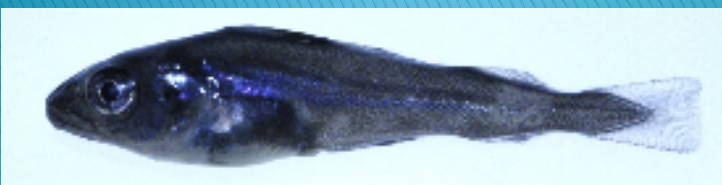
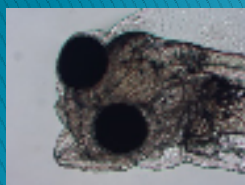
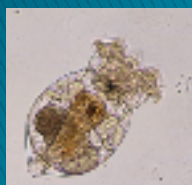




Improving the sustainability of European fish aquaculture by the control of malformations

Courtney Hough – FEAP



European 'Collective' Research Project



- Identification of research priorities for the hatchery sector at the PROFET workshop (Bordeaux, January 2004)
- Control of malformations was identified by the workshop as one of the top three priorities for research within the European hatchery sector
- Project concept developed between Akvaforsk & FEAP, supported by INRA and other partners – both RTD and SMEs



Role of Collective Research Projects



- Examine (& solve) problems within an industrial sector
- Focus on applied research (vs. Basic research)
 - Identification of clear benefits required
- Requires close collaboration and extensive interaction between RTD and industrial partners (within a consortium)
- Requires contributory efforts by the industry:
 - Half of the budget derived from industry's activities



Problems and benefits identified



- ▶ Malformations are a constant problem in modern aquaculture, although levels of incidence may vary (species, location, farm...)
- ▶ The economic losses are severe (hatchery & ongrowing)
 - Juveniles must be discarded
 - Market-size fish cannot be sold or are priced down
 - The minimum annual losses estimated >€50 000 000
 - 50% reduction in malformation => saves €25 000 000 and increases production, profitability and improves image
- ▶ Malformation is also a welfare concern
- ▶ Market reaction (consumer) is also an evident issue



Aims of the project



- ▶ Use cross-species data to develop information on how to prevent malformations
- ▶ Three key areas of research & application
 - Rearing temperatures
 - Nutritional quality
 - Abiotic factors of rearing (tank) environment (e.g. O₂/CO₂, current strength...)
- ▶ Five fish species
 - Atlantic salmon, Rainbow trout, European seabass, Gilthead seabream, Atlantic cod
- ▶ Develop guidelines/protocols on how to produce 'normal' fish for each of these species



Project participants



Federation of European Aquaculture Producers	F
Profunda AS	N
Ferme Marine de Douhet S.A.	F
AquaSearch ova	DK
Viveiro Vilanova SA	P
Tinamenor SA	E
Bolaks AS	N
Viviers de France SA	F
Brow Well Fisheries Ltd	UK
Andromeda	GR
Panlittica Pugliese SpA	It
Nofima Marin	N
Royal Veterinary College	UK
UMR NuAGe, INRA-IFREMER-Univ Bordeaux I	F
Centro de Ciências do Mar do Algarve	P
Oceanographic and Limnological Research, for Mariculture	Is
Hellenic Centre for Marine Research	GR
Institut Français de Recherche pour l'Exploitation de la Mer	F
University of Patras	GR
Pepite S.A.	B



Principle activities during the project



- ▶ >23 Experiments done with RTD partners
- ▶ >15 Field trials done on SME partner sites
 - >22 SME Visits from RTD and FEAP experts
- ▶ Benchmarking and data mining of SME production data
- ▶ Training courses (5 courses planned in early 2009)
 - Development of diagnostic manual on malformations
 - Best hatchery practises (by species)
- ▶ Newsletters for progress updates
- ▶ Final Project Workshop (Sep 2009 – with Larvi 2009)



Future activities



- ▶ Consortium is strong and productive
 - Looking to continue cooperation and development
 - Agreement to continue to develop projects
 - Improvement of broodstock handling
 - Continue/develop hatchery monitoring & data-mining
 - Cod hatcheries
 - Seabass/Seabream hatcheries
 - Extend cooperation within EATIP (European Aquaculture Technology & Innovation Platform)



Welcome!



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 - Synnøve Helland
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 - Ingrid Lein
 - Philippe Mack
 - Francesca Margiotta
 - Catherine Pons

- ▶ www.finefish.info for all information

