

3. Conclusions

The species presented different activity pattern and status in agreement with published data (e.g. [4]). The differential rhythmic activity and behavioural status during the swimming performance is at the base of their coexistence. The advantages of the real time motion analysis are: 1) its working capability with any video source and image size (pixel format); 2) its long lasting autonomy in data recording and processing; 3) its independency from memory size for the automated elimination of old frames after digitization; 4) its non-invasive character, allowing studies on a wide variety of aquatic organisms, including protected species.

4. References

- [1] Naylor, E. 2005. Chronobiology: implications for marine resources exploitation and management. *Sci. Mar.* 69: 157-167.
- [2] Campbell HA, Handy RD, Sims DW. 2002. Increased metabolic cost of swimming and consequent alterations to circadian activity in rainbow trout (*Oncorhynchus mykiss*) exposed to dietary copper. *Can J Fish Aquat Sci* 59:768-777.
- [3] Gabrielyan, B.K., 2001. An annotated checklist of freshwater fishes of Armenia. *Naga ICLARM Q.* 24(3&4):23-29.
- [4] Allen, G.R., S.H. Midgley and M. Allen, 2002. Field guide to the freshwater fishes of Australia. Western Australian Museum, Perth, Western Australia. 394 p.
- [5] Arthington, A.H., 1989. Diet of *Gambusia affinis holbrooki*, *Xiphophorus helleri*, *X. maculatus*, and *Poecilia reticulata* (Pisces: Poeciliidae) in streams of southeaster Queensland, Australia. *Asian Fish. Sci.* 2:193-212.
- [6] Billard, R., 1997. Les poissons d'eau douce des rivières de France. Identification, inventaire et répartition des 83 espèces. Lausanne, Delachaux & Niestlé, 192p.

METHODOLOGY FOR THE IDENTIFICATION OF BUSINESS OPPORTUNITIES: THE CHILEAN AQUACULTURE CASE

Ortiz Montenegro, Ivette (*), ; Escorsa Castells, Pere (**)

(*) iortiz@iale.cl IALE Tecnología Chile

(**) escorsa@iale.es, IALE Tecnología Barcelona

The hispano-chilean consulting firm IALE coordinated a project entitled "Identification of Global Business Opportunities based on Technologies for Aquaculture and Related Clusters" pursued within the Bicentenary Program of Science and Technology of the Government of Chile.

The aim of this study was to help initiate an increase in business opportunities based on market and technology tendencies so as to reinforce and act as catalyst for a significant development within the aquaculture cluster and its related industries, which play an important role in the country's economy.

These targets were achieved through the development of three components (products) which were labeled by the Program as a) Evaluation of world technologies and markets; b) Technology Maps, and c) Consortium Development Model.

IALE, with the constant help and support of Adolfo Alvial (director of the Salmon Technology Institute INTESAL) developed the Technology Maps. They focus on the technical aspects of aquaculture by combining results from Technology Foresight, Technology Watch and Competitive Intelligence. The challenges facing the different aquatic species were examined through methodologies such as Delphi or such as the cienciometric analysis of scientific publications and patents. In this work, we describe the methodology which we implemented for the Technology Map product as well as some of the results that we obtained.

The scientific publication database which was selected for this study was ASFA (Aquaculture Science and Fisheries Abstract), which is considered to be the leading reference in science and technology and management of aquatic environments and organisms, for both salt and fresh waters.

As for patents, we consulted both databases of the Patent Offices from the USA and the European Union (USPTO and EPO), for the period between 2000 and 2005.

This study of Technology Maps allows us to identify the main scientific lines of interest and tendencies of recent years as well as the different technology areas. We also developed technology maps of thematic clusters in order to identify emerging signals. Thus, we were able to detect important challenges from different technology areas based on different groups of species (cold water fish and mollusks) in relation to Chile's aquaculture.

Bibliographic References

- [1] Aquaculture Science and Fisheries Abstract (ASFA), Scientific Publication Database.
- [2] Escorsa, P.; Maspons, R. (2001), "De la Vigilancia Tecnológica a la Inteligencia Competitiva", *Financial Times/ Prentice Hall*, Pearson Education, Madrid.
- [3] López, M.; Mallorquín, P.; Vega, M. (2003), *Technology Watch Report: Genomics of Fish Farming Species*, Genoma España, http://www.gen-es.org/02_cono/docs/GENOMA-PECES.pdf.
- [4] Bicentenary Program of Science and Technology. Identification of Global Business Opportunities based on Technologies for Aquaculture and Related Clusters, <http://www.conicyt.cl/bancomundial/documentos/prospectiva.htm>.

