***QUEST***

MARE 264

Invertebrate Identification List

I. Species List:

**Phylum Porifera** - sponges

**Phylum Cnidaria** - corals

 *Cyphastrea agassizi*  (*Leptastrea bottae)* – Agassiz’s Coral

 *Cyphastrea ocellina -* eyed coral

*Lobactis scutaria* – oval mushroom coral

 *Gardineroseris planulata* – Honeycomb coral

 *Leptoseris incrustans* - swelling coral

 *Montipora capitata* - rice coral

 *Montipora flabellata* - blue rice coral

 *Montipora patula* – sandpaper rice coral

 *Pavona duerdeni -* Duerden's coral

 *Pavona varians* - corrugated coral

 *Pocillopora damicornis* - lace coral

 *Pocillopora grandis* - antler coral

 *Pocillopora meandrina* - cauliflower coral

 *Porites compressa* - finger coral

 *Porites evermanni* - mound coral

 *Porites lobata* - lobe coral

 *Porites monticulosa* - plate and pillar coral

 *Tubastraea coccinea* – orange cup coral

*Palythoa caesia* – pillow zoanthid

 *Zoanthus sp. – green mat zoanthid*

**Phylum Platyhelminthes** - flatworms

**Phylum Annelida**

 *Eurythoe complanata* - fire worm

 *Loimia medusa* - spaghetti worm

 *Sabellastarte spectabilis* - feather duster worm

 *Spirobranchus corniculatus* - Christmas tree worm

**Phylum Mollusca**

 *Conus* spp. - cone shells

 *Monetaria caputophidii* - snakehead cowry

 *Cypraea tigris* - tiger cowry

 *Hexabranchus sp.* - Spanish dancer

 *Morula* spp. & *Drupa* spp.- thaidids

 *Octopus* spp. - octopus

**Phylum Arthropoda**

 *Carpilius maculatus* - 7-11 crab

 Family Diogenidae – hermit crabs

 *Panulirus marginatus* - banded spiny lobster

 *Panulirus penicillatus* - tufted spiny lobster

 *Parribacus antarcticus* - brown slipper lobster

 *Stenopus hispidus* - banded coral shrimp

**Phylum Echinodermata**

 *Acanthaster planci* - crown-of-thorns seastar

 *Actinopyga mauritiana* - speckled sea cucumber

 *Actinopyga obesa* - plump sea cucumber

 *Chondrocidaris gigantea* - rough spined urchin

 *Colobocentrotus atratus* - shingle urchin

 *Culcita novaeguineae* - cushion seastar

 *Diadema paucispinum -* long-spined black urchin

 *Echinometra mathaei* - rock boring urchin

 *Echinometra oblonga* - black boring urchin

 *Echinothrix sp.* - banded and black sea urchins

 *Heterocentrotus mammillatus* - slate pencil urchin

 *Holothuria atra* - black sea cucumber

 *Holothuria whitmaei* - teated sea cucumber

 *Linckia multifora* - pink seastar

 *Ophiocoma* spp. - brittlestars

 *Opheodesoma spectabilis* - sea worm sea cucumber

 *Tripneustes gratilla* - collector urchin

**Phylum Chordata** - tunicates

Updated: 5Feb13-jcII. Species descriptions:

**Phylum Porifera** - sponges

**Description**: encrusting or vase-shaped masses covered with small pores; often brightly colored (no pattern); spicules give sponges a "gritty" feel

**Habitat**: on hard substrates

**Phylum Cnidaria** - corals

Hermatypic corals

*Cyphastrea agassizi – Agassiz’s Coral*

**Growth form**: small, globular encrustation's; Black, cream, occasional green.

**Fine structure**: calices large (2-3 mm) and well separated with individual walls; elevated primary septa.

**Habitat**: reef flats exposed to sand scour.

*Cyphastrea ocellina -* eyed coral

**Growth form**: small encrusting or clumpy colonies; light reddish brown.

**Fine structure**: calices small (1-3 mm), crowded, elevated above surface, randomly oriented in clumps; calyx wall thick with raised edges.

**Habitat**: reef flat and tide pools

*Lobactis scutaria* – oval mushroom coral

**Growth form**: large (4-28 cm) free-living, solitary coral; light brown, tentacles may be green and purple mouth

**Fine structure**: septa of uniform dimensions radiating out from central depression; some originate partway out to the edge. septa thin and serrated, thicker at inner edge.

**Habitat**: reef flats, frequently in crevices or depressions.

*Gardineroseris planulata – Honeycomb coral*

**Growth form**: large, thin encrusting sheets or rounded lobes; uniform yellow-tan with darker corallites.

**Fine structure**: calices variable in size, up to 5 mm, irregular shape, share thin common walls.

**Habitat**: reef flats and slope to 50 m.

*Leptoseris incrustans -* swelling coral

**Growth form**: small encrusting colonies; greenish to reddish color with small, round light colored lumps.

**Fine structure**: sunken calices separated by irregular swellings covered with wavy ridges. Corallites too small to see.

**Habitat**: shady areas under ledges

*Montipora*

**General Description**: calices separated by open space; papillate projections between calyces cover colony.

*Montipora capitata* - rice coral (previously called *M. verrucosa*)

**Growth form**: highly variable, encrusting and plate-like (shallow water) or branching (deep); dark-chocolate with white borders to beige or white.

**Fine structure**: papillae large, randomly distributed, absent from underside of free margins.

**Habitat**: all environments, 0-50 m.

*Montipora flabellata* - blue rice coral

**Growth form**: small, encrusting with irregular lobes; blue to turquoise or brown color.

**Fine structure**: papillae smaller, sometimes fused to form ridges; calices with elevated collars.

**Habitat**: exposed areas, to 10m deep.

*Montipora patula* - sandpaper rice coral

**Growth form**: plates or encrusting colonies; yellow-brown with light borders.

**Fine structure**: papillae small, forming rings around calyx, polyps may be blue or purple.

**Habitat**: reef flat.

*Pavona*

**General description**: septa continue beyond calyx into open space.

*Pavona duerdeni – Duerden’s or porkchop coral*

**Growth form**: encrusting round, or with rounded disks or lobes 5-15cm high and 2-5cm across; light gray or pale brown.

**Fine structure**: calices regular and symmetrically arranged.

**Habitat**: wave-exposed environments to 5m deep.

*Pavona varians* - corrugated coral

**Growth form**: encrusting globular masses covered with small, winding ridges; tan or tan-brown.

**Fine structure**: elongate, angular steep-sided ridges with calices in valleys; septa line sides of ridges.

**Habitat**: moderately to heavy surge on reef flat and slope.

*Pocillopora*

**General description**: branching colonies; calices crowded together on regularly-spaced wart-like projections (*verrucae*) and connected by a network of common walls, ridges, seams, or grooves.

*Pocillopora damicornis* - lace coral

**Growth form**: finely branched with many divisions; branches not thicker than a pencil; colonies small, up to 15 cm; bushy-shaped; light to dark brown.

**Fine structure**: septa and columella poorly developed; walls of terminal calices flare outward.

**Habitat**: protected areas in shallow water.

*Pocillopora grandis* - antler coral

**Growth form**: large (up to 1.5m) with thick, cylindrical, vertical or flattened branches that lack divisions; brown.

**Fine structure**: calices have distinct septa and columella.

**Habitat**: wave-exposed areas, 0-18 m.

*Pocillopora meandrina* - cauliflower coral

**Growth form**: heavy, flattened branches often forked near the end, may be c-shaped at tip; brown to pink.

**Fine structure**: septa and columella poorly developed; calyx irregularly shaped.

**Habitat**: wave-exposed habitats, 0-30 m.

*Porites*

**General description**: calices 5-sided polygons; well developed septa and columella give "snowflake" appearance. Calices very small, coral appears smoother than other genera

*Porites compressa* - finger coral

**Growth form**: finger-like columnar branches with porous skeleton; tips of branches usually blunt or flattened; light-brown to yellow.

**Fine structure**: calices flush with surface; upper septa surface looks like elevated rods.

**Habitat**: wave-protected areas, 0-50 m.

*Porites evermanni – mound*  coral

**Growth form**: resembles *P. lobata* by forming low, flat-topped or cube-like lobes with rounded edges; usually gray, brown, or purple. Appears ‘fuzzy’.

**Fine structure**: septa made up of thin plates that form a continuous porous surface; calyx walls form a ring.

**Habitat**: wave-exposed reef flats usually 6m or shallower.

*Porites lobata* - lobe coral

**Growth form**: colonies form large lobes, never thin or finger-like; colonies may be huge, covering several meters or more; usually yellow-green, can be brown, or blue-gray.

**Fine structure**: calyx sides are thin and elevated into sharp walls.

**Habitat**: wave-exposed areas, 0-50 m.

*\*\*Porites lutea/* *lobata are difficult to distinguish\*\**

*Porites monticulosa -* plate and pillar coral

**Growth form**: columnar lobes, irregular, or flat plates; usually cream or gray with pale tips.

**Fine structure**: small, round, shallow calices well separated on the surface, often in rows with irregular ridges in between.

**Habitat**: moderate surge, to 8m deep.

Ahermatypic corals

*Tubastraea coccinea* – orange cup coral

**Growth form**: encrusting clumps of large (> 1 cm) tubular individual polyps, clump of 10-20 large calices 5-10 cm across; animal orange.

**Fine structure**: calyx wall very thin, porous and composed of glandular ridges; primary and secondary septa distinct; upper edge of septa depressed below.

**Habitat**: shallow water.

Zoanthids - colonial anemones

*Palythoa caesia* – pillow zoanthid

**Growth form**: rubbery encrusting mats; usually blue-gray, but may be pink, pink or brown in color.

**Fine structure**: thick rubber-like sheet of tissue fills the entire space between the polyps, smooth and featureless when polyps retracted; polyps up to 8 mm in diameter.

**Habitat**: surge pools and reefs.

**\*\*\*Warning: may be highly toxic to the touch!\*\*\***

 *Zoanthus sp – green mat zoanthid*

**Growth form**: encrusting mats with polyps connected only at base; greenish, purplish, pink or some combination

**Fine structure**: polyps may be up to 7 mm diameter.

**Habitat**: shallow water.

**Note: may be toxic to touch**

Phylum Platyhelminthes - flatworms

**Description**: dorso-ventrally flattened worms; lacking dorsal or lateral gills; often brightly colored

**Size:** up to 5 cm length

**Habitat**: under rocks and in crevices, nocturnal

Phylum Annelida - segmented worms

*Eurythoe complanata* - fire worm

**Description**: segmented worm with long white bristles protruding laterally; brightly colored

**Size:** up to 15 cm length

**Habitat**: under rocks and in coral rubble in shallow water;
\*\*\* WARNING: this species is venomous \*\*\*

*Loimia medusa* - spaghetti worm

**Description**: long, white tentacles radiating out from a central burrow

**Size:** up to 1 m length (tentacles)

**Habitat**: shallow water, buried under rocks and sand

*Sabellastarte spectabilis* - feather duster worm

**Description**: large, plush, feather-duster like tentacles sticking out of holes

**Size:** up to 12 cm length (tentacles)

**Habitat**: shallow water, burrowed on hard substrates

*Spirobranchus corniculatus* - Christmas tree worm

**Description**: brilliantly colored spiraled fans sticking out of coral; retracts when touched. Two spirals per worm.

**Size:** 3-6 cm length (fans)

**Habitat**: burrowed inside coral heads

**Phylum Mollusca** - snails, nudibranchs, clams, octopus & squid

*Conus* spp. - cone shells

**Description**: cone-shaped shells in a variety of colors and forms

**Size:** up to 15 cm length

**Habitat**: nocturnal; some live under rocks, some buried in sand most of the time

**\*\*\* WARNING: these species are poisonous, some potentially fatal \*\*\***

*Monetaria caputophidii* - snakehead cowry

**Description**: small, brown dome-shaped shell with white spots; often covered with a tan mantle studded with tentacles

**Size:** up to 3 cm length

**Habitat**: shallow water under rocks and coral rubble

*Cypraea tigris* - tiger cowry

**Description**: large, spotted dome-shaped shell; often covered with a mottled mantle studded with tentacles

**Size:** up to 10 cm length

**Habitat**: below 3 m on hard substrates

*Hexabranchus sp.* - spanish dancer (previously *H.* *sanguineus, but split into H. aureomarginatus & H. pulchellus)*

**Description**: dorso-ventrally flattened slug; mottled red and white with a ring of posterior gills and anterior rhinophores

**Size:** up to 25 cm length

**Habitat**: hard substrates, feeds on sponges; occasionally swimming

*Morula spp. & Drupa spp. -* drupes

**Description**: robust shells, often covered with tubercules and short spines; aperture lined with teeth in adults.

**Size:** to 3 cm length

**Habitat**: common in shallow and moderately deep reefs in crevices. Carnivores, feed (depending on species) on worms, other molluscs or coral.

*Octopus* spp. - octopus

**Description**: 8 arms lined with suckers; mottled-brown and black, often with white spots

**Size:** up to 1 m length

**Habitat**: in holes and cracks on the reef; out in the open at night;
**\*\*\* WARNING: these species are poisonous and can bite \*\*\***

Phylum Arthropoda -- crabs, shrimp, lobsters, etc.

*Carpilius maculatus* - 7-11 crab

**Description**: large, oval crab with large claws and numerous dark red spots

**Size:** up to 15 cm length

**Habitat**: wedged in cracks on hard substrates, feed on other crabs and snails.

hermit crabs

**Description**: small to large crabs living inside of snail shells

**Size:** up to 9 cm length

**Habitat**: on sand and in holes in the reef

*Panulirus marginatus* - banded spiny lobster

**Description**: claw-less, mottled lobster with large antennae; tail banded with white, leg joints often orange

**Size:** up to 40 cm length

**Habitat**: under ledges and in caves

*Panulirus penicillatus -* tufted spiny lobster

**Description**: claw-less, mottled lobster with large antennae; legs with conspicuous white stripes running lengthwise, joints not orange; tail without bands

**Size:** up to 40 cm length

**Habitat**: under ledges and in caves

*Parribacus antarcticus* - brown slipper lobster

**Description**: mottled, dorso-ventrally flattened lobster with large anterior lobed antennal scales; carapace and claws bordered with bristles

**Size:** up to 20 cm length

**Habitat**: under ledges and in caves on shallow reef flat

*Stenopus hispidus* - banded coral shrimp

**Description**: shrimp with red and white banded body and claws.

**Size:** up to 5 cm length

**Habitat**: in pairs, in holes and cracks on coral reefs

Phylum Echinodermata – sea stars, brittle stars, urchins, etc.

Sea stars (Asteroids)

*Acanthaster planci -* crown-of-thorns sea star

**Description**: 10-16 arm sea star covered with long, sharp spines

**Size:** up to 35 cm diameter

**Habitat**: on coral reefs

**\*\*\*Warning spines are venomous**!\*\*\*

*Culcita novaeguineae -* cushion sea star

**Description**: large, plump cushion-like sea star; often bright red or mottled reddish-brown

**Size:** up to 25 cm diameter

**Habitat**: on coral in shallow areas

*Linckia multifora – spotted Linckia*

**Description**: 3-5 long, slender arms, small body; yellowish to reddish-brown, often mottled; arms often of irregular length

**Size:** up to 15 cm diameter

**Habitat**: shallow areas

Brittle stars (Ophiuroids)

*Ophiocoma* spp. – brittle stars

**Description**: long, slender arms with numerous lateral spines; often black or brown

**Size:** up to 15 cm diameter

**Habitat**: shallow water under rocks, or in holes on the reef, nocturnal

Sea cucumbers (Holothuroids)

*Actinopyga mauritiana* – white-spotted sea cucumber

**Description**: large brown and white speckled cucumber; body lined with tube feet; ring of five small teeth around anus

**Size:** up to 15 cm length

**Habitat**: usually clinging to reef or rock, often in rough areas

*Actinopyga obesa* - plump sea cucumber

**Description**: large brown sea cucumber; anal teeth yellow

**Size:** up to 30 cm length

**Habitat**: usually clinging to reef or rock, but easily dislodged

*Holothuria atra -* black sea cucumber

**Description**: black, smooth, round cucumber often covered with sand

**Size:** up to 40 cm length

**Habitat**: on shallow sandy reef flats

*Holothuria whitmaei -* teated sea cucumber

**Description**: black, smooth, hard cucumber often covered with sand. Is wider and harder to the touch than the previous, with teat-like projections on the base.

**Size:** up to 30 cm length

**Habitat**: on shallow sandy reef flats

*Opheodesoma spectabilis – Conspicuous* sea cucumber

**Description**: body long and tubular, thin and transparent; body banded pink to dark red

**Size:** up to 1 m length

**Habitat**: on shallow sandy reef flats

Sea urchins (Echinoids)

*Colobocentrotus atratus -* Helmet urchin

**Description**: small, flattened urchin with paddle-like spines; dark coloration

**Size:** usually 4-6 cm but up to 9 cm diameter

**Habitat**: clinging to wave-swept shores

*Diadema paucispinum -* long-spined black urchin

**Description**: large urchins with long, slender black spines; primary spines are several times the test diameter, which is relatively small.

**Size:** up to 30 cm diameter

**Habitat**: in holes on the reef

*Echinothrix spp.* - banded / black sea urchin (*Wana*)

**Description**: large urchins with long, slender spines, banded light and dark green or black with a bluish sheen (both species tend to have banded spines); shorter needle-like secondary spines are usually green or banded

**Size:** up to 15 cm diameter

**Habitat**: in holes on the reef; \*\* WARNING: this species is venomous\*\*

*Echinometra mathaei* - rock boring urchin

**Description**: small, light-colored urchin with short spines, thick at the base and tapering to a sharp point; typically greenish-gray or reddish-brown

**Size:** usually 4-6 cm but up to 15 cm diameter

**Habitat**: in holes and depressions on rock in shallow areas

*Echinometra oblonga – oblong* boring urchin

**Description**: small, dark-colored urchin with short spines, thick at the base and tapering to a sharp point; typically dark purple or black

**Size:** usually 4-6 cm but up to 15 cm diameter

**Habitat**: in holes and depressions on rock in shallow areas

*Heterocentrotus mammillatus* - red pencil urchin

**Description:** large, blunt, pencil-thick spined urchin; often bright red

**Size:** up to 20 cm diameter

**Habitat:** in holes on the reef

*Chondrocidaris gigantea*- rough spined urchin

**Description**: large, blunt, pencil-thick spined urchin; spines covered with rough, thorn-like projections and often covered with encrustations

**Size:** up to 25 cm diameter

**Habitat**: in holes on the reef

*Tripneustes gratilla -* collector urchin

**Description**: black, round urchin with short, narrow spines often tipped with white or pink; smooth regions between spines. Algae or shell are often held on spines

**Size:** up to 10 cm diameter

**Habitat**: variety of habitats

Phylum Chordata - tunicates

**Description**: encrusting or vase-shaped encrusting masses covered with small pores; tunicates have a smooth feel; often brightly colored, may have pattern

**Habitat**: on hard substrates

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**Last Revised: 1/29/2013**