

Biology of aquaculture animals – learning from nature to manage culture

Abstract

Understanding of aquatic ecosystems and the fundamental aspects of the biology of aquatic animals is vitally important in managing aquaculture on a sustainable basis. The paradigm shift that is taking place in twenty-first century aquaculture is borne out of the compulsion of integrating environmental perspectives and biological attributes of target species in farming systems. There is an overwhelming amount of data highlighting the practical ways that several aspects of research on ecology can be applied to improve aquaculture production. Basic information on the biology of fish or shellfish has helped in designing rearing conditions and with more comprehensive information it is possible to optimize growth of captive animals and efficiency of production per unit area without adverse environmental implications. Aquaculture faces many challenges and at every stage a thorough understanding of the processes that regulate the biological systems of the cultured animals is required for an informed interpretation and for improving rearing methods. Since species selected for aquaculture and their farming systems are diverse, our knowledge should also be comprehensive enough to address the issues that arise in the planning and operation stages of aquaculture.