

BOOK REVIEW

Gulf of Mexico Science, 2006(1/2), pp. 90–93
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Sharks, Skates, and Rays of the Gulf of Mexico: A Field Guide. 2006. Glenn R. Parsons, University Press of Mississippi, Jackson, Mississippi 39211. 165 pages. Web address: www.upress.state.ms.us. Flexibind, ISBN 1-57806-827-4, US\$ 25.

Sharks and rays fascinate the general public. Perhaps it is the general “primitive” nature of these creatures; they represent a holdover from prehistoric times. More likely, it is the perceived concern that people have about being bitten by a shark or stung by a ray. Whatever their reason, people congregate around the shark tanks and ray-touching pools at public aquaria. People gawk at the large sharks and rays hung up for public display at coastal fishing tournaments.

Although shark fishing is not nearly as popular today as it was in the heydays of the 1970s and 1980s, when dedicated shark tournaments flourished along the Atlantic coast from New York to Texas, the sport is still popular. Captures of large sharks (and rays) still make good fodder for newspaper stories. And yet, many people do not know what sharks (or rays) they are catching, or viewing.

This problem exists, in part, because shark and ray taxonomy is not a field that is easy to translate into general terms. Many of the species are very similar, and accurate identification requires detailed examination and an underlying understanding of anatomy. Accurate identification may require careful scrutiny of the teeth, or precise morphometric comparisons of the specimens in question. Such detailed examinations are not really applicable to a large fish thrashing alongside the boat.

Fishermen’s guides are not new; simple but effective and useful taxonomic field guides go back at least as far as the 1960s, and numerous ones have been developed over the years. Glenn Parsons’ new contribution—*Sharks, Skates, and Rays of the Gulf of Mexico: A Field Guide*—takes a step forward in this chronology of field guides, and does so in a light and easy-to-read tone. Unlike most of its predecessors, the guide contains good color photographs of most of the species, and it points out some of the more easily discernible characteristics to help an angler identify the fish, even if it is left in the water for subsequent release.

In using this guide, end users not only learn

something about sharks and rays, they also are entertained with some of Parsons’ personal and lighthearted anecdotes, gleaned from his years of experience as a shark researcher. I was a graduate student at Dauphin Island Sea Lab at the same time as Dr. Parsons, so I am familiar with (and was involved in) many of his anecdotes. A couple of really good ones are missing. Oh. . . and before I get too far into the review, as a photographic contributor to this volume, I cannot pass up the opportunity to use an ‘inside joke’, and say, “These are not my best slides!”

I noted several editing or typographical errors in this first edition, but will only mention some with the intent to clarify an error.

It doesn’t matter if an end user of a field guide is trying to identify flowers, fish, or ducks; there is a need to understand the basic terminology and attributes of the specimens in question. The anatomy section is short but provides a basic background of shark and ray anatomy. It is must reading for those who are not familiar with sharks and rays. Not only is it generally informative, but many of the terms are used later in the identification keys, and the species accounts depend on an understanding of these terms by the reader. There are a couple of missing terms that would have been helpful for the reader. Once the reader gets back to the species accounts, terms used to describe teeth, such as “erect” and “oblique,” are used without much explanation. The “insertion” and “axil” of the pectoral fins are terms that also could have been defined in the introductory material.

In my opinion, the “How to use this book” section (pages 6–8) would be more appropriate if it occurred later in the book. The 3-page section describes how to use a dichotomous key, and then launches into the first key, which will let the user determine if the animal in question is (1) a shark, (2) a skate or ray, or (3) one of the three species (angel shark, guitarfish, sawfish) that, based on body shape, seem like they’ve been placed in the wrong subgroup. The key directs the user to family-level keys farther back in the book. I can see where the user would have difficulty finding this little introductory key, sandwiched between the introduction and 40 subsequent pages of text covering a variety of topics including a general overview of the Gulf of Mexico, shark and ray biology, shark fishing, shark fisheries,

and the requisite section on shark attacks. Nevertheless, most users will probably not need to figure out if the specimen is a shark or a batoid.

It is often said that an author should write about what he knows best, and the text often reflects the author's familiarity with the north-central and eastern Gulf of Mexico. Appropriately, the section "Major Features and Habitats" leads off with a good overview of the dominant feature of the Gulf of Mexico: the Mississippi River. However, discussions of the physical and biological environment of the Gulf of Mexico west of the Mississippi River are limited. Discussion of the extensive and highly productive Louisiana coastline is a single tack-on sentence at the end of a paragraph about Mobile Bay and Mississippi Sound. The coast of Texas and the Mexican coast are described in a brief three-sentence paragraph. The lack of discussion of half the Gulf of Mexico is even more apparent given that the next page or so describes Florida's Gulf coast, detailing several geographic and ecological areas.

The sections on shark and ray biology are well done, providing the reader with pertinent information regarding these interesting creatures. The short "Shark Fact vs. Fiction" dispels many of the misconceptions about sharks, especially about shark attacks. There is an explanation of the multiple rows of teeth (always a fascination to the general public) and the denticles. The author is careful to make a point that most sharks and rays are opportunistic feeders, preying mostly on fish and invertebrates—not humans. The discussion of reproduction in this group of fishes is very good. The author makes it clear that all species have internal fertilization, and that early development is internal (unlike most bony fishes), and may include such evolved processes as placentation, followed by live birth (most sharks and stingrays). There is a basic overview of sharks' and rays' multiple sensory abilities (smell, sight, electroreception, etc.)—not too much, nor too detailed, but sufficient to provide the reader with a basic understanding on how these creatures sense their environment.

Between the shark biology and ray biology sections are more "human-related" topics, including the mandatory shark attack information, with a focus on shark fishing. There is information on current shark fisheries, shark management, and a brief "how to fish for sharks" discussion. This section also contains the majority of the anecdotes relating the author's personal experiences. One comment in this section caught my eye, and a couple of

points were conspicuous by their absence. On pages 32–33, Parsons states, in regard to species that may not be harvested or kept by recreational or commercial fishermen under the current management regime: "Sharks that should not be taken in the Gulf of Mexico are the white shark, dusky shark, sandbar shark, and great hammerhead shark." This statement is incorrect; the list of species protected by the federal fishery management plan does not include the sandbar or great hammerhead sharks. Sandbar sharks are a major recreational large-shark target along the east coast of the United States, and they represent the most common target species in the highly regulated commercial fisheries as well. Along the same lines, on page 33, a short paragraph regarding federal and state shark fishery management would have been appropriate here. On the federal level, recreational and commercial shark fishing has been tightly managed since the mid-1990s, and shark stocks of the Atlantic coast are recovering from overfishing. Finally, although I agree wholeheartedly with his warning on page 42: "NEVER try to remove the hook from a live shark. . .," I was surprised there was no mention made of the several types of de-hooking devices available on the market today. Oh, and just for the record; the smalltooth sawfish was added to the Endangered Species List in 2002, not 1993 (page 48).

The rest of the book is devoted to the family- and species-level keys, with an informative one-page account for each species. Developing an easy-to-use taxonomic key for the general public is difficult. In the past, when teaching students to use a dichotomous key, I often tried to drive home a point by exaggerating that they could force an oak tree through a fish key if they were not careful. Successful identification of the fish in question first requires the user to get the specimen into the right family (or other higher level of taxonomy). This simple step should not be overlooked, with the end user simply moving directly to species-level identification. For the shark section, the guide provides a relatively simple and efficient set of characters that quickly gets the user into the correct family-level groups of sharks. The dichotomies (and sometimes trichotomies) tend to sort out the "oddball" species quickly with such options as

- a) "dorsal fin spines present: dogfishes"
 - b) "single dorsal fin: 6- and 7-gill sharks"
- or (leaving the most common pattern from which to proceed onward):
- c) "two dorsal fins with no spines: go to #5."

The largest section of the guide covers the gray/requiem sharks (Family Carcharhinidae), which is the most common group in the region (except for the skates, which are not well covered in this volume). The author is fairly successful at highlighting distinguishing characters to sort the many similar species in this family.

I did note a few problems with the carcharhinid key. The Galapagos shark is not included in the key or species accounts. This species is known, albeit rare, from the Florida Keys. It deserves inclusion, considering species such as smalleye hammerheads and six-gill sharks are included. The species key does not include two of the species included in the species accounts: the Caribbean reef and smalltail sharks. Caribbean reef sharks are not uncommon in the Florida Keys, and smalltail sharks could be taken off Texas. Without including them in the key, a Caribbean reef shark might be misidentified as a dusky or other similar ridgeback species. I suspect a smalltail shark would most likely be misidentified as an Atlantic sharpnose shark. Unfortunately, one of the first characters used in the ridgeback portion of the gray/requiem shark key is tooth shape. In the author's defense, off the top of my head, I am not sure what I would offer as a substitute. Although the illustrations on page 55 will help quickly separate two ridgeback species (silky and night sharks), the subtle differences in tooth shape between 3b (silky shark) and 3c (sandbar, dusky, and bignose sharks) may not be so obvious, especially if the shark is alive. Lastly, as a longtime student of blacktip and spinner sharks, I also note an error in the key (#13b) in reference to the blacktip shark's anal fin being tipped in black. I realize blacktip sharks MAY have a black-tipped anal fin, but in the western Atlantic, this occurs only rarely. In contrast, the anal fins of all adolescent and adult spinner sharks are distinctly tipped in black (young juvenile spinner sharks have no black tips on the fins at all). Such a definitive statement in the key itself could lead the user to misidentify a spinner shark as a blacktip shark.

Overall, the species accounts for the requiem sharks are well done, providing users with sufficient additional information to make an informed decision in regard to the specimen before them. The only drawback I note is the limited discussion of the occurrence of these species in the western Gulf of Mexico. Similar to the geographical descriptions of the Gulf of Mexico in the introductory text, the focus in the species accounts is the north-central and

eastern Gulf of Mexico, with little reference to the northwestern (Texas and Louisiana west of the Mississippi River) and southwestern (Mexico) Gulf of Mexico. Even if a user off Corpus Christi, TX, correctly applied the guide's key to a specimen in question, he would be left wondering if the species occurred off the Texas coast.

A few details need to be cleaned up in any subsequent editions for the requiem shark species accounts. For one, the northern limit of the bignose shark is not Florida; the bignose shark seasonally ranges north along the east coast as far as New Jersey and New York, similar to many other requiem sharks. I found it a stretch to suggest (page 62) possible hybridization between spinner and blacktip sharks; they are not that similar in their genetic makeup. The dusky shark (page 69) does not need to be added to the list of prohibited species that cannot be landed; it is a founding member of the list.

As far as the hammerhead sharks go, the key and species accounts are quite easy to use, and the few species present in the Gulf of Mexico are distinct enough to be readily identified. I do note the author omitted any reference to the characteristic mottling on the caudal peduncle of the smooth hammerhead. This is the only hammerhead to possess such coloring. The character would be good corroboration for end users trying to identify a fish in the water, where the presence or absence of a medial notch along the leading edge of the head might be in question.

Users would be hard pressed to have gotten to the short Hexanchidae key in error, especially if they can count to seven. Unfortunately, there appears to be an editorial error in the species accounts, where the biological information regarding the seven-gill shark is copied and duplicated for the six-gill shark. Should an angler actually catch a large six-gill shark, (s)he could quickly believe they had a world record specimen.

The rest of the shark species accounts wrap up the smaller groups found in Gulf waters such as mackerel sharks, sandtigers, dogfishes, whale sharks, and smoothhounds. The author chose to include only one of the 20 or so dogfishes known in the Gulf of Mexico. For the purposes of this guide, that is probably best; most are found in relatively deep water, and are not likely to wind up on the average angler's hook. A couple of comments are warranted in regard to the section on sand tiger sharks. The author does not include an account for the ragged tooth shark (*Ontaspis fer-*

ax); this species was recorded from Mexican waters in 1995, so it is at least as common as the bigeye sand tiger, which is also known in the western north Atlantic from a single specimen caught off Texas. One statement did catch my eye in regard to the sand tiger: "The sand tiger has a second dorsal well ahead of the pelvic fins." I'm not sure what this statement should be, and there is no statement for the other species in opposition to it. But, as written, is not correct. I assume it should read "The sand tiger has the second dorsal fin well behind the pelvic fins.", and it would be in opposition to "The second dorsal fin is located above the pelvic fins." for the bigeye sandtiger (and ragged tooth shark). I was surprised there was no mention of the sand tiger's unusual habit of swallowing air to achieve neutral buoyancy.

The family-level key to the skates and rays, based on general body shape, is very straightforward and should not confuse a user. The author is careful to make it clear throughout the book that sawfishes and guitarfishes, although they resemble sharks, are really batoids. The species key to the various stingrays, and the species descriptions, are quite adequate for users to identify these species. The key quickly separates two of the most common species: the Atlantic stingray and the bluntnose stingray. These two rays are known to cause even experienced biologists problems in iden-

tification. It is not that they are identical; but it is easier to distinguish them if you have both at hand. The clear photographs included in this guide will help the user identify these two common inshore stingray species. It is unfortunate that no good photos were available for the pelagic stingray; the two I've seen were nearly black. The one print photo I had of a specimen (reported in this journal by me long ago) was lost at some point, or I would have offered it to the author. One character of the pelagic stingray not mentioned in this text is the extremely long whip-like tail; the tail may be two or more times the disc width. As with the deepwater dogfishes, the author chose to not include many of the deepwater skates in this volume. The average user of this guide is more likely to only encounter two of these species (clearnose and roundel skates), and they are easily distinguished.

All in all, this compact field guide, which should fit easily into a tackle box, is a good resource that will help fishermen identify their shark and ray catches (or sightings) in the Gulf of Mexico. Along the way, they have the opportunity to learn something about this fascinating group of creatures. Although it might not be the best reference source for a serious elasmobranch student, the guide still deserves a place on their bookshelves as well.

STEVE BRANSTETTER, *Southeast Regional Office, National Marine Fisheries Service, 263 13th Avenue South, St. Petersburg, Florida 33701.*