PERSEUS

POLICY-ORIENTED MARINE ENVIRONMENTAL RESEARCH IN THE SOUTHERN EUROPEAN SEAS

Funded by the EU

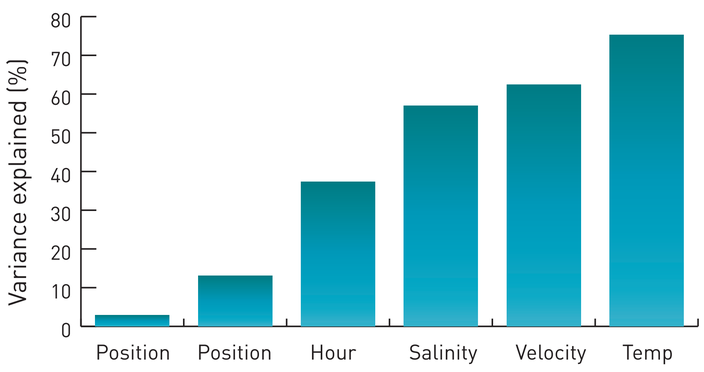
A multi-disciplinary approach to managing Atlantic bluefin tuna in the Mediterranean Sea

WHY DO ATLANTIC BLUEFIN TUNA MIGRATE TO THE MEDITERRANEAN?

The Mediterranean Sea and the Gulf of Mexico are the two major spawning grounds for the Atlantic bluefin tuna. PERSEUS scientists believe that tuna migrate to the Mediterranean, as it provides favourable environmental conditions for them to spawn and for their offspring to grow and survive.

The role of salinity and bluefin tuna spawning sites

When water from the Strait of Gibraltar enters the Mediterranean basin and encounters the more saline resident waters, a salinity front is formed. The position of the front varies from year to year, and appears to affect the spatial distribution of bluefin tuna spawning sites.



Managing tuna stocks with marine protected areas

Marine protected areas can reduce bycatch of top pelagic predators, including Atlantic bluefin tuna, but up until now it has been unclear how to best identify key locations for protection.

PERSEUS has identified key oceanographic factors that are common for other tuna species worldwide:

- **salinity**
- **current velocity**
- **water temperature.**

These variables can be measured and should be considered when determining areas of critical habitats that could become marine protected areas for tuna.

Decision-support tools to predict spawning areas

Policymakers now have access to various decision support tools based on real-time and long-term time series data. Technologies such as remote sensing and drifting buoys fitted with data-loggers allow us to explore and understand how the ecology of Atlantic bluefin tuna is linked to oceanographic variability, and can help us to predict and map bluefin tuna spawning areas and larval distribution.

These new oceanography products are designed based on the knowledge of how environmental variability drives the ecological processes, and can provide an excellent support tool for assessing abundance of bluefin tuna and for management and conservation of the species.

This scientific research is the result of collaborative work coordinated by the Instituto Español de Oceanografía (IEO) in cooperation with the Balearic Islands Coastal Observing and Forecasting System (SOCIB), the College of Oceanic and Atmospheric sciences (University of Oregon, USA) and NOAA (USA). This work was funded by PERSEUS and the Spanish national funded projects (Bluefin, BALEARES, 2009-07944 MAR and ATAME, 2011-29525-004-02).

For more information on the bluefin tuna case study, please contact:
Dr. Patricia Reglero, Coordinator for the Instituto Español de Oceanografía
e-mail: patricia.reglero@ba.ieo.es