

It was found that the rate of oxygen consumption per unit of mass decreases as we pass from smaller to larger fishes of this species, the decrease tending to be least when the largest fishes are considered.

Experiments in which the oxygen consumption was measured both in fresh and in sea water showed that fresh water temporarily depresses the oxygen uptake and as acclimation takes place the rate of the uptake appears to return to normal. Evidence is given which seems to show that fishes may acquire an oxygen debt which is persistent for several hours.

It is suggested that the ability of the longer-headed fishes to withstand the two adverse environments to which they were subjected may be due to a relatively greater area of gill surface.

GRADUATE STUDIES

Field of Study: BIOLOGICAL OCEANOGRAPHY.

Research in Biological Oceanography. Professor F. B. Sumner.
Seminar in Oceanography. Professor T. W. Vaughan and Staff of the
Scripps Institution of Oceanography.
Research in Zoology. Professor J. F. Daniel.

PUBLICATIONS

The Derivatives of the Hypobranchial Arteries in *Hexanchus corinus*.
Univ. Calif. Publ. Zoology 31:111-130, 1928.
Ectoparasites and Vitality. *American Naturalist* 62:279-282, 1928.
Marking Living Fishes for Experimental Purposes. *Science* 78:18, 1928.
The Weight-Length Relation in Fishes. *Proc. Nat. Acad. Sci.* 14:922-925,
1928.
The Relation of the Oxygen Tension in the External Respiratory Medium
to the Oxygen Consumption of Fishes. *Science* 71:195-196, 1930.
Influence of Varying Oxygen Tension upon the Rate of Oxygen Consump-
tion of Fishes. *Bull. Scripps Inst. Oceanog., Tech. Ser.* 2:307-317, 1930.
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the Shade Assumed by a Flatfish on a Given Background (with F. B.
Sumner). *Physiological Zoology* 2:495-504, 1929.

UNIVERSITY OF CALIFORNIA GRADUATE DIVISION

PROGRAMME OF THE FINAL PUBLIC EXAMINATION FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

OF

ANCEL BENJAMIN KEYS

A.B. (University of California) 1925
M.A. (University of California) 1928

FRIDAY, APRIL 11, 1930, AT 2:30 P.M.
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CALIFORNIA

SUB-COMMITTEE IN CHARGE:

Professor FRANCIS BERTODY SUMNER, *Chairman*,
Professor SUMNER CUSHING BROOKS,
Professor JOHN FRANK DANIEL,
Professor GEORGE FRANCIS McEWEN,
Professor THOMAS WAYLAND VAUGHAN.