

QUEST
MARE/BIOL 264
INVERTEBRATE IDENTIFICATION LIST

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 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
Hexabranhus 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

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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

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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 – *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

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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.

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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 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.

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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

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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

Hexabranhus 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 tubercles 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 *****

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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

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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

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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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