

A long-term perspective of the role and relevance of life-history questions in fisheries research.

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Early understandings of exploited fish populations were mostly expressed in terms of the undifferentiated biomass of fish. For example Russell's well known equation expressing how the change in stock biomass from one year to the next is a balance between additions of biomass from recruitment and growth and reductions from fishing and natural mortality. Schaefer's surplus yield model, building on Russell's formulation, was also based on stock biomass without regard to the population's age structure. Russell was not unaware of the importance of age structure but as with later developments by Beverton and Holt, the significance of age structure in this early work was mostly to do with trawl selectivity and the maximisation of yield.

In the first half of the 20th century life history theory was already an important consideration in population and evolutionary biology, due to the work of Pearl and Fisher amongst others. The relevance of this work to fisheries was not appreciated until the mid 1960s when attempts were made to relate the sustainability of exploited species to their life history strategies. Further work by Charnov has linked growth characteristics of fish to their life history strategies. In this paper I will explore the ways in which life history characteristics have been linked to stock sustainability and also discuss whether the incorporation of life history theory into fisheries is important for their successful management.

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