



Davidson Seamount Taxonomic Guide

U.S. Department of Commerce
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Office of National Marine Sanctuaries



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Davidson Seamount Taxonomic Guide

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COVER

Top left: Unidentified yellow ruffled sponge (PORIFERA sp. 8).

Top right: Gorgonian coral (*Paragorgia arborea*).

Lower Left: Crinoids and corals, including feather star (*Florometra serratissima*), black coral (*Trissopathes pseudotristicha*), and primnoid coral (*Narella* sp.).

Lower Right: Deep sea toad (*Bathychaunax (Chaunax) coloratus*).

Image Credits: Top left and lower right (NOAA/MBARI 2002); top right and lower left (NOAA/MBARI 2006).

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ABSTRACT

Davidson Seamount is one of the largest seamounts in U.S. waters and the first to be characterized as a “seamount.” In 2002 and 2006, the Monterey Bay National Marine Sanctuary (MBNMS) led two multi-institutional expeditions to characterize the geology and natural history of Davidson Seamount. Results from these expeditions to Davidson Seamount are adding to the scientific knowledge of seamounts, including the discovery of new species. In November 2008, the MBNMS boundary was expanded to include the Davidson Seamount. In addition, a management plan for Davidson Seamount was created to develop resource protection, education, and research strategies for the area. The purpose of this taxonomic guide is to create an inventory of benthic and mid-water organisms observed at the Davidson Seamount to provide a baseline taxonomic characterization. At least 237 taxa were observed and are presented in this guide; including 15 new or undescribed species (8 sponges, 3 corals, 1 ctenophore, 1 nudibranch, 1 polychaete, 1 tunicate) recently or currently being described by taxonomic experts. This is the first taxonomic guide to Davidson Seamount, and is intended to be revised in the future as we learn more about the seamount and the organisms that live there.

KEY WORDS

Davidson Seamount, taxonomy, corals, sponges, invertebrates, fishes, marine protected area, MPA, deep sea, guide, images, exploration, ROV, Monterey Bay National Marine Sanctuary.

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INTRODUCTION

Numerous seamounts of volcanic origin, diverse in size and shape, occur off the coast of California (Davis et al. 2002). Davidson Seamount is one of the largest seamounts in U.S. waters. It is located off central California, 120 km southwest of Monterey and 150 km west of Cambria (Fig. 1). It was the first to be characterized as a “seamount” in 1938 by the United States Board on Geographic Names, and was named in honor of the United States Coast and Geodetic Survey scientist George Davidson (Davidson Seamount 1990). The seamount is an inactive volcano, last erupting approximately 9.8 million years ago (David Clague pers comm). It has an atypical seamount shape, having northeast-trending ridges created by a type of volcanism only recently described by geologists (Davis et al. 2002). The seamount is 2,280 m tall, 42 km long, and 13 km wide, yet the summit is far below the ocean surface (1,250 m).

In 2002 and 2006, the Monterey Bay National Marine Sanctuary (MBNMS) led two multi-institutional expeditions to characterize the geology and natural history of the Davidson Seamount. Partners included the Monterey Bay Aquarium Research Institute (MBARI), Monterey Bay Aquarium (MBA), Moss Landing Marine Laboratories (MLML), National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the British Broadcasting Corporation (BBC). Results from these recent expeditions to Davidson Seamount are adding to the scientific knowledge of seamounts, including the discovery of new species.

As part of a Joint Management Plan Review process, the National Marine Sanctuary Program (NMSP) determined that, “the Davidson Seamount requires protection from the take of or other injury to benthic organisms or those organisms living near the seafloor because of the seamount’s special ecological and fragile qualities and potential future threats that could adversely affect these qualities” (NOAA 2008a). In November 2008, the MBNMS boundary was expanded to include the Davidson Seamount (Department of Commerce 2008; Fig. 2). In addition, a management plan for Davidson Seamount was created to develop resource protection, education, and research strategies for the area (NOAA 2008b, c).

With the new sanctuary designation of Davidson Seamount, it is considered an area of special national significance. Until now, no seamounts were protected by the Monterey Bay National Marine Sanctuary or any other National Marine Sanctuary. Recent research suggests that this pristine area, with ancient and fragile species like deep-sea corals, may be an oasis necessary for maintaining healthy coastal populations in the MBNMS (McClain et al. *In Press*). The National Marine Sanctuary Program is the only group in NOAA with a mandate to conduct marine education, and it can now conduct public education on seamounts. Proximity of Davidson Seamount to the MBA and MBARI will greatly enhance education and research opportunities on what is already one of the best-studied seamounts in the world.

The purpose of this taxonomic guide is to create an inventory of benthic and mid-water organisms observed at the Davidson Seamount to provide a baseline taxonomic characterization. At least 237 taxa were observed and are presented in this guide; including 15 new or undescribed species (8 sponges, 3 corals, 1 ctenophore, 1 nudibranch, 1 polychaete, 1 tunicate) recently or currently being described by taxonomic experts. This is the first taxonomic guide for Davidson

Seamount, and is intended to be revised in the future as we learn more about the seamount and the organisms that live there.

METHODS

The goals of the expedition in 2002 were to explore and characterize the geology and natural history of the seamount (see DeVogelaere et al. 2005), and to determine the age and growth of several deep-sea corals (see Andrews et al. 2005). Remotely operated vehicle (ROV) dive surveys were selected to include a subset of depths and habitats (base, flank, and crest) of the seamount (Fig. 1). Six full-day ROV dives were completed: two dives were conducted from base to crest on either side of the seamount (to include all depths and representative habitats); and four dives were conducted at the seamount crest, along ridges, or at deeper cones (to focus on the most diverse and interesting habitats relative to corals). Meanwhile, at the sea surface, a science team identified seabirds and marine mammals (but information on these taxa are not included in the guide).

In 2006, a model was developed and tested to predict suitable habitat for corals on the seamount. In addition, corals were collected for further age and growth investigations. Specific regions of the seamount were targeted for coral investigations during eight dives (Fig. 1). The BBC completed three dives using high-definition video for inclusion in the television series *Planet Earth*.

For both expeditions, we used MBARI's state-of-the-art research vessel *Western Flyer* and its deep-diving ROV *Tiburon*. The ROV was equipped with cameras, lights, manipulator arms, accurate positioning systems, and *in situ* pressure, temperature, dissolved oxygen, and conductivity sensors. To document habitat and species occurrence at the seamount, digital video (Panasonic E-550 Digital Betacam™ and Ikegami HDL-40 HD™) was continuously recorded, supplemented by intermittent high-quality digital still images (Nikon® Coolpix® 990). Video frame grabs were collected and annotated using MBARI's computer video annotation programs, VICKI (Video Information Capture with Knowledge Inferencing; 2002) and VARS (Video Annotation and Reference System; 2006). During both expeditions, collection of video and still footage was primarily directed at or near the seafloor. Midwater footage however, was opportunistically collected.

Organisms were identified by expedition participants and other taxonomic experts. Most identifications were made using video or still images. Where either method did not suffice, specimens were collected and sent to taxonomic experts for further identification. A subset of specimens has been archived at MBARI, and may be available for further study (see "Specimens" section for contact information).

After each cruise, preliminary video annotations were edited at MBARI's Video Lab. Species were identified to the lowest possible taxon. In many instances, species names were not known and common names were assigned to animals. As a result, this taxonomic guide was created to identify known and unknown species. Video and still images of unknown species were reviewed

with taxonomic experts to assign species names, if available. In addition, biological tissues from select species collected during dives aided in species identification.

This taxonomic guide summarizes biological observations made during 6 ROV dives completed during May 17-24, 2002, and 11 ROV dives completed during January 26- February 4, 2006, aboard the R/V *Western Flyer* using the ROV *Tiburón*. Biological observations are described from ~140 hours of ROV video and sample collections (primarily on the seafloor).

HOW TO USE THIS GUIDE

Format

Organisms in this guide are presented in taxonomic order, starting with Phylum Foraminifera (xenophyophores) and ending with Subphylum Vertebrata (fishes). Organisms are identified to the lowest possible taxon. The header of each page lists a portion of the classification scheme, and continues below in table form with image and identification information. An example of the guide format is provided in Table 1.

Classification

The classification schemes for several taxonomic groups (e.g., sponges, corals) are currently undergoing, or in need of, revision by the larger research community. This guide is not intended as a new classification system, but instead presents the organisms observed at Davidson Seamount using recent classification schemes, and cites the respective reference(s).

Identification information is provided on the right side of the table including, taxonomic classification continued from the header, scientific name (or lowest taxonomic identification), common name, taxonomic classification reference, identifier reference, video identifiability, and depth range observed at Davidson Seamount. If an organism could not be identified to at least the genus level, the lowest possible taxonomic name was assigned (in capital letters), labeled “sp.”, numbered if more than one taxa was observed and could be differentiated (e.g., PORIFERA sp. 1, PORIFERA sp. 2), or labeled “spp.” if more than one taxon was observed and could not be differentiated (e.g., RADIOLARIA spp.; ZOARCIDAE spp.). In the latter case, a representative image was used for the “spp.” group, if available.

Common Name

Some common names are well established, and are used where available. Where common names are not available (e.g., unidentified organisms, no accepted common name), descriptive common names are assigned until further identification is possible.

Taxonomic Classification Reference

The reference used to classify an organism is cited, and the full reference is located in the *References* section of the guide.

Identifier Reference

The person(s) who helped identify an organism is cited (in alphabetical order), and listed in the *Personal Communications* section of the guide.

Video Identifiability

Descriptions of the video identifiability scheme are as follows:

Confirmed: This organism has been collected and/or has been definitively identified by a taxonomic expert for MBARI or MBNMS.

Provisional: This organism is very likely to be this taxon based on an investigation by MBARI or MBNMS staff (literature search, consultation with outside taxonomic experts, etc.).

Unconfirmed: The status of this organism is pending field collection and further taxonomic investigation, or the description and naming of a new species.

Observed Depth

The depth range where the organism was observed during the 2002 and 2006 Davidson Seamount expeditions is provided in meters. This guide is also intended as an inventory of organisms, so taxonomic information is provided whether an image was available or not. The latter occurred when an organism could be identified with moving video but not with a still image or video framegrab.

Images

An image is located on the left side of the table (including image credit). Occasionally, red lasers (as many as four) are visible in images. The bottom two horizontal lasers are approximately 29 cm apart.

Table 1. An example of the guide format and brief explanation of notation.

Phylum

Class

Order

<i>Image</i>	<i>Further classification (e.g., Family name)</i> <i>Scientific name</i> <i>Common name</i> <i>Taxonomic classification reference</i> <i>Person(s) who identified organism</i> <i>Video Identifiability</i> <i>Observed depth range in meters (m)</i>
<i>Image Credit</i>	

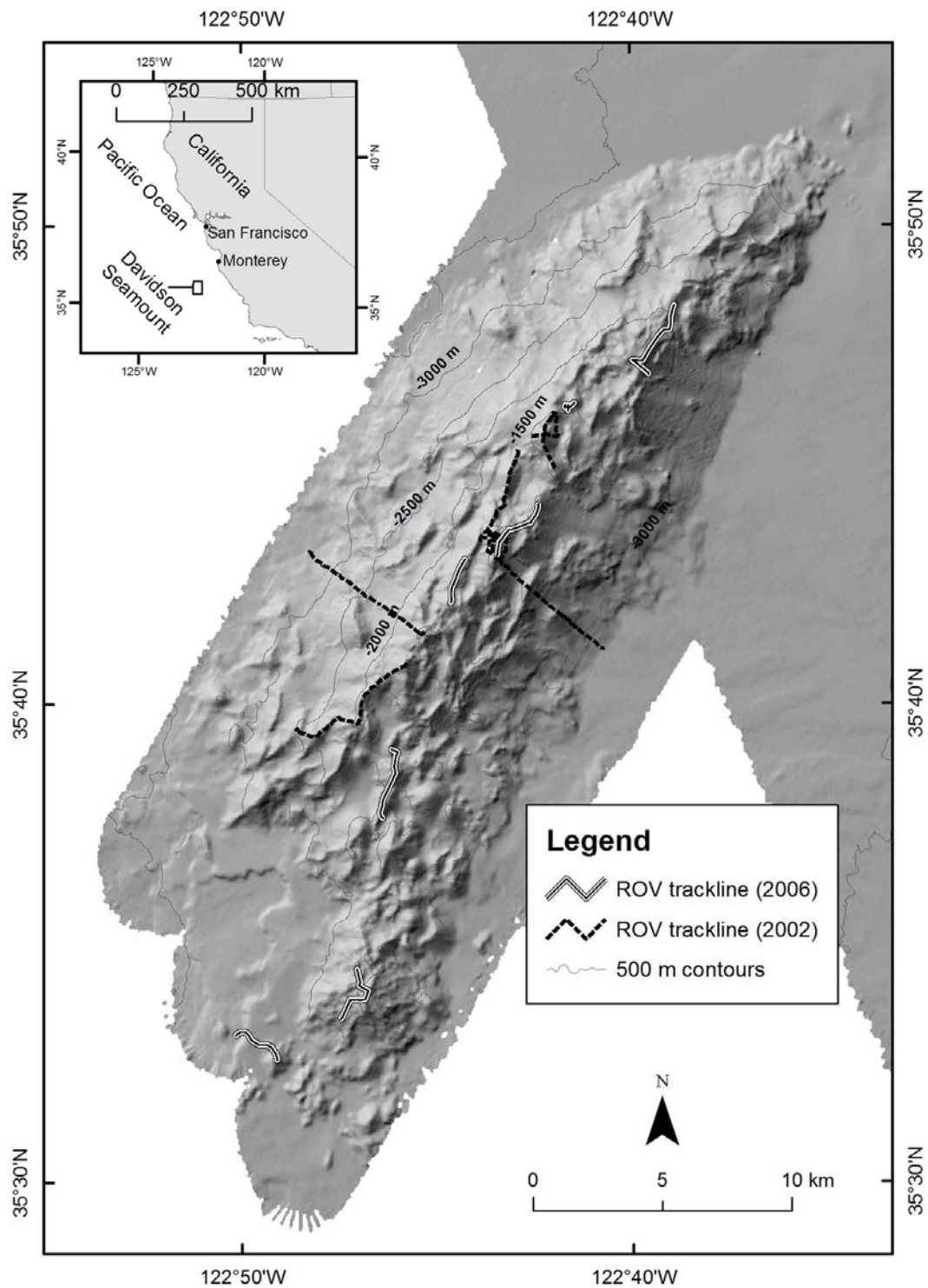


Figure 1. Davidson Seamount and tracklines of 2002 and 2006 remotely operated vehicle (ROV) dives. Credit: Chad King, SIMoN/MBNMS.

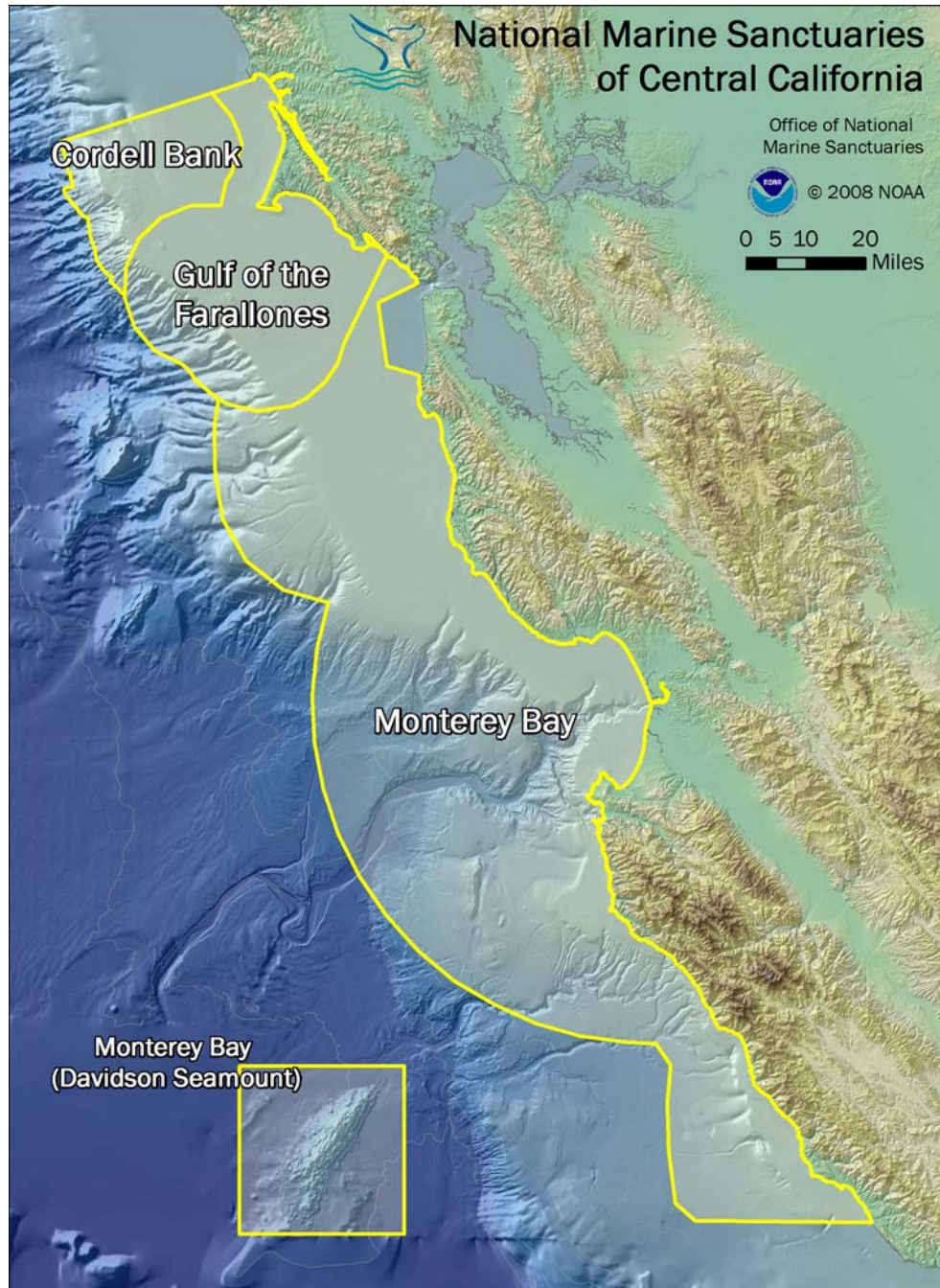


Figure 2. Davidson Seamount Management Zone as part of the Monterey Bay National Marine Sanctuary. Credit: Chad King, SIMoN/MBNMS.

TAXONOMIC GUIDE

1. Phylum: FORAMINIFERA

1.1. Class: Xenophyophorea

	XENOPHYOPHOREA sp. 1 Classification: Brands 1989-2007 Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 3,055 m
Credit: NOAA/MBARI 2002	
	XENOPHYOPHOREA sp. 2 Classification: Brands 1989-2007 Identified by: Barry; Lundsten Video Identifiability: Provisional Observed Depth: 2,048 – 2,847 m
Credit: NOAA/MBARI 2006	

2. Phylum: RADIOZOA
2.1. Subphylum: Radiolaria

	RADIOLARIA spp. radiolarians Classification: Brands 1989-2007 Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 313 – 3,315 m

3. Phylum: PHAEOPHYTA – brown algae (drift)

3.1. Class: Phaeophyceae

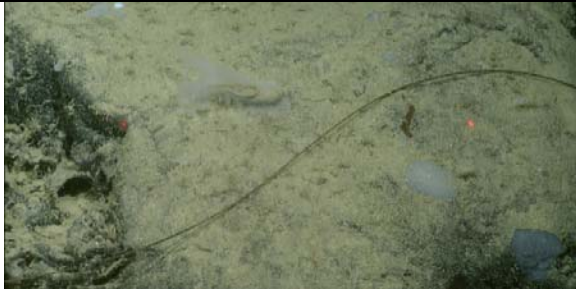
3.1.1. Order: Laminariales

	Family: Alariaceae <i>Alaria marginata</i> (and <i>Alaria</i> sp.) kelp (drift), ribbon Classification: Mondragon & Mondragon 2003 Identified by: DeVogelaere; von Thun Video Identifiability: Confirmed Observed Depth: 2,803 – 2,864 m
Credit: NOAA/MBARI 2002	
	Family: Lessoniaceae <i>Macrocystis</i> sp. kelp (drift), giant Classification: Mondragon & Mondragon 2003 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,666 – 3,035 m
	Family: Lessoniaceae <i>Nereocystis luetkeana</i> kelp (drift), bull Classification: Mondragon & Mondragon 2003 Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 2,788 m

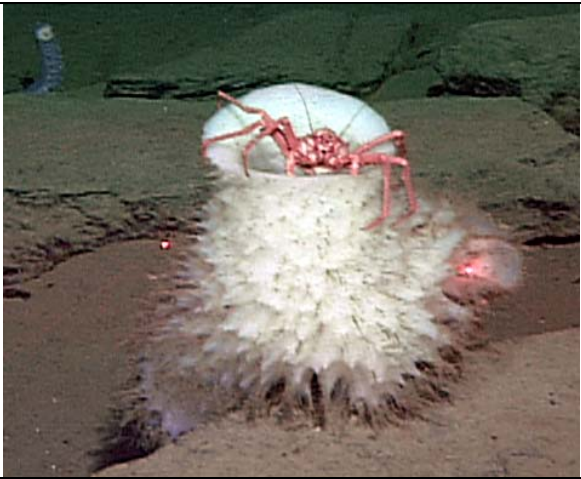
4. Phylum: ANTHOPHYTA – flowering plants (drift)

4.1. Class: Monocotyledones

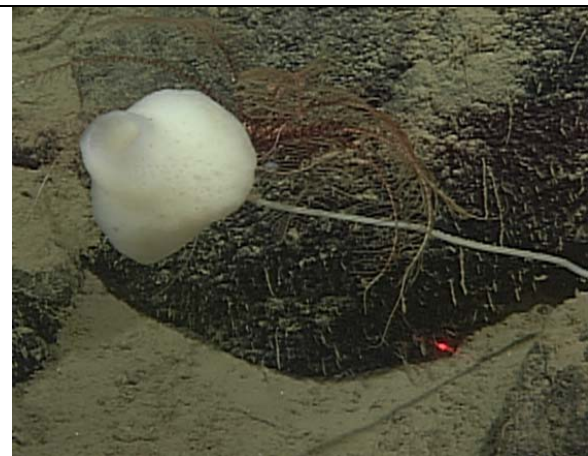
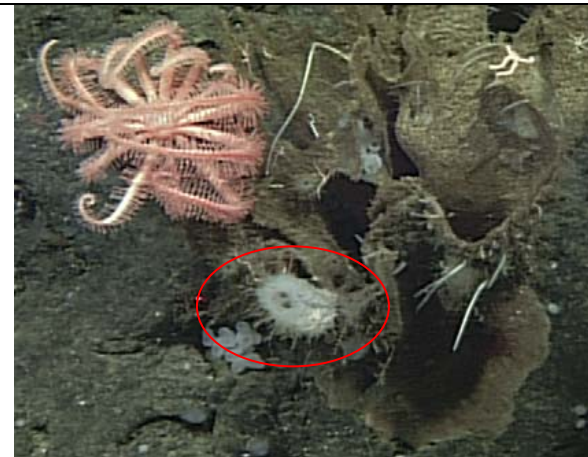
4.1.1. Order: Najadales

	Family: Potamogetonaceae <i>Phyllospadix</i> sp. surfgrass (drift) Classification: Mondragon & Mondragon 2003 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 2,207 – 3,253 m
Credit: NOAA/MBARI 2006	

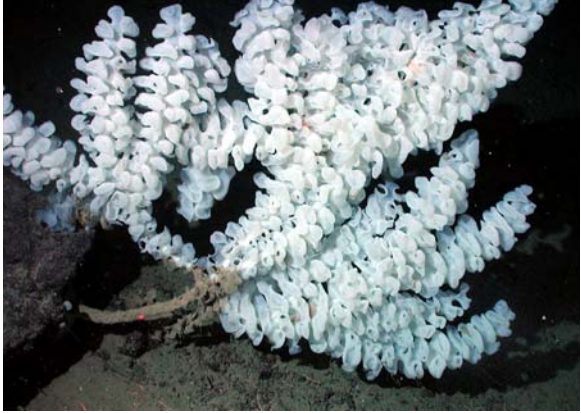
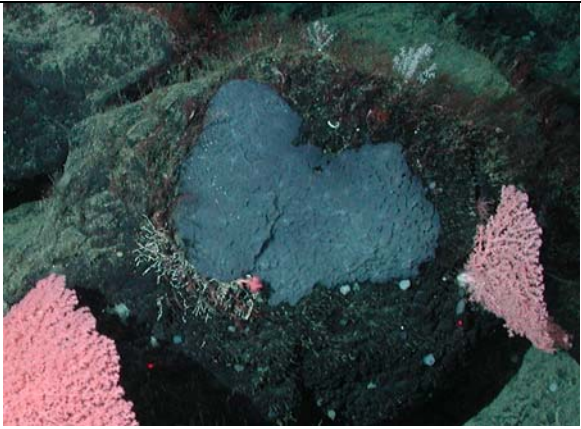
5. Phylum: PORIFERA – sponges

	PORIFERA sp. 1 sponge Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: ~2,420 m
Credit: NOAA/MBARI 2002	
	PORIFERA sp. 2 sponge Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 2,254 m
Credit: NOAA/MBARI 2002	
	PORIFERA sp. 3 sponge Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 1,827 m
Credit: NOAA/MBARI 2002	

5. Phylum: PORIFERA – sponges

	PORIFERA sp. 4 sponge, striated Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 1,391 m
Credit: NOAA/MBARI 2002	
	PORIFERA sp. 5 sponge, stalked (white) Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 2,870 m
Credit: NOAA/MBARI 2002	
	PORIFERA sp. 6 sponge Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 1,257 – 1,670 m
Credit: NOAA/MBARI 2002	

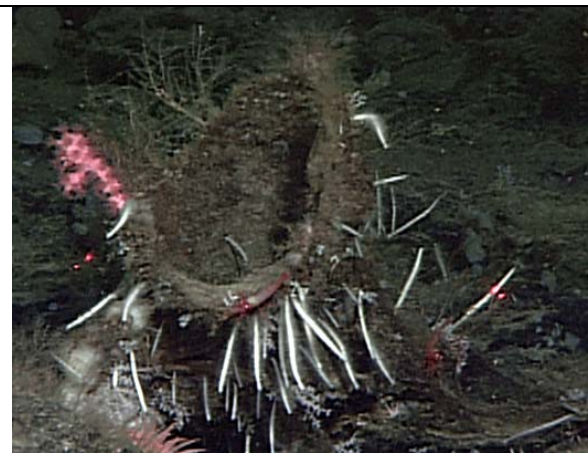
5. Phylum: PORIFERA – sponges

	PORIFERA sp. 7 sponge, stalked ruffled (white) Classification: ITIS Identified by: Burton; Lundsten; Trejo Video Identifiability: Provisional Observed Depth: 2,563 m
Credit: NOAA/MBARI 2002	
	PORIFERA sp. 8 sponge, ruffled (yellow) Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 1,309 – 1,938 m
Credit: NOAA/MBARI 2002	
	PORIFERA sp. 9 sponge, encrusting gray Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 1,400 – 1,988 m
Credit: NOAA/MBARI 2002	

5. Phylum: PORIFERA – sponges
5.1. Class: Demospongiae
5.1.1. Order: Astrophorida

	Family: Pachastrellidae <i>Thenia muricata</i> sponge Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,254 m
Credit: MBARI © 2004	

5. Phylum: PORIFERA – sponges
 5.1. Class: Demospongiae
 5.1.2. Order: Poecilosclerida

	POECILOSCLERIDA sp. sponge, stalked flute Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Unconfirmed Observed Depth: 2,665 – 3,275 m
Credit: NOAA/MBARI 2006	
	Family: Cladorhizidae <i>Asbestopluma</i> sp. nov. sponge, branched (white) Classification: van Soest et al. 2005 Identified by: Lee; Reiswig Video Identifiability: Confirmed Observed Depth: 1,274 – 1,935 m
Credit: NOAA/MBARI 2006	
	Family: Cladorhizidae <i>Asbestopluma</i> sp. 1 sponge, single (white) Classification: van Soest et al. 2005 Identified by: Lee Video Identifiability: Confirmed Observed Depth: 1,284 – 1,922 m
Credit: NOAA/MBARI 2002	

5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.1. Order: Hexactinosida

	Family: Aphrocallistidae <i>Heterochone calyx</i> sponge, goiter (yellow/orange) Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,257 – 3,286 m
Credit: NOAA/MBARI 2002	
	Family: Euretidae <i>Chonelasma</i> sp. nov. sponge, trumpet (white) Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,250 – 3,255 m
Credit: NOAA/MBARI 2006	
	<i>Chonelasma</i> sp. nov. (as above)
Credit: NOAA/MBARI 2002	

5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.1. Order: Hexactinosida

	Family: Farreidae <i>Farrea occa</i> sponge, ruffle (white) Classification: van Soest et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,247 – 2,494 m
Credit: NOAA/MBARI 2006	
	Family: Tretodictyidae <i>Sclerothamnopsis compressa</i> sponge Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,307 – 2,071 m
Credit: NOAA/MBARI 2002	

5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.2. Order: Lyssacinosida

	Family: Euplectellidae Subfamily: Bolosominae <i>Saccocalyx pedunculata</i> sponge, stalked goiter (white) Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,295 – 3,169 m
Credit: NOAA/MBARI 2006	
	Family: Euplectellidae Subfamily: Corbitellinae <i>Atlantisella</i> sp. nov. sponge, creeping (white) Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,603 – 3,102 m
Credit: NOAA/MBARI 2006	
	Family: Euplectellidae Subfamily: Corbitellinae <i>Regadrella</i> sp. nov. sponge, vase (white) Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,329 – 2,681 m
Credit: NOAA/MBARI 2006	

5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.2. Order: Lyssacinosida

	Family: Rossellidae <i>Caulophacus</i> sp. nov. sponge, mushroom (white) Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,471 – 2,880 m
Credit: NOAA/MBARI 2002	
	Family: Rossellidae <i>Crateromorpha</i> sp. nov. sponge Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,348 m
Credit: NOAA/MBARI 2002	
	<i>Crateromorpha</i> sp. nov. (as above)
Credit: NOAA/MBARI 2002	

5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.2. Order: Lyssacinosida

	Family: Rossellidae <i>Hyalascus</i> sp. nov. sponge Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,726 m
Credit: H.M. Reiswig © 2002	
	Family: Rossellidae <i>Staurocalyptus</i> sp. nov. sponge Classification: ITIS Identified by: Reiswig Video Identifiability: Confirmed Observed Depth: 1,246 – 1,698 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.1. Class: Scyphozoa – jellyfish

6.1.1. Order: Coronatae

	Family: Atollidae <i>Atolla</i> sp. jellyfish, crown Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 889 m
Credit: MBARI © 2000	
	Family: Periphyllidae <i>Periphylla periphylla</i> jellyfish, crown Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 311 m
Credit: MBARI © 2005	

6. Phylum: CNIDARIA

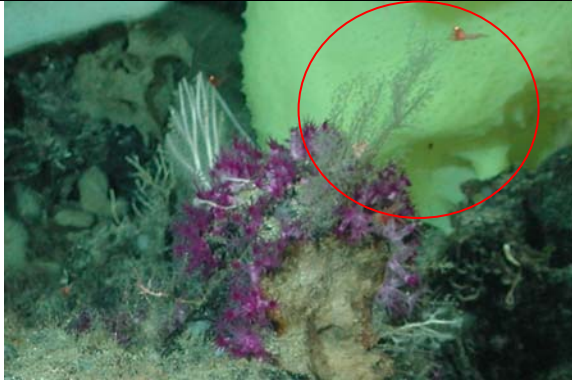
6.1. Class: Scyphozoa – jellyfish

6.1.2. Order: Semaestomeae

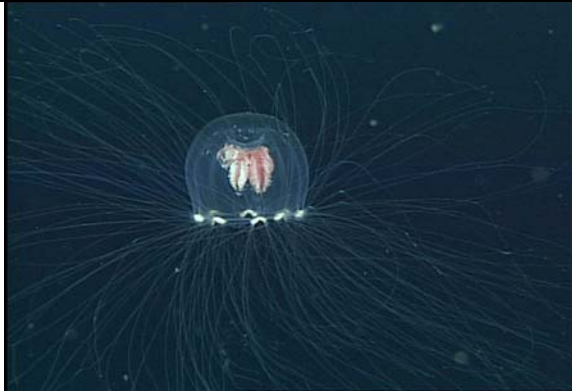
	Family: Ulmaridae <i>Poralia rufescens</i> Classification: Cairns et al. 2002 Identified by: Schlining; von Thun Video Identifiability: Confirmed Observed Depth: 816 – 3,211 m
Credit: MBARI © 2007	
	Family: Ulmaridae Subfamily: Tiburoniinae <i>Tiburonia granrojo</i> Classification: Matsumoto et al. 2003 Identified by: Matsumoto Video Identifiability: Confirmed Observed Depth: 1,363 – 1,371 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.2. Class: Hydrozoa – hydrozoa

	HYDROZOA sp. 1 hydroid Classification: ITIS; Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed Observed Depth: 1,340 m
Credit: NOAA/MBARI 2002	
	HYDROZOA sp. 2 hydroid Classification: ITIS; Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed Observed Depth: 1,429 m
Credit: NOAA/MBARI 2002	
	HYDROZOA sp. 3 hydroid Classification: ITIS; Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed Observed Depth: 1,483 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA
 6.2. Class: Hydrozoa
 6.2.1. Order: Anthoathecatae

	Suborder: Filifera Family: Hydractiniidae HYDRACTINIIDAE sp. nov. Classification: Cairns et al. 2002 Identified by: Miglietta Video Identifiability: Confirmed Observed Depth: 1,663 m
Credit: NOAA/MBARI 2006	
	Suborder: Filifera Family: Bougainvilliidae <i>Chiarella</i> sp. Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,281 – 1,289 m
Credit: MBARI © 2003	
	Suborder: Capitata Family: Myriothelidae (=Candelabridae) MYRIOTHELIDAE sp. Classification: Cairns et al. 2002; ITIS Identified by: Williams Video Identifiability: Provisional Observed Depth: 2,706 m
Credit: NOAA/MBARI 2006	

6. Phylum: CNIDARIA
 6.2. Class: Hydrozoa
 6.2.2. Order: Narcomedusae

	Family: Aeginidae <i>Aegina citrea</i> narcomedusa, golf tee Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,236 – 1,278 m
Credit: MBARI © 2004	
	Family: Aeginidae <i>Aegina</i> sp. narcomedusa Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 200 – 3,273 m
Credit: MBARI © 2001	
	Family: Aeginidae <i>Aeginura</i> sp. narcomedusa Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 491 m
Credit: MBARI © 2003	

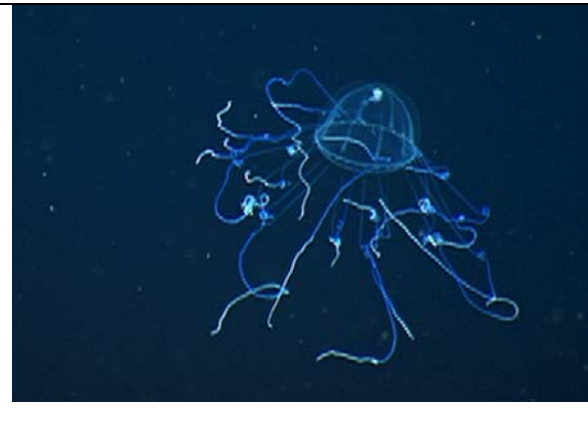
6. Phylum: CNIDARIA

6.2. Class: Hydrozoa

6.2.2. Order: Narcomedusae

	Family: Cuninidae <i>Cunina</i> sp. narcomedusa, mesopelagic Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 1,658 – 3,314 m
Credit: MBARI © 2002	
	Family: Cuninidae <i>Solmissus</i> sp. Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 222 – 1,645 m
Credit: MBARI © 2002	

6. Phylum: CNIDARIA
 6.2. Class: Hydrozoa
 6.2.3. Order: Trachymedusae

	Family: Halicreatidae <i>Halicreas minimum</i> jelly Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 740 m
Credit: MBARI © 2001	
	Family: Rhopalonematidae <i>Benthocodon</i> sp. jelly Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Provisional Observed Depth: 1,170 – 3,314 m
Credit: MBARI © 2005	
	Family: Rhopalonematidae <i>Colobonema sericeum</i> medusa, silky Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 526 – 558 m
Credit: MBARI © 2007	

6. **Phylum: CNIDARIA**
 6.2. **Class: Hydrozoa**
 6.2.3. **Order: Trachymedusae**

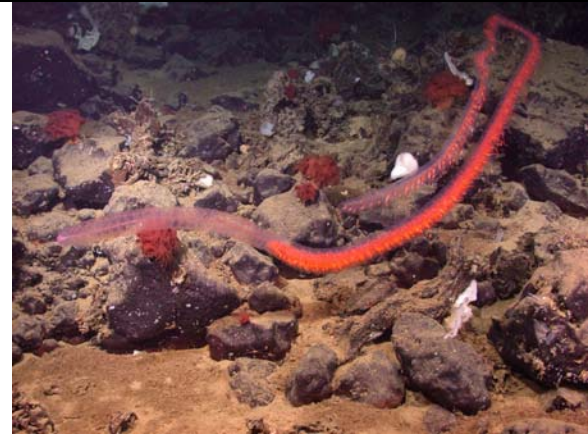
	Family: Rhopalonematidae <i>Crossota millsae</i> jelly Classification: Cairns et al. 2002 Identified by: Matsumoto Video Identifiability: Confirmed Observed Depth: 3,314 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.2. Class: Hydrozoa

6.2.2. Subclass: Siphonophorae – siphonophores

6.2.2.1. Order: Physonectae

	Family: Agalmatidae <i>Nanomia bijuga</i> Classification: Cairns et al. 2002 Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 61 – 2,267 m
Credit: MBARI © 2002	
	Family: Agalmatidae <i>Stephanomia amphytridis</i> siphonophore Classification: Cairns et al. 2002 Identified by: Pugh Video Identifiability: Confirmed Observed Depth: 1,304 m
Credit: NOAA/MBARI 2006	
	Family: Apolemiidae <i>Apolemia</i> spp. Classification: Cairns et al. 2002 Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 439 – 1,159 m
Credit: MBARI © 2002	

6. Phylum: CNIDARIA

6.2. Class: Hydrozoa

6.2.2. Subclass: Siphonophorae – siphonophores

6.2.2.1. Order: Physonectae

	Family: Physophoridae <i>Physophora hydrostatica</i> siphonophore Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,131 m
Credit: MBARI © 2003	
	Family: Rhodaliidae <i>Stephalia dilata</i> siphonophore, benthic Classification: van der Land 2006 Identified by: Pugh Video Identifiability: Confirmed Observed Depth: 1,702 – 2,805 m
Credit: NOAA/MBARI 2002	
	Family: Rhodaliidae <i>Thermopalia taraxaca</i> siphonophore Classification: van der Land 2006 Identified by: Pugh Video Identifiability: Confirmed Observed Depth: 2,741 – 2,938 m
Credit: MBARI © 2006	

6. Phylum: CNIDARIA

6.2. Class: Hydrozoa

6.2.2. Subclass: Siphonophorae – siphonophores

6.2.2.2. Order: Calycophorae

	Family: Prayidae <i>Gymnopraia lapislazula</i> siphonophore Classification: Haddock et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 407 m
Credit: MBARI © 2005	

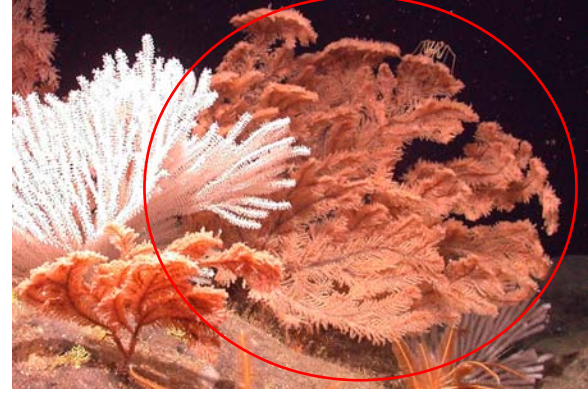
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.1. Order: Antipatharia – black corals

6.3.1.1.1. Family: Cladopathidae

	<i>Trissopathes pseudotrística</i> black coral Classification: Opresko 2003 Identified by: Opresko Video Identifiability: Confirmed Observed Depth: 2,566 – 2,972 m
Credit: NOAA/MBARI 2006	
	<i>Trissopathes</i> sp. (cf. <i>T. tetracrada</i>) black coral Classification: Opresko 2003 Identified by: Opresko Video Identifiability: Confirmed Observed Depth: 2,318 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.1. Order: Antipatharia – black corals

6.3.1.1.2. Family: Schizopathidae

	<i>Bathypathes</i> sp. black coral Classification: Opresko 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 2,268 – 3,283 m
Credit: NOAA/MBARI 2006	
	<i>Lillipathes</i> sp. black coral Classification: Opresko 2002 Identified by: Opresko Video Identifiability: Confirmed Observed Depth: 1,304 – 2,056 m
Credit: NOAA/MBARI 2002	
	<i>Umbellapathes</i> sp. black coral Classification: Opresko 2005 Identified by: Opresko Video Identifiability: Confirmed Observed Depth: 1,505 – 3,207 m
Credit: NOAA/MBARI 2006	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.2. Order: Ceriantharia – tube-dwelling anemones

6.3.1.2.1. Family: Cerianthidae

	CERIANTHIDAE sp. 1 tube-dwelling anemone Classification: Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Confirmed Observed Depth: 2,854 – 3,250 m
Credit: NOAA/MBARI 2002	
	CERIANTHIDAE sp. 2 tube-dwelling anemone Classification: Cairns et al. 2002 Identified by: Kuhnz Video Identifiability: Confirmed Observed Depth: 1,502 – 3,250 m
Credit: NOAA/MBARI 2002	
	CERIANTHIDAE sp. 3 tube-dwelling anemone Classification: Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Confirmed Observed Depth: 1,254 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.3. Order: Actiniaria – anemones

	ACTINIARIA sp. 1 (possibly <i>Bathypheilia</i> sp.) anemone Classification: Cairns et al. 2002 Identified by: Kuhnz Video Identifiability: Unconfirmed Observed Depth: 1,360 m
Credit: NOAA/MBARI 2002	
	ACTINIARIA sp. 2 anemone Classification: Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed Observed Depth: 2,846 m
Credit: NOAA/MBARI 2002	
	ACTINIARIA sp. 3 anemone Classification: Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed Observed Depth: 1,254 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.3. Order: Actiniaria – anemones

6.3.1.3.1. Suborder: Nyantheae

	Family: Actinostolidae ACTINOSTOLIDAE spp. anemone Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Unconfirmed Observed Depth: 1,325 – 3,237 m
Credit: NOAA/MBARI 2002	
	Family: Actinostolidae <i>Stomphia</i> sp. (probably <i>S. didemon</i>) anemone Classification: Cairns et al. 2002 Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 1,365 – 1,900 m
Credit: NOAA/MBARI 2002	
	Family: Hormathiidae HORMATHIIDAE sp. anemone Classification: Cairns et al. 2002 Identified by: Lundsten; von Thun Video Identifiability: Observed Depth: 1,265 – 3,270 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.3. Order: Actiniaria – anemones

6.3.1.3.1. Suborder: Nyantheae

	Family: Liponematidae <i>Liponema brevicornis</i> anemone, pom-pom Classification: Cairns et al. 2002 Identified by: Kuhnz Video Identifiability: Confirmed Observed Depth: 2,726 – 3,271 m
Credit: MBARI © 2004	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.4. Order: Zoanthidea

	ZOANTHIDEA sp. 1 zoanthid (upon <i>Calyptrophora</i> sp.) Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,710 – 1,764 m
Credit: NOAA/MBARI 2006	
	ZOANTHIDEA sp. 2 zoanthid (upon dead coral) Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,728 – 2,199 m
Credit: NOAA/MBARI 2006	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.5. Order: Corallimorpharia

	CORALLIMORPHARIA spp. anemone Classification: Cairns et al. 2002 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed Observed Depth: 2,868 – 3,261 m
Credit: NOAA/MBARI 2002	
	Family: Corallimorphidae <i>Corallimorphus</i> sp. anemone Classification: Cairns et al. 2002 Identified by: Kuhnz; Lundsten Video Identifiability: Provisional Observed Depth: 1,858 – 3,251 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.6. Order: Scleractinia – stony corals

6.3.1.6.1. Suborder: Caryophylliina

	CARYOPHYLLIINA sp. stony coral (cup coral) Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Provisional Observed Depth 1,480 – 3,254 m
Credit: NOAA/MBARI 2002	
	Family: Flabellidae <i>Javania caillieti</i> stony coral Classification: Cairns et al. 2002 Identified by: Cairns; Lundsten Video Identifiability: Confirmed Observed Depth: 1,914 – 2,689 m
Credit: NOAA/MBARI 2006	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.1. Order: Alcyonacea – soft corals

6.3.2.1.1. Suborder: Alcyoniina

	Family: Alcyoniidae <i>Anthomastus ritteri</i> coral, mushroom soft Classification: Williams and Cairns 2004 Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,246 – 3,277 m
Credit: NOAA/MBARI 2002	
	<i>Anthomastus ritteri</i> (closed polyps) (as above)
Credit: NOAA/MBARI 2002	
	Family: Alcyoniidae <i>Anthomastus robustus</i> Classification: Williams and Cairns 2004 Identified by: Kuhn; Lundsten Video Identifiability: Confirmed Observed Depth: 3,214 m
Credit: NOAA/MBARI 2002	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.1. Order: Alcyonacea – soft corals

6.3.2.1.1. Suborder: Alcyoniina

	Family: Alcyoniidae <i>Anthomastus</i> sp. 1 coral, soft Classification: Williams and Cairns 2004 Identified by: Lundsten Video Identifiability: Unconfirmed Observed Depth: 2,077 – 2,314 m
Credit: MBARI © 2004	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.1. Suborder: Scleraxonia

	Family: Paragorgiidae <i>Paragorgia arborea</i> coral, bubble gum Classification: Cairns et al. 2002 Identified by: Sanchez; Williams; Wing Video Identifiability: Confirmed Observed Depth: 1,245 – 1,779 m
Credit: NOAA/MBARI 2006	
	Family: Paragorgiidae <i>Paragorgia</i> sp. 1 coral, bubble gum Classification: Cairns et al. 2002 Identified by: Burton; Lundsten Video Identifiability: Confirmed Observed Depth: 1,250 – 3,043 m
Credit: NOAA/MBARI 2002	
	<i>Paragorgia</i> sp. 1 (as above)
Credit: NOAA/MBARI 2002	

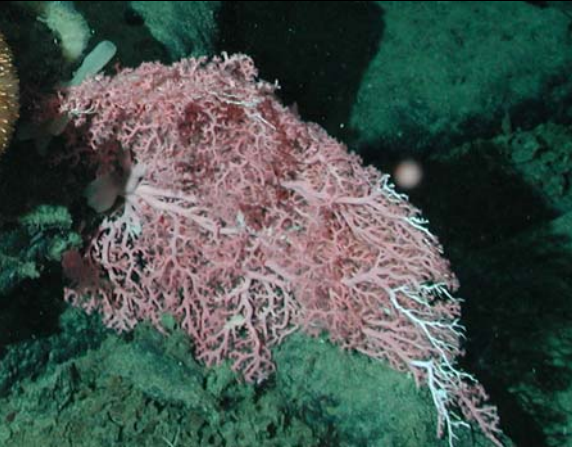
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.1. Suborder: Scleraxonia

	Family: Paragorgiidae <i>Paragorgia</i> sp. 2 (white morph) coral, bubble gum (white morph) Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 2,493 – 3,005 m
Credit: NOAA/MBARI 2002	
	Family: Coralliidae <i>Corallium</i> sp. coral, precious Classification: Williams and Cairns 2004 Identified by: Cairns Video Identifiability: Confirmed Observed Depth: 1,252 – 2,447 m
Credit: NOAA/MBARI 2006	
	<i>Corallium</i> sp. (as above)
Credit: NOAA/MBARI 2006	

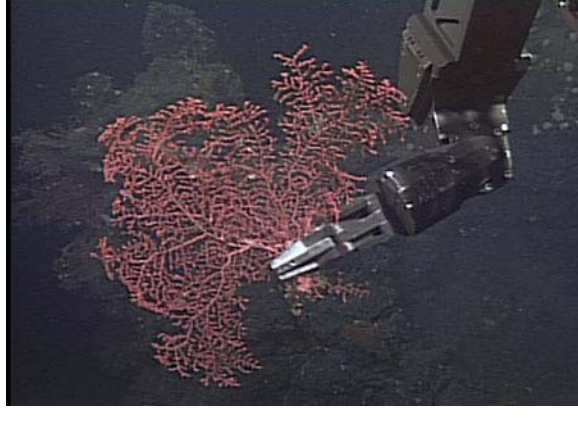
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.2. Suborder: Holaxonia

	Family: Acanthogorgiidae <i>Acanthogorgia</i> sp. coral Classification: Williams and Cairns 2004 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,266 – 1,958 m
Credit: NOAA/MBARI 2002	
	Family: Plexauridae <i>Swiftia kofoidi</i> coral, red sea fan Classification: Cairns et al. 2002 Identified by: Lundsten; Williams Video Identifiability: Confirmed Observed Depth: 1,294 – 1,352 m
Credit: MBARI © 2004	

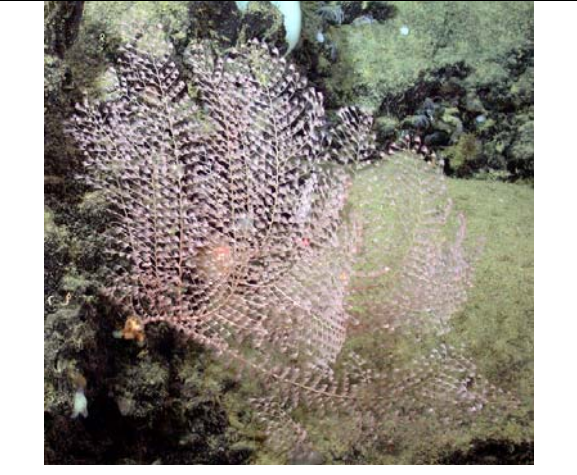
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcaxonia

	Family: Chrysogorgiidae <i>Chrysogorgia monticola</i> coral, golden gorgonian Classification: Cairns 2007 Identified by: Cairns (HOLOTYPE) Video Identifiability: Confirmed Observed Depth: 2,283 – 3,015 m
Credit: NOAA/MBARI 2002	
	Family: Chrysogorgiidae <i>Chrysogorgia pinnata</i> coral, golden gorgonian Classification: Cairns 2007 Identified by: Cairns (HOLOTYPE) Video Identifiability: Confirmed Observed Depth: 2,466 – 3,246 m
Credit: NOAA/MBARI 2006	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcaxonia

	Family: Primnoidae <i>Calyptrophora bayeri</i> coral Classification: Cairns 2007 Identified by: Cairns (HOLOTYPE) Video Identifiability: Confirmed Observed Depth: 1,683 m
Credit: NOAA/MBARI 2006	
	Family: Primnoidae <i>Calyptrophora</i> sp. (cf. <i>C. antilla</i>) coral Classification: Cairns 2007 Identified by: Cairns Video Identifiability: Confirmed Note: Partially covered with zooanthids Observed Depth: 1,763 m
Credit: NOAA/MBARI 2006	
	<i>Calyptrophora</i> sp. (cf. <i>C. antilla</i>) (as above) Note: • red circle: <i>Calyptrophora</i> sp. • blue circle: Zooanthids covering <i>Calyptrophora</i> sp.
Credit: NOAA/MBARI 2006	

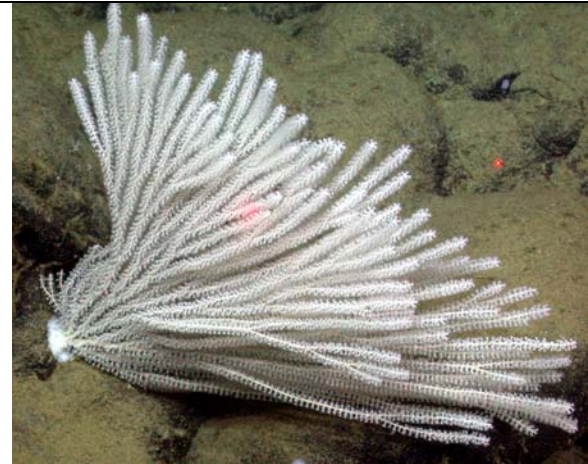
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcaxonia

	Family: Primnoidae <i>Calyptrophora</i> sp. coral Classification: Cairns 2007 Identified by: Cairns Video Identifiability: Confirmed Observed Depth: 1,573 m
Credit: NOAA/MBARI 2002	
	<i>Calyptrophora</i> sp. (as above)
Credit: NOAA/MBARI 2002	
	Family: Primnoidae <i>Narella</i> sp. coral Classification: Cairns et al. 2002 Identified by: Cairns; Lunsten Video Identifiability: Provisional Observed Depth: 1,610 – 3,079 m
Credit: NOAA/MBARI 2006	

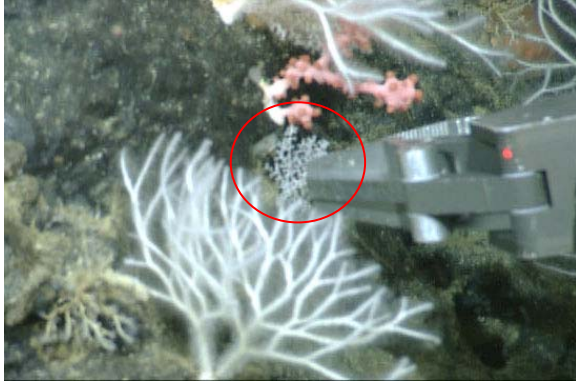
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcaxonia

	Family: Primnoidae <i>Parastenella ramosa</i> coral Classification: Cairns 2007 Identified by: Cairns Video Identifiability: Confirmed Observed Depth: 1,310 m
Credit: NOAA/MBARI 2006	
	Family: Primnoidae <i>Parastenella</i> sp. coral Classification: Williams and Cairns 2004 Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,771 – 3,051 m
Credit: NOAA/MBARI 2006	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcxonia

	Family: Isididae <i>Acanella</i> sp. coral, bamboo Classification: Williams and Cairns 2004 Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,675 – 1,682 m
Credit: NOAA/MBARI 2006	
	Family: Isididae <i>Keratoisis</i> sp. coral, bamboo Classification: Cairns et al. 2002 Identified by: Lundsten; Williams; Wing Video Identifiability: Confirmed Observed Depth: 1,451 – 2,846 m
Credit: NOAA/MBARI 2002	
	Family: Isididae <i>Lepidisis</i> sp. coral, bamboo Classification: Cairns et al. 2002 Identified by: Williams; Wing Video Identifiability: Confirmed Observed Depth: 1,286 – 3,288 m
Credit: NOAA/MBARI 2006	

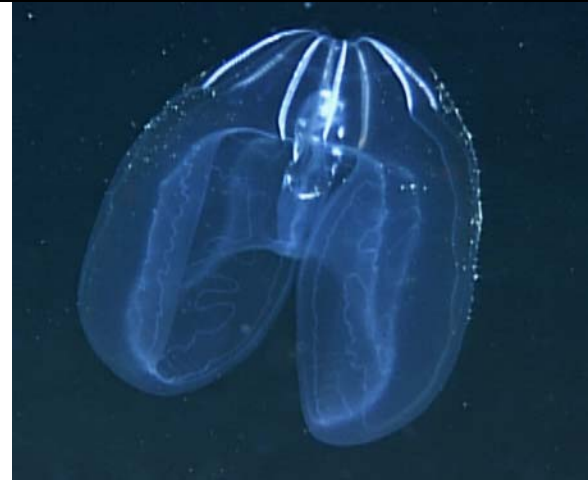
7. Phylum: CTENOPHORA – comb jellies or sea walnuts
 7.1. Class: Tentaculata
 7.1.1. Order: Cydippida

	Family: Haeckeliidae <i>Aulacoctena</i> sp. ctenophore Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,284 m
Credit: MBARI © 2001	
	Family: Pleurobrachiidae <i>Hormiphora</i> sp. ctenophore Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 39 m
Credit: MBARI © 2002	

7. **Phylum: CTENOPHORA** – comb jellies or sea walnuts
 7.1. **Class: Tentaculata**
 7.1.2. **Order: Platyctenida**

	Family: Tjalfiellidae <i>Tjalfiella tristoma</i> ctenophore Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 2,221 m
Credit: MBARI © 2002	

7. **Phylum: CTENOPHORA** – comb jellies or sea walnuts
7.1. **Class: Tentaculata**
7.1.3. **Order: Lobata**

	LOBATA sp. nov. ctenophore, lobate Classification: Matsumoto (pers comm) Identified by: Matsumoto Video Identifiability: Confirmed Observed Depth: 1,377 – 3,315 m
Credit: MBARI © 2005	
	Family: Bathocyroidae <i>Bathocyroe</i> spp. ctenophore, lobate Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 1,242 – 2,987 m
Credit: MBARI © 2005	
	Family: Lampoctenidae <i>Lampocteis cruentiventer</i> ctenophore, lobate Classification: Harbison et al. 2001 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed Observed Depth: 1,233 – 3,238 m
Credit: NOAA/MBARI 2006	

7. **Phylum: CTENOPHORA** – comb jellies or sea walnuts
 7.1. **Class: Tentaculata**
 7.1.3. **Order: Lobata**

	Family: Lampoctenidae <i>Lampocteis</i> sp. ctenophore, lobate Classification: Harbison et al. 2001 Identified by: Matsumoto Video Identifiability: Provisional Observed Depth: 2,102 m
Credit: NOAA/MBARI 2002	

8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
8.1. Class: Gastropoda – sea slugs

	Order: Vetigastropoda Superfamily: Patelloidea PATELLOIDEA sp. limpet Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,288 – 1,748 m
	Order: Caenogastropoda Suborder: Neogastropod Family: Turridae TURRIDAE sp. turrid Classification: Brands 1989-2007 Identified by: Geiger; Lonhart; McLean Video Identifiability: Confirmed Observed Depth: 2,080 m
Credit: NOAA/MBARI 2006	

8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 8.1. Class: Gastropoda – sea slugs
 8.1.1. Subclass: Opisthobranchia
 8.1.1.1. Order: Nudibranchia

	NUDIBRANCHIA sp. nov. mystery mollusk (midwater) Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,497 – 2,342 m
Credit: NOAA/MBARI 2002	
	Family: Tritoniidae <i>Tritonia</i> sp. (cf. <i>T. diomedea</i> or sp. nov.) nudibranch Classification: ITIS Identified by: Kuhnz; Lundsten; McClain Video Identifiability: Provisional Observed Depth: 1,247 m
Credit: NOAA/MBARI 2002	
	Family: Bathydoridae BATHYDORIDIDAE sp. nudibranch Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Unconfirmed Observed Depth: 3,254 m
Credit: NOAA/MBARI 2006	

8. **Phylum: MOLLUSCA** – slugs, chitons, clams, squids, octopuses
 8.2. **Class: Polyplacophora** – chitons
 8.2.1. **Order: Neoloricata**

	NEOLORICATA sp. chiton Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,559 – 2,926 m
Credit: NOAA/MBARI 2002	

8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 8.3. Class: Bivalvia – bivalves
 8.3.1. Subclass: Pteriomorphia

	Order: Limoida Family: Limidae <i>Acesta mori</i> clam Classification: ITIS Identified by: Barry Video Identifiability: Confirmed Observed Depth: 1,266 – 1,996 m
Credit: NOAA/MBARI 2002	
	Order: Ostreoida Family: Pectinidae ?PECTINIDAE sp. scallop Classification: ITIS Identified by: Lundsten Video Identifiability: Unconfirmed Observed Depth: 1,772 m

8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses

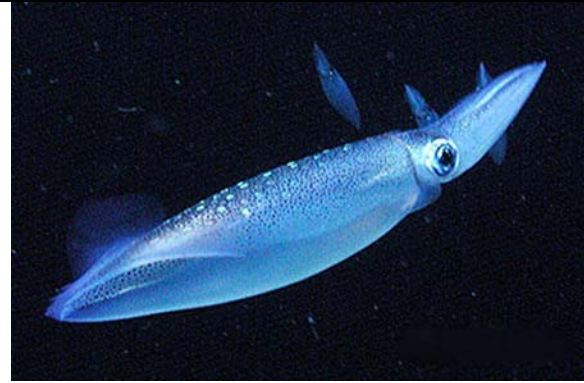
8.4. Class: Cephalopoda – cephalopods

8.4.1. Subclass: Coleoidea

8.4.1.1. Superorder: Decabrachia

8.4.1.1.1. Order: Teuthida

8.4.1.1.1.1. Suborder: Myopsina



Family: Loliginidae

Loligo (=Doryteuthis) opalescens
squid, California market

Classification: Anderson 2000; Vecchione
et al. 2005

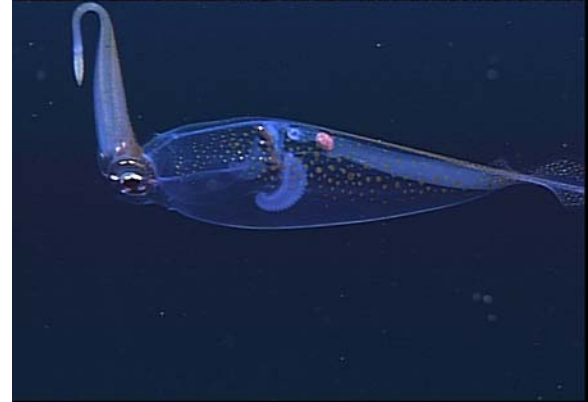
Identified by: von Thun

Video Identifiability: Confirmed

Observed Depth: 427 m

Credit: MBARI © 2001

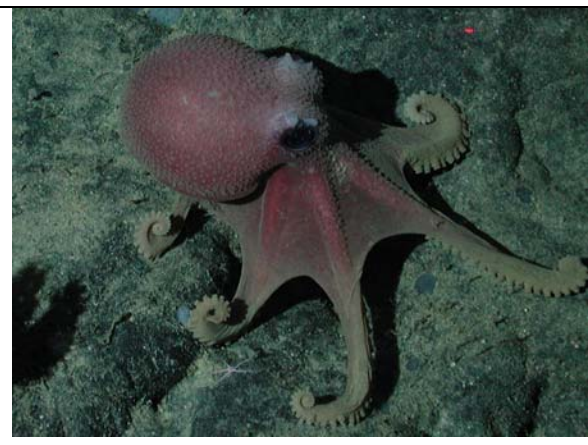
8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 8.4. Class: Cephalopoda – cephalopods
 8.4.1. Subclass: Coleoidea
 8.4.1.1. Superorder: Decabrachia
 8.4.1.1.1. Order: Teuthida
 8.4.1.1.1.2. Suborder: Oegopsina

	Family: Cranchiidae <i>Galiteuthis</i> sp. squid, glass Classification: ITIS Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 959 m
Credit: MBARI © 2002	
	Family: Gonatidae <i>Gonatus onyx</i> squid, clawed armhook Classification: ITIS Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 1,337 – 1,345 m
Credit: NOAA/MBARI 2002	
	Family: Ommastrephidae <i>Dosidicus gigas</i> squid, Humboldt Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 283 – 614 m
Credit: NOAA/MBARI 2006	

- 8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 - 8.4. Class: Cephalopoda – cephalopods
 - 8.4.1. Subclass: Coleoidea
 - 8.4.1.2. Superorder: Octobranchia
 - 8.4.1.2.1. Order: Octopoda
 - 8.4.1.2.1.1. Suborder: Cirrina

	Family: Opisthoteuthidae <i>Opisthoteuthis</i> sp. devilfish, flapjack Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 3,220 m
Credit: NOAA/MBARI 2002	

8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 8.4. Class: Cephalopoda – cephalopods
 8.4.1. Subclass: Coleoidea
 8.4.1.2. Superorder: Octobranchia
 8.4.1.2.1. Order: Octopoda
 8.4.1.2.1.2. Suborder: Incirrina

	Family: Bolitaenidae <i>Japetella</i> sp. octopus, pelagic Classification: ITIS Identified by: Lundsten; Matsumoto Video Identifiability: Confirmed Observed Depth: 945 m
Credit: NOAA/MBARI 2006	
	Family: Octopodidae <i>Benthoctopus</i> sp. octopus, benthic Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,461 – 2,770 m
Credit: NOAA/MBARI 2002	
	Family: Octopodidae <i>Graneledone boreopacifica (pacifica)</i> octopus Classification: ITIS/Sweeney et al. 1998 Identified by: Kuhnz Video Identifiability: Confirmed Observed Depth: 1,458 – 1,974 m
Credit: NOAA/MBARI 2002	

9. Phylum: ANNELIDA – segmented worms
 9.1. Class: Polychaeta – polychaete worms
 9.1.1. Subclass: Palpata
 9.1.1.1 Order: Aciculata
 9.1.1.1.1 Suborder: Phyllodocida

	Family: Tomopteridae <i>Tomopteris</i> sp. polychaete, tomopterid Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 297 – 494 m
Credit: NOAA/MBARI 2002	
	Family: Aphroditidae <i>Laetmonice</i> sp. polychaete, sea mouse Classification: ITIS; Lundsten (pers comm) Identified by: Harris; Lundsten; Schlining Video Identifiability: Confirmed Observed Depth: 1,969 – 2,644 m
Credit: NOAA/MBARI 2006	
	Family: Polynoidae POLYNOIDAE sp. scale worm, blue (upon <i>Paragorgia arborea</i>) Classification: ITIS Identified by: Baco-Taylor; Kuhnz Video Identifiability: Provisional Observed Depth: 1,257 – 3,044 m
Credit: NOAA/MBARI 2002	

9. Phylum: ANNELIDA – segmented worms

9.1. Class: Polychaeta - polychaete worms

9.1.1. Subclass: Palpata

9.1.1.2 Order: Canalipalpata

9.1.1.2.1. Suborder: Sabellida

	Family: Sabellidae <i>Euchone</i> sp. nov. polychaete, sabellid Classification: Brands 1989-2007 Identified by: Lundsten; Rouse Video Identifiability: Confirmed Observed Depth: 1,722 – 3,252 m
Credit: NOAA/MBARI 2006	
	Family: Serpulidae SERPULIDAE spp. polychaete, serpulid Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,495 – 3,287 m

- 9. Phylum: ANNELIDA – segmented worms
 - 9.1. Class: Polychaeta - polychaete worms
 - 9.1.1. Subclass: Palpata
 - 9.1.1.2. Order: Canalipalpata
 - 9.1.1.2.2 Suborder: Terebellida

	Family: Poeobiidae <i>Poeobius meseres</i> polychaete, holopelagic Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 781 – 1,723 m
Credit: NOAA/MBARI 2002	
	Family: Fauveliopsidae <i>Flota</i> sp. polychaete Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 2,564 – 2,678 m
Credit: MBARI © 2002	

10. Phylum: ARTHROPODA – sea spiders, barnacles, shrimps, crabs

10.1. Subphylum: Chelicerata

10.1.1. Class: Pycnogonida – sea spiders

	PYCNOGONIDA sp. sea spider Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,440 – 3,288 m
Credit: NOAA/MBARI 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.1. Class: Maxillopoda

10.2.1.1. Subclass: Thecostraca

10.2.1.1.1. Infraclass: Cirripedia – barnacles

10.2.1.1.1.1. Superorder: Thoracica

	Order: Pedunculata Suborder: Scalpellomorpha SCALPELLOMORPHA sp. barnacle, stalked Classification: ITIS Identified by: Lundsten; Van Syoc Video Identifiability: Confirmed Observed Depth: 1,547 – 3,082 m
Credit: NOAA/MBARI 2006	
	Order: Sessilia Suborder: Verrucomorpha VERRUCOMORPHA sp. barnacle Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,654 – 2,907 m
Credit: NOAA/MBARI 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.1. Suborder: Dendrobrachiata

10.2.2.1.1.1.1.1. Family: Sergestidae - shrimps

	<i>Sergestes similis</i> shrimp, midwater Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 301 – 3,256 m
Credit: MBARI © 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.1. Infraorder: Caridea

	CARIDEA spp. shrimp Classification: ITIS Identified by: von Thun Video Identifiability: Provisional Observed Depth: 1,347 – 3,101 m
Credit: NOAA/MBARI 2002	
	Family: Pandalidae <i>Pandalopsis ampla</i> shrimp, deepwater bigeye Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,280 – 1,747 m
Credit: NOAA/MBARI 2006	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.2. Infraorder: Anomura

10.2.2.1.1.1.2.2.1. Family: Lithodidae – king crabs

	LITHODIDAE sp. crab (probably juvenile) Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 1,284 – 2,535 m
Credit: NOAA/MBARI 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1 Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.2. Infraorder: Anomura

10.2.2.1.1.1.2.2.1. Family: Lithodidae – king crabs

	<i>Neolithodes diomedae</i> crab Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,431 – 1,560 m
Credit: MBARI © 2004	
	<i>Neolithodes</i> sp. crab, spiny Classification: ITIS Identified by: Kuhnz; Lundsten Video Identifiability: Unconfirmed Observed Depth: 1,247 – 1,526 m
Credit: NOAA/MBARI 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.2. Infraorder: Anomura

10.2.2.1.1.1.2.2.1. Family: Lithodidae – king crabs

	<i>Paralomis multispina</i> crab Classification: ITIS Identified by: Kuhnz; Lundsten Video Identifiability: Provisional Observed Depth: 1,661 – 2,306 m
Credit: NOAA/MBARI 2002	
	<i>Paralomis verrilli</i> crab, vermillion Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 2,349 m
Credit: NOAA/MBARI 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1 Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.2. Infraorder: Anomura

10.2.2.1.1.1.2.2.2. Family: Galatheidae – squat lobsters

	<i>Munida</i> sp. lobster, squat Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional Observed Depth: 1,306 m
Credit: NOAA/MBARI 2002	
	<i>Munidopsis</i> spp. lobster, squat Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,512 – 3,290 m
Credit: NOAA/MBARI 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.3. Infraorder: Brachyura

	BRACHYURA sp. crab Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 1,319 m
Credit: NOAA/MBARI 2002	
	Family: Pisidae <i>Chorilia longipes</i> crab, longhorn decorator Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,585 m
Credit: MBARI © 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.2. Superorder: Peracarida

10.2.2.1.2.1. Order: Mysida - mysids

	MYSIDA spp. shrimp, opossum Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Provisional Observed Depth: 413 – 3,307 m
Credit: NOAA/MBARI 2002	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.2. Superorder: Peracarida

10.2.2.1.2.2. Order: Amphipoda - amphipods

	AMPHIPODA spp. amphipod Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,289 – 1,616 m
	Suborder: Caprellidea Infraorder: Caprellida Family: Caprellidae CAPRELLIDAE spp. caprellid Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,257 – 1,728 m
Credit: NOAA/MBARI 2006	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.2. Superorder: Peracarida

10.2.2.1.2.3. Order: Isopoda - isopods

	ISOPODA spp. isopod Classification: ITIS Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 1,319 – 2,789 m
Credit: NOAA/MBARI 2002	
	Family: Munnopsidae MUNNOPSIDAE spp. isopod Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Provisional Observed Depth: 217 – 3,312 m

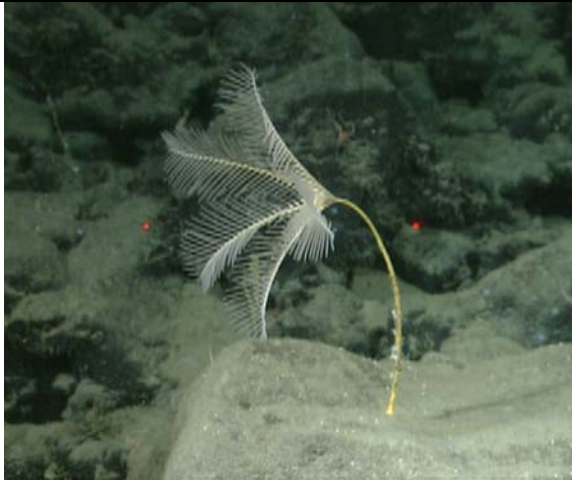
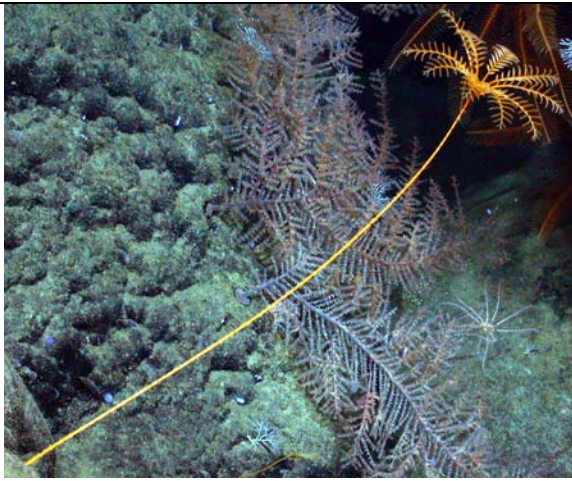
11. Phylum: ECTOPROCTA – bryozoans

 A photograph of a white, branching bryozoan colony (ECTOPROCTA sp. 1) growing on a dark, rocky substrate. A thick, orange, tube-like structure is visible in the upper left corner of the frame.	ECTOPROCTA sp. 1 bryozoan Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 3,004 – 3,114 m
Credit: NOAA/MBARI 2006	
 A photograph of a small, bright green, branching bryozoan colony (ECTOPROCTA sp. 2) growing on a dark, textured, and possibly encrusted substrate.	ECTOPROCTA sp. 2 bryozoan Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 3,005 m
Credit: NOAA/MBARI 2006	

12. Phylum: ECHINODERMATA

12.1. Class: Crinoidea - crinoids, feather stars

12.1.1. Subclass: Articulata

	Order: Millericrinida Family: Hyocrinidae <i>Hyocrinus</i> sp. crinoid, 5-arm Classification: Brands 1989-2007 Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 2,476 – 3,273 m
Credit: NOAA/MBARI 2006	
	Order: Bourgueticrinida Family: Bathyrcrinidae BATHYCRINIDAE sp. crinoid, 10-arm Classification: Brands 1989-2007 Identified by: Kuhnz; Lundsten; Messing Video Identifiability: Confirmed Observed Depth: 1,950 – 3,274 m
Credit: NOAA/MBARI 2006	
	BATHYCRINIDAE sp. (as above)
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.1. Class: Crinoidea - crinoids, feather stars

12.1.1. Subclass: Articulata

	Order: Comatulida Family: Antedonidae <i>Florometra serratissima</i> crinoid (feather star) Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,261 – 3,210 m
Credit: NOAA/MBARI 2006	
	<i>Florometra serratissima</i> (as above)
Credit: NOAA/MBARI 2006	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.1. Order: Notomyotida

12.2.1.1. Family: Benthopectinidae

	<i>Benthopecten</i> sp. (possibly <i>B. claviger</i>) sea star, prickly Classification: Cal Acad 2004 Identified by: Kuhnz; Mah Video Identifiability: Provisional Observed Depth: 2,460 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA
 12.2. Class: Asteroidea – sea stars
 12.2.2. Order: Valvatida
 12.2.2.1. Family: Goniasteridae

	<i>Ceraster patagonicus</i> sea star Classification: Cal Acad 2004 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,663 – 2,605 m
Credit: MBARI © 2004	
	<i>Ceraster</i> sp. sea star Classification: Cal Acad 2004 Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,279 – 3,209 m
Credit: NOAA/MBARI 2006	
	<i>Evoplosoma</i> sp. nov. sea star Classification: Cal Acad 2004 Identified by: Mah Video Identifiability: Confirmed Observed Depth: 3,034 m
Credit: NOAA/MBARI 2006	

12. Phylum: ECHINODERMATA
 12.2. Class: Asteroidea – sea stars
 12.2.2. Order: Valvatida
 12.2.2.1. Family: Goniasteridae

	<i>Hippasteria californica</i> sea star Classification: Cal Acad 2004 Identified by: Lundsten; Mah Video Identifiability: Confirmed Observed Depth: 1,277 – 2,664 m
Credit: NOAA/MBARI 2002	
	<i>Hippasteria spinosa</i> sea star Classification: Cal Acad 2004 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,495 – 1,682 m
Credit: MBARI © 2005	
	<i>Mediaster</i> spp. sea star Classification: Cal Acad 2004; ITIS Identified by: Mah Video Identifiability: Confirmed Observed Depth: 2,500 – 2,932 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.3. Order: Velatida

12.2.3.1. Family: Pterasteridae

	<i>Hymenaster koehleri</i> sea star Classification: Cal Acad 2004; ITIS Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,917 – 3,257 m
Credit: NOAA/MBARI 2002	
	?<i>Pteraster</i> sp. 1 sea star Classification: Cal Acad 2004 Identified by: Mah Video Identifiability: Provisional Observed Depth: 2,850 m
Credit: NOAA/MBARI 2002	
	<i>Pteraster</i> sp. 2 (possibly <i>Hymenaster</i> sp.) sea star Classification: Cal Acad 2004 Identified by: Mah Video Identifiability: Provisional Observed Depth: 2,887 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.3. Order: Velatida

12.2.3.1. Family: Pterasteridae

	<i>Pteraster</i> sp. 3 (possibly <i>Hymenaster</i> sp.) sea star Classification: Cal Acad 2004 Identified by: Mah Video Identifiability: Provisional Observed Depth: 3,100 – 3,180 m
Credit: NOAA/MBARI 2002	
	<i>Pteraster</i> sp. 4 sea star Classification: Cal Acad 2004 Identified by: Lundsten; Mah Video Identifiability: Provisional Observed Depth: 3,100 m
Credit: NOAA/MBARI 2002	
	<i>Pteraster</i> sp. 5 sea star Classification: Cal Acad 2004 Identified by: Lundsten; Mah Video Identifiability: Provisional Observed Depth: 1,302 – 1,317 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.3. Order: Velatida

12.2.3.2. Family: Solasteridae

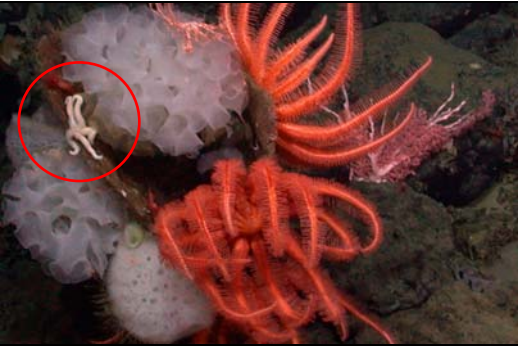
	<i>Lophaster furcilliger</i> sea star Classification: Cal Acad 2004 Identified by: Lundsten; Mah Video Identifiability: Confirmed Observed Depth: 1,662 – 1,718 m
Credit: MBARI © 2004	
	<i>Solaster</i> spp. sun star (upon <i>Pannychia moseleyi</i>) Classification: Cal Acad 2004 Identified by: Lundsten; von Thun Video Identifiability: Provisional Observed Depth: 1,318 – 2,937 m
Credit: NOAA/MBARI 2006	

12. Phylum: ECHINODERMATA

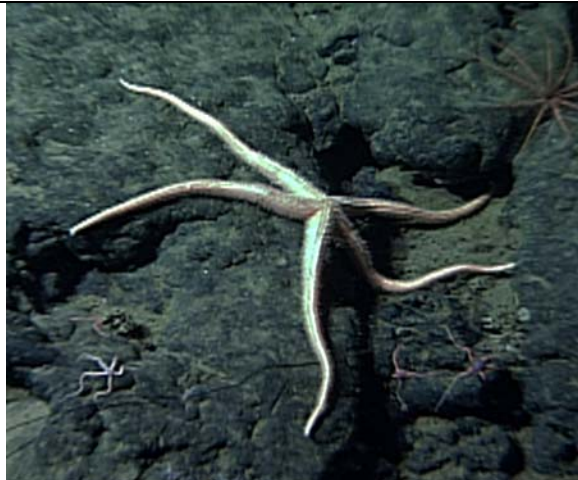
12.2. Class: Asteroidea – sea stars

12.2.4. Order: Spinulosida

12.2.4.1. Family: Echinasteridae

	<i>Henricia</i> sp. sea star Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Provisional Observed Depth: 1,278 – 3,288 m
Credit: NOAA/MBARI 2006	

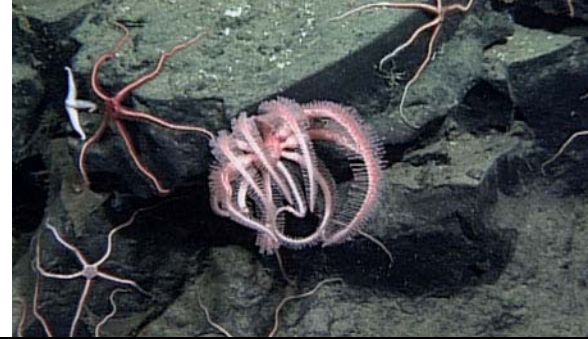
12. Phylum: ECHINODERMATA
 12.2. Class: Asteroidea – sea stars
 12.2.5. Order: Forcipulatida

	Family: Asteriidae <i>?Anteliaster</i> sp. sea star Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 2,498 m
Credit: NOAA/MBARI 2006	
	Family: Zoroasteridae <i>Myxoderma sacculatum</i> sea star Classification: ITIS Identified by: Kuhnz; Lundsten; Mah Video Identifiability: Confirmed Observed Depth: 2,668 – 2,728 m
Credit: MBARI © 2003	
	Family: Zoroasteridae ZOROASTERIDAE sp. sea star, pink Classification: Cal Acad 2004 Identified by: Kuhnz; Mah Video Identifiability: Provisional Observed Depth: 1,574 – 2,921 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.6. Order: Brisingida

	BRISINGIDA spp. sea star, brisingid Classification: Cal Acad 2004 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed Observed Depth: 1,304 – 3,287 m
Credit: MBARI © 2004	

12. Phylum: ECHINODERMATA

12.3. Class: Ophiuroidea – brittle stars, basket stars

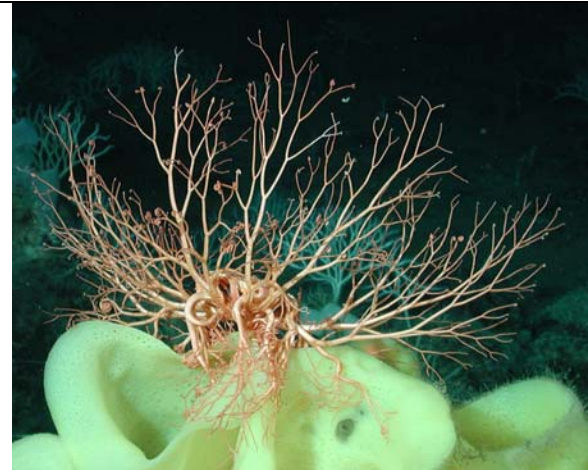
	Ophiuroidea spp. brittle star Classification: Cal Acad 2004 Identified by: Kuhnz Video Identifiability: Confirmed Observed Depth: 2,801 – 3,007 m
Credit: NOAA/MBARI 2002	
	Ophiuroidea spp. (as above)
Credit: NOAA/MBARI 2006	

12. Phylum: ECHINODERMATA

12.3. Class: Ophiuroidea – brittle stars, basket stars

12.3.1. Order: Phrynophiurida

12.3.1.1. Family: Gorgonocephalidae

	<i>Gorgonocephalus</i> sp. basket star Classification: Cal Acad 2004 Identified by: Lundsten; Mah; von Thun Video Identifiability: Provisional Observed Depth: 1,254 – 1,780 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.3. Class: Ophiuroidea – brittle stars, basket stars

12.3.2. Order: Ophiurida

12.3.2.1. Family: Ophiacanthidae

	OPHIACANTHIDAE sp. brittle star Classification: Cal Acad 2004 Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,571 – 3,287 m
Credit: NOAA/MBARI 2006	

12. Phylum: ECHINODERMATA

12.4. Class Echinoidea – urchins

	ECHINOIDEA sp. urchin Classification: Smith 2005 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,850 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.4. Class: Echinoidea – urchins

12.4.1. Order: Cidaroida

	Family: Cidaridae <i>Aporocidaris milleri</i> urchin, pencil Classification: Smith 2005 Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 3,270 – 3,288 m
Credit: MBARI © 2006	

12. Phylum: ECHINODERMATA

12.4. Class: Echinoidea – urchins

12.4.2. Order: Echinothuroidea

	Family: Echinothuriidae <i>Tromikosoma panamense</i> urchin Classification: Smith 2005 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed Observed Depth: 2,666 – 3,250 m
Credit: NOAA/MBARI 2002	
	Family: Echinothuriidae <i>Tromikosoma</i> sp. urchin Classification: Smith 2005 Identified by: Kuhnz; Lundsten Video Identifiability: Provisional Observed Depth: 2,024 – 2,932 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.4. Class Echinoidea – urchins

12.4.3. Order: Holasteroidea

	Family: Pourtalesiidae <i>Cystocrepis setigera</i> urchin Classification: Smith 2005 Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 1,950 – 2,064 m
Credit: NOAA/MBARI 2006	

12. Phylum: ECHINODERMATA

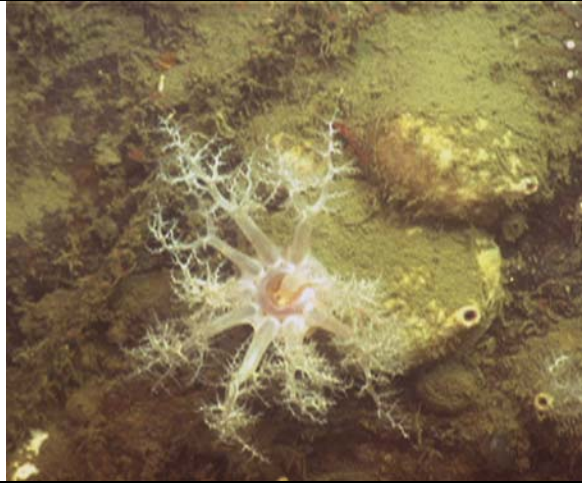
12.5. Class: Holothuroidea - sea cucumbers

	HOLOTHUROIDEA sp. 1 sea cucumber Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 2,912 – 2,926 m
Credit: NOAA/MBARI 2006	
	HOLOTHUROIDEA sp. 2 sea cucumber Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Confirmed Observed Depth: 2,788 – 2,854 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers

12.5.1. Order: Dendrochirotida

	Family: Cucumariidae <i>Abyssocucumis abyssorum</i> sea cucumber Classification: ITIS Identified by: Kuhnz Video Identifiability: Confirmed Observed Depth: 3,250 m
Credit: NOAA/MBARI 2002	
	Family: Psolidae <i>Psolus squamatus</i> sea cucumber Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 1,280 – 1,679 m
Credit: MBARI © 2002	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers

12.5.2. Order: Aspidochirotida

	Family: Synallactidae <i>Paelopatides confundus</i> sea cucumber Classification: ITIS Identified by: Kuhnz; von Thun Video Identifiability: Confirmed Observed Depth: 2,286 – 3,166 m
Credit: NOAA/MBARI 2002	
	Family: Synallactidae SYNALLACTIDAE sp. sea cucumber Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 1,676 – 3,260 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers

12.5.3. Order: Elasipodida

	Family: Deimatidae <i>Oneirophanta mutabilis</i> sea cucumber Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 2,621 – 3,254 m
Credit: NOAA/MBARI 2006	
	Family: Elpidiidae <i>Peniagone</i> sp. sea cucumber Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 1,352 – 3,253 m
Credit: NOAA/MBARI 2006	
	Family: Elpidiidae <i>Scotoplanes globosa</i> sea cucumber Classification: ITIS Identified by: Kuhn Video Identifiability: Confirmed Observed Depth: 3,264 m
Credit: MBARI © 2005	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers

12.5.3. Order: Elasipodida

	Family: Laetmogonidae <i>Pannychia moseleyi</i> sea cucumber Classification: ITIS Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed Observed Depth: 1,718 – 3,008 m
Credit: NOAA/MBARI 2002	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers

12.5.3. Order: Elasipodida

	Family: Psychropotidae <i>Benthodytes</i> sp. 1 sea cucumber Classification: ITIS Identified by: Video Identifiability: Provisional Observed Depth: 2,516 – 2,789 m
Credit: NOAA/MBARI 2002	
	<i>Benthodytes</i> sp. 1 (as above)
Credit: NOAA/MBARI 2002	
	Family: Psychropotidae <i>Benthodytes</i> sp. 2 sea cucumber Classification: ITIS Identified by: Kuhnz; Lundsten Video Identifiability: Provisional Observed Depth: 2,860 – 3,276 m
Credit: NOAA/MBARI 2002	

13. Phylum: CHAETOGNATHA - chaetognaths

	CHAETOGNATHA spp. chaetognath Classification: ITIS Identified by: Lundsten; vonThun Video Identifiability: Confirmed Observed Depth: 206 – 2,100 m

14. Phylum: HEMICHORDATA

14.1. Class: Enteropneusta - acorn worms

	ENTEROPNEUSTA sp. acorn worm Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 2,566 – 3,301 m
Credit: NOAA/MBARI 2006	

15. Phylum: CHORDATA

15.1. Subphylum: Tunicata

15.1.1. Class: Ascidiacea – sea squirts

	Order: Pleurogona Family: Pyuridae <i>Culeolus</i> sp. tunicate, stalked Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,654 – 2,733 m
Credit: NOAA/MBARI 2006	

15. Phylum: CHORDATA

15.1. Subphylum: Tunicata

15.1.2. Class: Thaliacea - salps

	Order: Salpida SALPIDA spp. salp Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 268 – 555 m
Credit: MBARI © 2005	
	Order: Doliolida <i>Doliolenetta</i> sp. nov. (and other DOLIOLIDA spp.) salp Classification: Taxonomicon Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 435 – 1,211 m
Credit: MBARI © 2004	

15. Phylum: CHORDATA

15.1. Subphylum: Tunicata

15.1.3. Class: Appendicularia - larvaceans

	Order: Copelata Family: Oikopleuridae <i>Bathochordaeus</i> sp. (and other APPENDICULARIA spp.) larvacean, giant Classification: Brands 1989-2007 Identified by: Lundsten; von Thun Video Identifiability: Confirmed Observed Depth: 256 – 3,280 m
Credit: MBARI © 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.1. Class: Chondrichthyes - cartilaginous fishes

15.2.1.1. Subclass: Elasmobranchii

15.2.1.1.1. Order: Rajiformes – rays, skate

15.2.1.1.1.1. Suborder: Rajoidei

	RAJOIDEI spp. egg cases Classification: Ebert and Davis 2007 Identified by: Davis; Ebert Video Identifiability: Confirmed Observed Depth: 1,310 – 1,319 m
Credit: NOAA/MBARI 2002	
	Family: Arhynchobatidae <i>Bathyraja abyssicola</i> skate, deepsea Classification: ITIS Identified by: Ebert; Kuhnz Video Identifiability: Confirmed Observed Depth: 2,018 – 2,371 m
Credit: NOAA/MBARI 2002	
	Family: Rajidae <i>Amblyraja badia</i> skate, broad Classification: ITIS Identified by: Ebert; Kuhnz Video Identifiability: Confirmed Observed Depth: 1,642 m (female)
Credit: NOAA/MBARI 2006	

15. Phylum: CHORDATA

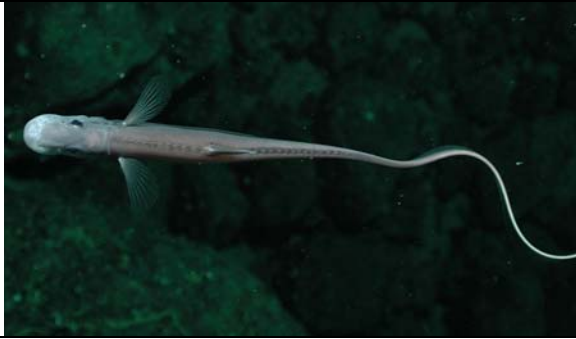
15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.1. Order: Notacanthiformes

15.2.2.1.1.1. Family: Halosauridae – halosaurs

	<i>Aldrovandia</i> sp. lizardfish, salty (or halosaur) Classification: Eschmeyer et al. 2005; Froese and Pauly 2005 Identified by: Cailliet; Rosenblatt Video Identifiability: Confirmed Observed Depth: 1,736 – 1,918 m
Credit: NOAA/MBARI 2002	
	<i>Aldrovandia</i> sp. (as above)
Credit: NOAA/MBARI 2002	
	<i>Aldrovandia</i> sp. (as above)
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.2. Order: Anguilliformes – true eels

15.2.2.1.2.1. Family: Synaphobranchidae – cutthroat eels

	SYNAPHOBRANCHIDAE sp. eel, cutthroat Classification: Froese and Pauly 2005 Identified by: Burton; Lea; Lundsten Video Identifiability: Provisional Observed Depth: 2,498 – 2,500 m
Credit: NOAA/MBARI 2006	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.2. Order: Anguilliformes – true eels

15.2.2.1.2.2. Family: Nettastomatidae – duckbill eels

	<i>Venefica tentaculata</i> eel, witch Classification: Eschmeyer et al. 2005; Froese and Pauly 2005 Identified by: Cailliet; Lea; Rosenblatt Video Identifiability: Provisional Observed Depth: 1,856 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.2. Order: Anguilliformes – true eels

15.2.2.1.2.3. Family: Serrivomeridae – sawtooth eels

	<i>Serrivomer</i> sp. (possibly <i>S. sector</i>) eel, sawtooth Classification: Eschmeyer et al. 2005; Froese and Pauly 2005 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 631 m
Credit: NOAA/MBARI 2006	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.3. Order: Saccopharyngiformes

15.2.2.1.3.1. Family: Cyematidae – bobtail eels

	<i>Cyema atrum</i> eel, bobtail Classification: Eschmeyer et al. 2005 Identified by: Burton; Trejo Video Identifiability: Confirmed Observed Depth: 1,320 m
Credit: MBARI © 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.4. Order: Osmeriformes (Argentiniformes)

15.2.2.1.4.1. Family: Bathylagidae – deep-sea smelts

	BATHYLAGIDAE spp. smelt, deep-sea Classification: Nelson et al. 2004 Identified by: von Thun Video Identifiability: Confirmed Observed Depth: 305 – 787 m
Credit: MBARI © 2000	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.4. Order: Osmeriformes (Argentiniformes)

15.2.2.1.4.2. Family: Alepocephalidae – slickheads

	ALEPOCEPHALIDAE sp. (possibly <i>Conocara salmoneum</i>) slickhead Classification: ITIS; Eschmeyer et al. 2005 Identified by: Burton; Lea; Lundsten Video Identifiability: Provisional Observed Depth: 1,276 – 2,920 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.5. Order: Stomiiformes

15.2.2.1.5.1. Family: Gonostomatidae – bristlemouths

	<i>Cyclothone</i> sp. bristlemouth Classification: ITIS; Eschmeyer et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 389 – 502 m
Credit: MBARI © 2003	

15. Phylum: CHORDATA

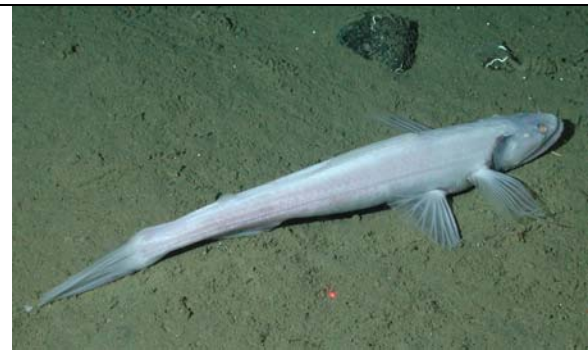
15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.6. Order: Aulopiformes

15.2.2.1.6.1. Family: Synodontidae – lizardfishes

	<i>Bathysaurus mollis</i> lizardfish, highfin Classification: Nelson 1994, Nelson et al. 2004, Eschmeyer et al. 2005 Identified by: Cailliet Video Identifiability: Confirmed Observed Depth: 2,012 – 2,401 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.7. Order: Myctophiformes

15.2.2.1.7.1. Family: Myctophidae – lanternfishes

	MYCTOPHIDAE spp. lanternfish Classification: Nelson et al. 2004 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 676 m
Credit: MBARI © 2003	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.8. Order: Ophidiiformes

15.2.2.1.8.1. Family: Ophidiidae – cusk-eels and brotulas

	<i>Luciobrotula</i> sp. brotulid Classification: ITIS; Eschmeyer et al. 2005 Identified by: Kuhnz; Lundsten Video Identifiability: Provisional Observed Depth: 1,306 – 1,929 m
Credit: NOAA/MBARI 2002	
	<i>Luciobrotula</i> sp. (as above)
Credit: NOAA/MBARI 2002	
	<i>Spectrunculus grandis</i> cusk-eel, giant Classification: ITIS; Nelson et al. 2004 Identified by: Burton; Cailliet; Lundsten Video Identifiability: Confirmed Observed Depth: 1,254 – 3,287 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.9. Order: Gadiformes

15.2.2.1.9.1. Family: Macrouridae – grenadiers, rattails

	<i>Albatrossia pectoralis</i> grenadier, giant Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; Iwamoto Video Identifiability: Provisional Observed Depth: 1,764 m
Credit: NOAA/MBARI 2006	
	<i>Coryphaenoides acrolepis</i> grenadier, Pacific Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; Kuhn; Lundsten Video Identifiability: Confirmed Observed Depth: 1,311 m
Credit: NOAA/MBARI 2006	
	<i>Coryphaenoides armatus/yaquinae</i> grenadier, abyssal/rough abyssal Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; Kuhn Video Identifiability: Confirmed Observed Depth: 3,125 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

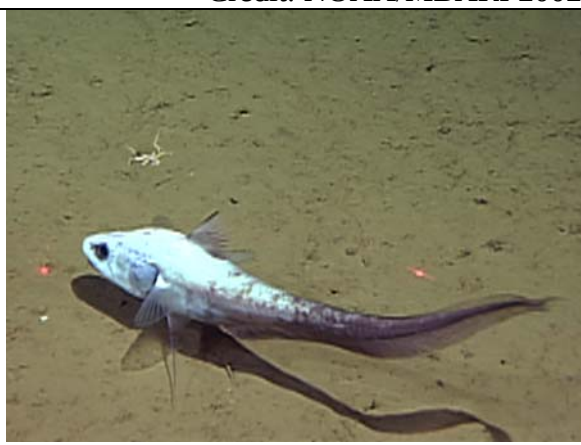
15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.9. Order: Gadiformes

15.2.2.1.9.1. Family: Macrouridae – grenadiers, rattails

	<i>Coryphaenoides filifer</i> grenadier, filamented Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; von Thun Video Identifiability: Provisional Observed Depth: 3,000 m
Credit: NOAA/MBARI 2002	
	<i>Coryphaenoides leptolepis</i> grenadier, ghostly Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; Kuhn; Lundsten Video Identifiability: Confirmed Observed Depth: 2,666 – 2,942 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.9. Order: Gadiformes

15.2.2.1.9.2. Family: Moridae – codlings

	<i>Antimora microlepis</i> codling, finescale (or Pacific flatnose) Classification: ITIS Identified by: Kuhnz Video Identifiability: Confirmed Observed Depth: 1,259 – 2,800 m
Credit: NOAA/MBARI 2002	
	MORIDAE sp. (<i>Lepidion</i> sp. or possibly <i>Laemonema</i> sp.) codling Classification: ITIS Identified by: Burton; Kuhnz; Lea; Lundsten Video Identifiability: Provisional Observed Depth: 1,771 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.10. Order: Lophiiformes

15.2.2.1.10.1. Family: Chaunacidae – sea toads

	<i>Bathychaunax (Chaunax) coloratus</i> sea toad, deep Classification: ITIS; Eschmeyer et al. 2005 Identified by: Cailliet; Lea; Rosenblatt Video Identifiability: Confirmed Observed Depth: 2,461 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.11. Order: Scorpaeniformes

15.2.2.1.11.1. Family: Scorpaenidae – rockfishes

	<i>Sebastolobus alascanus</i> thornyhead, shortspine Classification: ITIS; Nelson et al. 2004 Identified by: Burton; Cailliet; Trejo Video Identifiability: Confirmed Observed Depth: 1,255 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.11. Order: Scorpaeniformes

15.2.2.1.11.2. Family: Psychrolutidae – fathead sculpins

	<i>Psychrolutes phrictus</i> sculpin, blob (or no-name sculpin) Classification: ITIS; Eschmeyer et al. 2005 Identified by: Burton; Cailliet; Lunsten Video Identifiability: Confirmed Observed Depth: 1,279 – 1,537 m
Credit: NOAA/MBARI 2002	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.11. Order: Scorpaeniformes

15.2.2.1.11.3. Family: Liparidae – snailfishes

	<i>Careproctus ovigerus</i> (juvenile) snailfish, abyssal Classification: Nelson 1994; Nelson et al. 2004 Identified by: Stein et al. 2006 Video Identifiability: Confirmed Observed Depth: 1,324 – 1,356 m
Credit: NOAA/MBARI 2002	
	LIPARIDAE sp. snailfish, unidentified (blackhead) Classification: Nelson 1994; Nelson et al. 2004 Identified by: Lundsten Video Identifiability: Provisional Observed Depth: 1,556 – 2,739 m

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.12. Order: Perciformes

15.2.2.1.12.1. Family: Zoarcidae – eelpouts

	<i>Bothrocara brunneum</i> eelpout, twoline Classification: ITIS; Eschmeyer et al. 2005 Identified by: Burton; Kuhnz; Lundsten Video Identifiability: Confirmed Observed Depth: 1,453 – 3,229 m
Credit: NOAA/MBARI 2002	
	<i>Lycenchelys</i> spp. (and other ZOARCIDAE spp.) eelpout Classification: ITIS; Eschmeyer et al. 2005 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed Observed Depth: 448 – 3,244 m
Credit: MBARI © 2006	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.12. Order: Perciformes

15.2.2.1.12.1. Family: Zoarcidae – eelpouts

	<i>Lycodapus fierasfer</i> eelpout, blackmouth Classification: ITIS; Eschmeyer et al. 2005 Identified by: Kuhnz Video Identifiability: Provisional Observed Depth: 2,788 m
Credit: NOAA/MBARI 2002	
	<i>Lycodapus mandibularis</i> eelpout, pallid Classification: ITIS; Eschmeyer et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 1,576 – 2,665 m
Credit: MBARI © 2002	
	<i>Pachycara bulbiceps</i> eelpout, snubnose Classification: ITIS; Eschmeyer et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 2,607 – 2,926 m
Credit: NOAA/MBARI 2002	

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SPECIMENS

A subset of specimens from Davidson Seamount are archived at the Monterey Bay Aquarium Research Institute, and may be available for further study. Contact the authors for further information on availability (lonny@mbari.org or erica.burton@noaa.gov).

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MBNMS – Monterey Bay National Marine Sanctuary, Monterey, CA.

MLML – Moss Landing Marine Laboratories, Moss Landing, CA.

NOAA Fisheries, Moss Landing, CA.

TAXONOMIC CHECKLIST

Classification of the Organisms Observed at Davidson Seamount off Central California, U.S.A.

Phylum: Foraminifera

Class: Xenophyophorea

XENOPHYOPHOREA sp. 1

XENOPHYOPHOREA sp. 2

Phylum: Radiozoa

Subphylum: Radiolaria

RADIOLARIA spp.

Phylum: Phaeophyta (drift)

Class: Phaeophyceae

Order: Laminariales

Family: Alariaceae

Alaria marginata

Alaria sp.

Family: Lessoniaceae

Macrocystis sp.

Nereocystis luetkeana

Phylum: Anthophyta (drift)

Class: Monocotyledones

Order: Najadales

Family: Potamogetonaceae

Phyllospadix sp.

Phylum: Porifera

PORIFERA sp. 1

PORIFERA sp. 2

PORIFERA sp. 3

PORIFERA sp. 4

PORIFERA sp. 5

PORIFERA sp. 6

PORIFERA sp. 7

PORIFERA sp. 8

PORIFERA sp. 9

Class: Demospongiae

Order: Astrophorida

Family: Pachastrellidae

Thenea muricata

Order: Poecilosclerida

POECILOSCLERIDA sp.

Family: Cladorhizidae

Asbestopluma sp. nov.

Asbestopluma sp. 1

Class: Hexactinellida

Subclass: Hexasterophora

Order: Hexactinosida

Family: Aphrocallistidae

Heterochone calyx

Family: Euretidae

Chonelasma sp. nov.

Family: Farreidae

Farrea occa

Family: Tretodictyidae

Sclerothamnopsis compressa

Order: Lyssacinosida

Family: Euplectellidae

Subfamily: Bolosominae

Saccocalyx pedunculata

Subfamily: Corbitellinae

Atlantisella sp. nov.

Regadrella sp. nov.

Family: Rossellidae

Caulophacus sp. nov.

Crateromorpha sp. nov.

Hyalascus sp. nov.

Staurocalyptus sp. nov.

Phylum: Cnidaria

Class: Scyphozoa

Order: Coronatae

Family: Atollidae

Atolla sp.

Family: Periphyllidae

Periphylla periphylla

Order: Semaestomeae

Family: Ulmaridae

Poralia rufescens

Tiburonia granrojo

Class: Hydrozoa

HYDROZOA sp. 1

HYDROZOA sp. 2

HYDROZOA sp. 3

Order: Anthoathecatae

Family: Hydractiniidae

HYDRACTINIIDAE sp.

Family: Bougainvilliidae

Chiarella sp.

Family: Myriothelidae (=Candelabridae)

MYRIOTHELIDAE sp.

Order: Narcomedusae

Family: Aeginidae

Aegina citrea

Aegina sp.

Aeginura sp.

Family: Cuninidae

Cunina sp.

Solmissus sp.

Order: Trachymedusae

Family: Halicreatidae

Halicreas minimum

Family: Rhopalonematidae

Benthocodon sp.

Colobonema sericeum

Crossota millsae

Subclass: Siphonophorae

Order: Physonectae

Family: Agalmatidae

Nanomia bijuga

Stephanomia amphytridis

Family: Apolemiidae

Apolemia spp.

Family: Physophoridae

Physophora hydrostatica

Family: Rhodaliidae

Stephalia dilata

Thermopalia taraxaca

Order: Calycophorae

Family: Prayidae

Gymnopraxis lapolisazula

Class: Anthozoa

Subclass: Hexacorallia (=Zoantharia)

Order: Antipatharia

Family: Cladopathidae

Subfamily: Cladopathinae

Trissopathes pseudotristicha

Trissopathes sp. (cf. *T. tetracrada*)

Family: Schizopathidae

Bathypathes sp.

Lillipathes sp.

Umbellapathes sp.

Order: Ceriantharia

Family: Cerianthidae

CERIANTHIDAE sp. 1

CERIANTHIDAE sp. 2

CERIANTHIDAE sp. 3

Order: Actiniaria

ACTINIARIA sp. 1 (possibly *Bathypheilia* sp.)

ACTINIARIA sp. 2

ACTINIARIA sp. 3

Suborder: Nyantheae

Infraorder: Thenaria

Family: Actinostolidae

ACTINOSTOLIDAE spp.

Stomphia sp. (probably *S. didemon*)

Family: Hormathiidae

HORMATHIIDAE sp.

Family: Liponematidae

Liponema brevicornis

Order: Zoanthidea

ZOANTHIDEA sp. 1

ZOANTHIDEA sp. 2

Order: Corallimorpharia

CORALLIMORPHARIA spp.

Family: Corallimorphidae

Corallimorphus sp.

Order: Scleractinia

Suborder: Caryophylliina

CARYOPHYLLIINA sp.

Family: Flabellidae

Javania caillieti

Subclass: Octocorallia (=Alcyonaria)

Order: Alcyonacea

Suborder: Alcyoniina

Anthomastus ritteri

Anthomastus robustus

Anthomastus sp. 1

Order: Gorgonacea

Suborder: Scleraxonia

Family: Paragorgiidae

Paragorgia arborea

Paragorgia sp. 1

Paragorgia sp. 2

Family: Coralliidae

Corallium sp.

Suborder: Holaxonia

Family: Acanthogorgiidae

Acanthogorgia sp.

Family: Plexauridae

Swiftia kofoidi

Suborder: Calcaxonia

Family: Chrysogorgiidae

Chrysogorgia monticola (HOLOTYPE)

Chrysogorgia pinnata (HOLOTYPE)

Family: Primnoidae

Calyptrophora bayeri (HOLOTYPE)

Calyptrophora sp. (cf. *C. antilla*)

Calyptrophora sp.

Narella sp.

Parastenella ramosa

Parastenella sp.

Family: Isididae

Acanella sp.

Keratoisis sp.

Lepidisis sp.

Phylum: Ctenophora

Class: Tentaculata

Order: Cydippida

Family: Haeckeliidae

Aulacoctena sp.

Family: Pleurobrachiidae

Hormiphora sp.

Order: Platyctenida

Family: Tjalfiellidae

Tjalfiella tristoma

Order: Lobata

LOBATA sp. nov.

Family: Bathocyroidae

Bathocyroe spp.

Family: Lampoctenidae

Lampocteis cruentiventer

Lampocteis sp.

Phylum: Mollusca

Class: Gastropoda

Order: Vetifastropoda

Superfamily: Patelloidea

PATELLOIDEA sp.

Order: Caenogastropoda

Suborder: Neogastropoda

Superfamily: Conoidea

Family: Turridae

TURRIDAE sp.

Subclass: Opisthobranchia

Order: Nudibranchia

NUDIBRANCHIA sp. nov.

Family: Tritoniidae

Tritonia diomedea (cf. *T. diomedea* or sp. nov.)

Family: Bathydoridae

BATHYDORIDIDAE sp.

Class: Polyplacophora

Order: Neoloricata

NEOLORICATA sp.

Class: Bivalvia

Subclass: Pteriomorphia

Order: Limoida

Family: Limidae

Acesta mori

Order: Ostreoida

Superfamily: Pecinoidea

Family: Pectinidae

?PECTINIDAE sp.

Class: Cephalopoda

Subclass: Coleoidea

Superorder: Decabrachia

Order: Teuthida

Suborder: Myopsina

Family: Loliginidae

Loligo (=Doryteuthis) opalescens

Suborder: Oegopsina

Family: Cranchiidae

Subfamily: Taoniinae

Galiteuthis sp.

Family: Gonatidae

Gonatus onyx

Family: Ommastrephidae

Subfamily: Ommastrephinae

Dosidicus gigas

Superorder: Octobranchia

Order: Octopoda

Suborder: Cirrina

Family: Opisthoteuthidae

Opisthoteuthis sp.

Suborder: Incirrina

Family: Bolitaenidae

Japetella sp.

Family: Octopodidae

Subfamily: Bathypolypodinae

Benthoctopus spp.

Subfamily: Graneledoninae

Graneledone boreopacifica (pacifica)

Phylum: Annelida

Class: Polychaeta

Subclass: Palpata

Order: Aciculata

Suborder: Phyllodocida

Family: Tomopteridae

Tomopteris sp.

Family: Aphroditidae

Laetmonice sp.

Family: Polynoidae

POLYNOIDAE sp.

Order: Canalipalpata

Suborder: Sabellida

Family: Sabellidae

Euchone sp. nov.

Family: Serpulidae

SERPULIDAE spp.

Suborder: Terebellida

Family: Poeobiidae

Poeobius meseres

Family: Fauveliopsidae

Flota sp.

Phylum: Arthropoda
Subphylum: Chelicerata
Class: Pycnogonida
PYCNOGONIDA sp.

Subphylum: Crustacea
Class: Maxillopoda
Subclass: Thecostraca
Infraclass: Cirripedia
Superorder: Thoracica
Order: Pedunculata
Suborder: Scalpellomorpha
SCALPELLOMORPHA sp.

Order: Sessilia
Suborder: Verrucomorpha
VERRUCOMORPHA sp.

Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda
Suborder: Dendrobrachiata
Superfamily: Sergestoidea
Family: Sergestidae
Sergestes similis

Suborder: Pleocyemata
Infraorder: Caridea
CARIDEA spp.
Superfamily: Pandaloidea
Family: Pandalidae
Pandalopsis ampla

Infraorder: Anomura
Superfamily: Paguroidea
Family: Lithodidae
LITHODIDAE sp.
Neolithodes diomedae
Neolithodes sp.
Paralomis multispina
Paralomis verrilli

Superfamily: Galatheoidea
Family: Galatheididae
Munida sp.
Munidopsis spp.

Infraorder: Brachyura
BRACHYURA sp.
Family: Pisidae
Chorilia longipes
Superorder: Peracarida
Order: Mysida
MYSIDA spp.

Order: Amphipoda
AMPHIPODA spp.
Suborder: Caprellidea
Infraorder: Caprellida
Superfamily: Caprelloidea
Family: Caprellidae
CAPRELLIDAE spp.

Order: Isopoda
ISOPODA spp.
Suborder: Asellota
Superfamily: Janiroidea
Family: Munnopsidae
MUNNOPSIDAE spp.

Phylum: Ectoprocta
ECTOPROCTA sp. 1
ECTOPROCTA sp. 2

Phylum: Echinodermata
Class: Crinoidea
Subclass: Articulata
Order: Millericrinida
Family: Hyocrinidae
Hyocrinus sp.

Order: Bourgueticrinida
Family: Bathyrcrinidae
BATHYCRINIDAE sp.

Order: Comatulida
Suborder: Macrophreata
Family: Antedonidae
Florometra serratissima

Class: Asteroidea
Order: Paxillosida
Suborder: Notomyotina
Family: Benthoplectinidae
Benthopecten sp. (possibly *B. claviger*)

Order: Valvatida
Suborder: Granulosina
Family: Goniasteridae
Ceramaster patagonicus
Ceramaster sp.
Evoplosoma sp.
Hippasteria californica
Hippasteria spinosa
Mediaster spp.

Order: Velatida
Suborder: Eugnathina
Family: Pterasteridae
Hymenaster koehleri
?Pteraster sp. 1
Pteraster sp. 2 (possibly *Hymenaster* sp.)
Pteraster sp. 3 (possibly *Hymenaster* sp.)
Pteraster sp. 4
Pteraster sp. 5
Family: Solasteridae
Lophaster furcilliger
Solaster spp.

Order: Spinulosida
Suborder: Leptognathina
Family: Echinasteridae
Henricia sp.

Order: Forcipulatida
Family: Asteriidae
?Anteliaster sp.

Family: Zoroasteridae
Myxoderma sacculatum
ZOROASTERIDAE sp.

Order: Brisingida
BRISINGIDA spp.

Class: Ophiuroidea
OPHIUROIDEA spp.
Order: Phrynophiurida
Suborder: Euralina
Family: Gorgonocephalidae
Gorgonocephalus sp.

Order: Ophiurida
Suborder: Laemophiurina
Family: Ophiacanthidae
OPHIACANTHIDAE sp.

Class: Echinoidea - urchins
ECHINOIDEA sp.
Subclass: Perischoechinoidea
Order: Cidaroida
Family: Cidaridae
Aporocidaris milleri

Subclass: Euechinoidea
Superorder: Diadematacea
Order: Echinothurioida
Family: Echinothuriidae
Subfamily: Sperosomatinae
Tromikosoma panamense
Tromikosoma sp.

Superorder: Atelostomata
Order: Holasteroida
Suborder: Meridosternata
Infraorder: Urechinina
Family: Pourtalesiidae
Cystocrepis setigera

Class: Holothuroidea
HOLOTHUROIDEA sp. 1

HOLOTHUROIDEA sp. 2

Order: Dendrochirotida

Family: Cucumariidae

Abyssocucumis abyssorum

Family: Psolidae

Psolus sp.

Order: Aspidochirotida

Family: Synallactidae

Paelopatides confundus

SYNALLACTIDAE sp.

Order: Elasipodida

Family: Deimatidae

Oneiropanta mutabilis

Family: Elpidiidae

Peniagone sp.

Scotoplanes globosa

Family: Laetmogonidae

Pannychia moseleyi

Family: Psychropotidae

Benthodytes sp. 1

Benthodytes sp. 2

Phylum: Chaetognatha

CHAETOGNATHA spp.

Phylum: Hemichordata

Class: Enteropneusta

ENTEROPNEUSTA sp.

Phylum: Chordata

Subphylum: Tunicata

Class: Ascidiacea

Order: Pleurogona

Suborder: Stolidobranchia

Family: Pyuridae

Culeolus sp.

Class: Thaliacea

Order: Salpida

SALPIDA spp.

Order: Doliolida

Doliolenetta sp. nov.

DOLIOLIDA spp.

Class: Appendicularia

APPENDICULARIA spp.

Order: Copelata

Family: Oikopleuridae

Subfamily: Bathochordaeinae

Bathochordaeus sp.

Subphylum: Vertebrata

Class: Chondrichthyes

Subclass: Elasmobranchii

Superorder: Euselachii

Order: Rajiformes

Suborder: Rajoidei

RAJOIDEI spp. (egg cases)

Superfamily: Rajoidea

Family: Arhynchobatidae

Subfamily: Arhynchobatinae

Bathyraja abyssicola

Family: Rajidae

Amblyraja badia

Superclass: Osteichthyes

Class: Actinopterygii

Subclass: Neopterygii

Infraclass: Teleostei

Superorder: Elopomorpha

Order: Notacanthiformes

Suborder: Notacanthoidei

Family: Halosauridae

Aldrovandia sp.

Order: Anguilliformes

Suborder: Congroidei

Family: Synphobranchidae

SYNAPHOBRANCHIDAE sp.

Family: Nettastomatidae

Venefica tentaculata

Family: Serrivomeridae

Serrivomer sp. (possibly *S. sector*)

Order: Saccopharyngiformes

Suborder: Cyematoidei

Family: Cyematidae

Cyema atrum

Superorder: Protacanthopterygii

Order: Osmeriformes (Argentiniiformes)

Family: Bathylagidae

BATHYLAGIDAE spp.

Order: Osmeriformes

Suborder: Argentinoidei

Superfamily: Alepocephaloidea

Family: Alepocephalidae

ALEPOCEPHALIDAE sp.

(possibly *Conocara salmoneum*)

Superorder: Stenopterygii

Order: Stomiiformes

Suborder: Gonostomatoidei

Family: Gonostomatidae

Cyclothone sp.

Superorder: Scopelomorpha

Order: Aulopiformes

Family: Synodontidae

Subfamily: Synodontinae

Bathysaurus mollis

Order: Myctophiformes

Family: Myctophidae

MYCTOPHIDAE spp.

Superorder: Paracanthopterygii

Order: Ophidiiformes

Suborder: Ophidiioidei

Family: Ophidiidae

Subfamily: Neobythitinae

Luciobrotula sp.

Spectrunculus grandis

Order: Gadiformes

Family: Macrouridae

Subfamily: Macrourinae

Albatrossia pectoralis

Coryphaenoides acrolepis

Coryphaenoides armatus/yaquinae

Coryphaenoides filifer

Coryphaenoides leptolepis

Family: Moridae

Antimora microlepis

MORIDAE sp. (*Lepidion* sp. or possibly *Laemonema* sp.)

Order: Lophiiformes

Suborder: Ogocephaloidei

Superfamily: Chaunacioidea

Family: Chaunacidae

Bathychaunax (Chaunax) coloratus

Superorder: Acanthopterygii

Order: Scorpaeniformes

Suborder: Scorpaenoidei

Family: Scorpaenidae

Sebastolobus alascanus

Suborder: Cottoidei

Family: Psychrolutidae

Psychrolutes phrictus

Family: Liparidae

Careproctus ovigerus (juvenile)

LIPARIDAE sp.

Order: Perciformes

Suborder: Zoarcoidei

Family: Zoarcidae

Bothrocara brunneum

Lycenchelys spp.

Lycodapus fierasfer

Lycodapus mandibularis

Pachycara bulbiceps

ZOARCIDAE spp.

ONMS CONSERVATION SERIES PUBLICATIONS

To date, the following reports have been published in the Marine Sanctuaries Conservation Series. All publications are available on the Office of National Marine Sanctuaries website (<http://www.sanctuaries.noaa.gov/>).

Caribbean Connectivity: Implications for Marine Protected Area Management (ONMS-08-07)

Knowledge, Attitudes and Perceptions of Management Strategies and Regulations of FKNMS by Commercial Fishers, Dive Operators, and Environmental Group Members: A Baseline Characterization and 10-year Comparison (ONMS-08-06)

First Biennial Ocean Climate Summit: Finding Solutions for San Francisco Bay Area's Coast and Ocean (ONMS-08-05)

A Scientific Forum on the Gulf of Mexico: The Islands in the Stream Concept (NMSP-08-04)

M/V *ELPIS* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2007 Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-08-03)

CONNECTIVITY Science, People and Policy in the Florida Keys National Marine Sanctuary (NMSP-08-02)

M/V *ALEC OWEN MAITLAND* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2007 Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-08-01)

Automated, objective texture segmentation of multibeam echosounder data - Seafloor survey and substrate maps from James Island to Ozette Lake, Washington Outer Coast. (NMSP-07-05)

Observations of Deep Coral and Sponge Assemblages in Olympic Coast National Marine Sanctuary, Washington (NMSP-07-04)

A Bioregional Classification of the Continental Shelf of Northeastern North America for Conservation Analysis and Planning Based on Representation (NMSP-07-03)

M/V *WELLWOOD* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2006 Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-07-02)

Survey report of NOAA Ship McArthur II cruises AR-04-04, AR-05-05 and AR-06-03: Habitat classification of side scan sonar imagery in support of deep-sea coral/sponge explorations at the Olympic Coast National Marine Sanctuary (NMSP-07-01)

2002 - 03 Florida Keys National Marine Sanctuary Science Report: An Ecosystem Report Card After Five Years of Marine Zoning (NMSP-06-12)

Habitat Mapping Effort at the Olympic Coast National Marine Sanctuary - Current Status and Future Needs (NMSP-06-11)

M/V *CONNECTED* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2005
Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-06-010)

M/V *JACQUELYN L* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2005
Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-06-09)

M/V *WAVE WALKER* Coral Reef Restoration Baseline Monitoring Report - 2004 Florida Keys
National Marine Sanctuary Monroe County, Florida (NMSP-06-08)

Olympic Coast National Marine Sanctuary Habitat Mapping: Survey report and classification of
side scan sonar data from surveys HMPR-114-2004-02 and HMPR-116-2005-01 (NMSP-06-07)

A Pilot Study of Hogfish (*Lachnolaimus maximus* Walbaum 1792) Movement in the Conch Reef
Research Only Area (Northern Florida Keys) (NMSP-06-06)

Comments on Hydrographic and Topographic LIDAR Acquisition and Merging with Multibeam
Sounding Data Acquired in the Olympic Coast National Marine Sanctuary (ONMS-06-05)

Conservation Science in NOAA's National Marine Sanctuaries: Description and Recent
Accomplishments (ONMS-06-04)

Normalization and characterization of multibeam backscatter: Koitlah Point to Point of the Arches,
Olympic Coast National Marine Sanctuary - Survey HMPR-115-2004-03 (ONMS-06-03)

Developing Alternatives for Optimal Representation of Seafloor Habitats and Associated
Communities in Stellwagen Bank National Marine Sanctuary (ONMS-06-02)

Benthic Habitat Mapping in the Olympic Coast National Marine Sanctuary (ONMS-06-01)

Channel Islands Deep Water Monitoring Plan Development Workshop Report (ONMS-05-05)

Movement of yellowtail snapper (*Ocyurus chrysurus* Block 1790) and black grouper (*Mycteroperca
bonaci* Poey 1860) in the northern Florida Keys National Marine Sanctuary as determined by
acoustic telemetry (MSD-05-4)

The Impacts of Coastal Protection Structures in California's Monterey Bay National Marine
Sanctuary (MSD-05-3)

An annotated bibliography of diet studies of fish of the southeast United States and Gray's Reef
National Marine Sanctuary (MSD-05-2)

Noise Levels and Sources in the Stellwagen Bank National Marine Sanctuary and the St. Lawrence
River Estuary (MSD-05-1)

Biogeographic Analysis of the Tortugas Ecological Reserve (MSD-04-1)

A Review of the Ecological Effectiveness of Subtidal Marine Reserves in Central California (MSD-
04-2, MSD-04-3)

Pre-Construction Coral Survey of the M/V Wellwood Grounding Site (MSD-03-1)

Olympic Coast National Marine Sanctuary: Proceedings of the 1998 Research Workshop, Seattle, Washington (MSD-01-04)

Workshop on Marine Mammal Research & Monitoring in the National Marine Sanctuaries (MSD-01-03)

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Olympic Coast National Marine Sanctuary Area to be Avoided Education and Monitoring Program (MSD-00-1)

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