

Weatherley A H. *Growth and ecology of fish populations.*

London: Academic Press, 1972. 293 p.

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This monograph reviewed contemporary knowledge of fish somatic growth, noting its "plasticity" and discussing its metabolic requirements and the effects of food supply, temperature, and so on. With a background thus prepared, somatic growth was located as a central process in such ecological matters as population self-regulation, competition, predator-prey relationships, production, and aquaculture. A brief final section discussed needs and trends in future research. [The *SC*[®] indicates that this book has been cited in over 160 publications.]

Fish Growth: Basic Biology, Ecological Applications

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Research on human physiology occupied two years following my graduation with a BS from the University of Sydney, but in 1951 I left Sydney for freshwater fisheries research in Tasmania with the Commonwealth Scientific and Industrial Research Organization. At 23, still with just a BS, I was given sole responsibility for a full research program. Circumstances like this were familiar to hundreds of young Australian scientists of those days. In a certain sense the opportunities looked boundless, but given our enormous inexperience one could, unless one was lucky, sink without a trace.

In Tasmania I worked on fish ecology and limnology. Fish growth was fascinating: it could vary greatly according to temperature and food supply in apparent contrast to the "determinate" growth of mammals and birds. (Later I learned that these also could display "indeterminate" growth under certain conditions.) I thought if I reviewed the literature on fish growth the subject might be easier to un-

derstand. But my review in the late 1950s was premature and unpublishable.

Eventually, I went to Scotland to get teaching experience and earn a PhD for work on fish thermal tolerance. Afterwards, at the Australian National University, I investigated the ecology of a zinc-polluted river (one of the first such studies performed in Australia), and again, thermal tolerance. I also returned to the abandoned growth review.

Severely cut and polished, the review was published in *Nature*.¹ Many reprint requests followed, plus an invitation to write a book on the subject. The book took me years to write, but on publication it was favorably reviewed, sold well, and remained in print for 15 years. It brought me the 1972 publications award of the Wildlife Society and was a factor in my receipt of the 1974 (inaugural) H. Jolly Award of the Australian Society for Limnology. It appears the book succeeded because it pioneered in putting growth at the center of fish ecology, including population regulation, predator-prey and trophic relationships, and production, while not neglecting the essential biological phenomenon of growth itself and its underlying principles. Various biologists have had similar intentions, as outstanding works have since shown.^{2,3}

Since 1972, now with the facilities to do experiments I could only write about before, I have investigated the effects of widely differing growth rates on fish body composition, helped develop biotelemetry techniques to determine energy costs of fish activity (which competes with growth for assimilated food energy), and tried to decipher the role of muscle fiber growth dynamics in determining ultimate sizes and growth rate potentials of wild species ranging in size from minnows to muskellunge. A new book, coauthored with Dr. H.S. Gill,⁴ embodies the essential findings of these studies. It is a far better book than the earlier one and was written because the publisher insisted that continuing progress in the field dictated its need, but it will probably be less cited. In 1972 the book was timely in terms of the understanding of the period—and few works competed. But all this, of course, just exemplifies the nature of the scientific process.

1. Weatherley A H. The ecology of fish growth. *Nature* 212:1321-4. 1966. (Cited 5 times.)

2. Gerking S D, ed. *The ecology of freshwater fish production*. Oxford, England: Blackwell, 1978. 520 p.

3. Pitcher T J & Hart P J B. *Fisheries ecology*. London: Croom Helm, 1982. 414 p. (Cited 5 times.)

4. Weatherley A H & Gill H S. *The biology of fish growth*. London: Academic Press, 1987. 443 p. (Cited 5 times.)