



# *Diversify project*

## *Andromeda Group*

YOUR NEARBY SEA FISHERMAN

# Andromeda's brief history

- ✓ **1998:** Andromeda S.A. is founded
- ✓ **2001:** Phase One of Andromeda's genetic selection program is launched
- ✓ **2001-2006:** Andromeda is ranked among the leading aquaculture companies in Greece with consistent growth and superior results throughout the period
- ✓ **2006:** SEEF, a fund advised by Global Finance, acquires a majority stake in Andromeda. Phase Two of Andromeda's genetic selection program is launched
- ✓ **2007:** Strategic investment in a Sea Park and packaging facility in Igoumenitsa the nearest Greek port to Italy
- ✓ **2008:** Phase Three of Andromeda's genetic selection program is launched. Investment in a second hatchery in Western Greece. Initiation of the 'Mediterranean project' with the acquisition of Acuimar Group in Spain and the beginning of production in Albania.
- ✓ **2009:** Acquisition of Niordseas SL in Spain.
- ✓ **2010:** Acquisition of Piscimar in Spain. Phase Four of Andromeda's genetic selection program is launched
- ✓ **2011:** Acquisition of Kalypso, Sargonaftes and Hydrokosmos in Greece.

# Production Hatcheries & Farms

## Hatcheries

	<b>VONITSA GREECE</b>	<b>PISCIMAR SPAIN</b>	<b>SURESTE SPAIN</b>
operation started	1999	2002	2003
water sources	Borehole & Recirculation	Borehole & Recirculation	Borehole
species produced	Bream, Bass, Puntazzo, Pagrus	Bream, Bass	Meagre
production (number of fry)	65.000.000	23.000.000	2.000.000



## Sea farms

	<b>GREECE</b>	<b>SPAIN</b>
species produced	Bream, Bass, Puntazzo, Pagrus, Meagre	Bream, Bass, Meagre, Seriola
production (tones)	8.000	7.000



# Genetic improvement program (GIP)

## GIP Overview

- Started in 2002, and followed by 3 rounds of selection 2005, 2008, 2010. From 2011 on onwards we run a GIP batch on a yearly basis.
- Based on unique features
  - Mass spawning for family creation. This secures large benefits on facility requirement, but biases parent representation in the offspring.
  - Outsourcing pedigree reconstruction by DNA markers. Andromeda GIP was of the first commercial programs using this technique in sea bream.
  - Usage of geometric morphology for shape –trait selection

# EU and National projects

Project	Title		Duration
Optima	Production optimization of Mediterranean fish of economical value for aquaculture	E.U.	2003-2007
Finefish	Improving sustainability of European fish aquaculture by control of malformations.	E.U.	2006-2010
Cooperation 2010	Development of innovative molecular tools for control and quality improvement of cultured populations of bream and bass	National (Greece)	2010-2014
Fishboost	Improving European aquaculture by advancing selective breeding to the next level for the six main finfish species	E.U.	2014-2019

# Andromeda's proposed contribution to Diversify

## ❖ Meagre (*Argyrosomus regius*)

✓ **Reproduction & Genetics**

✓ **Fish health:**

- **Systemic Granulomatosis**
- **Viral infectious diseases occurring in meagre**

# Diversify – Meagre (Reproduction & Genetics) a

## **Task 2.1 Evaluation of the genetic variation in captive meagre broodstocks:**

- ❑ Provide DNA samples from Meagre Broodstock of the population held in Andromeda's hatchery (Spain) are sent to FCPCT.
  - ❑ Sept. 2014 Fin- clipping of 358 individuals from 2008 and 2011 (F2 - phenotypic) generation. All breeders are Pit -tagged.

### **Target**

Contribute to the description of the genetic status of captive broodstock and identification of future needs for starting up a genetic selection program (eg. Base population, breeding structure, population size, inbreeding rate, etc.).



# Diversify – Meagre (Reproduction & Genetics) b

## ***Other possible participation on Meagre***

- ❑ **From a 2013 meagre batch ( today in 2 cages in one farm – one cage with fast growing and the second slow growing juveniles) perform a sampling at harvest size:**
  - **Fin clipping**
  - **Body weight**
  - **Morphometric measures**
- ❑ **Construct a small pedigree (depending on the contribution to the offspring FCPCT / HCRM)**
- ✓ **Use the above data for**
  - **Paternal/maternal contribution on the offspring** (LHRH injections have been performed to a part of the spawning population – [Annex 1](#))
  - **Validation of growth associated SNPs** (*Task 2.5 Development of Single Nucleotide Polymorphisms (SNP) marker tools for the genetic characterization of fast and slow growers*)



# Diversify – Meagre Fish Health – Proposed involvement

- **Systemic Granulomatosis:**
  - *If needed for the Project, provide samples from Sea farm populations situated at different regions for histologic / other analysis.*
- **Bacterial/viral infectious diseases occurring in meagre**
  - *Nodavirus (providing samples) - is validated Elisa in the schedule of the program?*

# Annex 1

## “Candidate” batches for Meagre Pedigree

Broodstock Tank	♀ Injected	♀ Tag	♂ Injected	♂ Tag	Stocking Date	Larvory Tank	Larvory Lot	Quality	Loading Date	Farm	Cage	Remarks
M7	6 out of 6	515209; 5153098; 5153264; 5183725; 5183837; 5152326	7 out of 13	5153250; 5153252; 5153297; 5183689; 5183749; 5183791; 5183886	17/4/2013	M4; M5; M6	CA6	0-35	1/8/2013	Gramammed	G25	
M7	6 out of 6	515209; 5153098; 5153264; 5183725; 5183837; 5152326	7 out of 13	5153250; 5153252; 5153297; 5183689; 5183749; 5183791; 5183886	17/4/2013	M4; M5; M6	CA6	35-70	13/8/2013	Gramammed	G02	
M9	6 out of 9	515208; 5153028; 5153261; 5183798; 5183855; 5152338	7 out of 14	5153255; 5153245; 5153280; 5183681; 5183548; 5183777; 5183822	27/3/2013	M1; M2; M3	CA5	0-35	8/7/2013	Gramammed	G22	We lost 1 fish until DNA sampling (2014)
M9	6 out of 9	515208; 5153028; 5153261; 5183798; 5183855; 5152338	7 out of 14	5153255; 5153245; 5153280; 5183681; 5183548; 5183777; 5183822	27/3/2013	M1; M2; M3	CA5	35-70	18/7/2013	Gramammed	G20	We lost 1 fish until DNA sampling (2014)





Thank you for your attention