

= Japanese angelshark =

The Japanese angelshark (*Squatina japonica*) is a species of angel shark , family Squatinidae , found in the northwestern Pacific Ocean off China , Japan , and Korea . It is a bottom @-@ dwelling shark found in sandy habitats down to 300 m (980 ft) deep . This species has the flattened shape with wing @-@ like pectoral and pelvic fins typical of its family , and grows to 1 @.@ 5 m (4 @.@ 9 ft) or more in length . Its two dorsal fins are placed behind the pelvic fins , and a row of large thorns occurs along its dorsal midline . Its upper surface is cryptically patterned , with numerous squarish dark spots on a brown background .

Feeding on fishes , cephalopods , and crustaceans , the Japanese angelshark is a nocturnal ambush predator that spends most of the day lying still on the sea floor . This species gives birth to live young , which are sustained during gestation by yolk . The litter size varies from two to 10 . The Japanese angelshark is not dangerous to humans unless provoked . It is fished in large numbers and used for meat and shagreen , a type of leather . The International Union for Conservation of Nature has listed it under Vulnerable , citing the intense bottom trawling activity within its range and the low resilience of angel sharks to fishing pressure .

= = Taxonomy and phylogeny = =

The Japanese angelshark was described by Dutch ichthyologist Pieter Bleeker in an 1858 volume of the scientific journal *Acta Societatis Scientiarum Indo @-@ Neerlandicae* . The type specimen is a male 53 cm (21 in) long , collected off Nagasaki , Japan , hence the specific epithet *japonica* . Other common names for this species include change angel shark , change canopy shark , Japanese angelfish , and Japanese monkfish .

Using mitochondrial DNA , a 2010 phylogenetic analysis reported that the Japanese angelshark forms a clade with the other Asian angelsharks included in the study : the ocellated angelshark (*S. tergocellatoides*) and the sister species pair of the Taiwan angelshark (*S. formosa*) and the Indonesian angelshark (*S. legnota*) . These Asian species are , in turn , allied with European and North African angel shark species . Molecular clock estimation suggested the Japanese angelshark lineage diverged from the rest of the Asian angelsharks some 100 million years ago during the Cretaceous .

= = Description = =

The Japanese angelshark is fairly narrow @-@ bodied and has greatly enlarged pectoral and pelvic fins . The skin folds along the sides of the head lack distinct lobes . The eyes are oval and widely spaced ; closely behind are crescent @-@ shaped spiracles with large , boxy projections inside their anterior rims . Each nostril is large and preceded by a small flap of skin bearing two barbels ; the outer barbel is thin , while the inner barbel has a spoon @-@ like tip and a smooth to slightly fringed flange at the base . The wide mouth is terminally placed and has furrows at the corners . There are 10 tooth rows on either side of both jaws , separated by a gap in the middle ; the teeth are small , narrow , and pointed . There are five pairs of gill slits located on the sides of the head .

The frontmost portion of each pectoral fin forms a triangular lobe separate from the head . The outer corners of the pectoral fins are angular , and their rear tips are rounded . The pelvic fins have convex margins . The two angular dorsal fins are similar in shape and size , and are located behind the pelvic fins . The caudal peduncle is flattened with a keel running along either side , and supports a roughly triangular caudal fin with rounded corners . The lower lobe of the caudal fin is larger than the upper . The dorsal surface is covered by medium @-@ sized dermal denticles , and a distinctive row of large thorns is present along the midline of the back and tail . This species is light to dark brown above with a dense covering of squarish dark spots , which become finer on the fins . The underside is white with darker mottling . Various sources give differing maximum lengths , ranging from 1 @.@ 5 to 2 @.@ 5 m (4 @.@ 9 to 8 @.@ 2 ft) .

= = Distribution and habitat = =

The Japanese angelshark is native to the cooler waters of the northwestern Pacific ; its range extends from the eastern coast of Honshu , Japan , to Taiwan , and includes the southern Sea of Japan , the Yellow Sea , the East China Sea , and the Taiwan Strait . Some older sources reported it may occur in the Philippines , but recent research suggests the only angel shark species in that area is *S. caillieti* . The Japanese angelshark inhabits the continental shelf , usually in the shallows , but also to as deep as 300 m (980 ft) . It is a bottom @-@ dweller found over sandy bottoms , often close to rocky reefs .

= = Biology and ecology = =

During the day , the Japanese angelshark mostly lies partly buried on the bottom ; its complex color pattern provides camouflage as it ambushes nearby prey . At night , this species becomes more active . Its diet consists of demersal fishes , cephalopods , and crustaceans . It may be found alone or in proximity to others of its species . Parasites documented from this species include the tapeworms *Phyllobothrium marginatum* and *Tylocephalum squatinae* , the copepods *Eudactylina squatini* and *Trebius shiinoi* , and the prawn larvae of the isopod *Gnathia trimaculata* . The Japanese angelshark is viviparous , and as in other members of its family the developing embryos are nourished by yolk . Litters of two to ten pups are birthed in spring and summer , with the newborns measuring 22 cm (8 @.@ 7 in) long . Females mature sexually at 80 cm (31 in) long , while male maturation size is unknown .

= = Human interactions = =

The Japanese angelshark is typically inoffensive towards humans , but if disturbed , can inflict a severe bite . Across much of its range , it is a frequent catch (intentional or not) in bottom trawls and probably also set nets and demersal gillnets ; the meat is eaten and the rough skin is made into a type of leather called shagreen for use in wood finishing .

Angel sharks in general are highly threatened by commercial trawl fisheries due to their susceptibility to capture and low rate of reproduction , and angel shark species elsewhere are known to have declined markedly under fishing pressure . Trawling activity in the Yellow Sea and other parts of the northwestern Pacific is intense and , coupled with pollution , has had a serious impact on the local ecosystem . The Japanese angelshark population is suspected to have declined by up to 50 % or more under these conditions , leading the species to be assessed as Vulnerable by the International Union for Conservation of Nature (IUCN) . It may benefit from a ban on trawling imposed in some areas by the Chinese government , though enforcement is inconsistent .