

of southern California. Only this week (June 1) Mr. Samuel Hubbard of Oakland, brought me 14 fine specimens of this species from Saratoga Springs, Death Valley, where Mr. Hubbard says they are very abundant.

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A COMPARISON OF ATLANTIC AND
PACIFIC SPECIMENS OF THE
HAMMER-HEAD SHARK,
SPHYRNA ZYGAENA.

In their review of the elasmobranchs of Japan, Jordan and Fowler (Proc. U. S. Natl. Mus., XXVI, 593, 1903) raise the question whether the hammer-head of the Pacific usually referred to *Sphyrna zygaena* is really identical with that species from the Atlantic. They say that specimens from the two regions need comparison.

I have recently made a detailed comparison of hammer-heads from the Atlantic and Pacific and found them absolutely similar, and this note is intended to record this fact.

The specimens examined were, one from Woods Hole, Mass., 60.5 cm. in length, and two from Japan respectively 51 and 56 cm. The three were found entirely similar in all characters that could be considered specifically diagnostic—such as, body proportions, shape and position of the fins, form and relative size of the “hammer,” and the size and position of the eye, mouth and gill area. The coloration only was a little different, the Woods Hole specimen being dark brown above while the Japanese ones were blackish gray. This, however, is not important since differences in coloration are not rare in fishes from widely separated localities, and besides, it may have been due to different preserving fluids having been used in the two cases.

It is worth noting, by the way, that the three specimens showed nicely three successive stages in the growth of the teeth in the hammer-head. In the 51 cm. shark no teeth had yet appeared in either jaw. In the 56 cm. one, minute teeth could be felt by the finger in the lower jaw, but none could be detected in the upper. In the 60.5 cm. specimen, teeth were well developed in both jaws and were from 1.5 mm. to 3 mm. in height. Since none of the three specimens was embryonic, but all were free-swimming young sharks, it follows that *Sphyrna zygaena* is born toothless and that teeth make their appearance when the shark is about 55 cm. in length. The teeth then grow rapidly, reaching a length of 1.5 to 3 mm. in height by the time the shark is 60 cm. in length.

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NOTES ON SOME FISHES FROM CHILI.

Through the kindness of Dr. W. P. Wilson, I have been enabled to examine some market-fishes received from Valparaiso by the Commercial Museum of Philadelphia. Among them I found:

Catulus chilensis (Guichenot), *Squalus acanthias*, Linn., *Raja lima*, Peoppig, *R. flavirostris*, Philippi, *Callorhynchus callorhynchus* (Linn.), *Carasius auratus* (Linn.), *Ophichthus ocellatus* (Le Sueur), *Clupanodon sagax* (Jenyns), *Ethmidium coerulea* (Valenciennes), *Mugil cephalus*, Linn., *Sarda chilensis* (Valenciennes), *Thyrsites atun* (Euphrasen), *Serirolella violacea*, Guichenot, *Trachurus picturatus* (Bowdich), *Percichthys trucha* (Valenciennes), *Paralabrax humeralis* (Valenciennes), *Isacia conceptionis* (Valenciennes), *Sciaena fasciata* (Tschudi), *Aplodactylus punctatus*, Valenciennes, *Chromis crusma* (Valenciennes), *Sebastodes darwini* (Cramer), *S. chilensis*, Steindachner, *Pinguipes chilensis* (Molina), *Prolatilus jugularis* (Val-



Hussakof, L. 1916. "A Comparison of Atlantic and Pacific Specimens of the Hammer-Head Shark, *Sphyrna zygaena*." *Copeia* 34, 63–64.

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