I. Species List:

Phylum Porifera - sponges

Phylum Cnidaria - corals

- *Cyphastrea agassizi* (Leptastrea bottae) – Agassiz’s Coral
- *Cyphastrea ocellina* - eyed coral
- *Fungia 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 eydouxi* - antler coral
- *Pocillopora meandrina* - cauliflower coral
- *Porites compressa* - finger coral
- *Porites lutea* - mound coral
- *Porites lobata* - lobe coral
- *Porites rus* - 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 giganteus* - Christmas tree worm

Phylum Mollusca

- *Conus* spp. - cone shells
- *Cypraea caputserpentis* - 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
- hermit crabs
- *Panulirus marginatus* - banded spiny lobster
- *Panulirus penicillatus* - tufted spiny lobster
- *Parribacus antarcticus* - brown slipper lobster
- *Stenopus hispidus* - banded coral shrimp
**Invertebrate ID Guide: QUEST, PAGE 2**

**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
- *Diacema 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
**Invertebrate ID Guide: QUEST, PAGE 3**

II. **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 (Leptastrea bottei) – 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

- **Fungia 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 eydouxi - 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 lutea – mound coral (P. evermanni)**

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 rus - 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.
Invertebrate ID Guide: QUEST, PAGE 6
Ahermatypic corals
Tubastrea cocinea – 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

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**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

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**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
Invertebrate ID Guide: QUEST, PAGE 7

Spirobranchus giganteus - 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 ***

*Cyprea caputserpentis* - 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

*Cyprea 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 ***
Invertebrate ID Guide: QUEST, PAGE 8

PHYLUM ARTHROPODA -- crabs, shrimp, lobsters, etc.

*Carpilus 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

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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
**Invertebrate ID Guide: QUEST, PAGE 9**

**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
Invertebrate ID Guide: QUEST, PAGE 10

*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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