

A COMPARISON OF THE CHUB-MACKERELS OF THE ATLANTIC AND PACIFIC OCEANS.

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For a number of years the chub-mackerels, otherwise more or less locally known as Thimble-eye, Bulls-eye, and Hard-head mackerel, of both the Atlantic and Pacific oceans have been considered as one species of almost cosmopolitan distribution, bearing the name *Scomber colias* Gmelin (1788). More recently Doctor Jordan has assigned to them the earlier name, *Scomber japonicus*, under which the Japanese fish was described by Hutton (1782).

Recently we have had an opportunity to compare two specimens of chub-mackerel from Peru with several from Rhode Island, and find certain conspicuous differences. Further evidence was obtained by comparison of a number of specimens from several localities in both the Atlantic and Pacific, which showed the same differences as well as others of slighter importance. The most pronounced difference is in the size of the head which is proportionately longer in the Pacific form. The minor differences are in the positions of the dorsal and ventral fins. In the Atlantic form the first or spinous dorsal is inserted nearer the tip of the snout, and there is a greater distance between its origin and the origin of the second dorsal than in the Pacific fish. In the Atlantic fish, too, the distance between the tip of the lower jaw and the base of the ventral is shorter than in the Pacific specimens.

These differences are shown in the tables that follow.

Comparative measurements of Atlantic and Pacific chub-mackerels.

ATLANTIC SPECIMENS.

Locality.	Total length in inches.	Head in length without caudal fin.	Distance from tip of snout to origin of first dorsal in length without caudal.	Distance from origin first dorsal to origin second dorsal in length without caudal.	Distance from tip of lower jaw to base of ventral in length without caudal.
Point Judith, Rhode Island.....	8 $\frac{7}{8}$	3.72	2.80	2.97	3.02
Do.....	9	3.76	2.80	3.08	3.11
Do.....	9 $\frac{1}{4}$	3.72	2.84	3.11	3.07
Do.....	9 $\frac{1}{2}$	3.89	2.84	3.17	3.22
Vineyard Sound.....	12	3.72	2.77	3.11	3.09
Fulton Market.....	12 $\frac{1}{2}$	3.70	2.76	3.02	3.02
Genoa, Italy.....	12 $\frac{7}{8}$	3.78	2.86	2.95	3.08
Venice, Italy.....	11	3.65	2.72	3.12	2.96

PACIFIC SPECIMENS.

Hakodate, Japan.....	8	3.23	2.63	3.26	2.85
Do.....	8 $\frac{1}{8}$	3.41	2.61	3.22	2.90
Do.....	7	3.37	2.75	3.26	2.88
Awa, Japan.....	8 $\frac{1}{4}$	3.29	2.61	3.29	2.71
Luzon, Philippine Islands.....	5 $\frac{1}{8}$	3.21	2.60	3.21	2.78
Panama.....	5 $\frac{3}{8}$	3.23	2.74	3.23	2.80
Santa Barbara, California.....	1 $\frac{1}{2}$	3.41	2.67	3.21	2.84
Peru, South America.....	9 $\frac{1}{2}$	3.14	2.55	3.41	2.61
Do.....	10 $\frac{1}{2}$	3.22	2.57	3.33	2.66
Do.....	14	3.24	2.48	3.39	2.64
Do.....	14 $\frac{1}{2}$	3.16	2.44	3.14	2.75

Average proportional measurements of Atlantic and Pacific specimens.

Locality.	Total length in inches.	Head in length without caudal fin.	Distance from tip of snout to origin of first dorsal in length without caudal.	Distance from origin first dorsal to origin second dorsal in length without caudal.	Distance from tip of lower jaw to base of ventral in length without caudal.
Atlantic.....	10 $\frac{3}{8}$	3.74	2.79	3.06	3.07
Pacific.....	9 $\frac{3}{16}$	3.26	2.60	3.27	2.76

Proportional measurements of specimens of about the same length from both oceans.

Locality.	Total length in inches.	Head in length without caudal fin.	Distance from tip of snout to origin of first dorsal in length without caudal.	Distance from origin first dorsal to origin second dorsal in length without caudal.	Distance from tip of lower jaw to base of ventral in length without caudal.
Point Judith, Rhode Island.....	9 $\frac{1}{4}$	3.72	2.84	3.11	3.07
Peru, South America.....	9 $\frac{1}{4}$	3.11	2.55	3.41	2.61
Genoa, Italy.....	12 $\frac{7}{8}$	3.78	2.86	2.95	3.08
Peru, South America.....	14	3.24	2.48	3.39	2.64

These figures show a well-marked difference between the Atlantic and Pacific chub-mackerels that is of specific value, and the Atlantic form should, therefore, retain the name *Scomber colias* Gmelin and the Pacific form the name *Scomber japonicus* Hutton.