

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

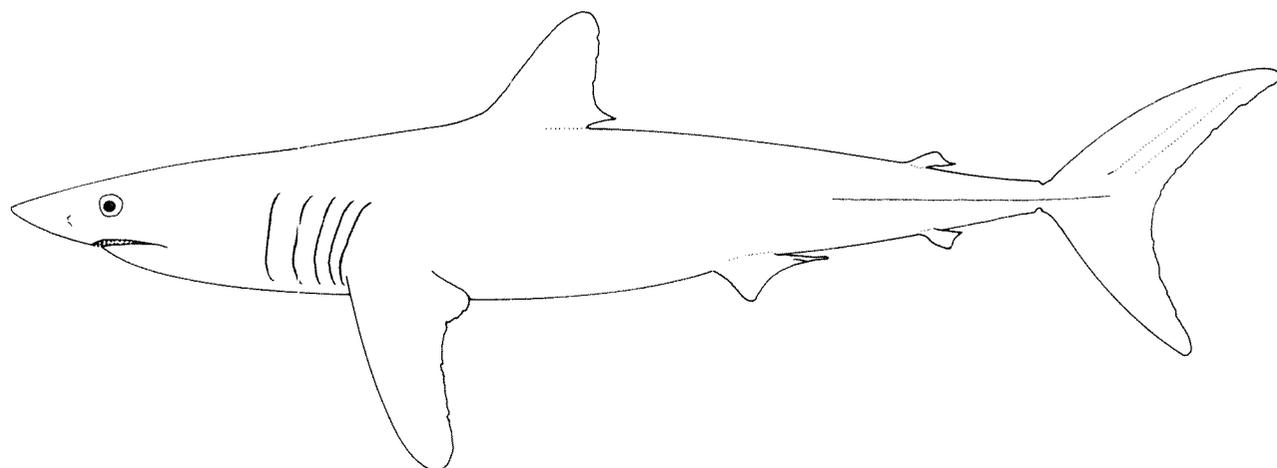
LAMNIDAE

Mackerel sharks, makos, white sharks, porbeagles

Large-sized sharks of fusiform body. Head with 5 gill slits, all in front of pectoral fin origins; gill arches without rakers; no nictitating eyelids; teeth long and few in number, awl- or blade-like, with a single cusp. Two dorsal fins, the first much shorter at base than caudal fin and far in advance of pelvic fins; second dorsal fin and anal fin much smaller than first dorsal; caudal fin lunate, less than one third the total length. Caudal peduncle strongly depressed dorso-ventrally and expanded laterally, with a prominent keel on each side, extending well out on caudal fin. Intestinal valve of ring type.

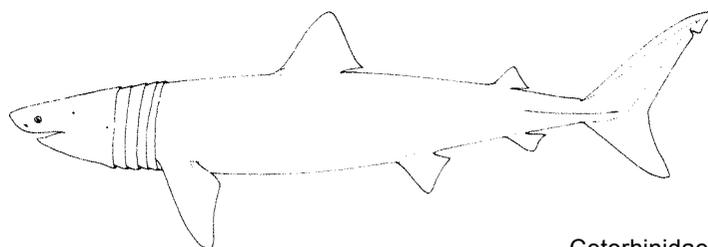
Colour: back greyish blue to black, or brownish; belly white.

Mackerel sharks inhabit temperate and tropical waters (oceanic as well as coastal) throughout the world. They are very fast swimmers and voracious predators, feeding mainly on fish and squid, but also other sharks, batoids, marine mammals, sea birds, and carrion; some species are dangerous to man. Mackerel sharks are often used for food or for production of liver oil, fishmeal and other shark products.



SIMILAR FAMILIES OCCURRING IN THE AREA:

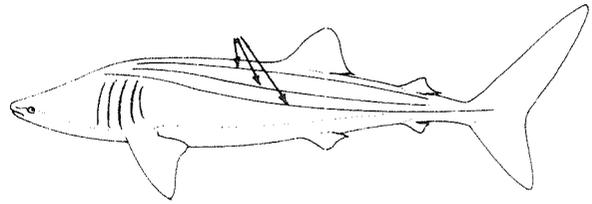
Cetorhinidae: the basking shark, Cetorhinus maximus (Gunnerus, 1765), Family Cetorhiniidae, is found slightly to the southwest of the area off the Cape coast of South Africa, where it is rare, but may eventually be found in the area. It resembles members of Lamnidae in having a lunate caudal fin with strong caudal keels, but has much longer gill openings, extending from upper surface of head to throat; gillrakers well developed on internal gill openings; teeth minute and hooked, not bladelike; anal and second dorsals larger and broad-based, not pivotable (narrow based, very small, and capable of pivoting to either side in Lamnidae); and size of adults larger (9 m or more).



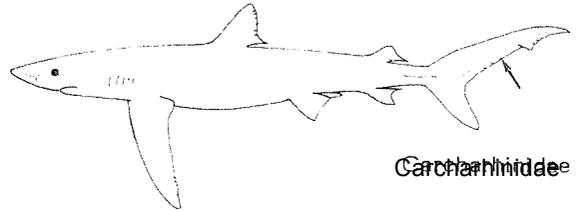
Cetorhinidae

Rhiniodontidae: caudal fin also lunate, but body with several prominent dermal ridges on either side; last gill slit well behind pectoral fin origin; snout squared off anteriorly; mouth nearly terminal; at least half of first dorsal fin base posterior to pelvic fin origins; gill arches connected by masses of spongy tissue; and a spotted and striped colour pattern.

All other shark families: caudal fin strongly asymmetrical and not lunate, the upper lobe extending far beyond lower lobe; caudal peduncle not greatly flattened dorso-ventrally.



Rhiniodontidae

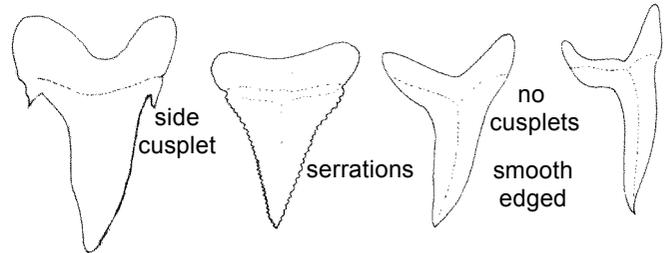


Carcharhinidae

KEY TO GENERA AND SPECIES OCCURRING IN THE AREA:

1a. Teeth with small side cusplets (Fig. 1a) (except in specimens less than 1 m long); origin of second dorsal fin above that of anal fin; caudal fin with a small, but strong, secondary keel below the rear end of primary keel (Fig. 2)..... Lamna nasus

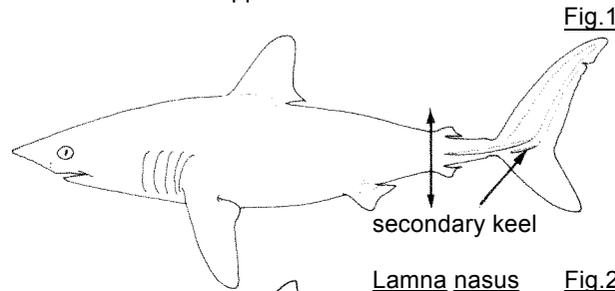
1b. Teeth without side cusplets (Fig. 1b,c,d) except in Carcharodon less than 2 m long); origin of second dorsal fin in advance of anal fin origin; caudal fin without a secondary keel



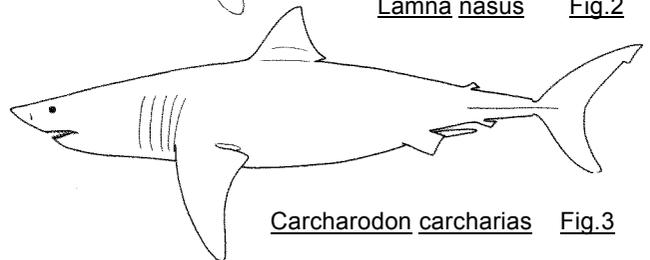
a) Lamna nasus b) Carcharodon carcharias c) Isurus paucus d) Isurus oxyrinchus
upper tooth

2a. Upper teeth triangular with serrate edges (Fig. 1b); origin of first dorsal fin opposite or slightly anterior to inner corner of pectoral fins when latter are laid back; anal fin origin posterior to second dorsal fin base (Fig. 3) Carcharodon carcharias

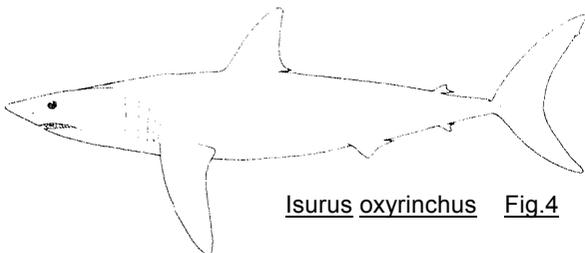
2b. Upper teeth with smooth-edged cusps (Fig. 1c,d); origin of first dorsal fin posterior to inner corner of pectoral fins when latter are laid back; anal fin origin below about middle of second dorsal fin base (Figs. 4,5)..... Isurus



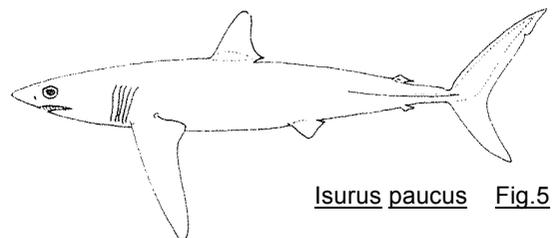
Lamna nasus Fig. 2



Carcharodon carcharias Fig. 3



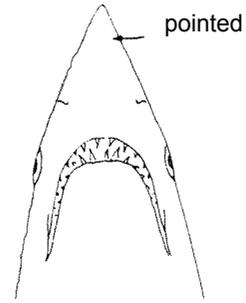
Isurus oxyrinchus Fig. 4



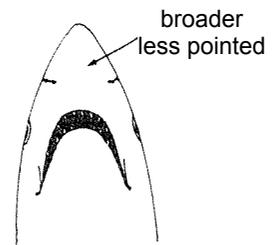
Isurus paucus Fig. 5

3a. Snout usually acutely pointed (Fig. 6a); cusps of upper and lower anterior teeth recurved at bases but with tips reversed and curving outward; pectoral fins considerably shorter than head, relatively narrow-tipped in young, acutely pointed in adults; origin of anal fin about under midbase of second dorsal fin (Fig. 4); underside of snout and mouth white Isurus oxyrinchus

3b. Snout narrowly to bluntly (usually not acutely) pointed (Fig. 6b); cusps of upper and lower anterior teeth straighter, with tips not reversed; pectoral fins about as long as head, relatively broad-tipped in young and adults; origin of anal fin about under insertion of second dorsal fin (Fig. 5); underside of snout and mouth dusky Isurus paucus



a) I. oxyrinchus



b) I. paucus

head viewed from below

Fig.6

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

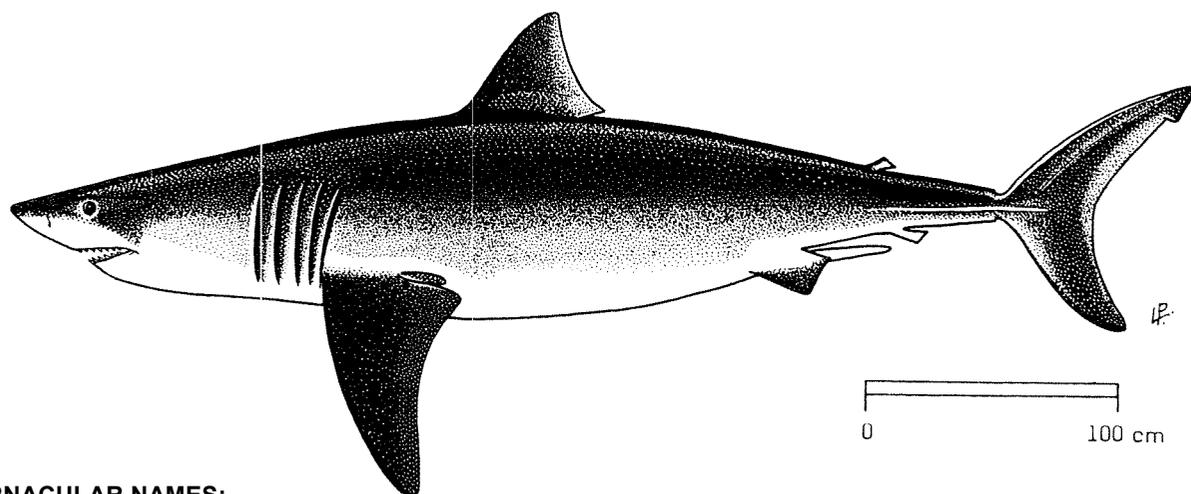
<u>Carcharodon carcharias</u> (Linnaeus, 1758)	LAMN Car 1
<u>Isurus oxyrinchus</u> Rafinesque, 1810	LAMN Isur 1
<u>Isurus paucus</u> Guitart, 1965	LAMN Isur 2
<u>Lamna nasus</u> (Bonnaterre, 1788)	LAMN Lamn 1

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: LAMNIDAE

FISHING AREA 51
(W. Indian Ocean)Carcharodon carcharias (Linnaeus, 1758)

OTHER SCIENTIFIC NAMES STILL IN USE: None



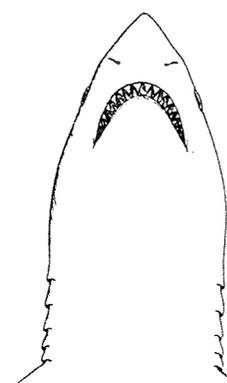
VERNACULAR NAMES:

FAO : En - Great white shark
Fr - Grand requin blanc
Sp - Jaquetón blanco (= Jaquetón)

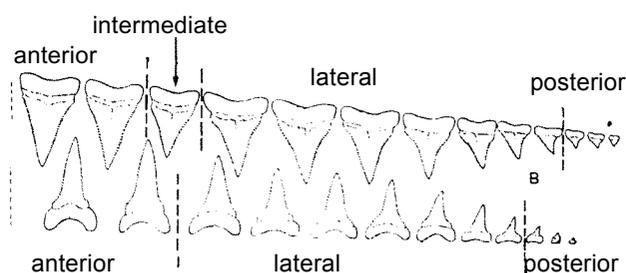
NATIONAL:

DISTINCTIVE CHARACTERS:

A very large shark with a fusiform, usually heavy body and a moderately long, bluntly pointed snout. Head with 5 long gill slits, all in front of pectoral fin origins; gill arches without rakers; spiracles very small; mouth long and broadly rounded; teeth very large and relatively few, narrower in the lower than in the upper jaw, pointed backwards, with a single broad cusp and strong serrations at most sizes irregular in individuals below 1.5 m length, and with cusplets present at about 2 m length or less, but lost in larger individuals); anterior teeth greatly enlarged in both jaws, in two rows on either side of symphysis, broadly triangular and compressed, not recurved; intermediate and first few lateral teeth a little smaller, the intermediate ones less differentiated from the anterior and lateral teeth than in other members of the family; two dorsal fins, the first large, originating over inner margins of pectorals, the second very small; pectoral fins shorter than head and falcate; anal fin origin posterior to rear end of second dorsal fin base; caudal fin lunate, its lower lobe strongly developed. Caudal peduncle very much flattened dorso-ventrally, expanded laterally, with a prominent keel on either side extending well out on caudal fin but with no secondary keel on the fin.



underside of head



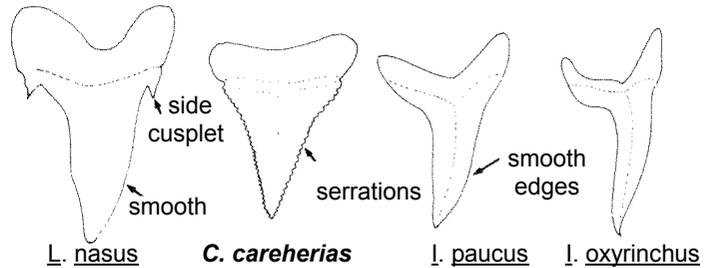
teeth from left side

Colour: grey-brown, dark grey, blue-grey, blackish, light grey or grey-white above, white below, fins with dusky margins below, black tips on underside of pectoral fins, a black spot present or lacking on pectoral fin axils.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Isurus and Lamna species: head narrower, teeth narrow-cusped, not serrated, anal fin origin under second dorsal base (Isurus) or under second dorsal origin (Lamna).

No other sharks in the area have the combination of characters underlined above.



SIZE:

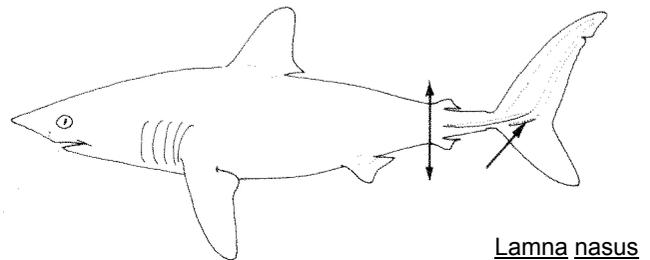
Maximum: to at least 640 cm and possibly 800 cm (a record for 1098 cm later proved incorrect); common to 400-600 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

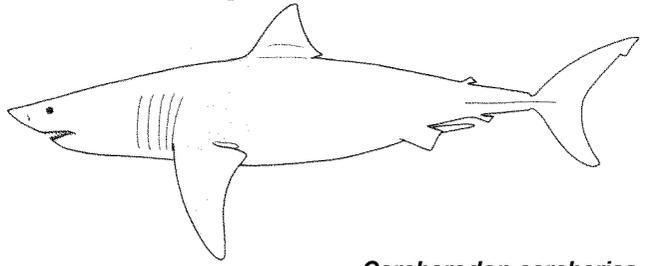
In the area only known from the coast of South Africa and the Seychelles; an old record from the Red Sea may have been based on a species of Carcharhinus. Elsewhere, circumglobal in cold-temperate to tropical seas, but primarily in cool to warm-temperate waters.

A coastal offshore and inshore species, not oceanic, often occurring close inshore and entering shallow bays. A powerful, strong swimmer, occasionally leaping out of the water like Isurus oxyrinchus. Ovoviviparous, possibly up to 9 fetuses in a litter, size at birth between 60 and 140 cm.

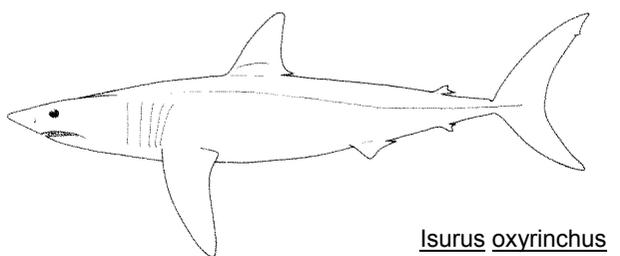
A voracious and extremely powerful predator, feeding on a wide variety of small to large marine animals. including other sharks, rays, chimaeras, bony fishes, seals and sea lions, sea birds, and squid as well as carrion. A dangerous species, responsible for a number of unprovoked attacks on swimmers, divers, surfers and boats; considered one of the most dangerous if not the most dangerous and formidable of living sharks. Unpredictable when confronting humans in the water; individuals may swim past people and boats, merely observing; may deliver tentative attacks (possibly mistaking people for more normal prey but possibly also as a sign of aggressive threat) without completing a bite and then departing without attacking further; or may bite repeatedly, apparently in feeding (fortunately this rarely happens).



Lamna nasus



Carcharodon carcharias



Isurus oxyrinchus

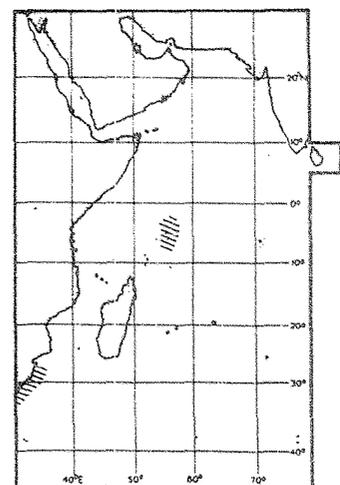
PRESENT FISHING GROUNDS:

Unknown.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

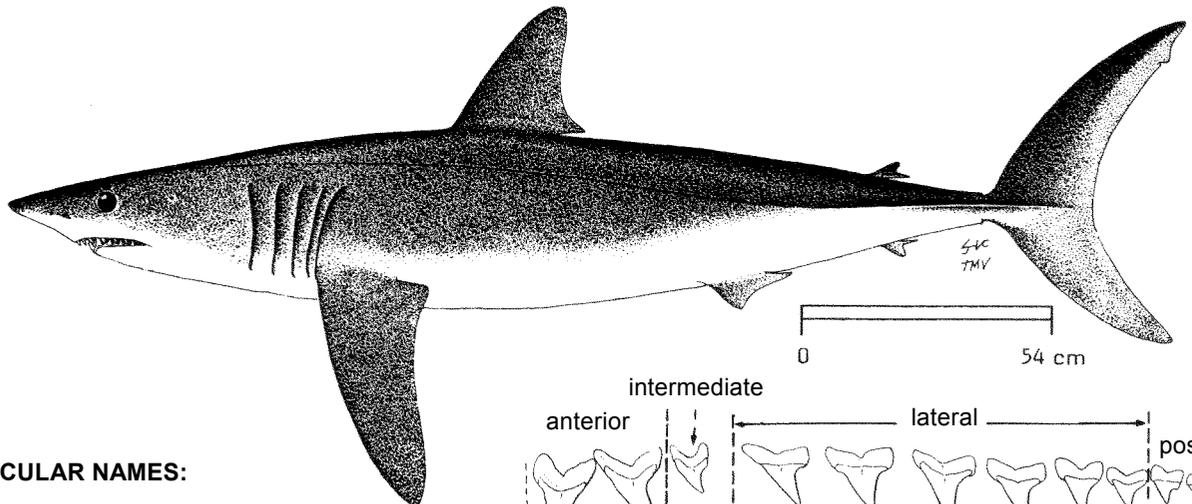
Separate statistics are not reported for this species.

Commercial utilization uncertain, sometimes caught by sports anglers.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: LAMNIDAE

FISHING AREA 51
(W. Indian Ocean)Isurus oxyrinchus Rafinesque, 1810OTHER SCIENTIFIC NAMES STILL IN USE : Isurus glaucus (Müller & Henle, 1839)

VERNACULAR NAMES:

FAO : En - Shortfin mako
Fr - Taupe bleu
Sp - Marrajo dientuso (= Marrajo)

NATIONAL :

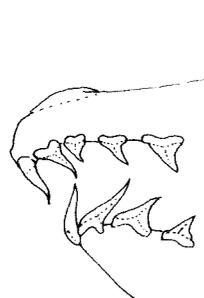
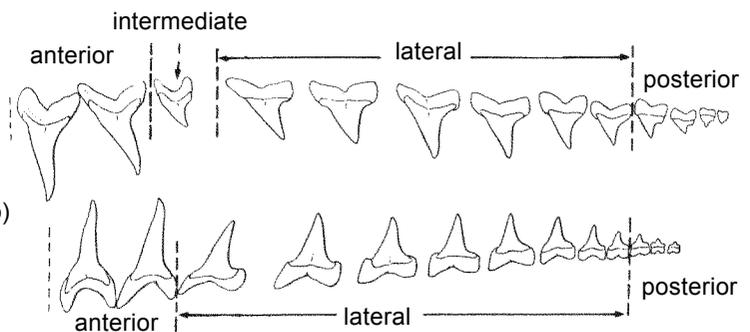
DISTINCTIVE CHARACTERS:

A large shark of fusiform and rather slender body and a long and acutely pointed snout. Head with 5 long gill slits, all in front of pectoral fin origins; gill arches without rakers; spiracles very small; mouth broadly rounded and notably long. Teeth strong and relatively few, alike in both jaws, backward-pointing, somewhat flexuous in outline, smooth-edged, with a single cusp; the first 2 in each jaw much the largest, recurved at base but curve reversed at tips. Two very unequal dorsal fins, the first comparatively large, its origin posterior to inner corners of pectoral fins when latter are laid back, its apex bluntly rounded (young) to acutely pointed (adults); pectoral fins moderately long (shorter than head) and falcate; anal fin origin below about middle of second dorsal fin base; caudal fin lunate, its lower lobe strongly developed. Caudal peduncle very much flattened dorso-ventrally, but expanded laterally, with a prominent keel on each side extending well out on caudal fin.

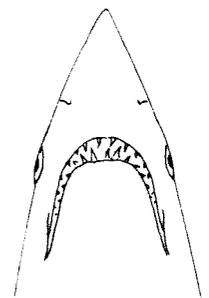
Colour; back grey-blue, occasionally deep blue; belly white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

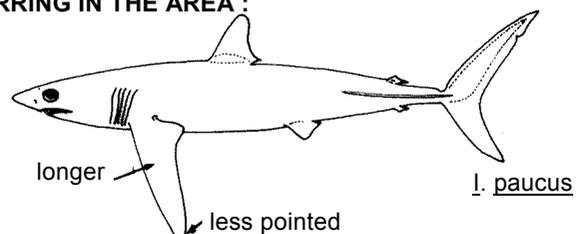
Isurus paucus: snout blunter; cusps of teeth broader, less curved; pectoral fins about as long as head (shorter than head in I. oxyrinchus); snout and area around mouth dark.



teeth from left side



underside of head

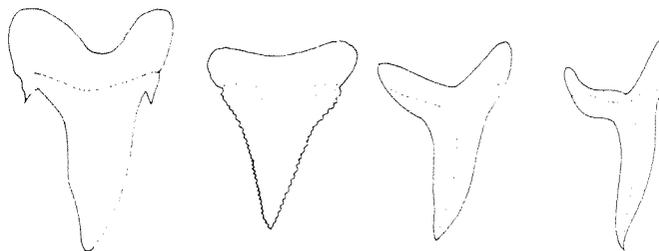


Carcharodon carcharias: snout blunter; teeth broad, with serrated edges; origin of first dorsal fin opposite or slightly anterior to inner corners of pectoral fins when latter are laid back; anal fin origin posterior to second dorsal fin base.

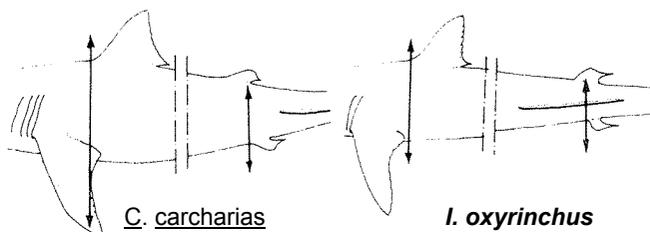
Lamna nasus: teeth smaller, with shorter, straight cusps and side cusplets; origin of first dorsal fin in front of inner corners of pectoral fins; second dorsal fin origin about over anal fin origin; caudal fin with a small secondary keel below large, primary peduncle keel.

Other large-sized sharks with a lunate caudal fin and strong caudal keels:

Rhiodon typus: 3 prominent dermal crests on each side; snout squared off anteriorly; mouth nearly terminal; last gill slit well behind pectoral fin origin; internal gill slits with filter grids; at least half of first dorsal fin base posterior to pelvic fin origins; a colour pattern of light spots and stripes.



L. nasus C. carcharias J. paucus I. oxyrinchus
upper tooth



C. carcharias I. oxyrinchus

SIZE:

Maximum: 400 cm; common to 270 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Probably widespread in the area, from South Africa, Mozambique, Madagascar, Mauritius, the Red Sea, Oman, Pakistan, India and probably Sri Lanka; elsewhere found in all warm temperate and tropical seas.

An oceanic and coastal species, usually in surface waters, approaching close inshore. Perhaps the most active and strong-swimming of sharks, renowned for leaping out of the water, especially when hooked. Ovoviviparous, number of young in a litter relatively small (1 to 6, rarely 10); size at birth between 60 and 70 cm.

Feeds heavily on schooling fishes (mackerels, jacks, herrings, etc.); also small sharks; attacks larger species such as tunas and swordfishes. An aggressive, dangerous shark, responsible for unprovoked attacks on swimmers and boats; hooked individuals fight very hard and may leap into the boats of anglers attempting to subdue them. Famed as one of the finest marine game fishes.

PRESENT FISHING GROUNDS:

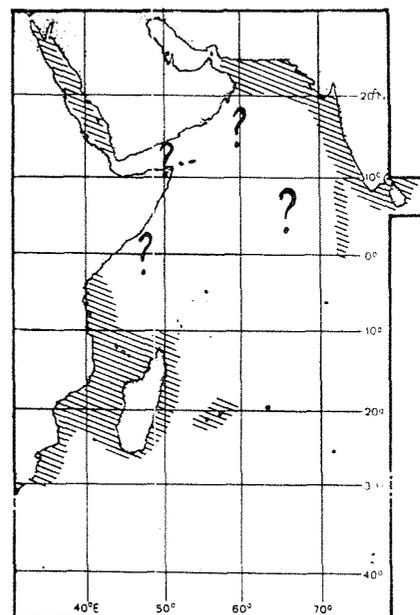
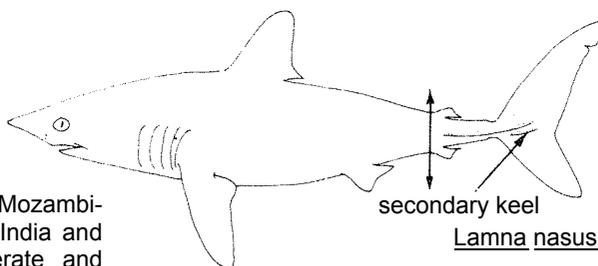
Oceanic and coastal

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

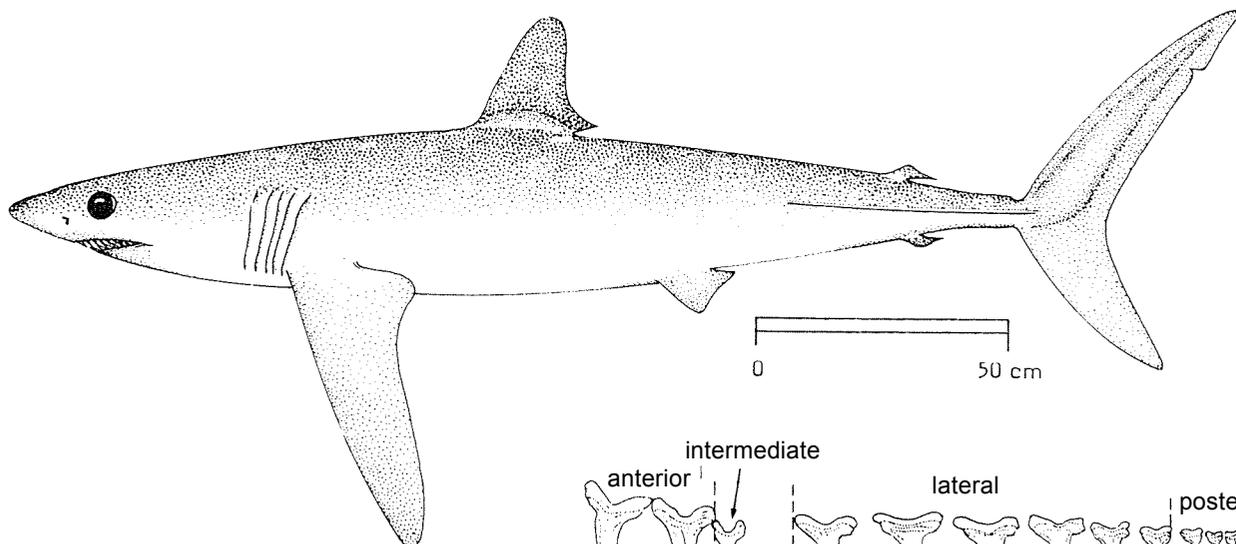
Caught on drifting longlines; probably also with gillnets and with hook and line.

Utilized fresh for human consumption; fins may figure in the oriental sharkfin trade. One of the finest sharks for human consumption.



FAO SPECIES IDENTIFICATION SHEETS

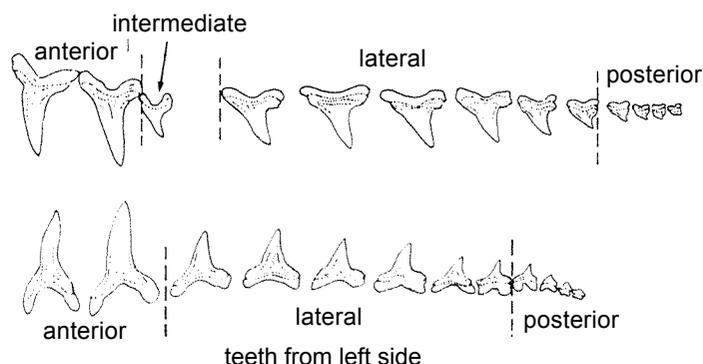
FAMILY: LAMNIDAE

FISHING AREA 51
(W. Indian Ocean)*Isurus paucus* Guitart, 1965OTHER SCIENTIFIC NAMES STILL IN USE: *Isurus alatus* Garrick, 1966

VERNACULAR NAMES:

FAO : En - Longfin mako
Fr - Petit taupe
Sp - Marrajo carite

NATIONAL :



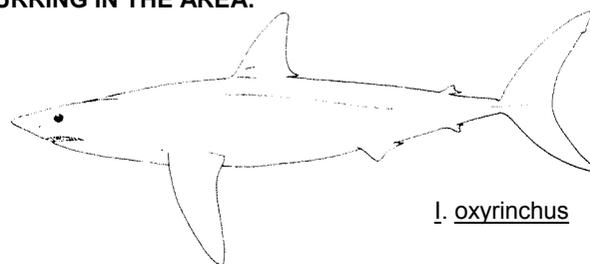
DISTINCTIVE CHARACTERS:

A large shark with a fusiform and rather slender body and a long, pointed snout. Head with 5 long gill slits, all in front of pectoral fin origins; gill arches without rakers; spiracles very small; mouth long and broadly rounded; teeth large and relatively few, alike in both jaws, pointed backward, with a single cusp but without cusplets or serrations; anterior teeth greatly enlarged in both jaws, in 2 rows on each side, cusps recurved at bases but not reversed at tips. Two dorsal fins, the first large, originating posterior to free rear tips of pectorals, with a bluntly rounded apex, the second very small; pectoral fins about as long as head, straight to falcate, and broad-tipped; anal fin very small, originating about under rear end of second dorsal fin base; caudal fin lunate, with a very long lower lobe. Caudal peduncle strongly flattened dorso-ventrally and expanded laterally, with a prominent keel on each side extending well onto caudal fin.

Colour: back and sides intense blue in life, fading to blackish after death, abdomen white; underside of snout and mouth partly to entirely dusky; undersides of pectoral fins with dark blotches in larger individuals, pelvic fins dark with white posterior ends above, white- or dark-blotched below; anal fin with dark blotches, or white with an anterior dark blotch.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Isurus oxyrinchus: snout usually more acutely pointed; anterior teeth with more flexed cusps; pectoral fins considerably shorter than head, less broad-tipped in young, acutely pointed in adults; origin of anal fin about under midbase of second dorsal fin; underside of snout and mouth not dusky.

*I. oxyrinchus*

Carcharodon carcharias: body usually much stouter; teeth broad and flattened, with serrated edges; first dorsal fin origin anterior to inner corners of pectorals; pectoral fins much shorter than head, with narrowly rounded or pointed apices; back lead-grey to blackish.

Lamna nasus: body much stouter; anterior teeth small and short-cusped, with small side cusplets; origin of first dorsal fin well anterior to inner corners of pectoral fins, its free rear tip and lobe white (dark in I. paucus); caudal fin with a secondary keel; back bluish-grey.

Prionace glauca: nictitating eyelids present; snout blunter and more flattened; gill slits smaller, the last two over pectoral fin bases; dermal gill rakers present; anterior teeth not greatly enlarged; upper teeth flattened, triangular and serrated; no upper intermediate teeth; caudal keel very weak; lower caudal lobe shorter.

Rhiniodon typus: 3 strong dermal ridges on each side; snout anteriorly truncated; mouth nearly terminal, in front of eyes; last 2 gill slits over pectoral fin bases; internal gill slits with a filter grid; pelvic fin origins under first dorsal fin base; a colour pattern of light spots and stripes; adult size much larger, up to at least 12 m.

SIZE:

Maximum: at least 280 to 300 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area. probably off Madagascar, but likely to be more wide-ranging. Elsewhere in the tropical Atlantic and Central Pacific

A little-known oceanic shark, possibly approaching land to give birth. Ovoviviparous, number of young 2; size at birth at least 92 cm.

Probably feeds on oceanic schooling fishes as does I. oxyrinchus, but its large broad fins and slender body suggest that it is a slower, less active shark than that 'species. Not known to have attacked people or boats, but potentially dangerous because of its size and large teeth.

PRESENT FISHING GROUNDS:

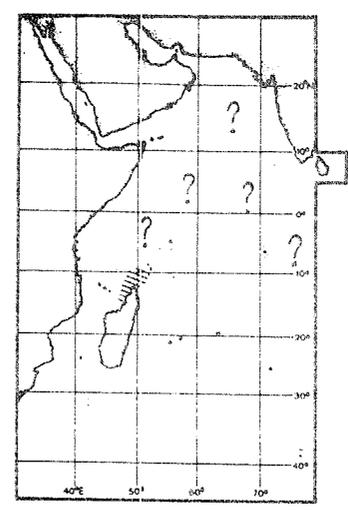
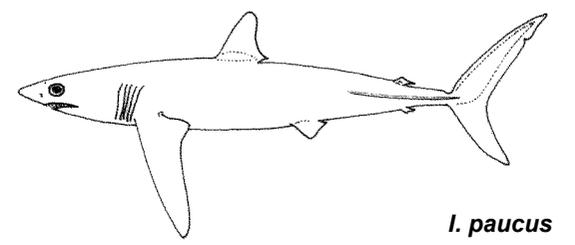
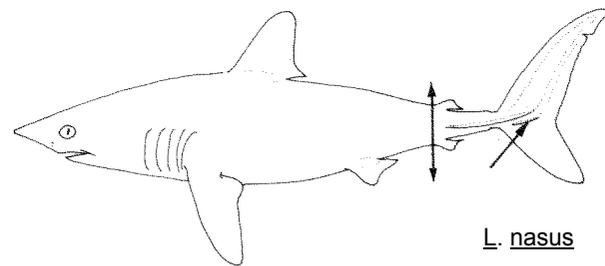
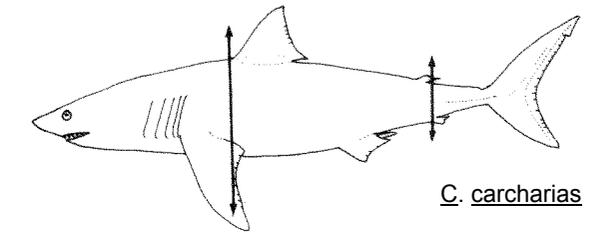
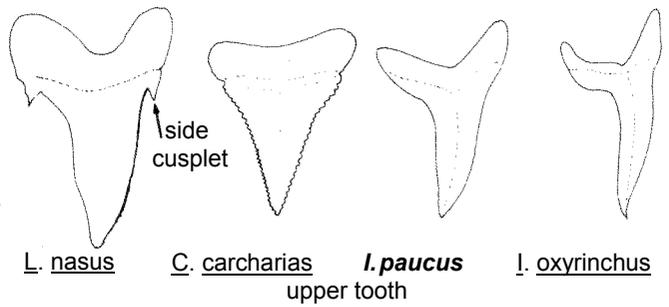
Uncertain, probably offshore.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught on drifting longlines.

Utilization not recorded.

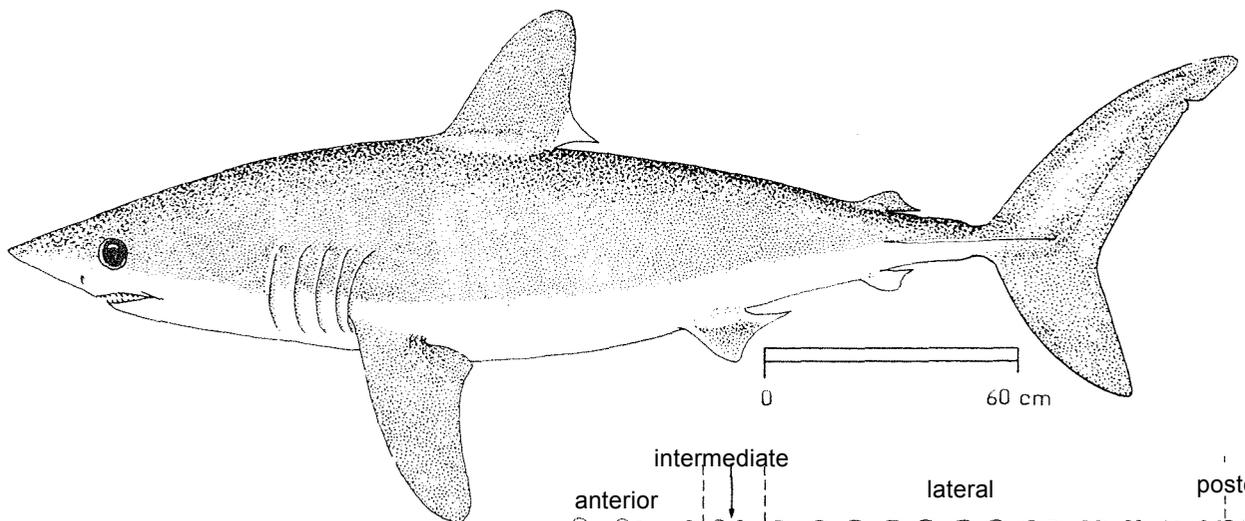


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: LAMNIDAE

FISHING AREA 51
(W. Indian Ocean)Lamna nasus (Bonnaterre, 1788)

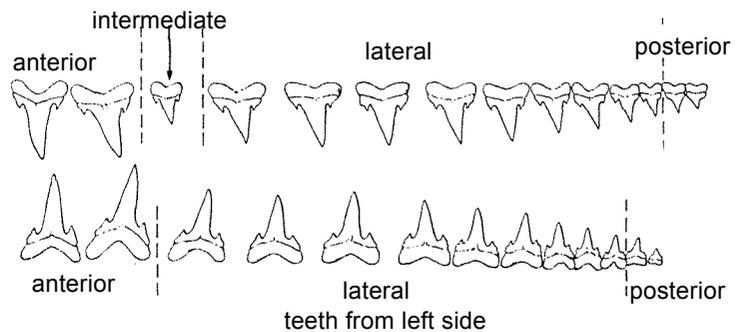
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

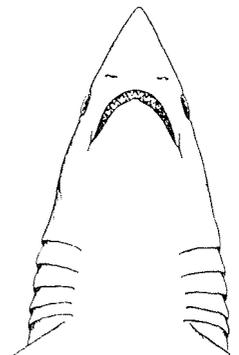
FAO: En – Porbeagle
Fr – Taupe commun
Sp – Marrajo sardinero

NATIONAL:



DISTINCTIVE CHARACTERS:

A moderately large shark with a heavy, spindle-shaped body and a sharply pointed snout. Head with 5 long gill slits, all in front of pectoral fin origins; gill arches without rakers; spiracles very small; mouth long and broadly rounded; teeth moderately large and relatively few, nearly alike in both jaws, with a single, narrow, sharp-edged and backward-pointing cusp, without serrations and usually with basal cusplets absent in young below 1 m length, anterior teeth in 2 rows on each side of symphysis in both jaws, not compressed and triangular, with cusps nearly straight; intermediate teeth much smaller than anteriors, but first few lateral teeth only slightly smaller; 2 dorsal fins, the first very large, originating over inner margins of pectoral fins, the second very small; anal fin origin about under second dorsal origin; pectoral fins shorter than head and slightly falcate; caudal fin lunate, with lower lobe very strong. Caudal peduncle very much flattened dorso-ventrally, but expanded as a strong lateral keel that extends well out onto the caudal fin, and is flanked below by a secondary keel on the caudal base.

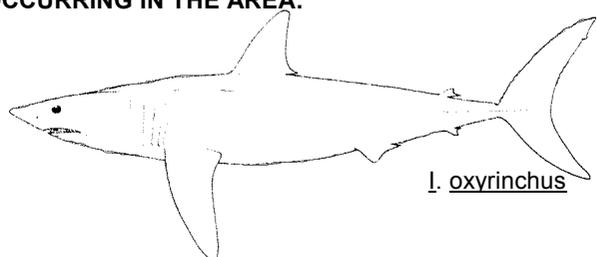


underside of head

Colour: blue-grey above, abruptly white on sides and lower surface, pectoral fins dusky, rear tip of first dorsal white, no black spot on pectoral axils.

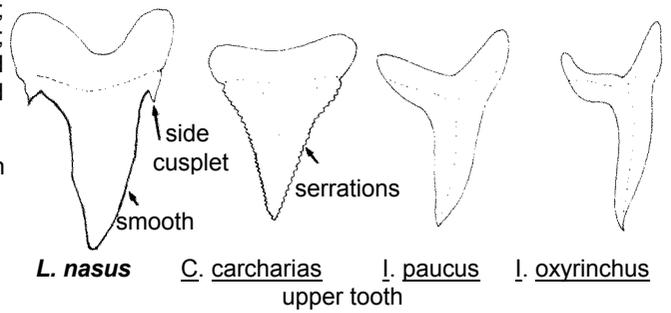
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Isurus species: body usually slimmer; teeth without cusplets, the anteriors larger and flexed, more differentiated from the laterals; origin of first dorsal fin posterior to inner corners of pectoral fins, anal fin origin posterior to that of second dorsal; no secondary keels on caudal fin.

I. oxyrinchus

Carcharodon carcharias: adult size much larger; jaws and mouth bigger, snout blunter and broader; teeth serrated, the anteriors broadly triangular and compressed; anal fin origin posterior to base of second dorsal; no secondary keels on caudal fin.

No other sharks in the area have the combination of characters underlined above.



SIZE:

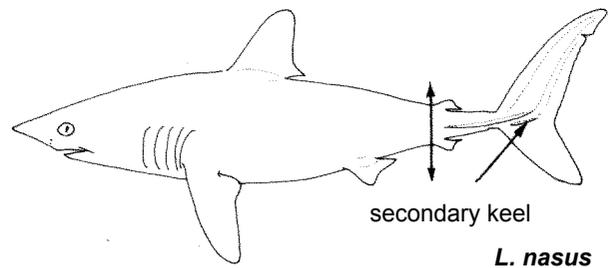
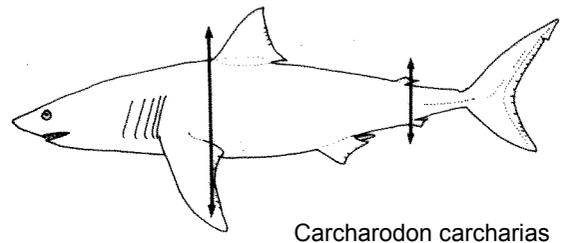
Maximum: to about 370 cm, but most adults below 260 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Distribution in the area poorly known, but apparently regularly occurring pelagically in the colder waters of the region, below 30°S, and possibly off the South African coast at Durban. Elsewhere in the Atlantic, Mediterranean Sea, Cape coast of South Africa, South-eastern Indian Ocean and Western and Eastern South Pacific.

A coastal and oceanic species inhabiting cold to warm-temperate waters. Strong-swimming and active when feeding, but otherwise sluggish and not leaping out of the water like Isurus oxyrinchus. Often found near the surface, but may reach at least 150 m depth. Ovoviviparous, number of young 1 to 5, size at birth about 61 cm.

Feeds on small pelagic schooling fishes, including mackerel and clupeoids; also bottom fish such as gadoids, flatfish, dories, small sharks, and squids. Regarded as potentially dangerous because of its size, but apparently not recorded as attacking people or boats (unlike Isurus oxyrinchus or Carcharodon carcharias).



PRESENT FISHING GROUNDS:

The southern oceanic part of the area but details lacking.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught on pelagic longlines, by Japanese longline boats.

Utilization not recorded.

