

{rokbox title=|The study region is located around the Balearic Islands in the Western Mediterranean Sea :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-bluefin-tuna-larvae-exploit-rare-food-sources-oligotrophic-environment-reglero-et-al-2025-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-bluefin-tuna-larvae-exploit-rare-food-sources-oligotrophic-environment-reglero-et-al-2025.jpg{/rokbox}

Patricia Reglero, Maria Pilar Tugores, Josefin Titelman, Mar Santandreu, Melissa Martin, Rosa Balbin

,
Diego Alvarez-Berastegui

,
Asvin P Torres

,
Nelly Calcina

,
Laura Leyva

, Øyvind Fiksen, 2025.

[Bluefin tuna \(*Thunnus thynnus*](#)

[\) larvae exploit rare food sources to break food limitations in their warm oligotrophic environment.](#)

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Abstract: Tuna spawns in some of the warmest and most oligotrophic areas worldwide. At the same time, starvation is often considered the main source of mortality for fish larvae. Here we assess if plankton availability is sufficient to sustain the high growth potential of tuna (*Thunnus thynnus*)

) larvae in a major spawning ground in the warm oligotrophic Mediterranean Sea. We combine field data with a model of larval foraging, growth, and bioenergetics and find that just enough food is available in the warm surface layer to sustain the high growth rate of the larvae. For bluefin tuna, higher temperatures can be beneficial if prey abundance is high, 10 000–27 000 nauplii m⁻³, 14–36 cladocerans m⁻³, 3–7 copepods m⁻³, but critical if not. While nauplii alone may not sustain the growth potential of even the smallest tuna larvae, our model predicts that including some larger copepods or cladocerans in the diet reduces food limitation and can sustain growth even in the warmest years. The combination of clear Mediterranean waters and the occasional copepod or cladocerans alleviates food limitation despite the low zooplankton concentrations in the area. In conclusion, oligotrophic spawning areas allow for fast growth of

these foraging efficient larvae, unless temperatures exceed 28°C.

Keywords: starvation, nauplii, cladocera, copepods, temperature, fishlarvae, *Thunnus thynnus*