











ECOAZUL-MED

Aquaculture Sector: Policy recommendations

The ECOAZUL-MED project (2021-2024) aims to develop, for the first time, a publicly accessible web tool that provides climate information derived from high-resolution regional climate simulations. This tool will allow anticipation of the effects of climate change on aquaculture, fishing, and coastal tourism, considering different emission scenarios for the next 40 years along the Spanish Mediterranean coast.



FUTURE CLIMATE CONDITIONS



Atmospheric heat waves

Relative air humidity

Summer precipitation

% of days with precipitation

Prolongation of summer thermal conditions

Sea-surface temperature Marine heat waves

Sea-surface salinity

Changes in the magnitude of the velocity of ocean currents



POSSIBLE SOCIO-ECONOMIC IMPACTS

- Risk of intolerance of some species to change, affecting the viability of cultivation
- Reduction of oxygen in the water
- Possible increase in mortality rate in cultivated species not tolerant to temperature rise
- Reduced growth of individuals due to energy investment in adapting to warming
- Impact on the physiology of cultivated species
- Increased risk of floods and problems in continental aquaculture facilities
- Difficulties in marine work and potential damage to cages and facilities
- Possible promotion of fish growth
- Reduction in dissolved oxygen, marked thermocline, and limited nutrient exchange
- Increase in pathogens, favoring infectious and parasitic diseases



ADAPTATION MEASURES

AQUACULTURE PROFESSIONALS

- Adequate locations
- Safer, sustainable infrastructures
- Phytosanitary monitoring
- Coverage against climate
- Use of climate service tools or alert systems
- Ecosystem-based approach to aquaculture

PUBLIC ADMINISTRATION

- Promotion of responsible consumption, labeling, and new species
- Phytosanitary monitoring of cultivated species
- Protection of Posidonia oceanica reefs
- Feeding systems without oils or flours and with low carbon footprint

R&D

- New tools for site selection
- Boosting research
- Generation of new materials
- Protection of *Posidonia* oceanica reefs
- · Research on new feeding systems without oils or flours and with low carbon footprint

CITIZENSHIP

- Introduction of new species in the diet
- Responsible consumption of products from cultivated spieces

HOW CAN THE CLIMATE TOOL HELP THE SECTOR?

The tool will provide graphs with data generated from high-resolution coupled regional simulations from the MedCORDEX coordinated modeling initiative. Specifically, the tool will provide information regarding changes in future climate.

Tool users will be able to select:

The variable of interest (sea-surface temperature, marine heat waves, sea-surface salinity, velocity and direction of ocean currents up to a depth of 1000 m, maximum air temperature at 2 m, atmospheric heat waves, or relative air humidity)

The greenhouse gas emissions scenario, between the two available options

The time period of interest, which should be decadal

The desired time frequency, either seasonal or monthly











