{rokbox title=|a) Vista panorámica de las jaulas del LIMA; b) jaula de acuicultura muestreada; c) bolsas recolectoras; d) científica muestreando; e) Chlamys varia y Mytilus galloprovincialis obtenidos para análisis; f) científicas analizando muestras en laboratorio :: Autor: Grupo RESMARE, COB-IEO| thumb=|images/stories/ieo/imagenespublicaciones/collage_multitrofico_thumb.jpg|}images/stories/ieo/imagenespublicaciones/collage_multitrofico.jpg{/rokbox}

Salud Deudero, **Ariadna Tor**, **Carme Alomar**, José Maria Valencia, **Piluca Sarriera** and Andreu Blanco (2011).
Integrated Multitrophic Aquaculture: Filter Feeders Bivalves as Efficient Reducers of Wastes Derived from Coastal Aquaculture Assessed with Stable Isotope Analyses.
Aquaculture and the Environment - A Shared Destiny, Barbara Sladonja (Ed.), ISBN: 978-953-307-749-9, InTech, Available from: http://www.intechopen.com/articles/show/title/integrated-multitrophic-aquaculture-filter-feeders-bivalves-as-efficient-reducers-of-wastes-derived-

Introduction: The growing concern on aquaculture's environmental impact has led to an increasing research into feed formulations and digestibility, better conversion efficiency and improved management. Since the last decade, the emphasis has been placed on the practice of integrated multi-trophic aquaculture (IMTA), with a potential to mitigate some of the environmental problems associated with mono-specific aquaculture. Originally used in freshwater practices, it involves the culture of two or more species from different trophic level; generally finfish being simultaneously cultured with both organic and inorganic extractive species, such as shellfish and seaweeds, respectively; in which by-products from one species are recycled to become inputs for another. Thus, the organic matter released in aquaculture systems might represent a source of available food for filter-feeding organisms, such as bivalves, reducing its impact on the environment and can represent a potential economic income.

Filter feeders bivalves are essentially generalist consumers, and it has been demonstrated that they can exploit organic matter from several sources (autochthonous, allochthonous or anthropogenic), as a function of its availability. In a conceptual open water integrated aquaculture, filter feeder bivalves are cultured adjacent to fish floating cages, reducing nutrient loadings by filtering and assimilating particulate wastes (uneaten food and faeces) as well as phytoplankton. In this way, bivalves would perform as biological filters. Previous studies have determined that bivalves can be successfully incorporated into integrated multitrophic aquaculture systems, based on the increased growth displayed and the feeding efficiency on pellet feed and fecal products.

To decipher whether integrated multitrophic aquaculture is an effective method for minimizing and reducing waste inputs into the Mediterranean coastal ecosystem we have designed a multitrophic integrated system involving filter feeders bivalves (galloprovincialis Lamarck, 1819) and Chlamys varia (Linnaeus, 1758)), and fin fish Argyrosomus regius (Asso, 1801). Through determination of carbon and nitrogen stable isotopes analyses to the several organisms and trophic strategies, the following aims will be accomplished:

- Define the isotopic composition of the trophic food web of integrated multitrophic aquaculture in relation to two reference stations
- Study the temporal variability in waste matter fluxes at the different treatments, hence annual and seasonal variability
- Calculate the relative contributions of wastes (fresh food, pellets, plankton) to the fish farmed and to the filter feeders at the IMTA

Keywords: Integrated multitrophic aquaculture, stable isotope, analyses, Mytilus, Chlamys, Mediterranean