13.393	18.7691	-087.2232
037	22-Jan-2007	100	1	5	x	18	46.780	086	58.456	18.7797	-086.9743
038	22 Jan 2007	99.9	1	5	x	18	40.452	087	12.020	18.6742	087.2003
039	22-Jan-2007	99.9	1	5	x	18	34.717	087	8.739	18.5786	-087.1457
040	22-Jan-2007	100	1	5	x	18	29.328	087	17.240	18.4888	-087.2873
040	22 Jan 2007	100	10	4	x	18	30.170	087	16.508	18.5028	087.2751
041	22-Jan-2007	100	1	6	x	18	15.762	087	1.210	18.2627	-087.0202
042					x						
043	23 Jan 2007	100.6	1	5	x	18	22.160	087	23.319	18.3693	087.3887
044					x						
045	23-Jan-2007	99.2	1	6	x	18	16.238	087	45.883	18.2706	-087.7647
046	23-Jan-2007	100	1	5	x	18	15.843	087	48.810	18.2641	-087.8135
047					x						
048	23-Jan-2007	100	1	4	x	18	28.197	087	43.785	18.4700	-087.7298
049	23-Jan-2007	Juvenile Fish Trawl	1	1	x	18	33.830	087	33.660	18.5638	-087.5610
050	24-Jan-2007	505.1	1	5		18	37.757	087	38.357	18.6293	-087.6393
051	24-Jan-2007	99.6	1	5	x	18	41.872	087	25.234	18.6979	-087.4206
052	24-Jan-2007	100	1	5	x	18	43.153	087	34.040	18.7192	-087.5673

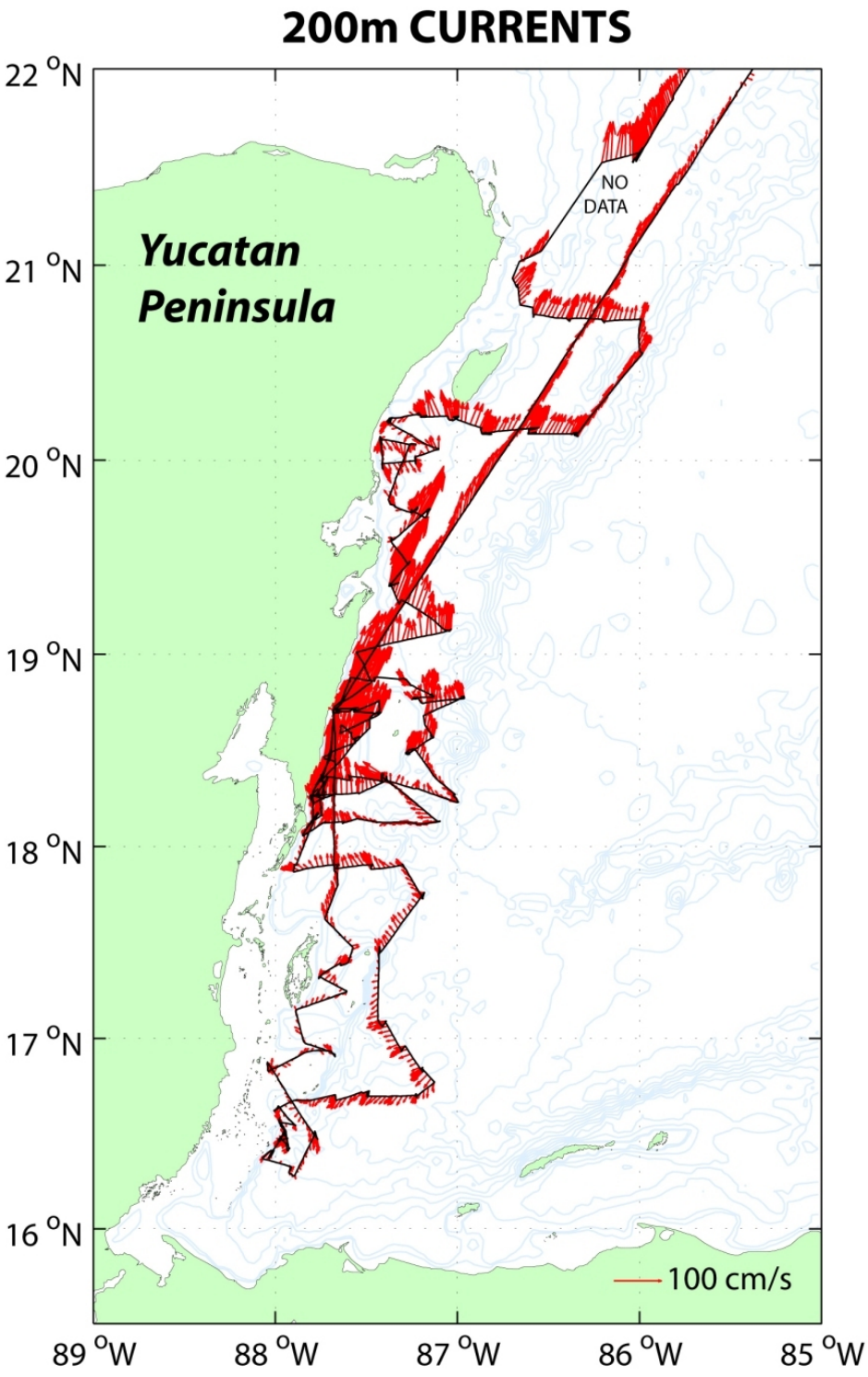
054	24-Jan-2007	100	1	5	x	17	54.301	087	53.700	17.9050	-087.8950
055	25-Jan-2007	100.5	1	5	x	17	54.444	087	39.418	17.9074	-087.6570
056	25-Jan-2007	100.8	1	5	x	17	53.085	087	28.548	17.8848	-087.4758
057	25-Jan-2007	100.3	1	5	x	17	54.452	087	18.113	17.9075	-087.3019
058	25-Jan-2007	100	1	5	x	17	43.833	087	11.527	17.7306	-087.1921
059	25-Jan-2007	100	1	4	x	17	26.396	087	25.807	17.4399	-087.4301
060	25-Jan-2007	100	1		x	17	3.715	087	24.721	17.0619	-087.4120
061	25-Jan-2007	100	1		x	16	56.020	087	18.310	16.9337	-087.3052
062	26-Jan-2007	100.4	1	5	x	16	49.550	087	11.509	16.8258	-087.1918
063	26-Jan-2007	99.5	1	5	x	16	41.453	087	13.421	16.6909	-087.2237
064					x						
065	26-Jan-2007	100.2	1	5	x	16	43.416	087	29.085	16.7236	-087.4848
066	26-Jan-2007	102.4	1	5	x	16	40.555	087	39.965	16.6759	-087.6661
067					x						
068	26-Jan-2007	101	1	5	x	16	37.216	088	0.227	16.6203	-088.0038
069	26-Jan-2007	100.5	1	5	x	16	34.144	087	55.559	16.5691	-087.9260
070	26-Jan-2007	100.5	1	5	x	16	33.463	087	58.760	16.5577	-087.9793
071	27-Jan-2007	101	1	5	x	16	30.220	087	57.230	16.5037	-087.9538
072	27-Jan-2007	100.2	1	5	x	16	28.232	087	58.293	16.4705	-087.9716
073	27-Jan-2007	101	1	5	x	16	25.204	087	55.515	16.4201	-087.9253
074	27-Jan-2007	100.3	1	5		16	33.712	087	58.652	16.5619	-087.9775
075	27-Jan-2007	99.4	1	5		16	33.519	087	58.896	16.5587	-087.9816
076	27-Jan-2007	101	1	5		16	28.381	087	58.701	16.4730	-087.9784
076	27-Jan-2007	100	10	3		16	29.890	087	57.537	16.4982	-087.9590
077	27-Jan-2007	101	1	5	x	16	22.322	088	1.916	16.3720	-088.0319
077	27-Jan-2007	76	10	4	x	16	24.610	088	0.510	16.4102	-088.0085
078	27-Jan-2007	101	1	5	x	16	19.380	087	54.980	16.3230	-087.9163
079	28-Jan-2007	100.3	1	5	x	16	30.624	087	46.879	16.5104	-087.7813
080	28-Jan-2007	100.3	1	5	x	16	52.018	088	2.625	16.8670	-088.0438
081	28-Jan-2007	99.5	1	5	x	16	55.827	087	41.551	16.9305	-087.6925
082	28-Jan-2007	121	1	3	x	17	18.790	087	45.660	17.3132	-087.7610
083	28-Jan-2007	100.7	1	5	x	17	22.860	087	38.390	17.3810	-087.6398
084	29-Jan-2007	104	1	5	x	18	19.435	087	46.202	18.3239	-087.7700
085	29-Jan-2007	104	1	1	x	18	16.922	087	43.680	18.2820	-087.7280
086	29-Jan-2007	Juvenile Fish Trawl	1	1	x	18	16.020	087	47.950	18.2670	-087.7992
087	29-Jan-2007	107	1	5	x	18	11.621	087	45.086	18.1937	-087.7514
088	30-Jan-2007	Juvenile Fish Trawl	1	1	x	18	8.146	087	47.754	18.1358	-087.7959
089	30-Jan-2007	97	1	5	x	18	3.351	087	50.729	18.0559	-087.8455
090	30-Jan-2007	99.9	1	5	x	18	7.414	087	43.645	18.1236	-087.7274
091		Juvenile Fish Trawl		1	x						
092		Juvenile Fish Trawl		1	x						
093		Juvenile Fish Trawl		1	x						
094					x						
095		Juvenile Fish Trawl		1	x						
096		Juvenile Fish Trawl		1	x						
097		Juvenile Fish Trawl		1	x						
098		Juvenile Fish Trawl		1	x						


MASTER Larval Recruitment Survey
January 2007 Lagrangian Drifter Deployments
O = deployment site
★ = grounding / last transmission
30 °N
25 °N
20 °N
15 °N
85 °W
80 °W
75 °W
drifter traveled 3634 km in 48 days
average speed: 88 cm/s (1.7 KT)
drifter traveled 3766 km in 61 days
average speed: 71 cm/s (1.4 KT)
drifter traveled 4041 km in 88 days
average speed: 53 cm/s (1.0 KT)
drifter traveled 3034 km in 54 days
average speed: 65 cm/s (1.3 KT)
drifter traveled 292 km in 4 days
average speed: 83 cm/s (1.6 KT)
drifter traveled 307 km in 5 days
average speed: 69 cm/s (1.3 KT)
drifter traveled 864 km in 28 days
average speed: 36 cm/s (0.7 KT)
NOAA / AOML / PhOD
NOAA / NMFS / SEFSC
GU0701 - NOAA Ship GORDON GUNTER


January 2007
MASTER Larval Recruitment Survey
Lagrangian Drifter Deployments
O = deployment site
★ = grounding
Yucatan Peninsula
COZUMEL
Banco Chinchorro
Glover Reef
NOAA / AOML /PhOD
NOAA / NMFS / SEFSC
GU0701 - NOAA Ship GORDON GUNTER
23 °N
22 °N
21 °N
20 °N
19 °N
18 °N
17 °N
16 °N
15 °N
88 °W
87 °W
86 °W
85 °W
84 °W
83 °W


SURFACE CURRENTS (35m)
22 °N
21 °N
20 °N
19 °N
18 °N
17 °N
16 °N
89 °W
88 °W
87 °W
86 °W
85 °W
Yucatan
Peninsula
NO
DATA
NOAA / AOML / PhOD
NOAA / NMFS / SEFSC
GU0701 - NOAA Ship GORDON GUNTER
100 cm/s


100m CURRENTS
22 °N
21 °N
20 °N
19 °N
18 °N
17 °N
16 °N
89 °W
88 °W
87 °W
86 °W
85 °W
Yucatan
Peninsula
NO
DATA
100 cm/s


200m CURRENTS
22 °N
21 °N
20 °N
19 °N
18 °N
17 °N
16 °N
89 °W
88 °W
87 °W
86 °W
85 °W
Yucatan
Peninsula
NO
DATA
100 cm/s

STATUS OF GORDON GUNTER SAMPLES

(GG0701), JANUARY 2007

TOTAL SAMPLES =428

Box	Date	Hour	Sta.	Type	Lat		Lon		Tow	Net	Alcohol or formalin	Volume (ml)	Dry wt. (g)	No. larvae
	1/14/2007		1	2mm	21	32.543	86	1.421	1	Moc-10	A	24	22	90
	1/14/2007		1		21	34.91	85	59.727	2	Moc-1	A	15	14.3	60
	1/14/2007		1	2mm	21	32.543	86	1.421	2	Moc-10	A	1	1.1	0
	1/14/2007		1		21	34.91	85	59.727	3	Moc-1	A	12	11.5	20
	1/14/2007		1	2mm	21	32.543	86	1.421	3	Moc-10	A	3	2.3	0
1	1/14/2007		1		21	34.91	85	59.727	4	Moc-1	A	12	11.3	20
	1/14/2007		1	2mm	21	32.543	86	1.421	4	Moc-10	A	3	2.6	2
	1/14/2007		1		21	34.91	85	59.727	5	Moc-1	A	11	10.7	72
	1/14/2007		1	2mm	21	32.543	86	1.421	5	Moc-10	A	3	2.5	2
	1/14/2007		2	2mm	21	34.204	86	16.738	2	Moc-10	A	12	10.4	3
	1/14/2007		2	2mm	21	34.204	86	16.738	3	Moc-10	A	12	10.3	6
	1/14/2007		2	2mm	21	34.204	86	16.738	4	Moc-10	A	4	2.8	1
	1/14/2007		2		21	29.793	86	16.889	1	Moc-1	A	21	18.9	104

	1/14/2007		2	2mm	21	34.204	86	16.738	1	Moc-10	A	14	12.4	29
	1/14/2007		2		21	29.793	86	16.889	2	Moc-1	A	21	18.9	13
	1/14/2007		2		21	29.793	86	16.889	3	Moc-1	A	14	12.9	55
	1/14/2007		2		21	29.793	86	16.889	4	Moc-1	A	6	4.3	15
2	1/14/2007		2		21	29.793	86	16.889	5	Moc-1	A	18	17.4	40
	1/14/2007		2	2mm	21	34.204	86	16.738	5	Moc-10	A	6	5.3	3
	1/14/2007		3		21	29.407	86	26.714	2	Moc-1	A	4	1.7	5
	1/14/2007		3		21	29.407	86	26.714	3	Moc-1	A	3	1.9	8
	1/14/2007		3		21	29.407	86	26.714	4	Moc-1	A	21	18.9	84
	1/14/2007		3		21	29.407	86	26.714	5	Moc-1	A	2	1.2	3
	1/14/2007		4		21	30.19	86	35.475	1	Moc-1	A	15	13.5	42
	1/15/2007		5		21	31.384	86	43.167	1	Moc-1	A	13	12.6	75
	1/15/2007		6		21	17.409	86	30.505	1	Moc-1	A	14	13.6	137
	1/15/2007		6		21	17.409	86	30.505	2	Moc-1	A	6	5.4	45
	1/15/2007		6		21	17.409	86	30.505	3	Moc-1	A	17	16.3	91
JT	1/15/2007		7		20	59.325	86	43.069	1	Juv. Trawl	A			
	1/15/2007		7		20	59.325	86	43.069	2	Moc-1	A	14	13	50
3	1/15/2007		7		20	59.325	86	43.069	3	Moc-1	A	6	5.7	10
	1/15/2007		7		20	59.325	86	43.069	4	Moc-1	A	12	10.3	51
	1/15/200		7		2	59.325	8	43.06	5	Moc-1	A	22	21.	14

	7				0		6	9					6	1
	1/15/2007		10		20	43.473	86	23.782	1	Moc-1	A	15	12.6	229
	1/15/2007		10		20	43.473	86	23.782	2	Moc-1	A	13	13	132
	1/15/2007		10		20	43.473	86	23.782	3	Moc-1	A	26	24.6	97
	1/15/2007		10		20	43.473	86	23.782	4	Moc-1	A	27	24.1	74
	1/16/2007		11		20	43.559	86	15.495	1	Moc-1	A	33	32.4	
	1/16/2007		11		20	43.559	86	15.495	2	Moc-1	A	19	16.7	190
	1/16/2007		11		20	43.559	86	15.495	3	Moc-1	A	36	33.7	523
	1/16/2007		11		20	43.559	86	15.495	4	Moc-1	A	40	35.8	112
4	1/16/2007		11		20	43.559	86	15.495	5	Moc-1	A	31	29.8	191
	1/16/2007		12		20	43.465	85	59.773	1	Moc-1	A	20	16.2	112
	1/16/2007		12		20	43.465	85	59.773	2	Moc-1	A	15	13.5	197
	1/16/2007		12		20	43.465	85	59.773	3	Moc-1	A	41	37.6	
	1/16/2007		12		20	43.465	85	59.773	4	Moc-1	A	16	15.2	
	1/16/2007		13		20	33.957	85	59.981	1	Moc-1	F	26	23	
	1/16/2007		13		20	33.957	85	59.981	2	Moc-1	A	17	15.5	
	1/16/2007		13		20	33.957	85	59.981	3	Moc-1	A	26	23.5	216
	1/16/2007		13		20	33.957	85	59.981	4	Moc-1	A	15	12.8	138
	1/16/2007		13		20	33.957	85	59.981	5	Moc-1	A	25	21.4	142
	1/16/2007		14		20	7.759	86	20.993	1	Moc-1	A	17	15.5	44

	1/16/2007		14	2mm	20	7.759	86	20.993	1	Moc-1	A	10	8.8	81
	1/16/2007		14		20	7.759	86	20.993	2	Moc-1	A	17	15.5	40
	1/16/2007		14	2mm	20	8.471	86	21.625	2	Moc-10	A	5	5	25
5	1/16/2007		14	2mm	20	8.471	86	21.625	3	Moc-10	F	17	16.2	
	1/16/2007		14		20	7.759	86	20.993	3	Moc-1	A	25	23.4	142
	1/16/2007		14	2mm	20	8.471	86	21.625	4	Moc-10	A	16	13.7	11
	1/16/2007		14		20	7.759	86	20.993	4	Moc-1	A	20	15.4	117
	1/16/2007		14	2mm	20	8.471	86	21.625	5	Moc-10	A	6	5.1	3
	1/16/2007		15		20	9.406	86	36.323	1	Moc-1	A	32	30.1	111
	1/16/2007		15		20	9.406	86	36.323	2	Moc-1	A	18	17.4	63
	1/16/2007		15		20	9.406	86	36.323	3	Moc-1	A	30	26.4	
	1/16/2007		15		20	9.406	86	36.323	4	Moc-1	A	21	18.4	
	1/16/2007		15		20	9.406	86	36.323	5	Moc-1	A	33	28.2	
6	1/16/2007		15	2mm	20	8.166	86	36.044	1	Moc-10	F	65	61.3	
	1/16/2007		15	2mm	20	8.166	86	36.044	2	Moc-10	F	90	86.4	
	1/16/2007		15	2mm	20	8.166	86	36.044	3	Moc-10	A	28	25.5	54
	1/16/2007		15	2mm	20	8.166	86	36.044	4	Moc-10	A	18	15.3	43
JT	1/17/2007		16	2mm	20	8.029	86	51.846	1	Juv. Trawl	A			
	1/17/2007		16		20	8.029	86	51.846	1	Moc-1	F	34	32.5	
	1/17/200		16		2	8.029	8	51.84	2	Moc-1	A	15	11.	

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	1/17/2007		16		20	8.029	86	51.846	3	Moc-1	A	31	29.6	
	1/17/2007		16		20	8.029	86	51.846	4	Moc-1	A	21	20.8	
	1/17/2007		16		20	8.029	86	51.846	5	Moc-1	A	33	30.8	
	1/17/2007		17		20	13.292	87	1.344	1	Moc-1	F	29	28.3	
JT	1/17/2007		17	2mm	20	13.292	87	1.344	1	Juv. Trawl	A			
7	1/17/2007		17		20	13.292	87	1.344	2	Moc-1	A	11	9.9	
	1/17/2007		17		20	13.292	87	1.344	3	Moc-1	A	21	19.9	
	1/17/2007		17		20	13.292	87	1.344	4	Moc-1	A	21	18.8	
	1/17/2007		17		20	13.292	87	1.344	5	Moc-1	A	18	16.9	
	1/17/2007		18		20	13.371	87	12.001	1	Moc-1	F	32	31.6	
	1/17/2007		18		20	13.371	87	12.001	2	Moc-1	A	15	15.2	
	1/17/2007		18		20	13.371	87	12.001	3	Moc-1	A	25	23.9	
	1/17/2007		18		20	13.371	87	12.001	4	Moc-1	A	16	14.6	
	1/17/2007		18		20	13.371	87	12.001	5	Moc-1	A	25	20.7	
	1/17/2007		19		20	13.021	87	19.844	1	Moc-1	F	27	24.4	
JT	1/17/2007		19		20	13.021	87	19.844	1	Juv. Trawl	F			
	1/17/2007		19		20	13.021	87	19.844	2	Moc-1	A	7	6.7	
8	1/17/2007		19		20	13.021	87	19.844	3	Moc-1	A	13	11.1	
	1/17/2007		19		20	13.021	87	19.844	4	Moc-1	A	13	10.3	

	1/17/2007		19		20	13.021	87	19.844	5	Moc-1	A	11	10.9	
	1/17/2007		20		20	0.973	87	14.007	1	Moc-1	F	36	34.7	
	1/17/2007		20		20	0.973	87	14.007	2	Moc-1	A	9	10.3	
	1/17/2007		20		20	0.973	87	14.007	3	Moc-1	A	19	16.2	
	1/17/2007		20		20	0.973	87	14.007	4	Moc-1	A	19	17.4	
	1/17/2007		20		20	0.973	87	14.007	5	Moc-1	A	49	39.3	
	1/18/2007		21		19	58.98	87	24.845	1	Moc-1	A	38	36.8	
	1/18/2007		21		19	58.98	87	24.845	2	Moc-1	A	8	7.6	
	1/18/2007		21		19	58.98	87	24.845	3	Moc-1	A	16	15.1	
	1/18/2007		21		19	58.98	87	24.845	4	Moc-1	A	20	16.2	
9	1/18/2007		21		19	58.98	87	24.845	5	Moc-1	A	30	26.4	
	1/18/2007		22		20	7.343	87	25.463	1	Moc-1	F	29	26.9	
	1/18/2007		22		20	7.343	87	25.463	2	Moc-1	A	17	15.8	
	1/18/2007		22		20	7.343	87	25.463	3	Moc-1	A	19	17.6	
	1/18/2007		22		20	7.343	87	25.463	4	Moc-1	A	15	13.5	
	1/18/2007		22		20	7.343	87	25.463	5	Moc-1	A	20	19.7	
	1/18/2007		23		20	5.103	87	17.298	1	Moc-1	F	26	24.9	
	1/18/2007		23		20	5.103	87	17.298	2	Moc-1	A	12	11.1	
	1/18/2007		23		20	5.103	87	17.298	3	Moc-1	A	26	23.8	
	1/18/200		23		2	5.103	8	17.29	4	Moc-1	A	23	20.	

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	1/18/2007		23		20	5.103	87	17.298	5	Moc-1	A	35	33.3	
	1/18/2007		24		19	47.239	87	22.903	1	Moc-1	F	26	25.3	
	1/18/2007		24		19	47.239	87	22.903	2	Moc-1	A	6.9	10	
	1/18/2007		24		19	47.239	87	22.903	3	Moc-1	A	27	25.7	
10	1/18/2007		24		19	47.239	87	22.903	4	Moc-1	A	8	8	
	1/18/2007		24		19	47.239	87	22.903	5	Moc-1	A	10	9	
	1/18/2007		25		19	43.924	87	15.736	1	Moc-1	F	25	23.8	
	1/18/2007		25		19	43.924	87	15.736	2	Moc-1	A	7	5.9	
	1/18/2007		25		19	43.924	87	15.736	3	Moc-1	A	22	19.3	
	1/18/2007		25		19	43.924	87	15.736	4	Moc-1	A	13	10.3	
	1/18/2007		25		19	43.924	87	15.736	5	Moc-1	A	18	17.5	
	1/18/2007		27		19	35.332	87	21.757	1	Moc-1	F	32	30.6	
	1/18/2007		27		19	35.332	87	21.757	2	Moc-1	A	5	3.4	
	1/18/2007		27		19	35.332	87	21.757	3	Moc-1	A	7	6.3	
	1/18/2007		27		19	35.332	87	21.757	4	Moc-1	A	7	6.3	
11	1/18/2007		27		19	35.332	87	21.757	5	Moc-1	A	24	20.8	
	1/18/2007		29		19	21.175	87	22.204	1	Moc-1	F	24	22.4	
	1/18/2007		29		19	21.175	87	22.204	2	Moc-1	A	9	7.3	
	1/18/2007		29		19	21.175	87	22.204	3	Moc-1	A	16	15.2	

	1/18/2007		29		19	21.175	87	22.204	4	Moc-1	A	13	13	
	1/18/2007		29		19	21.175	87	22.204	5	Moc-1	A	33	32.1	
	1/19/2007		31		19	7.575	87	4.365	1	Moc-1	F	32	29.8	
	1/19/2007		31		19	7.575	87	4.365	2	Moc-1	A	11	10.7	
	1/19/2007		31		19	7.575	87	4.365	3	Moc-1	A	24	23.5	
	1/19/2007		31		19	7.575	87	4.365	4	Moc-1	A	23	18.5	
	1/19/2007		31		19	7.575	87	4.365	5	Moc-1	A	33	30.3	
	1/21/2007		32		18	51.257	87	35.757	1	Moc-1	F	19	16.8	
12	1/21/2007		32		18	51.257	87	35.757	2	Moc-1	A	13	9.5	
	1/21/2007		32		18	51.257	87	35.757	3	Moc-1	A	29	28.2	
	1/21/2007		32		18	51.257	87	35.757	4	Moc-1	A	13	10.6	
	1/21/2007		32		18	51.257	87	35.757	5	Moc-1	A	10	8.6	
	1/21/2007		33		18	52.659	87	27.421	1	Moc-1	F	30	27.3	
	1/21/2007		33		18	52.659	87	27.421	2	Moc-1	A	10	8.5	
	1/21/2007		33		18	52.659	87	27.421	3	Moc-1	A	21	20.2	
	1/21/2007		33		18	52.659	87	27.421	4	Moc-1	A	47	43	
	1/21/2007		33		18	52.659	87	27.421	5	Moc-1	A	22	19.5	
	1/21/2007		34		18	52.143	87	16.889	1	Moc-1	F	21	20	
	1/21/2007		34		18	52.143	87	16.889	2	Moc-1	A	11	10.6	
	1/21/200		34		1	52.143	8	16.88	3	Moc-1	A	20	17.	

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	1/21/2007		34		18	52.143	87	16.889	4	Moc-1	A	15	14.5	
13	1/21/2007		34		18	52.143	87	16.889	5	Moc-1	A	26	24.7	
	1/21/2007		35		18	47.6	87	8.505	1	Moc-1	F	54	50.3	
	1/21/2007		35		18	47.6	87	8.505	1	Moc-1	F	39	37.1	
	1/21/2007		35		18	47.6	87	8.505	2	Moc-1	A	10	9.1	
	1/21/2007		35		18	47.6	87	8.505	3	Moc-1	A	26	24.5	
	1/21/2007		35		18	47.6	87	8.505	4	Moc-1	A	20	18.6	
	1/21/2007		35		18	47.6	87	8.505	5	Moc-1	A	28	27.6	
	1/21/2007		36		18	45.949	87	14.839	1	Moc-1	F	20	18.4	
	1/21/2007		36		18	45.949	87	14.839	2	Moc-1	A	12	9.1	
	1/21/2007		36		18	45.949	87	14.839	3	Moc-1	A	23	22.7	
	1/21/2007		36		18	45.949	87	14.839	4	Moc-1	A	14	13.2	
	1/21/2007		36		18	45.949	87	14.839	5	Moc-1	A	26	29.4	
14	1/22/2007		37		18	46.831	86	58.501	1	Moc-1	F	33	31.1	
	1/22/2007		37		18	46.831	86	58.501	2	Moc-1	A	10	9.3	
	1/22/2007		37		18	46.831	86	58.501	3	Moc-1	A	12	11.6	
	1/22/2007		37		18	46.831	86	58.501	4	Moc-1	A	12	11.5	
	1/22/2007		37		18	46.831	86	58.501	5	Moc-1	A	31	29.7	
	1/22/2007		38		18	40.478	87	12.024	1	Moc-1	F	27	25.5	

	1/22/2007		38		18	40.478	87	12.024	2	Moc-1	A	10	8.1	
	1/22/2007		38		18	40.478	87	12.024	3	Moc-1	A	26	29.4	
	1/22/2007		38		18	40.478	87	12.024	4	Moc-1	A	12	10.9	
	1/22/2007		38		18	40.478	87	12.024	5	Moc-1	A	33	31.3	
	1/22/2007		39		18	34.819	87	8.869	1	Moc-1	F	27	26.1	
15	1/22/2007		39		18	34.819	87	8.869	2	Moc-1	A	38	33.1	
	1/22/2007		39		18	34.819	87	8.869	3	Moc-1	A	51	49.2	
	1/22/2007		39		18	34.819	87	8.869	4	Moc-1	A	70	63.8	
	1/22/2007		39		18	34.819	87	8.869	5	Moc-1	A	4	2.6	
	1/22/2007		40		18	30.054	87	16.948	1	Moc-10	F	20	18	
	1/22/2007		40		18	29.321	87	17.331	1	Moc-1	F	40	37	
	1/22/2007		40		18	30.054	87	16.948	2	Moc-10	A	41	40.7	
	1/22/2007		40		18	29.321	87	17.331	2	Moc-1	A	7	6.5	
	1/22/2007		40		18	30.054	87	16.948	3	Moc-10	A	45	33.1	
	1/22/2007		40		18	29.321	87	17.331	3	Moc-1	A	13	12.6	
	1/22/2007		40		18	30.054	87	16.948	4	Moc-10	A	28	26.6	
16	1/22/2007		40		18	29.321	87	17.331	4	Moc-1	A	10	9.1	
	1/22/2007		40		18	29.321	87	17.331	5	Moc-1	A	22	21.7	
	1/22/2007		41		18	15.922	87	1.36	1	Moc-1	F	60	57.4	
	1/22/200		41		1	15.922	8	1.36	1	Moc-1	F	100	98.	

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	1/22/2007		41		18	15.922	87	1.36	2	Moc-1	A	13	11.2	
	1/22/2007		41		18	15.922	87	1.36	3	Moc-1	A	11	11	
	1/22/2007		41		18	15.922	87	1.36	4	Moc-1	A	22	21.5	
	1/22/2007		41		18	15.922	87	1.36	5	Moc-1	A	37	34.1	
	1/23/2007		43		18	22.208	87	23.328	1	Moc-1	F	37	36.9	
	1/23/2007		43		18	22.208	87	23.328	2	Moc-1	A	15	13.5	
	1/23/2007		43		18	22.208	87	23.328	3	Moc-1	A	23	23.1	
	1/23/2007		43		18	22.208	87	23.328	4	Moc-1	A	41	38.6	
	1/23/2007		43		18	22.208	87	23.328	5	Moc-1	A	5	5.3	
17	1/23/2007		45		18	16.116	87	46.977	1	Moc-1	A	23	21.1	
	1/23/2007		45		18	16.116	87	46.977	1	Moc-1	F	15	12	
	1/23/2007		45		18	16.116	87	46.977	2	Moc-1	A	10	10	
	1/23/2007		45		18	16.116	87	46.977	3	Moc-1	A	15	13.7	
	1/23/2007		45		18	16.116	87	46.977	4	Moc-1	A	10	10.7	
	1/23/2007		45		18	16.116	87	46.977	5	Moc-1	A	26	25.8	
	1/23/2007		46		18	15.845	87	48.814	1	Moc-1	F	25	238	
	1/23/2007		46		18	15.845	87	48.814	2	Moc-1	A	9	7	
	1/23/2007		46		18	15.845	87	48.814	3	Moc-1	A	10	9.1	
	1/23/2007		46		18	15.845	87	48.814	4	Moc-1	A	12	12	

	1/23/2007		46		18	15.845	87	48.814	5	Moc-1	A	18	16.2	
	1/23/2007		48		18	28.197	87	43.83	1	Moc-1	F	29	27.9	
18	1/23/2007		48		18	28.197	87	43.83	2	Moc-1	A	10	8.8	
	1/23/2007		48		18	28.197	87	43.83	3	Moc-1	A	11	12.6	
	1/23/2007		48		18	28.197	87	43.83	4	Moc-1	A	16	18.8	
	1/23/2007		49		18	33.816	87	33.813	1	Moc-1	F	47	45.2	
	1/23/2007		49		18	33.816	87	33.813	2	Moc-1	A	12	11.7	
	1/23/2007		49		18	33.816	87	33.813	3	Moc-1	A	16	14.2	
	1/23/2007		49		18	33.816	87	33.813	4	Moc-1	A	25	24.4	
	1/23/2007		49		18	33.816	87	33.813	4	Moc-1	A	1 organismo		
	1/23/2007		49		18	33.816	87	33.813	5	Moc-1	A	50	45.1	
JT	1/23/2007		49	1 d 3, 2mm juvenil	18	33.816	87	33.813		Juv. Trawl				
	1/24/2007		50		18	37.794	87	38.351	1	Moc-1	F	32	31.2	
	1/24/2007		50		18	37.794	87	38.351	2	Moc-1	F	12	11.2	
	1/24/2007		50		18	37.794	87	38.351	3	Moc-1	A	16	17.1	
19	1/24/2007		50		18	37.794	87	38.351	4	Moc-1	A	19	16.9	
	1/24/2007		50		18	37.794	87	38.351	5	Moc-1	A	4	4.2	
	1/24/2007		51						1	Moc-1	F	22	20.5	
	1/24/2007		51						2	Moc-1	A	10	8.9	
	1/24/200		51			**NO DATA**			3	Moc-1	A	4	5.3	

	7					**AVAILABLE**									
	1/24/2007		51						4	Moc-1	A	15	14.9	
	1/24/2007		51						5	Moc-1	A	25	25.5	
	1/24/2007		52		18	43.142	87	34.102	1	Moc-1	F	32	30.6	
	1/24/2007		52		18	43.142	87	34.102	2	Moc-1	A	15	15.3	
	1/24/2007		52		18	43.142	87	34.102	3	Moc-1	A	18	21.3	
	1/24/2007		52		18	43.142	87	34.102	4	Moc-1	A	14	13.3	
20	1/24/2007		52		18	43.142	87	34.102	5	Moc-1	A	22	19.1	
	1/24/2007		53		18	42.662	87	39.984	1	Moc-1	F	28	26.1	
	1/24/2007		53		18	42.662	87	39.984	2	Moc-1	A	10	10.2	
	1/24/2007		53		18	42.662	87	39.984	3	Moc-1	A	26	22.1	
	1/24/2007		53		18	42.662	87	39.984	4	Moc-1	A	18	16.4	
	1/24/2007		53		18	42.662	87	39.984	5	Moc-1	A	15	14.1	
	1/24/2007		54		17	54.452	87	53.673	1	Moc-1	F	33	30.6	
	1/24/2007		54		17	54.452	87	53.673	2	Moc-1	A	10	12	
	1/24/2007		54		17	54.452	87	53.673	3	Moc-1	A	10	11	
	1/24/2007		54		17	54.452	87	53.673	4	Moc-1	A	17	17.7	
	1/24/2007		54		17	54.452	87	53.673	5	Moc-1	A	25	23.2	
	1/25/2007		55		17	54.565	87	39.388	1	Moc-1	F	40	38.5	
	1/25/2007		55		17	54.565	87	39.388	2	Moc-1	A	18	17.4	

21	1/25/2007		55		17	54.565	87	39.388	3	Moc-1	A	20	11.4	
	1/25/2007		55		17	54.565	87	39.388	4	Moc-1	A	23	21.7	
	1/25/2007		55		17	54.565	87	39.388	5	Moc-1	A	27	23.2	
	1/25/2007		56		17	54.43	87	28.139	1	Moc-1	F	33	31	
	1/25/2007		56		17	54.43	87	28.139	2	Moc-1	A	7	4.7	
	1/25/2007		56		17	54.43	87	28.139	3	Moc-1	A	12	9.1	
	1/25/2007		56		17	54.43	87	28.139	4	Moc-1	A	17	17.6	
	1/25/2007		56		17	54.43	87	28.139	5	Moc-1	A	32	29.6	
	1/25/2007		57		17	54.49	87	18.138	1	Moc-1	F	22	21.9	
	1/25/2007		57		17	54.49	87	18.138	2	Moc-1	A	10	8.3	
	1/25/2007		57		17	54.49	87	18.138	3	Moc-1	A	10	8.2	
22	1/25/2007		57		17	54.49	87	18.138	4	Moc-1	A	18	17.6	
	1/25/2007		57		17	54.49	87	18.138	5	Moc-1	A	23	22.2	
	1/25/2007		58		17	53.499	87	17.442	1	Moc-1	F	33	32.8	
	1/25/2007		58		17	53.499	87	17.442	2	Moc-1	A	8	7.6	
	1/25/2007		58		17	53.499	87	17.442	3	Moc-1	A	25	22.3	
	1/25/2007		58		17	53.499	87	17.442	4	Moc-1	A	14	13.2	
	1/25/2007		58		17	53.499	87	17.442	5	Moc-1	A	20	18.7	
	1/25/2007		59		17	26.394	87	25.809	1	Moc-1	F	30	29.8	
	1/25/200		59		1	26.394	8	25.80	2	Moc-1	A	13	11.	

	7				7		7	9					1	
	1/25/2007		59		17	26.394	87	25.809	3	Moc-1	A	17	14.1	
	1/25/2007		59		17	26.394	87	25.809	4	Moc-1	A	15	14.1	
	1/26/2007		62		16	49.444	87	11.46	1	Moc-1	F	29	26.3	
23	1/26/2007		62		16	49.444	87	11.46	2	Moc-1	A	12	8.8	
	1/26/2007		62		16	49.444	87	11.46	3	Moc-1	A	10	12.4	
	1/26/2007		62		16	49.444	87	11.46	4	Moc-1	A	20	17.6	
	1/26/2007		62		16	49.444	87	11.46	5	Moc-1	A	50	34.6	
	1/26/2007		63		16	41.468	87	13.356	1	Moc-1	F	17	15.4	
	1/26/2007		63		16	41.468	87	13.356	2	Moc-1	A	9	7.5	
	1/26/2007		63		16	41.468	87	13.356	3	Moc-1	A	10	7.8	
	1/26/2007		63		16	41.468	87	13.356	4	Moc-1	A	10	6.8	
	1/26/2007		63		16	41.468	87	13.356	5	Moc-1	A	20	21.6	
	1/26/2007		65		16	41.569	87	29.419	1	Moc-1	F	25	23	
	1/26/2007		65		16	41.569	87	29.419	2	Moc-1	A	10	8.3	
	1/26/2007		65		16	41.569	87	29.419	3	Moc-1	A	17	17.3	
24	1/26/2007		65		16	41.569	87	29.419	4	Moc-1	A	20	15.7	
	1/26/2007		65		16	41.569	87	29.419	5	Moc-1	A	30	26.1	
	1/26/2007		66		16	40.552	87	39.964	1	Moc-1	F	23	21.7	
	1/26/2007		66		16	40.552	87	39.964	2	Moc-1	A	12	9.1	

	1/26/2007		66		16	40.552	87	39.964	3	Moc-1	A	10	8.3	
	1/26/2007		66		16	40.552	87	39.964	4	Moc-1	A	10	6.3	
	1/26/2007		66		16	40.552	87	39.964	5	Moc-1	A	28	25.2	
	1/26/2007		68		16	37.172	88	0.272	1	Moc-1	F	31	28.3	
	1/26/2007		68		16	37.172	88	0.272	2	Moc-1	A	14	10.3	
	1/26/2007		68		16	37.172	88	0.272	3	Moc-1	A	17	13.8	
	1/26/2007		68		16	37.172	88	0.272	4	Moc-1	A	10	8.8	
	1/26/2007		68		16	37.172	88	0.272	5	Moc-1	A	33	29	
25	1/26/2007		69		16	34.183	87	55.648	1	Moc-1	F	48	43.8	
	1/26/2007		69		16	34.183	87	55.648	2	Moc-1	A	10	4.5	
	1/26/2007		69		16	34.183	87	55.648	3	Moc-1	A	12	8.3	
	1/26/2007		69		16	34.183	87	55.648	4	Moc-1	A	17	16	
	1/26/2007		69		16	34.183	87	55.648	5	Moc-1	A	33	29.3	
	1/26/2007		70		16	33.525	87	58.82	1	Moc-1	F	15	14.7	
	1/26/2007		70		16	33.525	87	58.82	2	Moc-1	A	6	3	
	1/26/2007		70		16	33.525	87	58.82	3	Moc-1	A	5	4.6	
	1/26/2007		70		16	33.525	87	58.82	4	Moc-1	A	10	8.4	
	1/26/2007		70		16	33.525	87	58.82	5	Moc-1	A	10	7.3	
	1/26/2007		71		16	30.535	87	57.267	1	Moc-1	F	21	20.7	
26	1/27/200		71		1	30.535	8	57.26	2	Moc-1	A	11	9.2	

	7				6		7	7						
	1/27/2007		71		16	30.535	87	57.267	3	Moc-1	A	9	6.8	
	1/27/2007		71		16	30.535	87	57.267	4	Moc-1	A	13	11.3	
	1/27/2007		71		16	30.535	87	57.267	5	Moc-1	A	26	22.9	
	1/27/2007		72		16	28.181	87	58.427	1	Moc-1	F	39	37	
	1/27/2007		72		16	28.181	87	58.427	2	Moc-1	A	10	10.8	
	1/27/2007		72		16	28.181	87	58.427	3	Moc-1	A	12	12.3	
	1/27/2007		72		16	28.181	87	58.427	4	Moc-1	A	12	11.9	
	1/27/2007		72		16	28.181	87	58.427	5	Moc-1	A	22	18.8	
	1/27/2007		73		16	24.589	87	55.892	1	Moc-1	F	15	13.2	
	1/27/2007		73		16	24.589	87	55.892	2	Moc-1	A	7	7.7	
	1/27/2007		73		16	24.589	87	55.892	3	Moc-1	A	9	4.1	
27	1/27/2007		73		16	24.589	87	55.892	4	Moc-1	A	13	14.5	
	1/27/2007		73		16	24.589	87	55.892	5	Moc-1	A	20	18.9	
	1/27/2007		74		16	33.512	87	58.601	1	Moc-1	F	15	12.6	
	1/27/2007		74		16	33.512	87	58.601	2	Moc-1	A	5	6.1	
	1/27/2007		74		16	33.512	87	58.601	3	Moc-1	A	10	10	
	1/27/2007		74		16	33.512	87	58.601	4	Moc-1	A	18	16.3	
	1/27/2007		74		16	33.512	87	58.601	5	Moc-1	A	30	26.5	
	1/27/2007		75		16	33.945	87	58.935	1	Moc-1	F	15	12.2	

	1/27/2007		75		16	33.945	87	58.935	2	Moc-1	A	5	5	
	1/27/2007		75		16	33.945	87	58.935	3	Moc-1	A	5	4.2	
	1/27/2007		75		16	33.945	87	58.935	4	Moc-1	A	11	10.1	
	1/27/2007		75		16	33.945	87	58.935	5	Moc-1	A	13	15.8	
28_A	1/27/2007		76		16	28.187	87	58.913	1	Moc-1	F	24	22.4	
	1/27/2007		76		16	28.187	87	58.913	2	Moc-1	A	9	10.7	
	1/27/2007		76		16	28.187	87	58.913	3	Moc-1	A	7	8.8	
	1/27/2007		76		16	28.187	87	58.913	4	Moc-1	A	10	11.1	
	1/27/2007		76		16	28.187	87	58.913	5	Moc-1	A	26	24.8	
	1/28/2007		80		16	52.278	88	2.656	3	Moc-1	A	9	8.1	
	1/28/2007		80		16	52.278	88	2.656	4	Moc-1	A	16	15	
	1/27/2007		76		16	28.187	87	58.913	1	Moc-10		ESTA VACIO EL FRASCO		
	1/27/2007		76		16	30.04	87	57.458	2	Moc-10	A	13	12.2	
	1/27/2007		76		16	30.04	87	57.458	3	Moc-10	A	9	6.8	
	1/27/2007		77		16	22.3	88	1.951	1	Moc-1	F	29	27.4	
	1/27/2007		77		16	22.3	88	1.951	2	Moc-1	A	10	8.8	
28B	1/27/2007		77		16	22.3	88	1.951	3	Moc-1	A	9	6.8	
	1/27/2007		77		16	22.3	88	1.951	4	Moc-1	A	10	8.4	
	1/27/2007		77		16	22.3	88	1.951	5	Moc-1	A	36	33.3	
	1/27/200		77		1	24.447	8	1.797	1	Moc-10	A	40	37.	

	7				6		8						8	
	1/27/2007		77		16	24.447	88	1.797	2	Moc-10	A	20	19.7	
	1/27/2007		77		16	24.447	88	1.797	3	Moc-10	A	75	70.8	
	1/27/2007		77		16	24.447	88	1.797	4	Moc-10	A	63	62	
	1/27/2007		78		16	19.448	87	54.943	1	Moc-1	F	42	41.6	
	1/27/2007		78		16	19.448	87	54.943	2	Moc-1	A	10	8.6	
	1/27/2007		78		16	19.448	87	54.943	3	Moc-1	A	7	5.4	
	1/27/2007		78		16	19.448	87	54.943	4	Moc-1	A	20	18.6	
	1/27/2007		78		16	19.448	87	54.943	5	Moc-1	A	25	22.2	
29	1/28/2007		79		16	30.607	87	47.029	1	Moc-1	F	72	71.5	
	1/28/2007		79		16	30.607	87	47.029	2	Moc-1	A	11	10.4	
	1/28/2007		79		16	30.607	87	47.029	3	Moc-1	A	10	8.2	
	1/28/2007		79		16	30.607	87	47.029	4	Moc-1	A	11	10	
	1/28/2007		79		16	30.607	87	47.029	5	Moc-1	A	45	44.2	
	1/28/2007		80		16	52.278	88	2.656	1	Moc-1	F	33	32.8	
	1/28/2007		80		16	52.278	88	2.656	2	Moc-1	A	9	7.4	
	1/28/2007		80		16	52.278	88	2.656	5	Moc-1	A	24	22.5	
	1/28/2007		81		16	55.871	87	41.753	3	Moc-1	A	7	5.9	
	1/28/2007		81		16	55.871	87	41.753	4	Moc-1	A	14	13.6	35
	1/28/2007		81		16	55.871	87	41.753	5	Moc-1	A	18	17.2	

	1/28/2007		82		17	18.775	87	45.666	2	Moc-1	A	20	19.2	
30	1/28/2007		82		17	18.775	87	45.666	3	Moc-1	A	9	8.5	
	1/28/2007		85		18	16.951	87	43.662	2	Moc-1	A	7	6.8	
	1/28/2007		85		18	16.951	87	43.662	3	Moc-1	A	7	6.5	
	1/28/2007		85		18	16.951	87	43.662	4	Moc-1	A	12	11	
	1/28/2007		85		18	16.951	87	43.662	5	Moc-1	A	23	22.3	
	1/29/2007		86		18	16.098	87	47.992	2	Moc-1	A	19	17.4	
	1/29/2007		86		18	16.098	87	47.992	3	Moc-1	A	22	22	
	1/24/2007		50		18	16.098	87	47.992	5	Juv. Trawl	F			
	1/28/2007		81		16	52.278	88	2.656	1	Moc-1	F	30	28.4	
	1/28/2007		81		16	55.871	87	41.753	2	Moc-1	A	9	7.3	
	1/28/2007		82		17	18.775	87	45.666	1	Moc-1	F	30	29	
	1/28/2007		82		17	18.775	87	45.666	4	Moc-1	F	19	19	
31	1/28/2007		82		17	18.775	87	45.666	5	Moc-1	A	40	37.2	
	1/28/2007		83		17	22.838	87	38.399	1	Moc-1	F	45	40	
	1/28/2007		83		17	22.838	87	38.399	2	Moc-1	A	15	14.6	
	1/28/2007		83		17	22.838	87	38.399	3	Moc-1	A	10	10	
	1/28/2007		83		17	22.838	87	38.399	4	Moc-1	A	30	24	
	1/28/2007		83		17	22.838	87	38.399	5	Moc-1	A	54	50.2	
	1/28/200		84		1	19.411	8	46.22	1	Moc-1	F	30	28	

	7				8		7	3						
	1/28/2007		84		18	19.411	87	46.223	2	Moc-1	A	18	15.4	
	1/28/2007		84		18	19.411	87	46.223	3	Moc-1	A	16	13.3	
	1/28/2007		84		18	19.411	87	46.223	4	Moc-1	A	15	13.8	
	1/28/2007		84		18	19.411	87	46.223	5	Moc-1	A	20	18	
	1/28/2007		85		18	16.951	87	43.662	1	Moc-1	F	36	35.8	
32	1/29/2007		86		18	16.098	87	47.992	1	Moc-1	F	55	50.9	
JT	1/29/2007		86		18	16.098	87	47.992	J	Juv. Trawl	F			
JT	1/29/2007		86		18	16.098	87	47.992	J	Juv. Trawl	F			
	1/29/2007		86		18	16.098	87	47.992	4	Moc-1	A	15	12.6	
	1/29/2007		86		18	16.098	87	47.992	5	Moc-1	A	25	23.4	
	1/29/2007		87		18	11.663	87	45.104	1	Moc-1	F	60	59.8	
	1/29/2007		87		18	11.663	87	45.104	2	Moc-1	A	21	19.6	
	1/29/2007		87		18	11.663	87	45.104	3	Moc-1	A	16	13.3	
	1/29/2007		87		18	11.663	87	45.104	4	Moc-1	A	30	24	
	1/29/2007		87		18	11.663	87	45.104	5	Moc-1	A	40	37.2	
JT	1/29/2007		88		18	8.147	87	47.756	1	Juv. Trawl	F			
	1/29/2007		88		18	8.147	87	47.756	1	Moc-1	F	48	47	
	1/29/2007		88		18	8.147	87	47.756	2	Moc-1	A	12	11.9	
33	1/29/2007		88		18	8.147	87	47.756	3	Moc-1	A	12	11.6	

JT	1/29/2007		88		18	8.147	87	47.756	J	Juv. Trawl					
	1/29/2007		88		18	8.147	87	47.756	4	Moc-1	A	16		13	
	1/29/2007		88		18	8.147	87	47.756	5	Moc-1	A	40		30.7	
	1/30/2007		89		18	3.35	87	50.729	1	Moc-1	F	40		39.2	
	1/30/2007		89		18	3.35	87	50.729	2	Moc-1	A	19		18.4	
	1/30/2007		89		18	3.35	87	50.729	3	Moc-1	A	14		13.1	
	1/30/2007		89		18	3.35	87	50.729	4	Moc-1	A	10		9.8	
	1/30/2007		89		18	3.35	87	50.729	5	Moc-1	A	32		28	
	1/30/2007		90		18	7.412	87	43.645	1	Moc-1	F	35		33.9	
	1/30/2007		90		18	7.412	87	43.645	2	Moc-1	A	20		19.1	
	1/30/2007		90		18	7.412	87	43.645	3	Moc-1	A	13		12.6	
34	1/30/2007		90		18	7.412	87	43.645	4	Moc-1	A	10		9.7	
	1/30/2007		90		18	7.412	87	43.645	5	Moc-1	A	16		13.8	
JT	1/30/2007		91						J	Juv. Trawl	F				
JT	1/30/2007		91			NO DATA AVAILABLE			2	Juv. Trawl	A	LEPTOS			
JT	1/30/2007		93						1	Juv. Trawl	F				
JT	1/30/2007		95						J 1/2	Juv. Trawl	F				
JT	1/30/2007		95						J 2/2	Juv. Trawl	F				
JT	1/30/2007		96			NO DATA AVAILABLE			J	Juv. Trawl	A				
JT	1/30/200		96						J	Juv.	F				

	7									Trawl				
JT 35	1/30/2007		97						1	Juv. Trawl	A			
JT	1/30/2007		97						1 1 / 2	Juv. Trawl	F			
JT	1/30/2007		97			NO DATA AVAILABLE			1 2 / 2	Juv. Trawl	F			
JT	1/30/2007		98						1	Juv. Trawl	F			
JT	1/30/2007		99						1	Juv. Trawl	F			
			428											

CHINCHORRO LT SAMPLES 2007

	Date	Sta.	Time	Bottle #	Wet Wt (g)	Vol (mL)	Fish Total	Sorter	Notes
	15-Jan-07	1	8:00				102	MX	no zoo, only fish in bag
	15-Jan-07	4	8:55		18.7	23	33		LD
	15-Jan-07	5	9:15		3.8	5	4		LD
zoo	16-Jan-07	1	8:30		32	40	221		
	16-Jan-07	2	8:45				30	MX	no zoo, only fish in bag
	16-Jan-07	3	9:00		65.4	66	12		LD
	16-Jan-07	4	9:30		17	19	6		LD
	16-Jan-07	5	9:45		1.8	3	4		LD
	16-Jan-07	6	10:00		42	50	13		
	16-Jan-07	6	10:00		38	80			

	17-Jan-07	1	9:55		143	160	89		LD
	17-Jan-07	1	9:55		244	214	154		LD
	17-Jan-07	2	10:20		149	170	34		LD
	17-Jan-07	2	10:20		104.4	116	16		LD
	17-Jan-07	3	10:30		54.2	58	?		Sample in Ecosur, they will sort it.
	17-Jan-07	4	9:05		6.1	6	20		LD
	17-Jan-07	5	9:20		0.5	1	5		LD
	17-Jan-07	6	9:30		4.2	4	6		LD
	17-Jan-07	8	8:50		14.1	15	32		LD
	18-Jan-07	1	8:50		146.4	158	478		LD
	18-Jan-07	2	9:10		94.9	96	61		LD
	18-Jan-07	3	9:25		16.1	20	?	**FIND	LD - check w/ Lulu
	18-Jan-07	4	10:10		2.3	4	15		LD
	18-Jan-07	6	10:10		2.1	2	12		LD
	18-Jan-07	7	9:40		9.4	10	20?		LD
	18-Jan-07	8	9:55		4.9	6	73		LD
	19-Jan-	1	7:15		26	32.5	241		

	07								
	19-Jan-07	2	7:25		67.1	68	43		LD
	19-Jan-07	3	7:40		12.9	13	10		LD
	19-Jan-07	4	8:20		0.8	1	12		LD
	19-Jan-07	5	8:30		0.8	1	1		LD
	19-Jan-07	6	8:40		0.8	1	12		LD
	19-Jan-07	7	7:50		78.9	81	18		LD
	19-Jan-07	8	8:10		7.6	10	11		LD
	20-Jan-07	1	14:45		36.8	38	78		LD
	20-Jan-07	2	14:50		40.8	42	14		
	20-Jan-07	3	15:00		9.8	10	3		LD
	20-Jan-07	4	16:00		0.5	1	4		LD
	20-Jan-07	6	16:15		0.8	1	?		LD - check w/ Lulu
	20-Jan-07	7	15:10		11.4	13	6		LD
	20-Jan-07	8	15:40		4.7	5	9		LD
	21-Jan-07	1	14:25	1 of 2	52	62.5	158		*STA 21 No STA 2 & 3
	21-Jan-07	1	14:25	2 of 2	44	53			
	21-Jan-	4	16:20		0.7	1	4		LD

	07								
	21-Jan-07	6	16:45		1.8	2			LD
	21-Jan-07	7	15:35		16	15	33		LD
	21-Jan-07	8	16:00				6		
	21-Jan-07	RC	15:00		10.2	10	2		LD
zoo	22-Jan-07	1	7:40		146.7	159	136		LD
zoo	22-Jan-07	2	7:55		16	19	13		
zoo	22-Jan-07	3	8:10		23.6	24	2		LD
zoo	22-Jan-07	4	8:50		0.5	1	2		LD
zoo	22-Jan-07	6	9:05		2	2	4		LD
zoo	22-Jan-07	7	8:15		16.8	17	14		LD
zoo	22-Jan-07	8	8:35		4.7	7	4		LD
	22-Jan-07	RC	8:00		24.1	24	96		LD
	23-Jan-07	1	7:30		147.6	160	494		LD
	23-Jan-07	1	7:30		117.1	128	-		LD
	23-Jan-07	2	7:40		54	56	4		LD
	23-Jan-07	3	8:00		194	200	3		LD
	23-Jan-07	4	8:45		0.5	1	4		LD
	23-Jan-07	6	8:55				7		

zoo	23-Jan-07	7	8:15		20	20	17		
	23-Jan-07	8	8:30		9	9	30		LD
	23-Jan-07	9	9:20		0.8	1	6		LD
	23-Jan-07	RC	8:05		35.8	37	71		LD
	24-Jan-07	1	8:45		89	105	399		
zoo	24-Jan-07	2	8:55	1 of 1	34	40	4		
	24-Jan-07	3	9:25		35.6	36	?		LD
	24-Jan-07	6	10:35		1	1	3		LD
	24-Jan-07	7	9:55		18.9	23	33		LD
	24-Jan-07	8	10:10		4.5	5	82		LD
	24-Jan-07	8	16:00		3.9	4	?		LD
	24-Jan-07	Mangle	10:55		0.5	1	2		LD
	24-Jan-07	RC1	9:35		25.4	26	71		LD
	24-Jan-07	RC2	9:15		40	41	284 +		LD
zoo	25-Jan-07	1	8:00	2 of 2	62	79	354		
zoo	25-Jan-07	1	8:00	1 of 2	62	0	-		
zoo	25-Jan-07	2	8:10		88	103	62		
zoo	25-Jan-07	3	8:20		148	175	7		
zoo	25-Jan-	3	8:20		68	80	4		

	07								
	25-Jan-07	6	10:50		4.3	5	12		LD
	25-Jan-07	6	10:50		0.6	1	-		LD
	25-Jan-07	7	8:35	2 of 2			56		no zoo, only fish in bag
zoo	25-Jan-07	7	8:35	1 0f 2	90	105	-		
	25-Jan-07	8	11:15		7.7	9	53		LD
	25-Jan-07	RC1	8:30		15	14.8	21		LD
	25-Jan-07	RC2	8:15				12		LD"no sample"
zoo	26-Jan-07	1	8:35	1 / 2	76	90	55?		
zoo	26-Jan-07	1	8:35	1 of 2 2/2	50	65	115		
	26-Jan-07	2	8:50		26	25	75		
zoo	26-Jan-07	3	9:15	2 / 2	78	95	103	STA 3 total	
zoo	26-Jan-07	3	9:15	1/2 2/2	64	72.5			
zoo	26-Jan-07	3	9:15	1 of 2 2/3	90	107.5			
zoo	26-Jan-07	3	9:15	2 of 2 2/3	90	101			
zoo	26-Jan-07	3	9:15	1/4	104	124	20		
zoo	26-Jan-07	3	9:15	1/3	128	153	31		
	26-Jan-07	4	11:10				15		no zoo, only fish in bag
zoo	26-Jan-	6	11:20		2	3	11		

	07								
	26-Jan-07	7	8:35	2 of 2 2/2			58	STA 7 Total	
zoo	26-Jan-07	7	9:30	2 of 2	90	101	-		
zoo	26-Jan-07	7	9:30	1 of 2	60	74	-		
zoo	26-Jan-07	7	9:30	2 of 2	56	68	-		
zoo	26-Jan-07	7	9:35		102	116	-		
zoo	26-Jan-07	8	11:00		2	2	23		
	26-Jan-07	RC1	9:25		5.2	5	105		LD
	26-Jan-07	RC2	9:05		3.5	3	34		LD
	27-Jan-07	1	8:30		36	45	235		
	27-Jan-07	2	8:40		30	30	38		
	27-Jan-07	3	9:10		50.2	52	1		LD
zoo	27-Jan-07	3	9:10		24	25			
	27-Jan-07	4	10:00				7		no zoo, only fish in bag
	27-Jan-07	6	10:10				7		no zoo, only fish in bag
zoo	27-Jan-07	7	9:30		50	58			
zoo	27-Jan-07	7	9:30		8	10	29		
zoo	27-Jan-07	8	9:45		2	1.5	3		
	27-Jan-	RC1	9:18		8.9	10	58		LD

	07								
	27-Jan-07	RC2	8:55		2.8	3	36		LD
	27-Jan-07	Dyoni	Dive		n/a	n/a	10		
zoo	28-Jan-07	1	9:08		26	32	272		
zoo	28-Jan-07	2	9:15		24	28	72		
zoo	28-Jan-07	3	9:35		72	85	29		
	28-Jan-07	4	12:45				58		
zoo	28-Jan-07	6	12:35		10	8	28		
zoo	28-Jan-07	7	9:45		14	16	24		
zoo	28-Jan-07	8	12:55		2	3.5	20		
	28-Jan-07	mangle	13:10				7		no zoo, only fish in bag
	28-Jan-07	Baliza w	11:30				11		no zoo, only fish in bag
	28-Jan-07	RC2	9:30		4.5	4	113		LD
	29-Jan-07	RC1	8:40		9.5	10	56		LD
	29-Jan-07	RC2	8:30		5.4	5	30		LD
zoo	no label	?	?		72	87.5	21		

Table 2. Samples collected

Date	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	T
Light trap 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X		14
Light Trap 2	X	X	X	X	X	X		X	X	X	X	X	X	X		13
Light Trap 3	X	X	X	X	X	X		X	X	X	X	X	X	X		13
Light Trap 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X		14
Light Trap 5	X	X	X	X	X											5
Light Trap 6	e	X	X	X	X	X	X	X	X	X	X	X	X	X		13
Light Trap 7			e	X	X	X	X	X	X	X	X	X	X	X		12
Light Trap 8			X	X	X	X	X	X	X	X	X	X	X	X		12
Light Trap Mangrove										X				X		2
Chanel Net 1						X	X	X	X	X	X	X	X	X	X	10
Chanel net 2											X	X	X	X	X	5
Total Light Trap	5	6	8	8	8	7	5	7	7	8	7	7	7	8	--	97
Total Chanel Net						1	1	1	1	2	2	2	2	2	2	16

e – trap empty
shading= trap lost

Table 3. Biomass of samples collected in Banco Chinchorro 2007

Biomass light traps

Date	Time	Light Trap	Vol. (ml)	Weight (gr)
15	8:55	4	23	18.7
15	9:15	5	5	3.8
16	9:00	3	66	65.4
16	9:30	4	19	17
16	9:45	5	3	1.8
17	8:50	8	15	14.1
17	9:05	4	6	6.1
17	9:20	5	1	0.5
17	9:30	6	4	4.2
17	9:55	1	160	143
17	9:55	1	214	244
17	10:20	2	170	149
17	10:20	2	116	104.4
17	10:30	3	58	54.2
18	8:50	1	158	146.4
18	9:10	2	96	94.9
18	9:25	3	20	16.1
18	9:40	7	10	9.4
18	9:55	8	6	4.9
18	10:10	4	4	2.3
18	10:10	6	2	2.1
19	7:25	2	68	67.1
19	7:40	3	13	12.9
19	7:50	7	81	78.9
19	8:10	8	10	7.6
19	8:20	4	1	0.8
19	8:30	5	1	0.8
19	8:40	6	1	0.8