

PLANKTON AND PHYSICO-CHEMICAL CHARACTERISTICS IN EARTHEN PONDS USED FOR TRADITIONAL EXTENSIVE FISH FARMING IN THE BAY OF CÁDIZ (SPAIN). COMPARISON BETWEEN OLD AND RECENT BUILT PONDS

M. Yúfera*, D. Quintana, A.M. Arias

Instituto de Ciencias Marinas de Andalucía (CSIC), Campus Universitario Río San Pedro s/n, 11510 Puerto Real, Cádiz, Spain

*manuel.yuferaf@icman.csic.es

Main zooplankton groups, chlorophyll A, inorganic nutrients, organic matter, temperature and pH in water, as well as pH and redox potential in the sediment have been examined during eighteen months in a traditional farm of the Cádiz Bay (South Atlantic coast of the Iberian Peninsula). The study aimed in comparing two zones differing in the time of the sediment maturation. One zone has two ponds that have been working for decades while the other has a new pond that was inundated for the first time. All ponds take water from the same sea channel.

Most of environmental and chemical factors were fairly similar in all ponds with exception of pH and redox potential in the sediment that were clearly different in the new pond. Yearly average values in the seawater ranged between 9 and 28 °C for temperature, 26 and 56 g l⁻¹ for salinity, and 7.8-8.8 for pH. Organic matter ranged between 0.05 and 0.2 g l⁻¹ excepting in September 2008 when picked up to 0.4 g l⁻¹. In that date an episodic event in the seawater channel surrounding the farm affected the environmental condition in some ponds, mainly the amount of organic matter, chlorophyll a, water pH and silicate concentration.

Zooplankton communities were dominated by copepods (nauplius, copepodites and adults) and veligers of bivalves. Rotifers were also common in autumn. Overall, higher densities of these groups were punctually reached in the new pond reflecting the colonisation by opportunistic species.

Key-words:

FISH PONDS, PLANKTON, ENVIRONMENTAL VARIABLES, SEDIMENT, SEAWATER,

