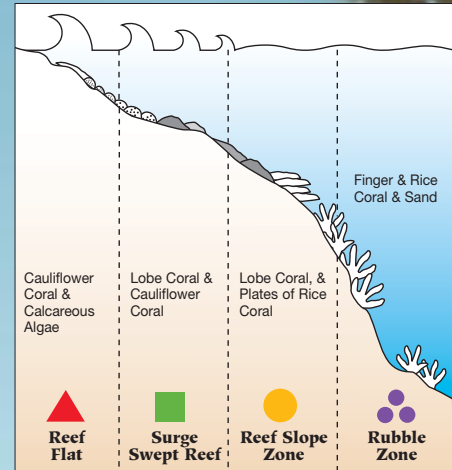


Hawaii's Coral Reefs: Fascinating Webs of Life

Hawaiian Coral Zonation

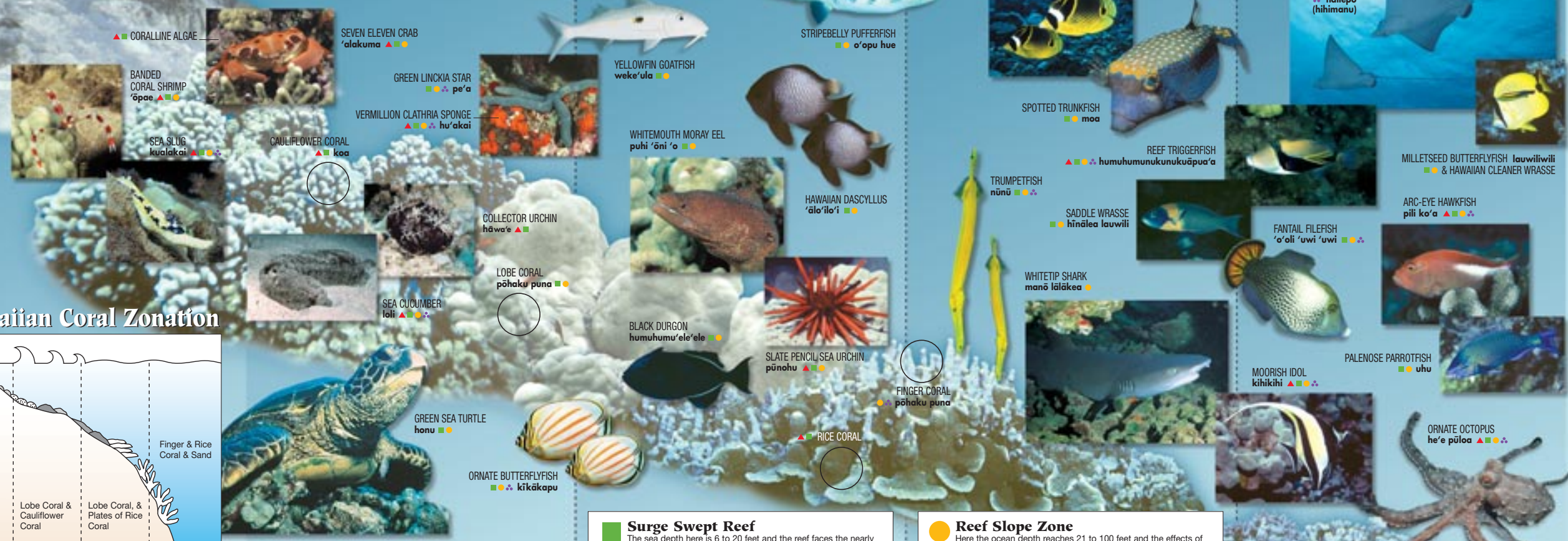


Reef Flat
The water is shallow (less than 6 feet), seaweed and boulders are prevalent, and the wave action is strong. Coralline algae are the primary reef builders here. Of the sparse corals, cauliflower or rose coral is the dominant species. Small invertebrates and some shore fish reside here.

Surge Swept Reef
The sea depth here is 6 to 20 feet and the reef faces the nearly constant surge of the waves. Lobe, cauliflower and other corals live here. Black sea cucumbers, collector urchins and other invertebrates may be abundant. You can also find many fish, including parrotfishes, surgeonfishes (tang), some wrasses, triggerfishes, butterflyfishes, pufferfishes and moray eels in this zone. Green sea turtles can be found resting under ledges and in caves.

Reef Slope Zone
Here the ocean depth reaches 21 to 100 feet and the effects of wave surge on the reef declines with depth. This is where you'll find thickets of finger corals, as well as a plates of rice corals. Living in holes in the reef are slate pencil urchins and black sea urchins. This is a common habitat of butterflyfishes. You may also see hawkfish, snappers, damselfishes, goatfishes, some types of wrasses, and Hawaiian dascyllus. Under ledges and in caves, you may find the whitetip reef shark, which is typically harmless unless provoked.

Rubble Zone
At the outer edge of the reef, a swath of broken coral is interspersed with some rice and finger corals and sand. Garden eels, sea cucumbers, damselfishes, small numbers of triggerfishes and sometimes mushroom corals can be found here.



CORALLINE ALGAE
alakuma

BANDED CORAL SHRIMP
opae

SEA SLUG
kualakai

CAULIFLOWER CORAL
koa

GREEN LINCKIA STAR
pe'a

VERMILLION CLATHRIA SPONGE
hu'akai

SEA CUCUMBER
loli

COLLECTOR URCHIN
hawa'e

LOBE CORAL
pohaku puna

GREEN SEA TURTLE
honu

ORNATE BUTTERFLYFISH
kikakapu

YELLOWFIN GOATFISH
weke'ula

WHITEMOUTH MORAY EEL
puhi 'oni 'o

BLACK DURGON
humuhumu'ele'ele

SLATE PENCIL SEA URCHIN
pūnohu

RICE CORAL

FINGER CORAL
pohaku puna

STRIPBELLY PUFFERFISH
o'opu hue

RACCOON BUTTERFLYFISH
kikakapu

SPOTTED TRUNKFISH
moa

TRUMPETFISH
nūnū

SADDLE WRASSE
hinālea lauwiili

WHITETIP SHARK
manō lāilākea

REEF TRIGGERFISH
humuhumunukunukuāpua'a

FANTAIL FILEFISH
'o'oli 'uwi 'uwi

MOORISH IDOL
kīhikīhi

PALENOSE PARROTFISH
uhu

ORNATE OCTOPUS
he'e pūloa

EAGLE RAY
halepo (hihimanu)

MILLETSEED BUTTERFLYFISH
& HAWAIIAN CLEANER WRASSE
lauwiiliwili

ARC-EYE HAWKFISH
pili ko'a

Adaptations for Survival

Many fishes and invertebrates find food and shelter within Hawaii's coral reefs. Each has its own strategy for survival in the bustling reef community. Survival includes finding food and avoiding becoming someone else's meal.

A Variety of Diets
Large schools of herbivorous fishes feed on the reef. Many eat algae growing on rocks or on the reef framework. Some fishes are primarily carnivorous, feeding on sponges, mollusks, fish, and even corals. Other fishes feed on decaying plant material. Together, these various fish families form an intricate food web that is tightly woven into the survival of the reef.

Fish Faces
The mouths and faces of fish vary with their feeding habits. Parrotfishes have teeth fused into a beak for scraping algae from dead coral. Triggerfishes have very sharp jaws which allow them to feed on small shrimp and crabs. Hawkfishes have eyes that work independently, allowing them to be effective ambush hunters of small fish and crustaceans.

Body Shapes
Long, thin bodies, like those of moray eels, can slither into hiding places in the reef, where they can wait for their prey without being noticed. Flat bodies allow some fish, such as the peacock flounder, to partly bury themselves on the bottom. Disk-shaped bodies, like those of surgeonfishes, are thin and highly maneuverable, allowing these fish to dart quickly into tight spots in coral where predators can't follow.

Color
Color can be used to attract other fish as well as confuse them. Cleaner wrasse, which eat parasites off the skin of other fish, may use their bright colors to "advertise" their services to fish in the reef community. A large "false eye spot" near the tail, such as on the raccoon butterflyfish, might confuse predators and allow a quick escape or allow some social communication.

Camouflage
Many fish blend in with their habitat and are nearly invisible until they move. Frogfishes and scorpionfishes have colors that match their surroundings. As they perch on rocks and coral, stocky hawkfishes blend almost seamlessly with the background.

Defense Mechanisms
Pufferfishes can inflate themselves with water. This allows them to lodge themselves in the reef and makes them too large for predators to swallow. Scorpionfishes have venomous spines to protect themselves.

