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Identification guide for the common rocky reef species of Northern New Zealand

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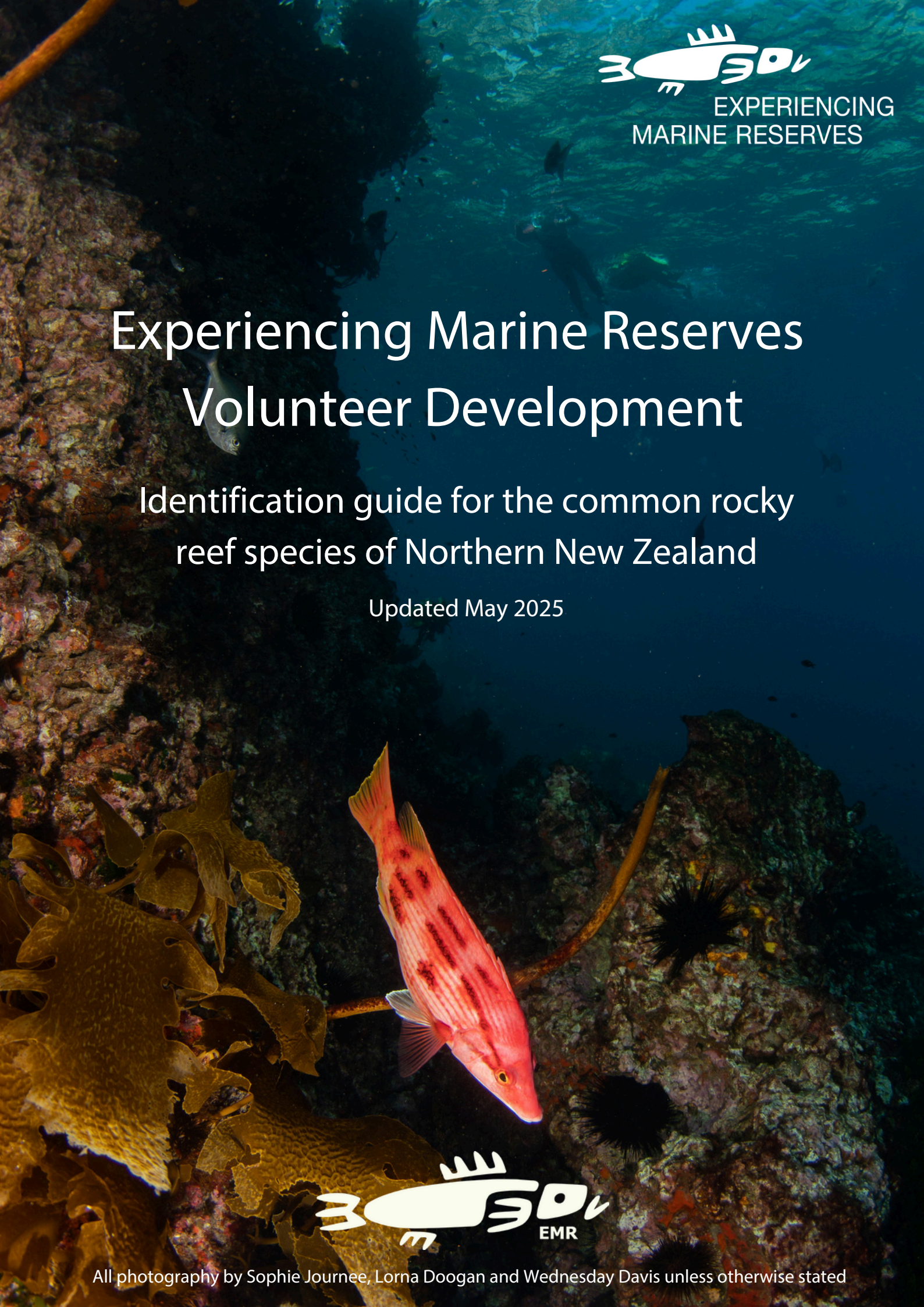


EMR

All photography by Sophie Journee, Lorna Doogan and Wednesday Davis unless otherwise stated

Table of contents

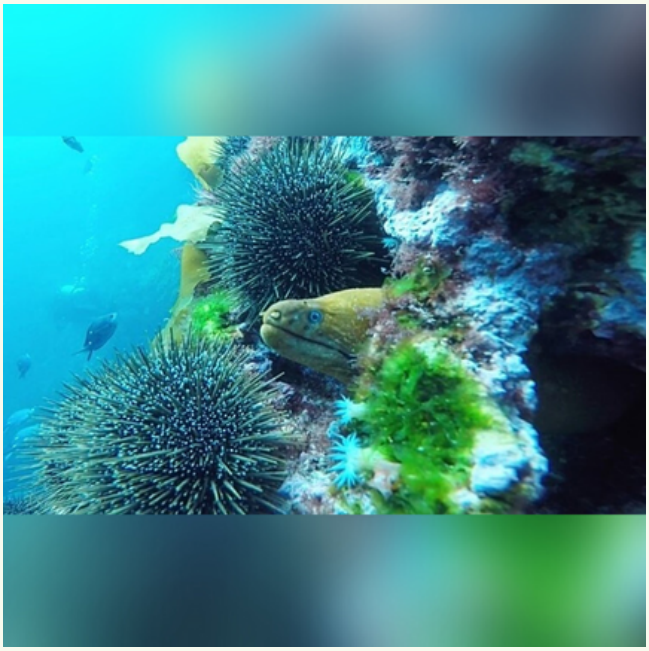
ACTINOPTERYGII: THE RAY FINNED FISHES OF AOTEAROA 05
Yellow moray | Gymnothorax prasinus 05
Piper | Ihe | Hyporhamphus ihi 06
Crested weedfish | Cristiceps aurantiacus 06
Common triplefin | Kokopu | Forsterygion lapillum 07
Oblique-swimming triple fin | Obliquichthys maryannae 07
Variable triplefin | Forsterygion varium 08
Blue-eyed triplefin | Kokopu | Notoclinops segmentatus 08
Trevally | Araara | Pseudocranax dentex 09
Yellowfin Kingfish | Haku | Seriola lalandi lalandi 09
Red pigfish | Paakurakura | Bodianus unimaculatus 10
Sandager's wrasse | Coris sandeyeri 10
Spotty | Paketi, Pakirikiri | Notolabrus celidotus 11
Banded wrasse | Tangahangaha | Notolabras fucicola 11
Butterfish | Marari | Odax pullus 12
Yellow Eyed Mullet | Aua, kātaha | Aldrichetta forsteri 12
Kahawai | Arripis trutta 13
Lord Howe Island butterflyfish | Amphichaetodon howensis 13
Red moki | Nanua | Cheilodactylus spectabilis 14
Pōrae | Nemadactylus douglasii 14
Hiwihiwi | Chironemus marmoratus 15
Mado | Atypichthys latus 15
Blue fish | karokaropounamu | Girella cyanea 16
Parore | Girella tricuspidata 16
Silver drummer | Kyphosus sydneyanus 17
Sweep | hui | Scorpis lineolate 17
Blue maomao | Scorpis violaceus 18
Trumpeter - Kohikohi - Latris lineata 18
Goatfish | Ahuruhuru | Upeneichthys lineatus 19
Hāpuku | Polyprion oxygeneios 19
Two-spotted demoiselles | Chromis dispilus 20
Black angelfish | Mata | Parma alboscapularis 20
Pink maomao | mātā | Caprodon longimanus 21
Spotted black grouper - Epinephelus daemelii 21
Snapper | tāmure | Chrysophrys auratus 22
Flounder | Pātiki tōtara | Rhombosalea plebeian 22
Scorpion fish | matuawhāpuku, rarai | Scorpaena cardinalis 23
Big-bellied seahorse | Manaia | Hippocampus abdominalis 23
Long-snouted Pipefish | Ihe ihu roa | Stigmatophora longirostris 24
Porcupine fish | Koputotara | Allomycterus pilatus 24
Leatherjacket | Kokiri | Meuschenia scaber 25
Blue cod | Rāwaru | Parapercis colias 25
Spotted stargazer | Moamoa | Genyagnus monopterygius 26
John Dory | Kuparu | Zeus faber 26

CHONDRICHTHYES: THE CARTILAGENOUS FISHES OF AOTEAROA 27
Bronze whaler | Ngerungeru | Carcharhinus brachyurus 27
Great white shark | Mangō taniwha | Carcharodon carcharias 27
School shark | tupere | Galeorhinus galeus 28
Short-tail stingray | Bathytoshia brevicaudata 28
Eagle ray | Whai repo | Myliobatis tenuicaudatus 29
Oceanic manta ray – Te whai rahi - Mobula birostris 29
CRUSTACEANS OF AOTEAROA 30
Spiny red crayfish | Koura Moana| Jasus edwardsii Packhorse 30
Crayfish | Koura Moana| Jasus verreauxii 30
ECHINODERMS OF AOTEAROA 31
Eleven armed seastar | Coscinasterias muricata 31
Cushion star fish | Patiriella regularis 31
Ambush starfish | Stegnaster inflatus 32
Kina | Evechinus chloroticus 32
MOLLUSCS OF AOTEAROA 33
Maori octopus | Wheke | Macrotopus maorum 33
Southern reef squid | Sepioteuthis australis 33
White-speckled sea hare | Aplysia argus 34
Clown nudibranch | Ceratosoma amonenum 34
Lemon nudibranch | Dendrodoris citrina 35
Gem nudibranch | Dendrodoris krusensternii 35
Black doris nudibranch | Dendrodoris nigra 36
OTHER INVERTEBRATES 36
Salps | Salpidae 36
Ctenophores | Pleurobrachia pileus 37
Immortal jellyfish | Turritopsis dohrnii 37

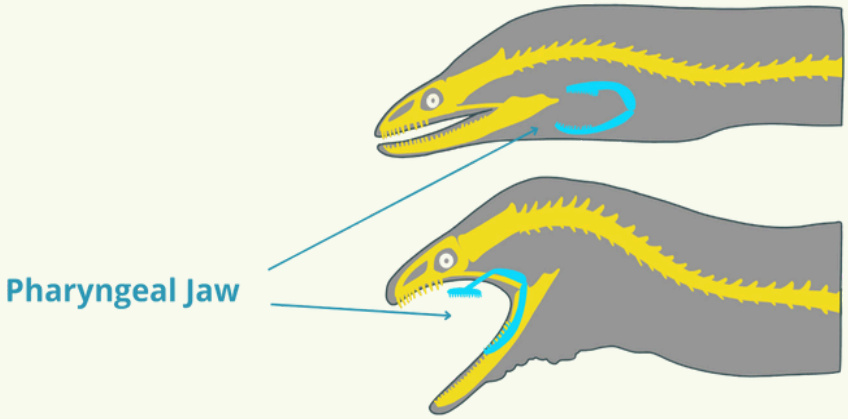
This guide is dedicated to our amazing volunteers to be used as a resource for learning about Aotearoa's marine life. Brush up on your fish ID skills and learn some fun facts to share with your groups.

'Sea' you in water soon!

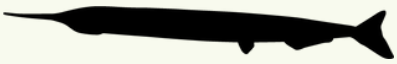
Yellow moray | Gymnothorax prasinus



Yellow morays are found in rocky reef environments, often peeking out of rocks and moving slowly backwards into small spaces when frightened. They are a common sight when scuba diving, particularly around the North-East coast of the North Island. They are opportunistic carnivores, waiting until their prey is close enough for them to lunge out and clamp them with their needle-like teeth, using their second jaw (pharyngeal jaw) to help them eat. They feed mainly on crustaceans and vary in colour from green-yellow to brown-yellow.



Piper | Ihe | Hyporhamphus ihi



Long and slender the piper has a schooling habit and is found in shallow inshore waters all around the coast of NZ. They are ~20cm long with a long beak that has a projected lower jaw, which gives it the ability to surface feed. Also known as a garfish, they are endemic to NZ and have a very sensitive lateral line.They are a fast swimmer and greenish blue on top and silvery-white underneath. Their colour scheme makes it difficult for predatory fish to spot them from below, and seabirds to see them from above.

Crested weedfish | Cristiceps aurantiacus

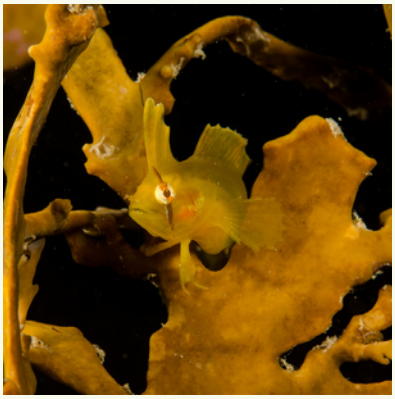


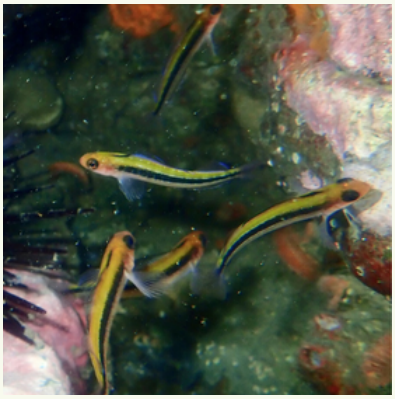
Photo: Seacology

The Crested Weedfish is a skilled cryptic predator that is native to New Zealand and southeast Australia. It is incredibly camouflaged to look, and move, like a blade of kelp. From here, it ambushes its prey and hides from its predators. They can grow up to 200 mm long, are found in stands of kelp from low water to depths of about 55 metres and vary in colour, camouflaging with their surroundings. Their behaviour and colouration make the species hard to observe. It uses dispersal techniques by floating on detached seaweed, which can be done for hundreds of kilometres at a time. When kelp forests are lost, we lose the weedfish, with kina barrens threatening their survival.

Common triplefin | Kokopu | Forsterygion lapillum

This species usually sports a distinctive longitudinal black stripe. While often found in intertidal pools and sheltered harbours, it is also abundant in the upper few metres of water on coastal reefs that are not exposed to wave action. They favour cobble areas in particular, although they also frequent areas of mixed algae, kelp forest and even patches of sand. They are most common in depths less than 5m and are usually found in rock pools. They lay eggs on smooth rocks or rubble, and the males fiercely guard the eggs, often attacking and chasing away other creatures much larger than themselves. The common triplefin is between 4-8cm, with larger specimens found in the South Island. Their colour and patterns vary.

Oblique-swimming triple fin | Obliquichthys maryannae



Oblique-swimming triplefins are endemic to New Zealand and are found along the north east coast of the North Island. They are a small fish (~6-8 cm) found over rocky reefs at depths up to 5-50m, often schooling or resting between rocks. They are plankton feeders, feeding on planktonic copepods and crustaceans found living on the substrate. They are easily distinguished from other triplefins by their tendency to school in the water column above reefs, as well as their yellow-orange coloration with a redtinged head, black eye and a large black longitudinal stripe.

Variable triplefin | Forsterygion varium

The variable triplefin is native to New Zealand and is found in rockpools and rocky reefs in depths down to 30m, particularly living amongst broken rock and kelp. They have a mottled back with a reddish tinge on their dorsal and tail fins, their apperance varies during the breading season. They're similar in appearance to the common triplefin and reach lengths of 15cm, and have extremely variable colour patterns, often with white/cream mottled patches with an olive background. Both common and variable triplefins often have nests on open rock surfaces, although these are usually adjacent to a wall or in a depression.

Blue-eyed triplefin | Kokopu | Notoclinops segmentatus

Photo: Caul Caiger

This triplefin is found in northern New Zealand and is common on exposed reefs on the mainland coast amongst the cover of mixed algae on steep slopes or under overhangs. They are easily recognisable by their iridescent blue eyes and the nine red bands across its body. They reach a max length of 6cm, and during the breeding season, the orange on the males becomes brighter on the head, tail, and anal fin, and the rest of the body becomes blue/black. Males set up nests in small depressions on vertical rock faces, where females are encouraged to lay their eggs. The males then guard the nest, which may include eggs from several females. Blue-eyed triplefins sometimes clean parasites from larger reef fish such as moray eels.

Trevally | Araara | Pseudocranax dentex

Trevally are schooling fish abundant in the northern areas of the North Island near headlands, pinnacles and islands where currents tend to concentrate lots of plankton. They have blue-green colouration with metallic overtones, with their fins having a yellow tinge. A small dark blotch often appears on the upper gill plate. They are both pelagic and demersal in behaviour, growing rapidly, reaching maturity after about five years, and living to 45 years, reaching over 60cm. They play an essential role in multi-species foraging associations herding krill and small fishes to the surface, making it easier for seabirds to forage.

Yellowfin Kingfish | Haku | Seriola lalandi lalandi

Photo: Caul Caiger

Kingfish reach 1.7 m in length and weigh up to 56 kg. The common name “yellowtail” comes from their bright yellow fins, but they also have a distinctive golden-brown stripe running from the snout to the tail. They feed mainly on small fish such as trevally, piper and garfish. Kingfish are a popular recreational fish in New Zealand. With their streamlined body, kingfish are fast-swimming and ferocious hunters and are commonly seen in shallow bays, harbours or estuaries where they hunt bait fish. Kingfish camouflage well within their environment. Its darker top half makes it difficult to see from above because it closely resembles the dark colour of the water. The lighter bottom half has the same effect when looking upward toward the light at the sea surface.

Red pigfish | Paakurakura | Bodianus unimaculatus

Pigfish are large distinctive red-striped fish found in rocky reef kelp forest habitats. They are protogynous hermaphrodites. They are all born female, and the biggest and boldest transitions into a male. The two sexes have distinct colour patterns. Females are pinkish-red with distinctive dark stripes running the length of their bodies. Males, however, have a distinctive dark blotch on their dorsal fin and are an overall pink colour with a lighter spot on their back. They have large mouths and thick lips, allowing them to graze in the reefs, feeding on benthic invertebrates.

Sandager’s wrasse | Coris sandeyeri

Found in northern NZ and Australia, the Sandager’s wrasse inhabits rocky reefs to depths of 60m. They are found in harems of one male looking after many females. The juveniles within the group will all develop into females, however, when the groups male dies, the most dominant female will change sex into a male. Sandager’s wrasse are sexually dimorphic with the males having dark and brightly coloured bands, whereas females are paler in colour with 2 dark pink spots. They feed on benthic invertebrates, like chitons, amphipods and gastropods and can be found feeding on the bottom of the seabed. Juveniles will pick off and eat parasites on larger fish - forming a cleaning symbiosis.

Spotty | Paketi, Pakirikiri | Notolabrus celidotus

Spotties are endemic to New Zealand and are found around rocky reefs and estuarine habitats. All spotties start their life as female, and once the male of their group dies, the largest female will transition to male and take over the role. Male spotties are very territorial and defend their female group (harems) from other males. Once the male of their group dies, the largest female will transition to male and take over the role. They are sexually dimorphic (males and females look different). Females have a large, perfectly round spot on either side of their body, while males have smaller spots near their dorsal fin. Spotties can live for up to Seven years and are always on the move, either feeding or guarding their territory. Spotties are active hunters, feeding on small benthic organisms like crustaceans and worms.

Banded wrasse | Tangahangaha | Notolabras fucicola

Banded wrasses are the largest wrasses in NZ waters. They can live to 35 years and up to 45cm long. They inhabit kelp beds and exposed rocky reefs. Unlike other wrasses, males can exist together with males and females in the population. They have fang-like front teeth, tearing and crushing limpets, barnacles, mussels and crabs. They have variable colouring, with younger fishes being reddish-brown mottled with green and orange, while adults are green-brown with indistinct yellowish vertical bars on their bodies and fins. They are selective foragers, preferring small hard-shelled animals

Butterfish | Marari | Odax pullus

Butterfish are easily identified by their wavy mohawk of broad sweeping dorsal and anal fins, which help them blend into the kelp around them. They are all born female, with the biggest and boldest females transitioning to become males, protecting the harem and territory. Butterfish exist in groups consisting of one male and several females. Females are brown-olive green, whereas males are dark green to dark blue-black. Butterfish rely on healthy, balanced reefs with plenty of kelp, feeding mainly on brown algae. As more of our rocky reefs decline in health and become kina barrens, butterfish habitats disappear. Butterfish are omnivorous, eating kelp and kelp-dwelling microorganisms. They are ~40 cm long, with males larger than females.

Yellow Eyed Mullet | Aua, kātaha | Aldrichetta forsteri

Photo: Caul Caiger

Yellow-eyed mullet are grey-green on top, silver with a yellow tinge on the underside, and have distinctive bright yellow eyes. These surface-dwelling schooling fish form schools in shallow coastal waters, harbours and estuaries, spawning in the sea with juveniles using estuaries for rearing. They feed on numerous food types, including algae, crustaceans, diatoms, molluscs, insect larvae, fish, worms, fish eggs and detritus. They can reach 40cm in length and live to a maximum age of 7 years.

Kahawai | Arripis trutta

Photo: Samara Nicholas

Kahawai are found all around New Zealand in coastal areas, harbours and estuaries, with juveniles preferring shallow coastal waters and adults open water. They live together in large schools and can often be found hunting for small fish such as anchovies and yellow-eyed mullet. Kahawai have firm, solid bodies with strong swimming muscles, helping them to make lengthy migrations and feed in fast-moving feeding events. They vary from grey-blue to blue-green above and are silvery beneath, helping them to camouflage in the ocean light from above and below. With their ability to cover vast distances quickly because of their strength and speed, it is difficult to protect them using marine reserves.

Lord Howe Island butterflyfish | Amphichaetodon howensis

This fish occurs in subtropical marine waters along the eastern coastline of Australia, Lord Howe Island and the east coast of Northland in New Zealand. They are found at depths of between 10m and 150m in rocky coastal reefs and caves. Adults are usually seen in pairs, whereas juveniles are often solitary. The Lord Howe Butterflyfish can be recognised by its colouration. It is yellow above, fading to silver on the sides and below, with five black bands on the sides and another along the top of the snout.

Red moki | Nanua | Cheilodactylus spectabilis

Photo: Shaun Lee, STET

Red moki are a common fish found in rocky reefs around the North Island of New Zealand. They are found in kelpy habitats and are easily identified by their eight reddish-brown vertical bands with paler reddish bands in between. They are carnivorous and feed on various benthic invertebrates, such as gastropods, bivalves, crustaceans, polychaetes and small sea urchins. The predation on tiny sea urchins by red mokis may play a role in controlling the urchin numbers and in preventing the creation of urchin barrens. They spend a lot of time in caves and crevices, only venturing into the open to feed. They are territorial and remain in their territory for their lifetime, often many hundred square metres. They can grow up to 60cm long and live for up to 60+ years.

Pōrae | Nemadactylus douglasii

Pōrae are easily identified by their big lips and long pectoral fins, which reach as far back as their anus. They have a silvery body with a blue/green tinge on top and blueish fins, with juveniles having a dark blotch on their side. They can be found as far south as the Cook Strait during summer. They are more common in the north of the North Island. They are found in sandy reefs and gravel patches throughout the coastal areas, foraging on worms, brittlestars and sea urchins. They are usually observed in small groups, with group size increasing with water depth. They grow to 40-60 cm and weigh 4-5kg.

Hiwihiwi | Chironemus marmoratus

Hiwihiwi, also known as kelp fish, are found in shallow kelp forests and rocky reefs with macroalgae. They feed on a range of invertebrates, including small molluscs, crabs and urchins, using their large pectoral fins to steady themselves in the surge. They remain close to the seabed, hanging out in the surge zone. The colour of the body can be grey, brown, green or pinkish, and the head and body are covered in small white spots, with the body having large dark blotches. They are 20-40cm long. While they look similar to stonefish or scorpionfish , they do not have venomous spines.

Mado | Atypichthys latus

Mado are silvery white or yellow with yellow fins and tails, they have 5-7 parallel brown-yellow bands running from head to tail. They have bright yellow fins, relatively large eyes and a diamond-shaped body. They are found in rocky reefs on pinnacles, headlands and offshore islands, grazing on encrusting animals. Mado are found in small groups of 3 to 20 in dark areas such as archways and the deep reef habitat zone down to about 60m. Mado are found in the clear and warm waters of north-eastern NZ and the Poor Knights Islands. Mature mado are most often seen in pairs or small schools; they are very curious and will often approach divers. Juveniles tend to be more solitary, but they will seek shelter in schools of common planktivorous fishes like blue maomao.

Blue fish | Karokaropounamu | Girella cyanea

This distinctive bright blue species is found in small schools or as solitary fish in shallow water. Within their native range, bluefish generally inhabit shallow rocky reefs down to about 10m depth and, in New Zealand, are more common at offshore islands. Bluefish are omnivorous; they will often be seen grazing algae or invertebrates off the rocks but will also eat salps in the water column when they are plentiful. They can grow to 75cm and are significantly larger than Blue Maomao, with a more stocky body. This fish is rarely seen at rest, often swimming with bursts of speed for no apparent reason.

Parore | Girella tricuspidata

Found in estuaries, rocky reefs, and mangrove forests, parore are silvery-grey fish with dark grey/black vertical stripes down their body. Their head and pectoral fins are sometimes yellowish with the fins being the same colour as the part of the body they are near. They are usually found in waters less than 10m deep up to depths of 50cm. They are omnivores, eating seaweeds with their sharp teeth and opportunistically feeding on the crustaceans and other animals that live on them. They congregate in large schools and form ‘runs’ from estuarine and coastal waters. Juveniles use seagrass beds and mangroves to hide from predators and move to the sea.

Silver drummer | Kyphosus sydneyanus

The silver drummer is a plump-bodied fish that are light grey to black with a darker grey on the back and a black band on the tail. They hide in caves and large crevices in turbulent areas feeding on the coarse seaweeds of the wave-swept subtidal habitat zone. Young Silver drummers have light blue or white spots and look like a different species to adults, finding protection in shallow turbulent waters. When small they compete for the same food (fine algae growing on tough seaweeds) as Parore, but later in life, they eat more of the coarse weeds themselves. Silver drummer are sometimes observed as solitary individuals but congregate in large schools. Silver drummer have a highly specialised hindgut where the majority of microbial fermentation occurs, allowing the fish to digest tough seaweeds properly

Sweep | Hui | Scorpis lineolate

Underwater, Sweep and Blue Maomao are often difficult to tell apart. Sweep are small (15-30cm) and are found in coastal reefs to depths of at least 50m. Silver sweeps are greyish, blue-grey or green-grey dorsally and silver-grey ventrally. The edge of the gill cover and the base of the pectoral fin are blackish. They occur in small schools of a few dozen individuals to large schools of a few thousand. Sweep look like Blue Maomao, but they are not as blue. Sweep feed on plankton over rocky reefs, where they form schools while juveniles settle in tide pools and can be found in the brackish waters of estuaries. When very young, Sweep have several orange spots and dark edges on their back and tails.

Blue maomao | Scorpis violaceus

Blue maomao are schooling fish that stay close to the shore and inhabit rocky reefs to depths of 30m. When young, they are grey with a yellow anal fin. As they grow, they become bluer, and their anal fin loses its yellow colour. The young fish are found in very shallow water behind boulders and in crevices in the wave zone, often in the company of young sweep that look very much alike. They feed on animal plankton and sometimes nibble lush seaweeds when plankton is in short supply. Mature Blue Maomao are deep blue above and pale white underneath. They have a forked tail. With their extendable mouths they snap at plankton shrimps that they can herd together with the entire school. Safety in numbers is key. Blue maomao move in schools to make it harder for predators to pick them off.

Trumpeter - Kohikohi - Latris lineata

Trumpeter are found in cold temperate New Zealand waters from the Bay of Plenty and south, particularly around the eastern South Island. They are bottom-living fish with their striking feature being their brilliant colour scheme. Three horizontal bright olive-green stripes run along its sides, making the trumpeter immediately recognisable. They have a concave head with thick fleshy lips like they are playing a trumpet. The outline of the trumpeter closely resembles that of the blue moki to which it is related.

Goatfish | Ahuruhuru | Upeneichthys lineatus

Goatfish are found in sheltered rocky reefs in small schools. They use their feeler-like barbels to sense out prey and use their protractile mouth to catch prey buried in the sand. Male Goatfish will change colouration during breeding season to appear more attractive to females. They will establish territories during the breeding season, fending off males and focusing on courting females. They also flash a brilliant red colour thought to help clean fish and assist with the removal of parasites. Their colours tend to be light and sandy coloured to enable them to blend into the sandy bottom of the environment. They are 20-40cm long.

Hāpuku | Polyprion oxygeneios

Photo: Wade Doak

Hāpuku/Hapuka are large fish that inhabit rugged, rocky areas. They are most often found in depths between 50 and 850 metres. They are found throughout New Zealand on deep, rocky off-shore reefs. Hāpuku are predators, feeding on fish, invertebrates and crustaceans, including red cod and blue cod, hoki, crabs and crayfish. They are a large fish, reaching lengths of 1.5m and over 100kg. Due to overfishing they are no longer common reef fish in shallow coastal reefs. They are now considered a deep water fish often found at depths of 40+m and weights of 25kg.

Two-spotted demoiselles | Chromis dispilus

Demoiselles are small fish that are a common sight in rocky reefs in the North and East cape of the North Island. They are known to be very territorial and are easily identified by dark blue colouration and their distinctive eye spots near their tail and dorsal fin. They inhabit rocky reefs to depths of 60m and are plankton feeders, feeding in schools of 500+ individuals in areas with high currents. Males are highly aggressive when courting females and guarding their nests. Males will fight for prime territory with good resources and shelter for the best chance of reproductive success. They will have distinctive pairings during the spawning season. Their eggs are laid in nests, and males circle their nests to guard them from predation.

Black angelfish | Mata | Parma alboscapularis

Often encountered in shallow rocky reefs in northeastern New Zealand, the black angelfish is an aggressively territorial fish. Male black angelfish cultivate a nesting site that they maintain and fiercely defend all year round against predators that can be several times their size. Males will remove small animals from the site and nip off the top of the seaweed. Black angelfish spend their life farming seaweed on a tiny patch of reef. Females choose to mate with males who have the best nest site. During the spawning season, females lay their sticky eggs on the nest, which can be up to 80cm in diameter. The male fertilizes the eggs, aerating and guarding them until they hatch. Juvenile black angelfish are yellow-brown with numerous bright blue dots allowing them to be easily recognized and not chased away until they are black adults.

Pink maomao | Mātā | Caprodon longimanus

Pink maomao are found near inshore reefs, forming large schools often mixed with blue maomao, trevally and mackerel. They are opportunistic feeders, feeding on zooplankton, small swimming organisms, and crustaceans. This species is a protogynous hermaphrodite. They are born as females and may change their sex to become male. Pink maomao are a uniformly pink fish with red-orange on the head and pectoral fins edged with pale blue. The females are an overall mauvish pink colour while the males are a similar colour but may show blackish blotches on the back and upper flanks and on the dorsal fin and males also have yellowish dorsal, caudal, anal and pelvic fins.

Spotted black grouper - Epinephelus daemelii

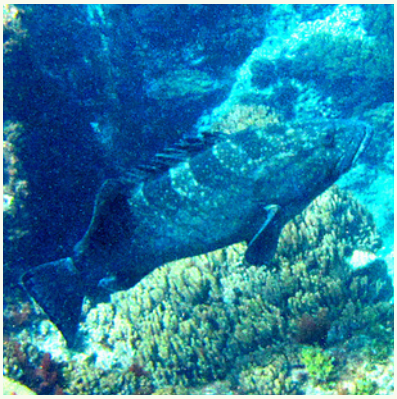


Photo: Wade Doak

Spotted black grouper occur off the coasts of Australia and New Zealand. In New Zealand, they occur around the Kermadec and Three Kings Islands. Spotted black grouper begin life as females and change sex at about 1 metre, with the largest fish being males. Grouper are highly territorial and may inhabit the same piece of reef for life. Spotted black grouper that occur in New Zealand may have drifted here as larvae, and are thought to be non-breeding. Due to their home-ranging nature, you can usually find them again. Spotted black grouper are vulnerable to overfishing and are completely protected in New Zealand waters

Snapper | Tāmure | Chrysophrys auratus

Snapper are found in inshore waters, rocky reefs and coastal areas up to 200m deep. They are a keystone species, controlling kina numbers by being a primary predator of these spiky prey. When snapper populations decrease, they modify the structure of their environment, with a boom in kina numbers stripping the environment of kelp. Juveniles spend time in the mangrove forests and seagrass beds before moving to rocky reefs. Older and larger snapper will develop a hump on their head, lose their iridescent blue spots, and produce more eggs than smaller snapper. These older fish are important for population maintenance and recovery following overfishing, and kina control in reefs, and therefore should be avoided when fishing/spearfishing.

Flounder | Pātiki tōtara | Rhombosalea plebeian

The larval sand flounder begins life with an eye on each side of its head and a round body shape, swimming upright through the midwater. As it grows out of this larval stage and enters the juvenile stage, one eye moves to the right side, leaving the other blind, morphing into a flat diamond shape, swimming flat/ parallel to the ground. Adult flounder are adapted to feed best at night on sand or mud. They are ambush predators who go unnoticed by camouflaging into the muddy substrate and attacking their prey when it comes near. They eat a variety of bottom-dwelling invertebrates such as crabs, brittlestars, shrimps, worms, whitebait, shellfish and tiny fish located by touch and vision.

Scorpion fish | Matuawhāpuku, Rarai | Scorpaena cardinalis

Scorpion fish are found over reefs and rocky shorelines from low tide to 100m. They are masters of disguise and have cryptic colouration. There can be some colour variation, including dark blotches and a mottled orangery red-brown appearance that provides perfect camouflage as they rest on the bottom, sitting up on their fan-shaped pectoral fins. The scorpion fish has a disproportionately large head and an equally large cavernous mouth. It is a predatory fish that often lie motionless on the bottom, ambushing their prey. If they feel threatened, however, to defend themselves, they will stick out their toxic dorsal spines. A sting from this fish can be excruciatingly painful. An unusual feature of the Scorpion fish is that it has no swim bladder. Instead, it uses its pectoral fins to hover in the water.

Big-bellied seahorse | Manaia | Hippocampus abdominalis

Photo: Samara Nicholas

Seahorses belong to the Syngnathidae family, consisting of pipefishes, pipe horses and seadragons! Big-bellied seahorses are the only species found around the New Zealand coastline and one of the world's largest species - growing up to 35cm! This seahorse is found in shallow water among algae, seagrasses, and rocky reefs. They mainly eat crustaceans, such as shrimp, and other small animals living among the seaweed, such as copepods and amphipods. Courtship and reproduction in seahorses are elaborate, involving changing colour and much posturing. Male big bellied seahorses are super-dads, caring for 300-700 young at a time in their pouch, and up to four broods in summer months. Sea horses are most active at dawn or dusk.

Long-snouted Pipefish | Ihe ihu roa | Stigmatophora longirostris

As cousins of the seahorse, pipefish resemble stretched-out seahorses with a non-prehensile tails. They are 15-20 cm long, and greenish brown with dark-brown dots. It is a long skinny fish that looks like a ribbon of seaweed. It's a weak swimmer and hangs out in seagrass meadows around the east coast of Aotearoa. Pipefish perform elaborate courtship dances with lots of wriggling and shaking, and, like its relative the seahorse, males carry the eggs and give birth. Auckland has the smaller Ichthyocampus filum, which is brownish with black crossbars with a much shorter beak. Both species have a long tubular mouth with tiny jaws at the tip.

Porcupine fish | Koputotara | Allomycterus pilatus

Porcupine fish are slow-moving fish found in rocky reefs at depths of 5 - 100m. They feed mainly on molluscs, crustaceans and echinoderms, using their fused teeth plate to crush hard shells. Like their cousins, the pufferfish, they can 'puff up' and expand their bodies up to 3 times their original size. This is only used as a last resort as it decreases their manoeuvrability and increases their likelihood of capture by predators. Porcupine fish and pufferfish contain a neurotoxin called tetrodotoxin, produced by a symbiotic bacteria, as a defence against predators. This neurotoxin is more potent than cyanide. This type of fish could be fatal if ingested, but a dried-out carcass poses little or no risk if it is only touched. A second defence mechanism is provided by the sharp spines, which radiate outwards when the fish is inflated.

Leatherjacket | Kokiri | Meuschenia scaber

Leatherjackets inhabit rocky reefs, feeding on encrusting sponges and molluscs on rocks and zooplankton in the water column. Their rough leathery skin helps to protect them from predators, and their sharp teeth allow them to scrape prey off the rocks. Leatherjackets are from the triggerfish family, using their retractable spine (trigger), which they can use as an extra defence against predators. They reach maturity at 18 cm and, when juvenile, feed on soft comb jellies and salps. They are found at depths of 5-200m. They have strong and incredibly sharp teeth, which allow them to scrape prey off the rocks.

Blue cod | Rāwaru | Parapercis colias

Blue cod are bottom-dwelling predators endemic to New Zealand and common in southern wanters to depths of 150m. They eat crustaceans, small fish, kina, worms and shellfish. They change sex from female to male, with males generally larger than females, reaching lengths of 60cm. These males control a large territory that they actively maintain to keep free of males. These cod have thick-lipped mouths with rotating eyes. They are inquisitive and often approach snorkelers and divers within marine protected areas. They are a blush green to blue-black with white towards the belly. Larger ones are usually greenish-blue, while smaller ones are blotchy with brown patches. They have strong tips on their anal fins, which support them when resting on the ocean floor.

Spotted stargazer | Moamoa | Genyagnus monopterygius

Spotted stargazers are an elusive fish, choosing to stay hidden and expertly camouflage in the sandy seabed. They are found around New Zealand at depths of up to 100m. They are a ‘sit and wait’ predator, hiding in the sand and waiting for passing demersal (bottom-dwelling) fish to pass by. Their large mouths are adapted to gulp their prey in one swift motion. The female fish lays transparent eggs at the bottom of the sea, which float towards the surface and hatch into larvae. They remain in the pelagic zone until they become 12 – 15 mm long and then swim to deeper water to mature into adults. They are venomous, with two large venomous spines located behind their opercles and above their pectoral fins.

John Dory | Kuparu | Zeus faber

John dory are solitary predators that spend most of their life in near the seabed. They have long dorsal spines and a laterally compressed olive-yellow body – so thin it can hardly be seen from the front. The large eyes at the front of the head provide it with the binocular vision and depth perception it needs to catch prey. They have a dark false eye spot which confuses prey, which are then sucked into their mouth. The large spot in the middle of their body is believed to aid in scaring away would-be predators by mimicking the appearance of an eye of a much larger fish. Their camouflage and stealth make up for their lack of speed – once they have snuck up on their prey, they engulf it with their large extendable mouths. They use muscles to drum on their swim bladder, making a low pitch grunting noise.

Bronze whaler | Ngerungeru | Carcharhinus brachyurus

Bronze whaler sharks are generally only found around the North Island and the top of the South. They inhabit estuaries, shallow/sheltered bays and offshore waters to depths of 360m. They feed on small schooling fish like kahawai as well as cephalopods. Their teeth are designed to grasp small, slippery prey, such as fish and squid, rather than for cutting big hunks of flesh. On average, they are 1.5-2.5m in length but can reach over 3m long. They are one of the largest reef shark species and one of the most abundant large shark species in New Zealand's coastal waters.

Great white shark | Mangō taniwha | Carcharodon carcharias

Photo: Clinton Duffy (DOC)

New Zealand is a global hotspot for white sharks, they are large and iconic marine predators which have been protected in New Zealand's waters since April 2007. They are long-distance migrants, making extensive return migrations along the continental shelves of the world's oceans. White sharks are apex predators and play an important role in controlling populations of prey species. Males reach ~5.5m and females 7m, with their large size allowing them to feed on large prey such as marine mammals. A major threat to white sharks is unmanaged incidental catch and direct spot and trophy hunting. Indirect threats may also include the decline of important prey species due to overfishing, coastal productivity, habitat loss and pollution.

School shark | Tupere | Galeorhinus galeus

Image Credit: Alex Burton (iNaturalist) and Micheal Evans

School sharks are common in New Zealand's coastal waters, reaching depths of 200m. They are a relatively small shark compared to bronze whalers, only reaching lengths of 1.7m for males and 1.9m for females as adults. They have a dark blue-grey upper surface with a white belly and a bilobed tail. While it is not threatened in New Zealand, it is threatened overseas due to overfishing and sedimentation and siltation of nursery habitats. They are migratory with tagged sharks travelling 5,000km, and making their way across the Tasman Sea to Australia. They can be mistaken for bronze whalers but are distinguished from other sharks by their long-pointed snout and notched tail.

Short-tail stingray | Bathytoshia brevicaudata

Short-tail rays can be found across various habitats, from estuaries to reefs, but also open water. They are one of the largest species of stingrays in the world, reaching 2m in diameter and 250kg. They have diamond-shaped pectoral fin disks with wide pores on either side of their head. Their tail is usually shorter than the disc's length and is thick at the base, armed with large thorns and a stinging spine. The short-tail stingray is not aggressive but capable of inflicting a lethal wound with its long, venomous barb/spine at the end of their tail. They feed on invertebrates and bony fishes. Foraging in sandy bays and rocky reefs, they can be found in large aggregations such as those that form seasonally at specific locations, such as in the summer at the Poor Knight Islands.

Eagle ray | Whai repo | Myliobatis tenuicaudatus

Eagle rays are found in sandy flats, seagrass beds, estuaries and bays to rocky reefs. They usually prefer to hang out in shallow water; however, they have been found as deep as 422 metres. Eagle rays use their electro-sensory system to find and feed on benthic animals like crabs, clams and worms buried in the seabed. They use their unique tooth plates to crush hard-shelled prey, jetting water to clear the sand and expose their meal. Unlike long and short-tailed rays they flap their wings like a bird - hence their name. They have a stinging barb on the base of their tail. Their bodies are wider than they are long – up to 1.5m across, with females larger than males – and tails longer than their bodies. Eagle rays are generally solitary but will congregate in shallow water during the summer months when they come in to breed.

Oceanic manta ray – Te whai rahi - Mobula birostris

Photo: Mark Erdmann (Manta Watch NZ)

Oceanic manta rays reach 7m across and weigh 2 tonnes. They are found around the world, inhabiting both tropical and temperate oceans, with sightings increasing in areas with warmer waters. They have a darker upper surface and lighter underside, allowing them to blend in with background light conditions, reducing predation risk. They are distinguished from other ray species by their white shoulder markings that make a ‘t’ shape on the top of their heads and their modified head fins. Manta rays have unique spot patterns on their bellies much like a fingerprint. If you see a manta ray, report your sighting to mantawatchnz.org.

Spiny red crayfish | Koura Moana| Jasus edwardsii

The spiny red crayfish is dark red and orange above and paler and yellowish below. The body is spiny, especially on the head. They can weigh up to 8 kg and reach lengths of about 60 cm (excluding the feelers). They are carnivorous, leaving their rock cover to venture out to feed during the night. They live in and around reefs ranging from 5–200 metres. They are active ocean-bottom explorers and feed on shellfish, crabs, small fish and sea urchins. Crayfish 'moult' their shells to allow new growth. Mating is linked to moulting and occurs not long after. Crayfish can regrow lost limbs over a series of moults. They resemble lobsters but lack the large characteristic pincers on the first pair of walking legs. Eggs develop on females. The eggs develop here for 3 to 5 months. Females cannot be caught when they have eggs - also known as being 'in berry'.

Packhorse Crayfish | Koura moana | Jasus verreauxii

Packhorse crayfish are the largest of New Zealand's crayfish species, reaching almost twice the weight of the red spiny crayfish. Young packhorse crayfishes are green, becoming yellow-brown with maturity. They are commercially harvested and have a distinct greenish glossy appearance with a smoother and shorter tail than the red spiny crayfish. They live on rocky reefs at depths ranging from 5-270+m, feeding on a range of prey including kina, acting as keystone species controlling these kelp eating species. Females cannot be caught when they are 'in berry'.

Eleven armed seastar | Coscinasterias muricata

The eleven-armed spiny sea star is one of the largest sea stars found in New Zealand - reaching an arm span of over 50cm. They have long, skinny arms with rows of short spines on the upper surface and two rows of tube feet on the lower surface. They ranage in colour but are often orange-mottled with shaeds of blue, green, grey and reddish-brown. They may shed their arms to reproduce (making new starfish) or avoid predation. They are found in rocky reefs and sheltered bays, on rocks, under boulders, and in sandy habitats to depths of 150m. In sheltered bays, they dominate the shallows, often destroying mussel beds.

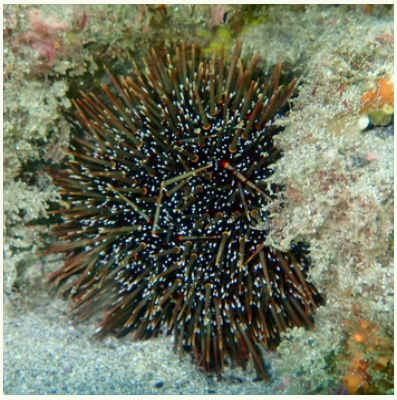
Cushion star fish | Patiriella regularis

One of Aotearoa’s most common rocky shore starfish is the cushion starfish. It is abundant in shallow waters and comes in a range of colours. While most have five arms, you can occasionally find them with 4-6. They feed on algae, barnacles and invertebrates, foraging for living and dead organisms and acting as scavengers on the rocky shore. It can live up to 10 years and can be found up to 30m deep. Common colour variations include orange-red to blue-green. Their underside is usually a pale pink, with these starfishes turning themselves back the correct way around when their belly is exposed. They reach 10cm wide - or about the width of your palm.

Ambush starfish | Stegnaster inflatus

Ambush starfish are endemic to New Zealand and have variable colouring - they are often a vibrant orange colour. They have a unique ‘ambushing’ technique of prey capture, standing on the tips of its arms, dropping down onto their prey to trap it in the centre, where it draws its stomach out to digest their prey outside of their body. It lived in the subtidal area and rocky reefs, often in rock pools and shallow bays. It is more brightly coloured than the cushion starfish and will often stand on the tips of its arms, whereas the cushion star will be flat on the substrate. It has five arms and a mottled colouration.

Kina | Evechinus chloroticus



Kina are endemic to New Zealand and are abundant in rocky reefs. They are found in shallow waters to 12-14m deep. They are mostly found in rocky seafloor areas grazing on turfing algae, and large kelp stands. Their numbers can grow out of control in areas where their predators (snapper and crayfish) are overfished. When they are disproportionately abundant in their environment, they overgraze the area, and the kelp forests are lost. When marine reserves are established, their population numbers are brought under control by the return of top predators. Lucky beachcombers may also find a structure called an Aristotle's lantern, which acts like a set of jaws and teeth that kina use to grind food into digestible-sized pellets.

Maori octopus | Wheke | Macrotopus maorum

Octopuses are often difficult to spot due to their ability to rapidly change colours and textures to blend into their surroundings. They are found all around New Zealand, from rocky reefs to depths of 550m! They love to eat koura, crabs, scallops, and small fishes and invertebrates. Once caught, they hold their prey under their web of arms and inject their prey with venom, liquifying them and making them easy to consume. They can reach an arm span of 2m and vary in colour. They can expel ink to aid them in escaping predators and collect the shells of their prey to create a midden to hide the entrance to their den. They have three hearts and nine ‘brain’s - collections of neurons in each arm and a central brain in the shape of a donut - allowing them to be the ultimate multitasker. Females will only lay eggs at the end of their lifetime, being so dedicated that they will guard and care for their eggs, giving up food and their life to keep their eggs safe. Males too give up their life for their offspring, dying shortly after depositing their sperm packets into the female.

Southern reef squid | Sepioteuthis australis

Squids are found along the coast of the North Island in New Zealand and are commonly found in sandy areas, seagrass beds and rocky reef habitats to depths of ~10m. They feed on fish and crustaceans at night and can expel purple ink to avoid predators. Using their chromatophores, they can change their colour to confuse predators and participate in courtship displays. Unlike octopuses, females do not defend their eggs, instead laying them in finger-like cases at the base of seaweed and seagrass. They have a semi- transparent body which changes to a uniform orange-brown or rust colour and reach a maximum length of 38cm and 1kg. Squids are the fastest swimming invertebrate, using jet propulsion to move through the water.

White-speckled sea hare | Aplysia argus

Sea hares are found around the coastlines of northern New Zealand and prefer the low intertidal zone of rocky reefs. They have chemical receptors on their heads that look like rabbit ears - hence their name. Even though sea hares, in general, like to feed on sea lettuce, this sea hare prefers sponges. Sea hares are hermaphrodites (each animal has male and female sex organs). Mating often occurs in groups, with chains of animals lining up to fertilise the released eggs of the animal in front. Sea hares release their eggs in a colourful tangle resembling spaghetti or knitting wool. The white-speckled sea hare can produce a toxic purple ink as a defence mechanism if they feel threatened.

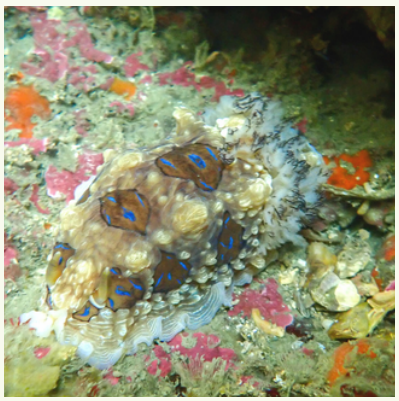
Clown nudibranch | Ceratosoma amonenum

Clown nudibranchs are one of the most conspicuous and best-known of New Zealand's nudibranchs and can be found between the intertidal zone to 40m on benthic and rocky reef habitats. They have an elongate, soft and smooth body that is easily deformed. They have a background colour of mantle white, tending to creamy yellow near the edges/margin, with large, irregular, vivid orange spots covering the mantle. The size and number of spots vary considerably between individuals. Similar coloured but smaller spots occur on the sides of the body and top of the foot. Their rhinophores and gills are a deep magenta-red. They reach a maximum size of 60mm (25-30mm is more common), and can often be found aggregating on sponges and living amongst assemblages of encrusting organisms on rocky reefs.

Lemon nudibranch | Dendrodoris citrina

Lemon nudibranch’s mantle colour is highly variable – lemon yellow (most often), apricot, dark orange, rust-red, brownish white – invariably with white spots and a scatter of tiny white dots around the margin, but never white lines. Adults reach a maximum size of 75 mm; however, 45–65 mm is more usual. Lemon nudibranchs are most often found in shallow waters near the low tide area. They can withstand drying out in between tides and can be found in rockpools. It is endemic to New Zealand and occurs around both main islands.

Gem nudibranch | Dendrodoris krusensternii



This nudibranch is easily identifiable by its ‘fluffy’ appearance, ornamented with high, rounded, soft and gelatinous pustules of different sizes, and its wavy border. It has peacock blue patches, while the edge of the mantle has brown lines. It is found from the low tide zone to depths of 15m on semi sheltered rocky shores. It is found only in northern New Zealand mainly in the inner Hauraki Gulf and Waitemata Harbour. Adults reach a maximum size of 80mm but 60-70mm is more usual. They feed on siliceous sponges by digesting material with enzymes in expelled saliva and then sucking in the liquefied food. They are found in sheltered rockpools and semi-sheltered rock reefs, frequently crawling in the open during the day.

Black doris nudibranch | Dendrodoris nigra

This medium-sized, soft-bodied dorid nudibranch is common in the North Island. It's mantle colour ranges from velvet black to dark grey, sometimes with white spots and/or a red marginal band. Juveniles are completely orange-red and change to black when 10–15 mm long. The black doris nudibranch reaches a maximum size of 65 mm; however, 30–50 mm is more usual. It feeds on siliceous sponges by digesting material with enzymes in expelled saliva and then sucks in the liquefied food. It occurs on sheltered shores and semi-open situations, never exposed coasts.

Salps | Salpidae

Have you ever experienced a jelly-like soup whilst snorkelling off the beach? Well, you have got up close and personal with the ultimate ocean-cleaning machines, salps! Even though these gelatinous blobs may feel like jellyfish, they are more closely related to us than jellyfish! That is because they have a very primitive spine called a notochord, made of cartilage. They are found all around the world and are effective filter feeders - feeding on tiny plankton, which they graze on as they float around the oceans. Chains of salp reach 10cm in length! They move by constructing their barrel-like bodies.

Ctenophores | Pleurobrachia pileus

Ctenophores look like jellyfish but lack stinging cells and are harmless. They are among the most delicate and fragile animals on the planet, with short comb-like structures running from the top to the bottom of the animal, with tiny hairs called cilia propelling them forward. They are easily broken when touched with hands or fins. They are found globally and feed on plankton using sticky cells to capture plankton in the water around them. They are bioluminescent to help lure in planktonic prey and confuse predators, producing bright light flashes when disturbed. They are exclusively carnivorous and prey on smaller animal plankton.

Immortal jellyfish | Turritopsis dohrnii

The immortal jellyfish, is a species of small, biologically immortal jellyfish. It is bell shaped with a relatively large, bright red stomach. They have a ring-like structure of tentacles, with adults having 80-90 tentacles. Like all jellyfish, Turritopsis dohrnii begins life as a larva which develop from a fertilised egg. It then settles onto the seafloor and forms a colony of polyps that spawn into free-swimming jellyfish. These tiny, transparent creatures have an extraordinary survival skill, though. In response to physical damage or even starvation, they take a leap back in their development process, transforming back into a polyp. In a process that looks remarkably like immortality, the born-again polyp colony eventually buds and releases medusae that are genetically identical to the injured adult.This species is an expert hitchhiker, spread around the world through ships ballast waters. It moves by sucking in water through expanding their bell and propelling it’self to swim with the expansion of the bell bringing zooplankton prey within reach of it’s tentacles.

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