

= Thornback guitarfish =

The thornback guitarfish (*Platyrhinoidis triseriata*) is a species of ray in the family *Platyrrhinidae* , and the only member of its genus . Despite its name and appearance , it is more closely related to stingrays than to true guitarfishes of the family *Rhinobatidae* . This species ranges from Tomales Bay to the Gulf of California , generally in inshore waters no deeper than 6 m (20 ft) . It can be found on or buried in sand or mud , or in and near kelp beds . Reaching 91 cm (36 in) in length , the thornback guitarfish has a heart @-@ shaped pectoral fin disc and a long , robust tail bearing two posteriorly positioned dorsal fins and a well @-@ developed caudal fin . The most distinctive traits of this plain @-@ colored ray are the three parallel rows of large , hooked thorns that start from the middle of the back and run onto the tail .

Encountered singly or in groups , the thornback guitarfish feeds on small , benthic invertebrates and bony fishes . It is aplacental viviparous , with the developing young drawing sustenance from a yolk sac . Females give birth to 1 ? 15 pups annually in late summer , following a roughly year @-@ long gestation period . The International Union for Conservation of Nature (IUCN) has listed the thornback guitarfish under Least Concern because the majority of its range lies within United States waters , where it is common since it has no commercial value and is not heavily fished commercially or recreationally . The status of this species in Mexican waters is inadequately known but may be more precarious .

= = Taxonomy and phylogeny = =

The thornback guitarfish was scientifically described by American ichthyologists David Starr Jordan and Charles Henry Gilbert in an 1880 issue of the scientific journal *Proceedings of the United States National Museum* . They assigned it to the genus *Platyrrhina* , and named it *triseriata* from the Latin *tres* (" three ") and *series* (" row ") , in reference to the three rows of thorns on its back . One year later in the same journal , Samuel Garman placed this species in a newly created genus , *Platyrrhinoidis* . The type specimen is an adult male caught off Santa Barbara on February 8 , 1880 . Other common names for this species include banjo shark (not to be confused with the Australian banjo sharks , *Trygonorrhina*) , California thornback , guitarfish , round skate , shovelnose , thornback , and thornback ray .

Based on morphology , John McEachran and Neil Aschliman determined in a 2004 phylogenetic study that *Platyrrhinoidis* and *Platyrrhina* together form the most basal clade of the order *Myliobatiformes* , and are thus the sister group to all other members of the order (encompassing stingrays and their relatives) . This finding affirmed that the thornback guitarfish is not closely related to the true guitarfishes of the family *Rhinobatidae* , a possibility that had long been considered by taxonomists .

= = Description = =

The pectoral fin disc of the thornback guitarfish is heart @-@ shaped , slightly longer than it is wide , and thick towards the front . The snout is short and broad , with a blunt tip protruding slightly from the disc . The eyes are small and widely spaced ; the spiracles are larger than the eyes and lie closely behind . The wide nostrils are preceded by moderately large , broad flaps of skin . The mouth is wide and gently arched ; there are a pair of creases running from the mouth corners to the nostrils , enclosing a roughly trapezoidal area . The lower lip is inscribed by a deep furrow that wraps around the mouth corners . The small teeth have low crowns that may be sharp to blunt , and are arranged in 68 ? 82 rows in the upper jaw and 64 ? 78 rows in the lower jaw . The five pairs of gill slits are small and located beneath the disc .

The pelvic fins have curved outer margins and angular rear tips ; males have long claspers . The tail is robust and much longer than the disc , with lateral skin folds running along either side . The two dorsal fins are similar in size and shape , being longer than tall with rounded posterior margins . The first dorsal fin lies closer to the caudal fin than the pelvic fins . The caudal fin is well @-@

developed and almost elliptical , without a distinct lower lobe . The skin is entirely covered by tiny dermal denticles ; additionally there are large recurved thorns in two or three rows along the leading margin of the disc , in small groups on the snout tip , around the eyes , and on the " shoulders " , and most distinctively in three rows running from the middle of the back to the second dorsal fin . This species is plain olive to grayish brown above and off @-@ white below . The snout and disc margins are barely translucent . It grows up to 91 cm (36 in) long .

= = Distribution and habitat = =

Endemic to the northeastern Pacific Ocean , the thornback guitarfish is found from Tomales Bay to Magdalena Bay , with additional isolated populations in the Gulf of California . It is reportedly very abundant in some coastal waters off California and Baja California , such as in Elkhorn Slough , and uncommon north of Monterey and in the Gulf of California . Bottom @-@ dwelling in nature , this species is typically found close to shore in less than 6 m (20 ft) of water , though it has been recorded from as deep as 137 m (449 ft) . It inhabits coastal habitats with muddy or sandy bottoms , including bays , sloughs , beaches , and lagoons , and can also be found in kelp beds and adjacent areas .

= = Biology and ecology = =

During the day , the thornback guitarfish spends much time partially buried in sediment . It may be encountered singly , in small groups , or in large aggregations that form seasonally in particular bays and sloughs . The diet of this ray consists of polychaete worms , crustaceans (including crabs , shrimps , and isopods) , squids , and small bony fishes (including anchovies , sardines , gobies , sculpins , and surfperches) . It can detect prey with its electroreceptive ampullae of Lorenzini , which are most sensitive to electric fields with a frequency of 5 ? 15 Hz . In turn , the thornback guitarfish is preyed upon by sharks and the northern elephant seal (*Mirounga angustirostris*) . Known parasites of this species include the tapeworm *Echinobothrium californiense* and the nematode *Proleptus acutus* . Thornback guitarfish mate in late summer , and females give birth the following year at around the same time , peaking in August . It is aplacental viviparous , with developing embryos sustained until birth by yolk . Females bear litters of 1 ? 15 pups every year ; the newborn rays measure about 11 cm (4 @.@ 3 in) long . Males and females reach sexual maturity at 37 and 48 cm (15 and 19 in) long respectively .

= = Human interactions = =

Harmless and docile , the thornback guitarfish can be readily approached underwater , and fares well in public aquariums . Off the United States , this ray is common and faces no substantial threats : it is only occasionally caught incidentally by commercial and recreational fishers , and has no economic value . As most of its range lies within US waters , the species has been assessed as Least Concern overall by the International Union for Conservation of Nature (IUCN) . However , in Mexican waters the thornback guitarfish population is small and fragmented , and the degree to which it is affected by fishing is uncertain . There , the IUCN has listed it locally under Data Deficient while noting its susceptibility to inshore lagoon fisheries and shrimp trawlers , and the urgent need for additional information to ensure its long @-@ term regional survival .