

{rokbox title=|Tuna larvae habitat :: Photo credit: Authors|

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P. Reglero, D. P. Tittensor, D. Álvarez-Berastegui, **A. Aparicio-González**, B. Worm, 2014. [Worldwide distributions of tuna larvae: revisiting hypotheses on environmental requirements for spawning habitats](#). MEPS 501:207-224 (2014)-doi:10.3354/meps10666

Abstract: Tuna are among the most ubiquitous oceanic predators, and range globally from the equator to temperate regions (0 to 55° latitude). While the distribution of adult fish has been mapped from fishing records, the extent of tuna spawning and larval habitats is less well understood. We compiled and analyzed data on the global distributions of larval occurrence for 7 major oceanic tuna species to investigate environmental predictors of larval habitat. Our results showed that tuna larvae occur within the adults' distributional range, but were restricted to lower latitudes and higher water temperatures than adults, largely consistent with Schaefer's 'temperature hypothesis'. Temperature requirements explained much of the variation in larval occurrence, though temperature by itself tended to over-predict the extent of larval habitats. We also demonstrate that tuna larvae have an elevated probability of occurrence at intermediate values of eddy kinetic energy, generally supporting Bakun's 'ocean triad hypothesis', which relates tuna larval habitats to mesoscale oceanographic activity. However, some deviations in this pattern were also observed, such as for albacore. Regions of suitable larval habitats were most commonly found in western boundary currents, where warm water masses coincide with intermediate eddy kinetic energy. Bluefin tuna species are exceptional though, in that their spawning habitats tended to be much more confined than predicted from oceanographic conditions. Our results provide support for a combination of the 2 hypotheses to explain global environmental requirements for tuna larvae. We have identified oceanographic parameters that can easily be measured by remote sensing and features that should be considered when determining areas of critical habitat for tuna larvae.

Keywords: Spawning habitat, Global, Spatial distribution, Large predators, Tuna, Larvae, Thunnus, Temperature hypothesis, Ocean triad hypothesis