

Suggested citation of this Section: Wanless, R., 2014. Coastal Birds. In: Goble, B.J., van der Elst, R.P. and Oellermann, L.K., (eds.). *Ugu Lwethu – Our Coast. A profile of coastal KwaZulu-Natal*. KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs and the Oceanographic Research Institute, Pietermaritzburg, 64-67 pp.

## 4.4 Fishes

**The KZN coast is blessed with a rich diversity of marine fish species. Estimates show that the southern African fish fauna comprise at least 2200 species,<sup>1</sup> and a large percentage of these are found off the KZN coast.**

The richness of this fauna is a result of both the oceanography of the region (*Section 2.3*) and the large diversity of marine habitats (*Chapter 3*).<sup>1;2</sup> More than half the known fish fauna off KZN are Indo-Pacific species. This is greatly influenced by the warm Agulhas Current, which sweeps down our coast allowing the southward distribution of more tropical species. The dominance of these tropical fish species is most evident in the Maputaland region where Indo-Pacific species comprise 81% of the fauna.<sup>3</sup> The next most abundant group is the deep-sea fishes living in dark, cold waters at great depths off the continental shelf.<sup>1</sup> A small number of species with an Atlantic origin have also managed to reach the KZN coast, such as

karanteen/strepie, sand steenbras and garrick/leervis. Even a few southern ocean species are represented, a good example being the two-tone fingerfin.<sup>3</sup> Endemic species comprise about 13% of the fish fauna and this is particularly prevalent in the sea breams, gobies and catsharks.<sup>1</sup> Endemicity increases as one progresses south along the KZN coast, largely as a result of the transition from a tropical Indo-Pacific biota to a more unique biota found in the subtropical Natal Bioregion. The last group of fishes is the wide-ranging cosmopolitan species such as the dorado, prodigal son/cobia and tunas.

### Rocky shores and surf-zone reefs

Rocky shores (*Section 3.7*) are familiar to most South African visitors to the coast, who have either played in rock pools or

Striped blenny hiding in a coral reef hole at Sodwana.



Photo: Camilla Floros

have tried their hand at shore angling. For the more adventurous, some may have even donned a mask and fins and snorkelled in subtidal gullies or on shallow subtidal reefs. The intertidal rock pools serve as important nursery areas to a variety of species such as blacktail and zebra. Smaller species such as blennies, gobies and some damselfishes may remain resident in rock pools, even as adults. In slightly deeper water off rocky shores, the most common species include stone bream, banded galjoen, pinky, flagtail, convict surgeons and karanteen.

Juvenile catface rockcod and yellowbelly rockcod use shallow surf-zone reefs as nursery areas. Because of their abundance in these habitats, many of these species, along with the shad/elf (which migrate into KZN waters during the winter months), form the most important species caught by shore anglers (*Section 7.4*).

### **Sandy shores and adjacent surf-zone**

Sandy shores are dynamic environments (*Section 3.2*), because of the large volume of sand movement that occurs on a daily basis through wave action and longshore currents. As a result, most fish species found in this habitat are not resident, but adopt a more free ranging type of behaviour. Fish are also generally less abundant in sandy habitats than on reefs due to the lower abundance of food. Typical sandy surf-zone species include largespot pompano, southern pompano, Natal stumponose, lesser sandshark and sharpnose brown stingray. Juvenile dusky sharks, dusky kob and garrick are important predators found in these surf-zone habitats.

### **Estuaries**

KZN's estuaries contain a wide range of habitats within them, as outlined in *Section 3.3*. These habitats play an extremely important nursery function for numerous marine fish species. However, due to the dynamic nature of estuarine environments, very few species have adapted to spawn in estuaries, and most fish that are dependent on estuaries as nursery areas are spawned at sea and spend their first few weeks or months at sea before recruiting into estuaries as small juveniles.

The fish fauna associated with KZN estuaries is diverse, with over 100 fish species recorded in Lake St Lucia.<sup>4</sup> Typical fish species associated with estuaries include a variety of mullet

species, estuarine round herring, riverbream/perch, spotted grunter, Natal and Cape stumponose, springer and river snapper. In the higher reaches of some estuaries or during the closed phase of temporally open/closed systems, freshwater fish species such as Mozambique tilapia can commonly be found.

### **Subtidal coral reefs**

Restricted to the warm, clean waters of Maputaland, the coral reefs in KZN exist as a thin veneer cemented to rocky reefs (*Section 3.8*). The fish fauna associated with these reefs is typical of true coral reefs found further north in the tropical regions of the Western Indian Ocean. A huge diversity of fish species are associated with these habitats; for example, nearly 1 200 reef-associated fish species have been recorded in the Maputaland region.<sup>3</sup>

Fish on coral reefs are dominated by, wrasses, surgeons, damselfish, butterfly fish, angelfish, snappers, triggerfish, parrotfish and rockcods. Some of the more noticeable top predators on these reefs include species such as the potato bass, bohar snapper, green jobfish, swallowtail rockcod and a variety of kingfish species.

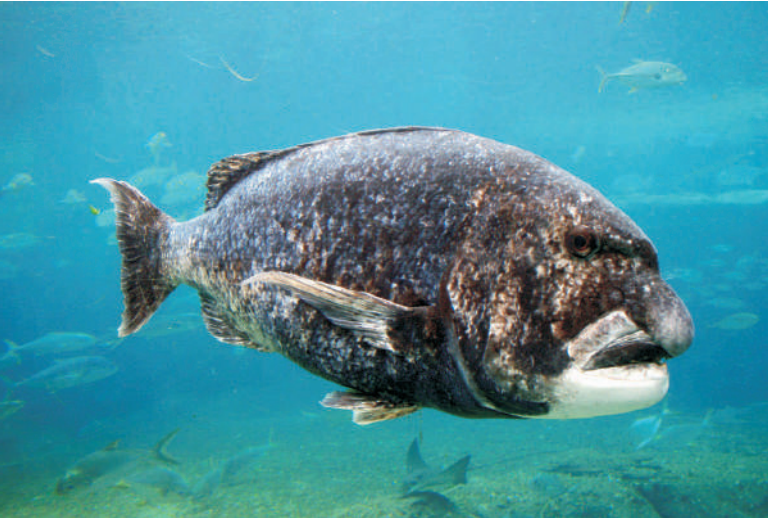
### **Subtidal rocky reefs**

While similar in some respects to the fish fauna found in association with coral reefs, KZN's rocky reefs (*Section 3.8*) include a rich diversity of Indo-Pacific and endemic species. The Sparidae, perhaps one of the most noticeable and abundant of the fish families, dominate KZN's deeper rocky reefs. Species that dominate rocky reefs from 20-100 m include, slinger, soldier/santer, Englishman, blue hottentot and German.

The impact of over 100 years of fishing on KZN's rocky reefs has had a huge effect on the species composition and once-abundant predatory species, such as the seventy-four, red steenbras, black musselcracker and scotsman are now greatly reduced.<sup>5</sup> When diving, a host of other fish species not traditionally caught on line will become apparent. Large shoals of adult angelfish known locally as "old woman" and red-fanged trigger fish often dominate the water column above the reef, feeding on zooplankton. On the reef itself, dominant species include Natal fingerfin, Natal and Cape knifejaw, dusky rubberlips and tassel fish/baardman. If you are



Photo: Jade Maggs



Black musselcracker, a powerful predator found on subtidal reefs.

lucky you may get to see the rare and range-restricted Natal wrasse. Smaller fish such as the ubiquitous clouds of goldies, striped grunter, brown surgeons, a variety of damselfish and small wrasses dominate the reef fish communities by number.

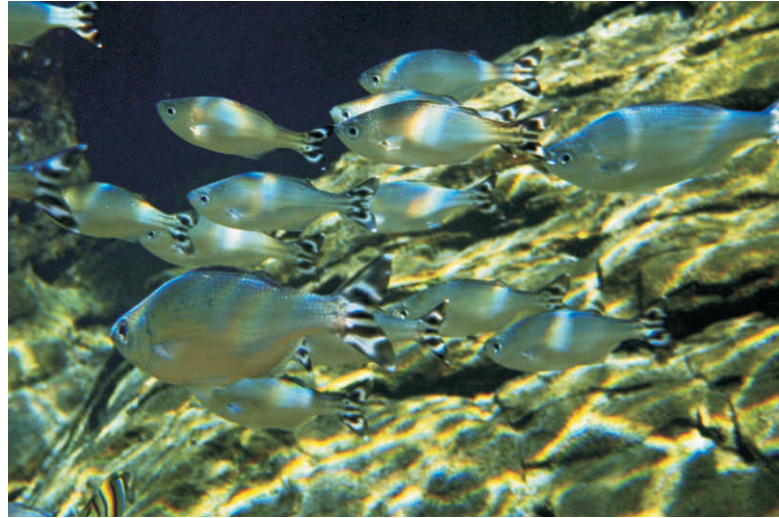
### Subtidal soft substrata (mud and sand)

Our knowledge of these habitats (*Section 3.9*) comes largely from the by-catch of trawl nets (*Section 8.2*)<sup>6;7</sup> In areas such as the Thukela Banks, down to a depth of 50 m, the fish fauna is in some respects similar to our estuarine fish fauna, as these areas also function as important nursery habitats. Small silver fish species are dominant, including soapies, slimies bonies and pinkies. A number of sciaenid and haemulid species such as the mini-kobs, blackmouth croaker, snapper kob, juvenile squaretail kob, spotted grunter and javelin grunter are also common in this habitat.<sup>6</sup>

A large number of different elasmobranch species are also found on the shallow Thukela Banks, including species such as juvenile scalloped hammerhead sharks, sand sharks and a variety of stingrays.<sup>6</sup> The deeper trawl grounds (300-600 m deep) produce a different assemblage of fishes. This area is dominated by species seldom seen, including rat-tails, greeneyes, fatheads, coffin fish and splitfins.<sup>8</sup>

The deep-water elasmobranchs are mainly represented by the spiny dog shark and a variety of small skates. Away from the muddy shallow and deep crustacean trawl grounds, there are large areas of sandy seabed, where a different fish community

Photo: Jade Maggs



Flagtail, a small shoaling species found in subtidal gullies.

is found that has only recently been explored. Here there are huge shoals of pinkies and sand soldier, as well as the cutlass fish, gurnards, lizardfish, goatfishes and numerous species of soles.<sup>9</sup>

### Open ocean and pelagic habitat

This is by far the largest habitat on Earth, occupying over 70% of the Earth's surface. The pelagic habitat is divided into the neritic zone (over the continental shelf) and the oceanic zone beyond the continental shelf. This is the domain of the nomadic and migratory fishes that roam the oceans in search of food, ranging from tiny anchovies, sardines and flying fishes which feed on plankton in the water column, to the great ocean predators such as tunas, billfishes (*Istiophoridae*) and sharks.

The pelagic habitat off the KZN coast has the full spectrum of both tropical and warm temperate species. KZN is well known for its abundance of sharks, as outlined in *Section 4.6*. Other large pelagic fish sometimes encountered off the KZN coast include species such as the manta rays and ocean sunfish.

Relatively little is known about the fish assemblages found at continental shelf edges, slopes and canyons (100-2000 m). The powerful Agulhas Current has limited most attempts to fish and/or dive in these deep habitats. However, the few deep dives (>100 m) that have been made by trimix divers off Sodwana Bay, and a limited number of dives made with submersibles and remotely operated vehicles (ROVs), have

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Photo: Camilla Floros



Slinger, commonly found on rocky reefs.

revealed a surprisingly rich fish fauna living on the continental shelf edge and upper slope. One of the more recent and exciting discoveries was that of the ancient coelacanth found living in canyons off Sodwana Bay, detailed in *Section 4.5*.

Sparids such as trawl soldiers and even slinger, scotsman, soldier/santer, seventy-four and red steenbras have been seen or caught at depths below the shelf break (100-200 m). Reef fish species such as the white-edged rockcod and large yellowbelly rockcod have also been caught at these depths.

Game fish species including the dogtooth tuna, longfin yellowtail and greater yellowtail have been caught at these depths off the KZN coast using a method known as vertical jigging. Wreckfish, gorgeous swallowtail and numerous species of scorpaenids have also been observed from submersibles and ROVs operating at depths of 100-200 m.

Typical inhabitants of the shelf slope deeper than 200 m include rat-tails, chlorophthalmids, notacanthids, halosaurs and chimaeras. There are also massive shoals of tiny mid-water fishes called myctophids (lantern fishes), which migrate vertically up and down in the water as day and night alternate.<sup>1</sup>

### Bathyal and abyssal zones (>2000 m)

After the pelagic zone, this is the next biggest habitat on earth and comprises the great depths of all oceans (>2000-



Pinky, found in large shoals over sand and reef.

3000 m in KZN), away from the landmasses and their continental shelves.

Very little is known about the fish fauna found in these depths. Although large, these habitats are in perpetual darkness, exposed to great pressure and extreme cold. As a consequence, fish found at these depths tend to be adapted and often of bizarre shapes and sizes. Many are scaleless and black in colour with only rudimentary eyes. Huge jaws with razor-sharp teeth and rows of luminous organs assist these fish in their hunt for food.<sup>2</sup> Typical abyssal fishes include tripod fishes, macrourids, ophiurids, halosaurs, liparidids and zoarcids.<sup>1</sup>

It has been said that we probably know more about the surface of the moon than we know about the great depths of our oceans.<sup>10</sup>

**The rich diversity of marine fish species found off the KZN coast is reason enough to want to ensure their future protection and custodianship. As has happened elsewhere in the world,<sup>11</sup> KZN's marine fishes have suffered from a wide range of human-induced impacts, ranging from overfishing to pollution, sedimentation and habitat destruction. It is only through sustainable use, careful habitat protection management and the establishment of a network of well-sited, and well-managed MPAs (*Section 10.4*) that the future of KZN's fishes can be assured. ■**

