

FINAL REPORT

BENTHIC SAMPLES TAKEN FROM THE  
PADRE ISLAND NATIONAL SEASHORE

Paul A. Montagna, Principal Investigator

Technical Report Number TR/92-002



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September 8, 1992

Mr. Charles R. Farabee, Superintendent  
United States Department of Interior  
National Park Service  
Padre Island National Seashore  
9405 South Padre Island Drive  
Corpus Christi, Texas 78418

Dear Mr. Farabee,

I was issued a permit on February 15, 1989 to collect sediment samples within the boundaries of the Padre Island National Seashore. The samples were collected so that benthic (bottom dwelling) invertebrates could be studied as part of a multidisciplinary research program in the Laguna Madre. This research program was funded by the Texas Advanced Technology Program.

These collections ceased in January 1992. I have enclosed a final report on the number of samples collected and the content of those samples. This report is mostly a listing of species that were found in the sediment samples. These species have no economic value that I am aware of. If you need any further information, please call me at (512)749-6779.

Sincerely,

A handwritten signature in cursive script, appearing to read "Paul Montagna".

Paul Montagna, Ph.D.  
Research Scientist and  
Assistant Professor

# FINAL REPORT

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by

Paul A. Montagna, Principal Investigator

from

University of Texas at Austin  
Marine Science Institute  
P.O. Box 1267  
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to

United States Department of Interior  
National Park Service  
Padre Island National Seashore  
9405 South Padre Island Drive  
Corpus Christi, Texas 78418

The University of Texas Marine Science Institute Technical Report Number  
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# BENTHIC SAMPLES TAKEN FROM THE PADRE ISLAND NATIONAL SEASHORE

## INTRODUCTION

From March 1989 through January 1992 sediment samples were taken from subtidal areas within the boundary of the Padre Island National Seashore. These samples were taken as part of a large multidisciplinary study to determine how a hot, hypersaline estuary is able to maintain a large commercial finfishery harvest. The Laguna Madre and Baffin Bay produced 53% of Texas' total commercial finfish harvest during 1962-1987 (TPWD, 1988). The research program focused on primary production and the utilization of that production by the food webs. Specific objectives of the research program were to determine the:

- biotic and abiotic factors affecting primary production
- relative contribution of seagrasses, macroalgae, and phytoplankton to primary production
- relative contribution of these producers to finfish biomass
- effects of species diversity and food-chain length on nutrient recycling and maintaining finfish production
- consumption of primary production by plankton and benthos
- rates of secondary production in the plankton and benthos
- determine the role of the grazing and detrital food-chains in maintaining estuarine productivity.

This report is on just one component, the benthic component. Only one station occupied during this study was within the Park Service boundaries.

## METHODS

### Study Site

The station within Park boundaries was located just east of Intracoastal Waterway marker number 155. The station was characterized by sand-shell hash sediments that supported seagrass growth. The dominant seagrass was *Halodule wrightii*. During each sampling trip hydrographic measurements were made, and sediment samples were taken to assess the benthic biota.

## Hydrographic Measurements

Salinity, conductivity, temperature, pH, dissolved oxygen, and redox potential were measured at the surface and bottom at each station during each sampling trip. Measurements were made by lowering a probe made by Hydrolab Instruments. Salinities levels are automatically corrected to 25°C. The manufacturer states that the accuracy of salinity measurements are 0.1 ppt. When the Hydrolab instrument was not working, water samples were collected from just beneath the surface and from the bottom in jars, and refractometer readings were made at the surface.

## Biological Measurements

Sediment was sampled with core tubes held by divers. The macrofauna were sampled with a tube 6.7 cm in diameter, and sectioned at depth intervals of 0-3 cm and 3-10 cm. Three replicates were taken within a 2 m radius. Samples were preserved with 5% buffered formalin, sieved on 0.5 mm mesh screens, sorted, identified, and counted.

## RESULTS

Results of the hydrographic measurements are shown in Table 1. A total of 18 periods were sampled. Three sediment cores were taken at each sampling trip for a total of fifty four cores. Because of time and manpower constraints, sediment samples from only four out of 18 trips were ever analyzed. As of this writing, there are no plans to analyze the archived samples. A taxonomic list of all species collected is given in Table 2. A list of all species found on each sampling date is given in Table 3.

## ACKNOWLEDGEMENTS

This material is based in part upon work supported by the Texas Higher Education Coordinating Board, Advanced Technology Program under Grant No. 4541 (and 3658-264). ATP Grant no. 4541: "Laguna Madre Estuary: how does a hot hypersaline lagoon maintain a large fishery?" 6/1/88 - 8/31/90. ATP Grant no. 3658-264: "What maintains high finfish productivity in the Laguna Madre Estuary?" 11/1/89 - 8/31/92.

## REFERENCES

Texas Parks and Wildlife. 1988. Trends in Texas Commercial fishery landings, 1977-1987. Management Data Series, No. 149. Texas Parks and Wildlife Department, Coastal Fisheries Branch. Austin, Texas.

Table 1. Hydrographic measurements. Padre Island National Seashore station east of Intracoastal Waterway Marker 155. Abbreviations: STA=Station, Z=Depth, SAL(R)=Salinity by refractometer, SAL(M)=Salinity by meter, COND=Conductivity, TEMP=Temperature, DO=dissolved oxygen, and ORP=oxidation redox potential. Missing values show with a period.

| Date    | STA | Z<br>(m) | SAL(R)<br>(ppt) | SAL(M)<br>(ppt) | COND<br>(uS/cm) | TEMP<br>(°C) | pH   | DO<br>(mg·l <sup>-1</sup> ) | ORP<br>(mV) |
|---------|-----|----------|-----------------|-----------------|-----------------|--------------|------|-----------------------------|-------------|
| 30NOV88 | 155 | 0.00     | 49              | 48.2            | 69.90           | 16.50        | .    | 10.20                       | .           |
| 30NOV88 | 155 | 1.00     | .               | 48.2            | 69.90           | 16.50        | .    | 10.00                       | .           |
| 23MAR89 | 155 | 0.00     | .               | 38.0            | .               | 16.30        | .    | .                           | .           |
| 24MAR89 | 155 | 1.50     | .               | 38.0            | .               | 20.10        | .    | .                           | .           |
| 16MAY89 | 155 | 0.00     | .               | 29.0            | .               | 27.50        | .    | .                           | .           |
| 17MAY89 | 155 | 1.00     | .               | 36.0            | .               | 28.60        | .    | .                           | .           |
| 10JUL89 | 155 | 1.00     | .               | 35.0            | .               | 30.00        | .    | .                           | .           |
| 11JUL89 | 155 | 1.00     | .               | 38.0            | .               | 26.00        | .    | .                           | .           |
| 12JUL89 | 155 | 1.00     | .               | 36.0            | .               | 28.00        | .    | .                           | .           |
| 07NOV89 | 155 | 0.00     | .               | 53.1            | 76.00           | 24.60        | 7.90 | 7.50                        | .           |
| 07NOV89 | 155 | 1.50     | .               | 53.1            | 76.00           | 24.70        | 7.90 | 7.20                        | .           |
| 17JAN90 | 155 | 1.00     | .               | 50.0            | .               | 18.00        | .    | .                           | .           |
| 18JAN90 | 155 | 1.00     | .               | 47.0            | .               | 18.00        | .    | .                           | .           |
| 17APR90 | 155 | 0.00     | .               | 49.2            | 71.90           | 23.39        | 8.14 | 5.69                        | .           |
| 17APR90 | 155 | 1.00     | .               | 49.3            | 72.00           | 23.39        | 8.20 | 5.64                        | .           |
| 27JUL90 | 155 | 0.00     | .               | 42.2            | 62.80           | 29.95        | 8.76 | 6.96                        | 0.108       |
| 27JUL90 | 155 | 1.00     | .               | 41.9            | 62.50           | 29.80        | 8.76 | 6.79                        | 0.105       |
| 08OCT90 | 155 | 0.00     | .               | 53.7            | 77.70           | 28.00        | 8.63 | 4.60                        | 0.043       |
| 08OCT90 | 155 | 1.30     | .               | 54.0            | 78.10           | 28.00        | 8.62 | 4.15                        | 0.022       |
| 17JAN91 | 155 | 0.00     | 42              | 42.3            | 62.90           | 16.00        | 8.34 | 7.59                        | 0.141       |
| 17JAN91 | 155 | 0.90     | 42              | 42.3            | 62.90           | 15.97        | 8.33 | 7.58                        | 0.141       |
| 22FEB91 | 155 | 0.00     | 42              | 37.3            | 56.20           | 15.87        | 8.36 | 11.36                       | 0.156       |
| 22FEB91 | 155 | 1.00     | 42              | 37.4            | 56.20           | 15.88        | 8.36 | 11.33                       | 0.156       |
| 18MAR91 | 155 | .        | 32              | 32.9            | .               | .            | .    | .                           | .           |
| 18MAR91 | 155 | .        | 32              | .               | .               | .            | .    | .                           | .           |
| 17APR91 | 155 | 0.00     | 48              | 46.8            | 68.70           | 26.36        | 8.12 | 8.22                        | 0.127       |
| 17APR91 | 155 | 1.10     | 48              | 47.0            | 69.10           | 26.40        | 8.15 | 8.26                        | 0.129       |
| 23JUN91 | 155 | 0.00     | 37              | 37.0            | 55.90           | 30.89        | 8.45 | 7.28                        | 0.143       |
| 23JUN91 | 155 | 0.90     | 37              | 37.1            | 55.90           | 30.83        | 8.38 | 7.28                        | 0.145       |
| 11JUL91 | 155 | 0.00     | .               | 34.3            | 52.00           | 30.83        | 8.10 | 7.77                        | 0.189       |
| 11JUL91 | 155 | 0.90     | .               | 34.3            | 52.00           | 30.84        | 8.09 | 7.80                        | 0.187       |
| 17OCT91 | 155 | 0.00     | 40              | 38.5            | 57.50           | 26.98        | 8.64 | 7.74                        | 0.128       |
| 17OCT91 | 155 | 1.10     | .               | 38.5            | 57.80           | 26.89        | 8.53 | 7.63                        | 0.130       |
| 21JAN92 | 155 | 0.00     | 28              | 28.2            | 43.70           | 10.63        | 8.64 | 9.53                        | 0.125       |
| 21JAN92 | 155 | 1.10     | 28              | 28.3            | 43.70           | 10.64        | 8.64 | 9.47                        | 0.125       |



Table 2. Species list. Padre Island National Seashore station east of Intracoastal Waterway Marker 155. Total number (*n*) of individual taxa found over entire study period (total of 12 sediment cores). The sediment core size was 6.7 cm diameter taken to a depth of 10 cm.

| Taxa                        | <i>n</i> |
|-----------------------------|----------|
| Cnidaria                    |          |
| Anthozoa                    |          |
| Anthozoa (unidentified)     | 7        |
| Platyhelminthes             |          |
| Turbellaria                 |          |
| Turbellaria (unidentified)  | 3        |
| Rynchozoela                 |          |
| Rhynchozoel (unidentified)  | 13       |
| Mollusca                    |          |
| Gastropoda                  |          |
| Cerithiidae                 |          |
| <i>Diastoma varium</i>      | 33       |
| <i>Cerithium lutosum</i>    | 5        |
| Caecidae                    |          |
| <i>Caecum pulchellum</i>    | 405      |
| Columbellidae               |          |
| <i>Anachis semiplicata</i>  | 1        |
| Nassariidae                 |          |
| <i>Nassarius vibex</i>      | 1        |
| Pyramidellidae              |          |
| <i>Turbonilla</i> sp.       | 4        |
| <i>Sayella crosseana</i>    | 2        |
| Crepidulidae                |          |
| <i>Crepidula fornicata</i>  | 4        |
| Pelecypoda                  |          |
| Mytilidae                   |          |
| <i>Amygdalum papyrium</i>   | 10       |
| <i>Brachidontes exustus</i> | 18       |
| Cardiidae                   |          |
| <i>Laevicardium mortoni</i> | 2        |
| Veneridae                   |          |
| <i>Chione cancellata</i>    | 2        |
| Annelida                    |          |
| Polychaeta                  |          |
| Hesionidae                  |          |
| <i>Parahesion luteola</i>   | 7        |

|                                    |     |
|------------------------------------|-----|
| Syllidae                           |     |
| <i>Sphaerosyllis cf. sublaevis</i> | 179 |
| <i>Brania furcelligera</i>         | 160 |
| <i>Exogone</i> sp.                 | 105 |
| <i>Opisthosyllis</i> sp.           | 706 |
| Syllidae (unidentified)            | 28  |
| Nereidae                           |     |
| Nereidae (unidentified)            | 24  |
| Goniadidae                         |     |
| <i>Glycinde solitaria</i>          | 3   |
| Dorvilleidae                       |     |
| <i>Schistomeringos rudolphi</i>    | 10  |
| Spionidae                          |     |
| <i>Polydora ligni</i>              | 9   |
| <i>Prionospio heterobranchia</i>   | 225 |
| <i>Streblospio benedicti</i>       | 13  |
| <i>Spio setosa</i>                 | 3   |
| Magelonidae                        |     |
| <i>Magelona pettiboneae</i>        | 2   |
| Orbiniidae                         |     |
| <i>Haploscoloplos foliosus</i>     | 5   |
| <i>Scoloplos rubra</i>             | 1   |
| Capitellidae                       |     |
| <i>Capitella capitata</i>          | 16  |
| <i>Mediomastus californiensis</i>  | 11  |
| <i>Heteromastus filiformis</i>     | 9   |
| Capitellidae (unidentified)        | 2   |
| Maldanidae                         |     |
| <i>Branchioasychis americana</i>   | 4   |
| <i>Clymenella mucosa</i>           | 1   |
| Ampharetidae                       |     |
| <i>Melinna maculata</i>            | 1   |
| Sabellidae                         |     |
| <i>Chone</i> sp.                   | 24  |
| Sabellidae (unidentified)          | 40  |
| Spiorbidae                         |     |
| <i>Spiorbis</i> sp.                | 43  |
| Polychaete juv. (unidentified)     | 3   |
| Oligochaeta                        |     |
| Oligochaetes (unidentified)        | 30  |
| Crustacea                          |     |
| Ostracoda                          |     |
| Myodocopa                          |     |
| <i>Sarsiella zostericola</i>       | 6   |
| Malacostraca                       |     |
| Natantia                           |     |

|                                    |     |
|------------------------------------|-----|
| Hippolytidae                       |     |
| <i>Hippolyte zostericola</i>       | 1   |
| Cumacea                            |     |
| <i>Oxyurostylis salinoi</i>        | 13  |
| Amphipoda                          |     |
| Ampeliscidae                       |     |
| <i>Ampelisca abdita</i>            | 6   |
| Corophiidae                        |     |
| <i>Cerapus tubularis</i>           | 1   |
| <i>Grandidierella bonnieroides</i> | 146 |
| Caprellidae                        |     |
| Caprellid                          | 26  |
| Amphiloichidae                     |     |
| <i>Amphiloichus</i> sp.            | 1   |
| Amphithoidae                       |     |
| <i>Cymadusa compta</i>             | 19  |
| Melitidae                          |     |
| <i>Elasmopus</i> sp.               | 19  |
| Isopoda                            |     |
| Idoteidae                          |     |
| <i>Edotea montosa</i>              | 10  |
| <i>Erichsonella attenuata</i>      | 26  |
| Sphaeromatidae                     |     |
| <i>Cymodoce faxoni</i>             | 50  |
| Tanaidacea                         |     |
| Tanaidae                           |     |
| <i>Leptocheilia rapax</i>          | 1   |
| Pycnogonida                        |     |
| Pycnogonid (unidentified)          | 1   |

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Table 3. Species abundance at each date. Padre Island National Seashore station east of Intracoastal Waterway Marker 155. Total number (*n*) of individuals found in three replicate sediment cores. The sediment core size was 6.7 cm diameter taken to a depth of 10 cm.

| Date  | Species                                   | <i>n</i> |
|-------|---|----------|
| MAR89 | <i>Opisthosyllis</i> sp.                  | 507      |
| MAR89 | <i>Caecum pulchellum</i>                  | 254      |
| MAR89 | <i>Sphaerosyllis</i> cf. <i>sublaevis</i> | 77       |
| MAR89 | <i>Prionospio heterobranchia</i>          | 59       |
| MAR89 | <i>Brania furcelligera</i>                | 56       |
| MAR89 | <i>Exogone</i> sp.                        | 22       |
| MAR89 | Syllidae (unidentified)                   | 17       |
| MAR89 | <i>Diastoma varium</i>                    | 13       |
| MAR89 | Oligochaetes (unidentified)               | 12       |
| MAR89 | <i>Cymodoce faxoni</i>                    | 10       |
| MAR89 | <i>Erichsonella attenuata</i>             | 10       |
| MAR89 | <i>Brachidontes exustus</i>               | 10       |
| MAR89 | <i>Grandidierella bonnieroides</i>        | 8        |
| MAR89 | <i>Parahesionella luteola</i>             | 7        |
| MAR89 | <i>Schistomeringos rudolphi</i>           | 7        |
| MAR89 | <i>Mediomastus californiensis</i>         | 7        |
| MAR89 | <i>Oxyurostylis salinoi</i>               | 7        |
| MAR89 | Sabellidae (unidentified)                 | 7        |
| MAR89 | <i>Amygdalum papyrium</i>                 | 5        |
| MAR89 | <i>Polydora ligni</i>                     | 3        |
| MAR89 | <i>Branchioasychis americana</i>          | 3        |
| MAR89 | Nereidae (unidentified)                   | 3        |
| MAR89 | <i>Cymadusa compta</i>                    | 3        |
| MAR89 | Rhynchocoel (unidentified)                | 2        |
| MAR89 | <i>Laevicardium mortoni</i>               | 2        |
| MAR89 | <i>Elasmopus</i> sp.                      | 2        |
| MAR89 | <i>Spiorbis</i> sp.                       | 2        |
| MAR89 | Anthozoa (unidentified)                   | 1        |
| MAR89 | <i>Glycinde solitaria</i>                 | 1        |
| MAR89 | <i>Magelona pettiboneae</i>               | 1        |
| MAR89 | <i>Capitella capitata</i>                 | 1        |
| MAR89 | <i>Melinna maculata</i>                   | 1        |
| MAR89 | <i>Leptochelia rapax</i>                  | 1        |
| MAR89 | <i>Edotea montosa</i>                     | 1        |
| MAR89 | Caprellid                                 | 1        |
| MAR89 | <i>Sarsiella zostericola</i>              | 1        |
| MAR89 | <i>Chione cancellata</i>                  | 1        |
| MAR89 | <i>Hippolyte zostericola</i>              | 1        |

|       |   |          |
|-------|---|----------|
| MAR89 | Polychaete juv. (unidentified)            | <u>1</u> |
|       | TOTAL                                     | 1127     |
| MAY89 | <i>Grandidierella bonnieroides</i>        | 129      |
| MAY89 | <i>Opisthosyllis</i> sp.                  | 98       |
| MAY89 | <i>Brania furcelligera</i>                | 57       |
| MAY89 | <i>Sphaerosyllis</i> cf. <i>sublaevis</i> | 53       |
| MAY89 | <i>Exogone</i> sp.                        | 53       |
| MAY89 | <i>Caecum pulchellum</i>                  | 51       |
| MAY89 | <i>Prionospio heterobranchia</i>          | 41       |
| MAY89 | <i>Cymodoce faxoni</i>                    | 33       |
| MAY89 | Sabellidae (unidentified)                 | 23       |
| MAY89 | Caprellid                                 | 19       |
| MAY89 | <i>Elasmopus</i> sp.                      | 14       |
| MAY89 | <i>Cymadusa compta</i>                    | 13       |
| MAY89 | Syllidae (unidentified)                   | 9        |
| MAY89 | <i>Spiorbis</i> sp.                       | 9        |
| MAY89 | <i>Chone</i> sp.                          | 8        |
| MAY89 | <i>Capitella capitata</i>                 | 7        |
| MAY89 | <i>Oxyurostylis salinoi</i>               | 6        |
| MAY89 | <i>Erichsonella attenuata</i>             | 6        |
| MAY89 | <i>Brachidontes exustus</i>               | 6        |
| MAY89 | <i>Heteromastus filiformis</i>            | 5        |
| MAY89 | <i>Ampelisca abdita</i>                   | 5        |
| MAY89 | <i>Diastoma varium</i>                    | 5        |
| MAY89 | Rhynchocoel (unidentified)                | 4        |
| MAY89 | <i>Mediomastus californiensis</i>         | 4        |
| MAY89 | <i>Amygdalum papyrium</i>                 | 3        |
| MAY89 | <i>Edotea montosa</i>                     | 3        |
| MAY89 | Nereidae (unidentified)                   | 3        |
| MAY89 | Turbellaria (unidentified)                | 3        |
| MAY89 | <i>Schistomeringos rudolphi</i>           | 2        |
| MAY89 | <i>Polydora ligni</i>                     | 2        |
| MAY89 | <i>Haploscoloplos foliosus</i>            | 2        |
| MAY89 | Capitellidae (unidentified)               | 2        |
| MAY89 | <i>Sarsiella zostericola</i>              | 2        |
| MAY89 | <i>Ceritheum lutosum</i>                  | 2        |
| MAY89 | <i>Anachis semiplicata</i>                | 1        |
| MAY89 | Polychaete juv. (unidentified)            | <u>1</u> |
|       | TOTAL                                     | 684      |
| JUL89 | <i>Prionospio heterobranchia</i>          | 125      |
| JUL89 | <i>Opisthosyllis</i> sp.                  | 101      |
| JUL89 | <i>Sphaerosyllis</i> cf. <i>sublaevis</i> | 49       |
| JUL89 | <i>Brania furcelligera</i>                | 47       |
| JUL89 | <i>Spiorbis</i> sp.                       | 32       |
| JUL89 | <i>Exogone</i> sp.                        | 30       |

|       |                                    |     |
|-------|------------------------------------|-----|
| JUL89 | <i>Caecum pulchellum</i>           | 22  |
| JUL89 | Nereidae (unidentified)            | 18  |
| JUL89 | <i>Chone</i> sp.                   | 16  |
| JUL89 | <i>Diastoma varium</i>             | 15  |
| JUL89 | Oligochaetes (unidentified)        | 14  |
| JUL89 | Sabellidae (unidentified)          | 10  |
| JUL89 | <i>Erichsonella attenuata</i>      | 10  |
| JUL89 | Rhynchocoel (unidentified)         | 7   |
| JUL89 | <i>Capitella capitata</i>          | 7   |
| JUL89 | <i>Cymodoce faxoni</i>             | 7   |
| JUL89 | <i>Grandidierella bonnieroides</i> | 7   |
| JUL89 | Anthozoa (unidentified)            | 6   |
| JUL89 | <i>Edotea montosa</i>              | 6   |
| JUL89 | Caprellid                          | 6   |
| JUL89 | <i>Polydora ligni</i>              | 4   |
| JUL89 | <i>Heteromastus filiformis</i>     | 4   |
| JUL89 | <i>Crepidula fornicata</i>         | 4   |
| JUL89 | <i>Turbonilla</i> sp.              | 4   |
| JUL89 | <i>Spio setosa</i>                 | 3   |
| JUL89 | <i>Haploscoloplos foliosus</i>     | 3   |
| JUL89 | <i>Elasmopus</i> sp.               | 3   |
| JUL89 | <i>Sarsiella zostericola</i>       | 3   |
| JUL89 | <i>Cymadusa compta</i>             | 3   |
| JUL89 | <i>Glycinde solitaria</i>          | 2   |
| JUL89 | <i>Amygdalum papyrium</i>          | 2   |
| JUL89 | Syllidae (unidentified)            | 2   |
| JUL89 | <i>Brachidontes exustus</i>        | 2   |
| JUL89 | <i>Cerithium lutosum</i>           | 2   |
| JUL89 | <i>Sayella crosseana</i>           | 2   |
| JUL89 | <i>Schistomeringos rudolphi</i>    | 1   |
| JUL89 | <i>Magelona pettiboneae</i>        | 1   |
| JUL89 | <i>Scoloplos rubra</i>             | 1   |
| JUL89 | <i>Branchioasychis americana</i>   | 1   |
| JUL89 | <i>Clymenella mucosa</i>           | 1   |
| JUL89 | <i>Nassarius vibex</i>             | 1   |
| JUL89 | <i>Ampelisca abdita</i>            | 1   |
| JUL89 | <i>Amphilochus</i> sp.             | 1   |
| JUL89 | <i>Cerapus tubularis</i>           | 1   |
| JUL89 | Pycnogonid (unidentified)          | 1   |
| JUL89 | <i>Chione cancellata</i>           | 1   |
| JUL89 | Polychaete juv. (unidentified)     | 1   |
|       | TOTAL                              | 590 |
| OCT90 | <i>Caecum pulchellum</i>           | 78  |
| OCT90 | <i>Streblospio benedicti</i>       | 13  |
| OCT90 | Oligochaetes (unidentified)        | 4   |
| OCT90 | <i>Grandidierella bonnieroides</i> | 2   |

|       |                           |          |
|-------|---------------------------|----------|
| OCT90 | <i>Capitella capitata</i> | 1        |
| OCT90 | <i>Cerithium lutosum</i>  | <u>1</u> |
|       | TOTAL                     | 99       |

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