

# The full lifecycle bioenergetic modeling of bluefin tuna



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「養殖モノと天然モノ…どちらがうの？」

## 動的エネルギー計上理論で

## クロマグロの生活史形質をまるごと理解する

In recent years, a novel bioenergetic approach called the Dynamic Energy Budget (DEB) theory has emerged as an attempt to integrate experimental knowledge on physiology and ecology of all organisms into a single modeling framework. I applied the DEB theory to Pacific bluefin tuna (*Thunnus orientalis*) in order to better understand how a top predator in the pelagic environment allocates energy to growth, maintenance and reproduction. A full lifecycle model - from an egg to an adult female and her eggs - was successfully constructed and then used to explain various physiological or ecological traits of this species. For example, the difference in growth rates between the wild and reared fish appears to be linked to body temperature rather than food availability. In the future, the model has the potential to provide an entirely new perspective on the interaction between the bluefin tuna fishery and population dynamics.

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2012年

7/17 (火) 13:30-

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ご来聴を歓迎いたします。  
懇親会も開催します。