ACM 2016
NANCY, FRANCE

LARVAL HUSBANDRY WRECKFISH WP 18

- Task 18.1 & 18.2

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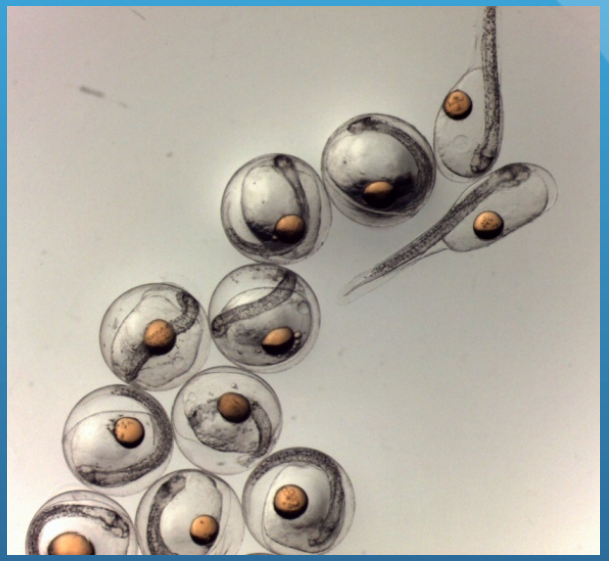
Objectives…

1) Task 18.1 Development of feeding methodology. No results obtain since larvae survival only reached 22 days post hatching (DPH).
2) Task 18.2 Defining optimun conditions for larval rearing.



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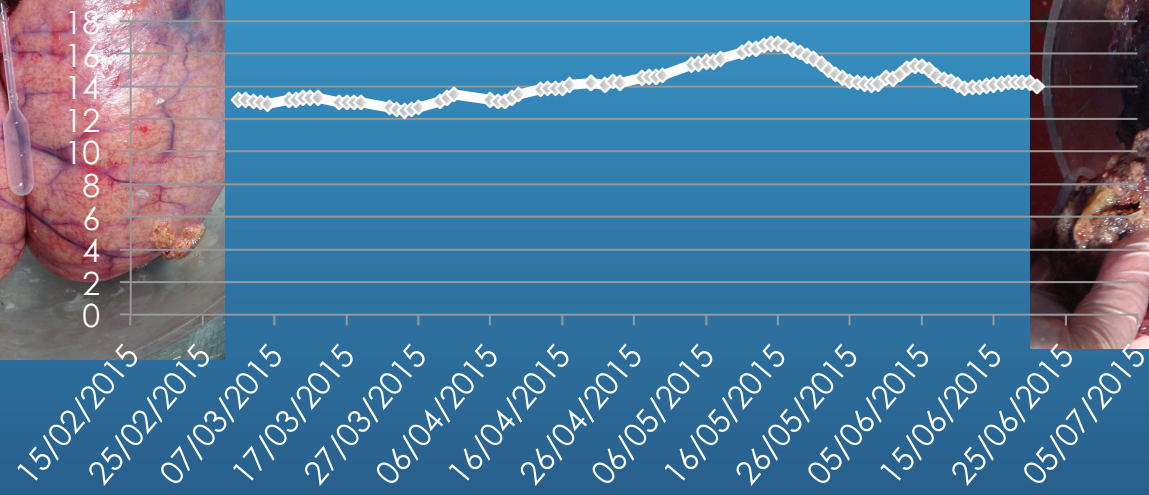
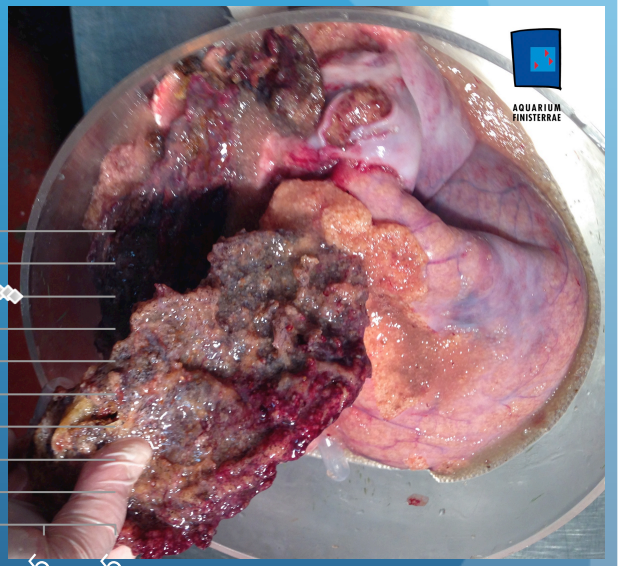
Eggs mainly obtained from natural spawning at least with AF ♀.
Placed in a 200 l troncoconic hatchery tank and distributed among partners
2015 mc^2 eggs from ♀ black-blue 98102355554 start hatching day 3 to day 4.

Prophylactic treatment is given on days: 1st, 2nd and 3th after drained (Pyceze® Bronopol 50% / 30 mn CC system/ days).





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Day 3th embrios and † eggs can't be separated. So no more drain an inlet circulation is considerably increased from 60 l / day to 60 l/h. (These may not be considered?)

Selecting larvae from eggs tank is done by syphoning 1 mm square mesh chamber that only sucks larvae from hatching tank to a collecting tank during 24 h.

Then larvae may be counted and transferred to larvae rearing tanks.

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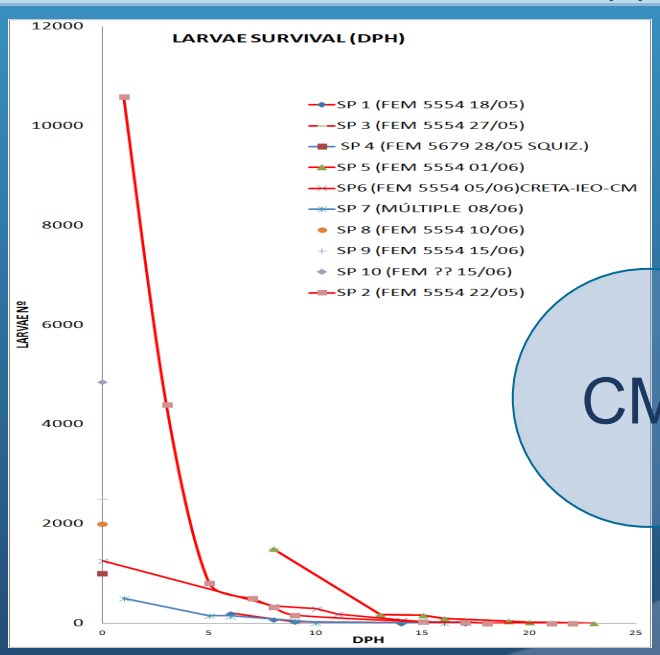
2) Defining optimun conditions for larval rearing

AQUARIUM FINISTERRAE

SPAWN TYPE	STOCK	DATE	FEC (%)	HATCH (%)	LARVAE (nº)	LARVAL DENSITY (nº	MEAN Tª	FEED	SURVIVAL (dph)	WATER SYSTEM
1/ARTIF.	IEO	10-04-15	62		110	0,2	17,4	Enrich rot	14	CC UNTIL 10 DPH
2/NAT	CM2 (IEO)	05-06-15	84	30	1000	2,0	18,4	Enrich rot	10	CC UNTIL 10 DPH
3/NAT	CM2 (IEO)	27-05-16	86	22	100	0,2	19,1	Enrich rot	10	CC UNTIL 10 DPH
4/NAT	CM2	18-05-15	97	0,02	20	0,2	15,1	Enrich rot+copépods	10	WATER REN.*
5/NAT	CM2	22-05-16	81	4,3	2600	52,0	14,7	Enrich rot+copépods	18	"
5/NAT	CM2	27-05-15	86	22	10600	12,4	14,5	Enrich rot+copépods	18	"
6/NAT	CM2	01-06-15	95	56	180000	24,3	14,4	Enrich rot+copépods	22	"
7/NAT	CM2	05-06-15	84	30	18500	15,6	14,7	Enrich rot+copépods	17	"
8/NAT	CM2	08-06-15	75	3	500	10,0	15,3	Enrich rot+copépods	18	"

Fecundity rate between 81 Y 97%
Eclosion rate between 4 and 56 %
Survival 22 DPH



CM2

Profilactic treatment to Larvae (Pyceze® Bronopol 50% / 30 mn CC system/ days).

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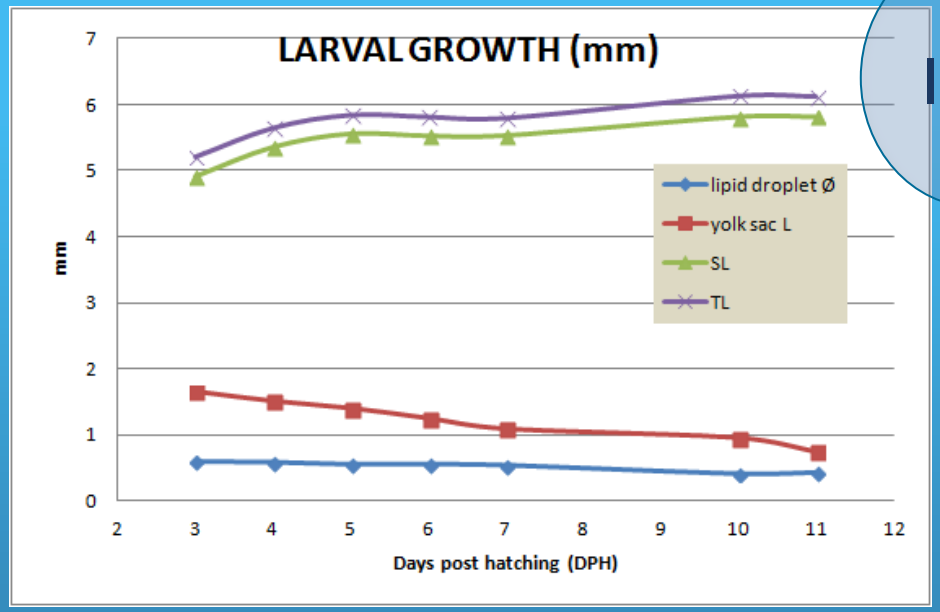
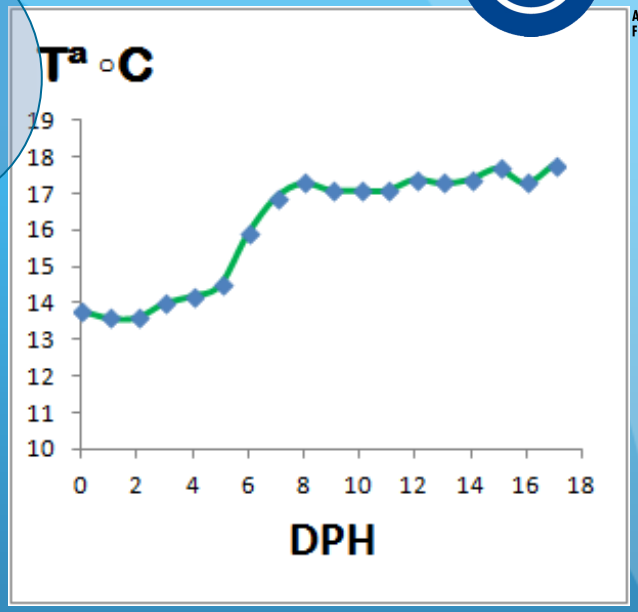
DIVERSIFY

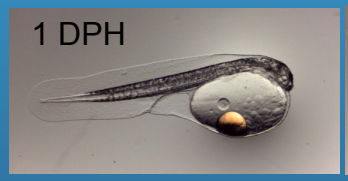
2) Defining optimun conditions for larval rearing

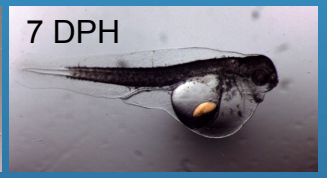


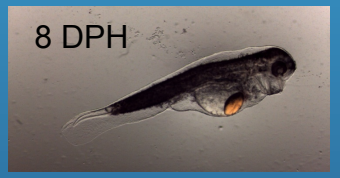
IEO

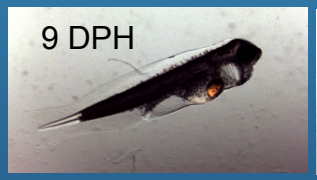
AQUARIUM FINISTERRAE

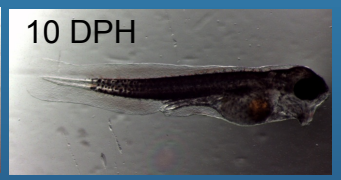


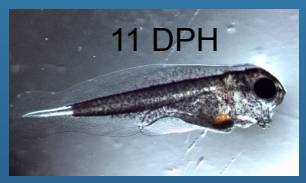


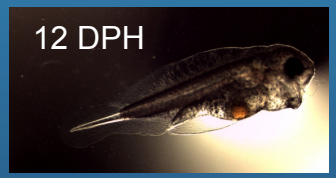


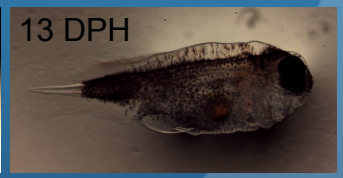


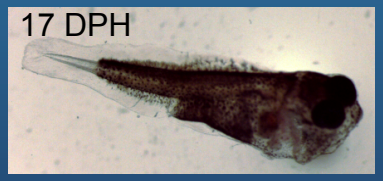












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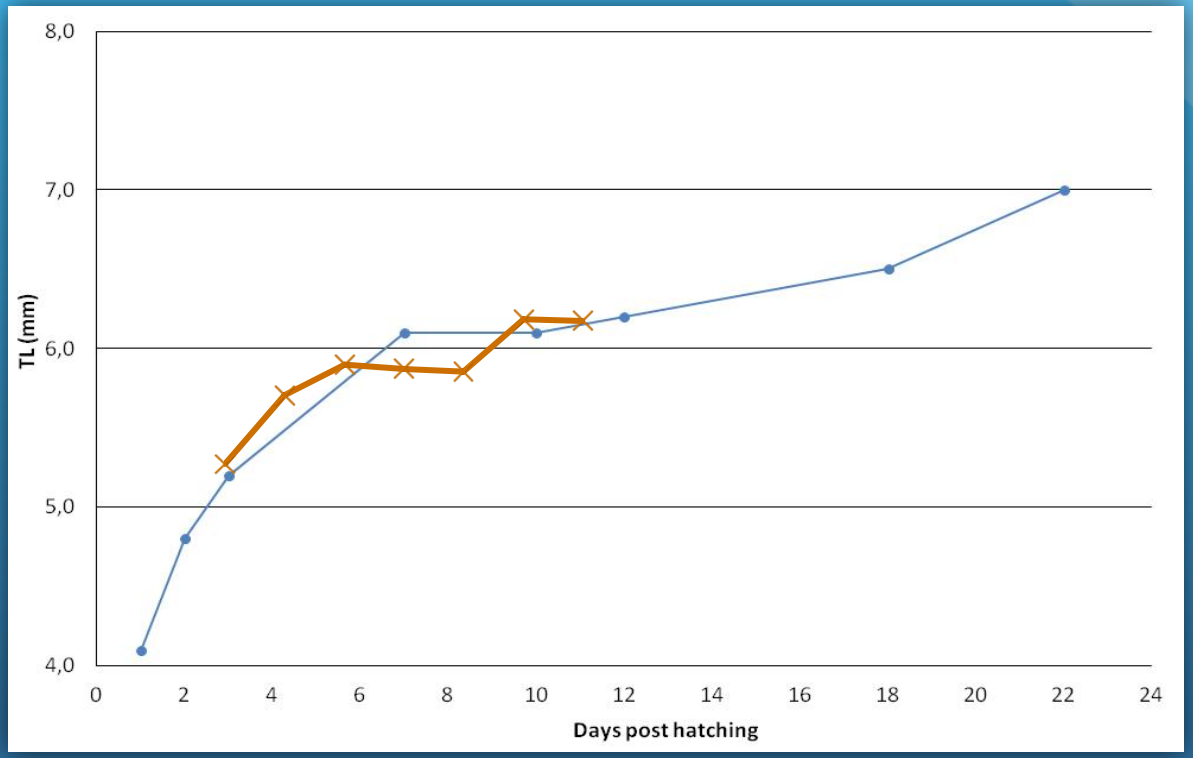
LARVAL GROWTH IEO Vs HCMR



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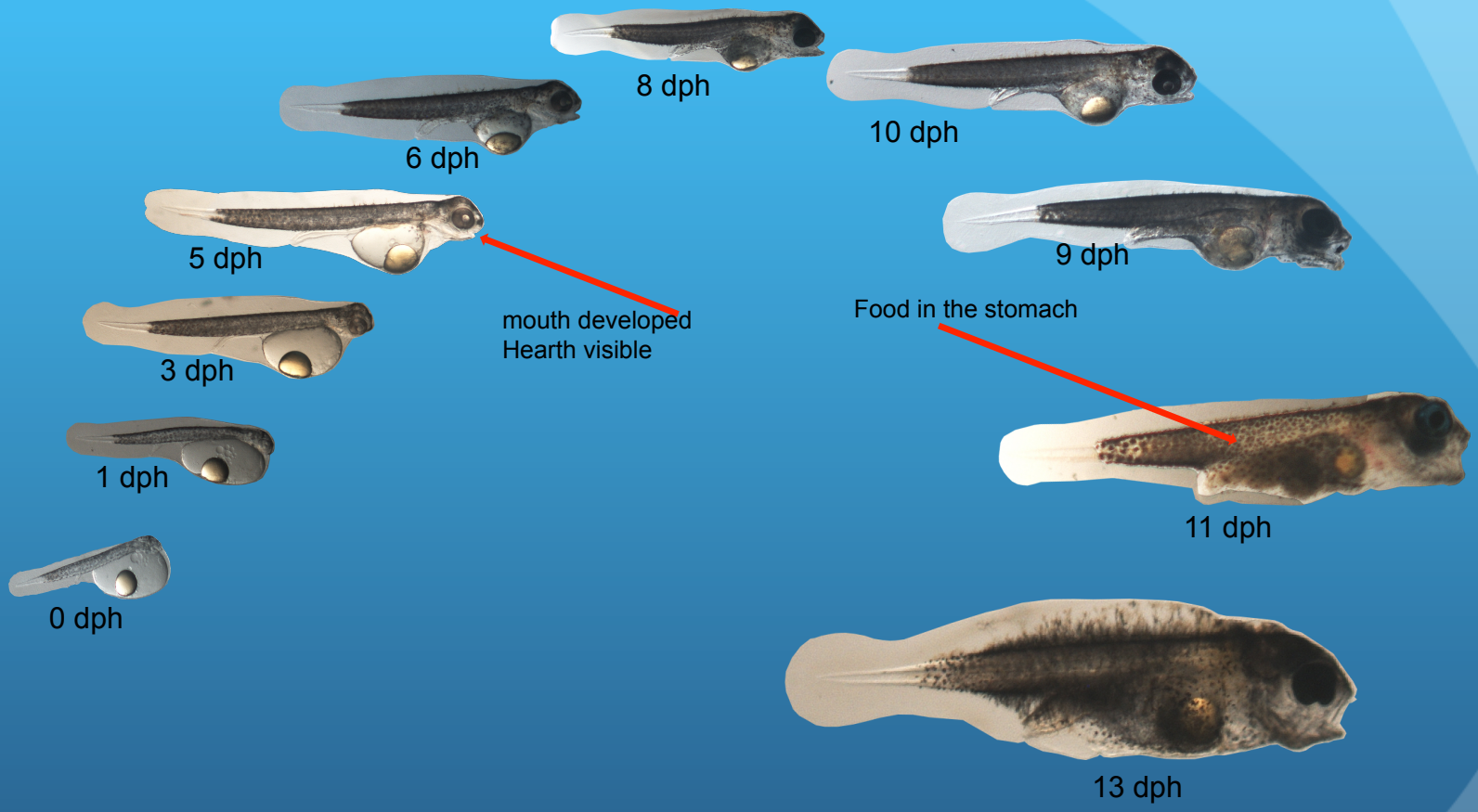

AQUARIUM FINISTERRAE

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DIVERSIFY

Aquarium Finisterrae A Coruña

- Transport in polystyrene boxes (24 hours of transport).
- black blue ♀ 98102355554 + Red black ♂ 98102356344
- Spanwing 2015/06/05
  Hatching 2015/06/08
- 2 dph/ 2000 larvae in 5 l seawater
- Arrival at 19.5 ˚C, 19.5 mg/l O_2, 8 pH
- Incubation at 500 l tank

HCMR brood stock

- Induced spawning
- ~4000 eggs
- At 16.5 ˚C, 7.2 mg/l O_2, 8.2 pH
- Incubation at 2,000 l tank

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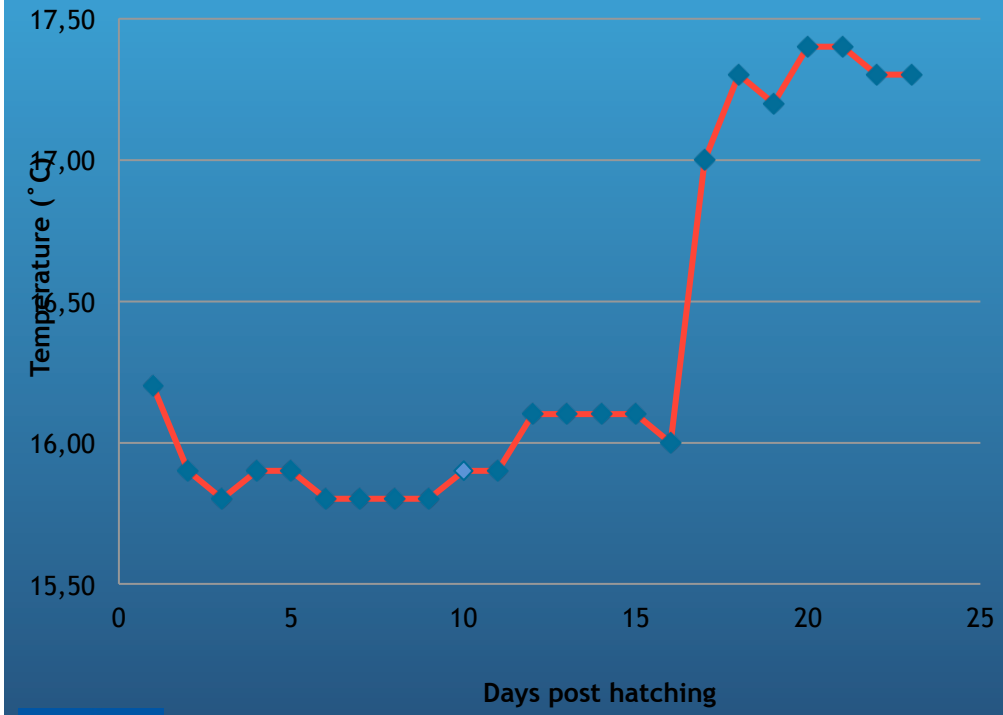
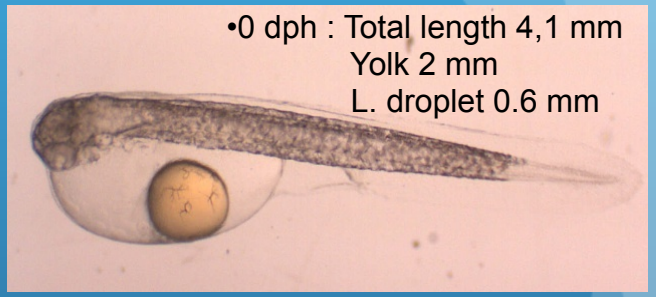
Two “rearing” trials in closed recirculating systems

Tanks of same shape different depth

- 2000 l tanks (May 2015)
- 500 l tanks (June (2015)





Conditions

- ~ 2 ind l^{-1}
- First feeding: 10 dph
- Feed with:
  - •Rotifers,
  - •Artemia AF (since 13 dph)
  - •Artemia EG (since 24 dph)

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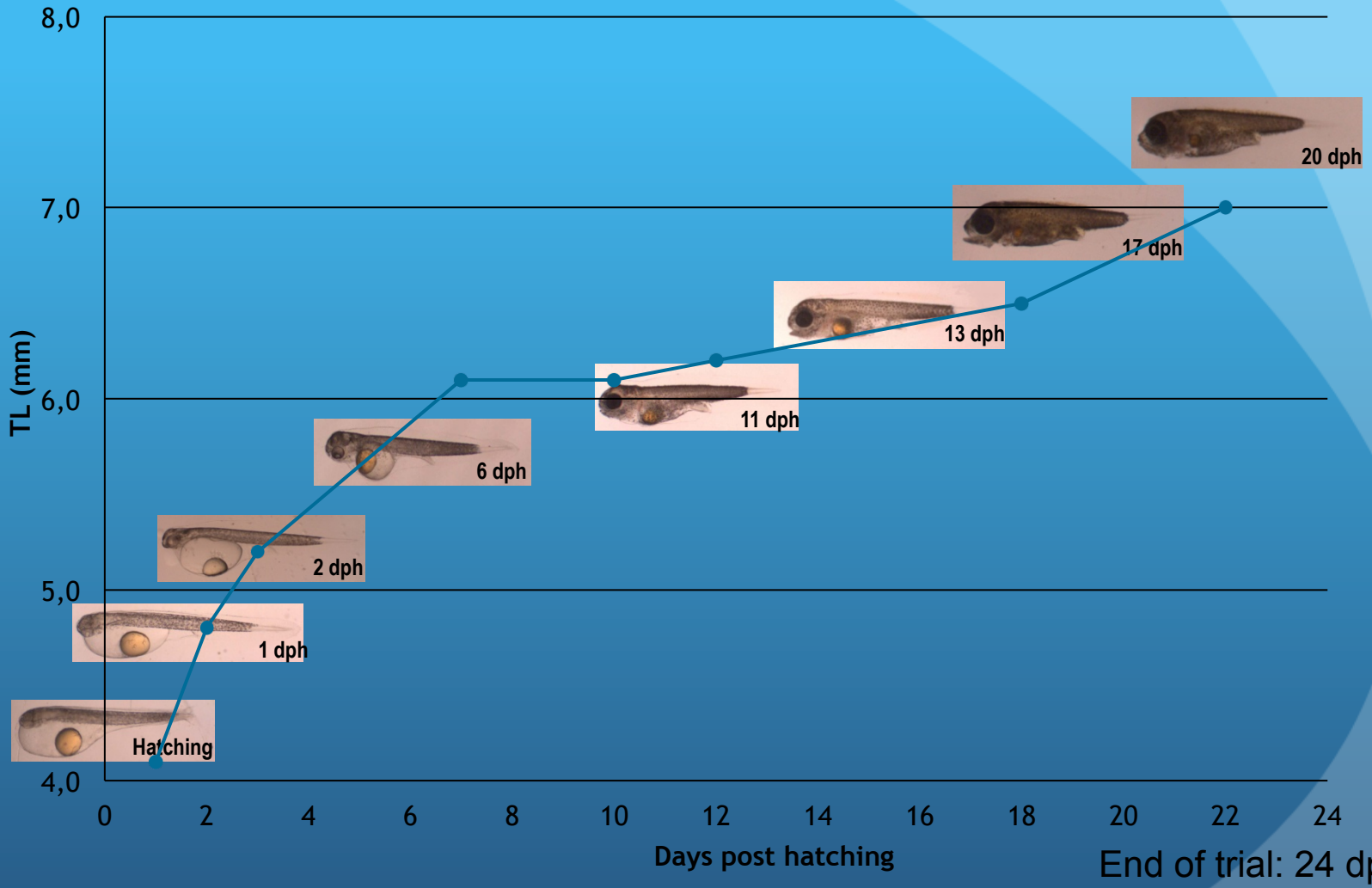
Growth performance



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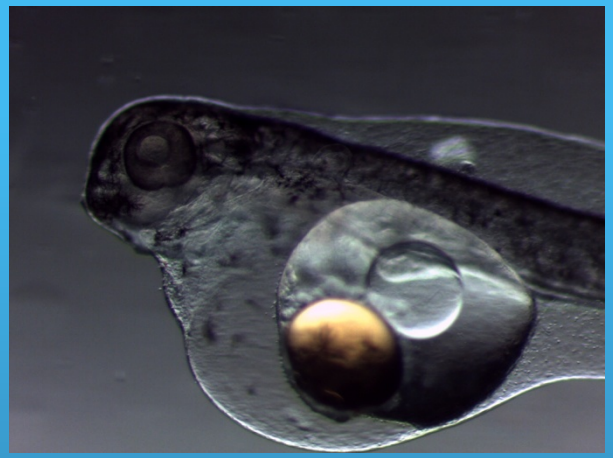
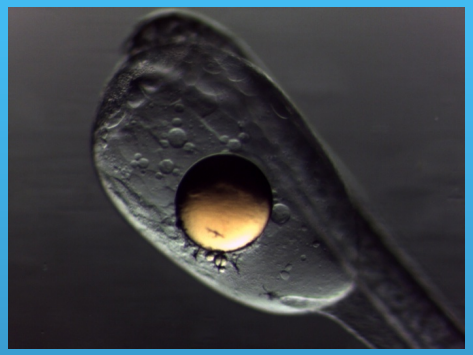
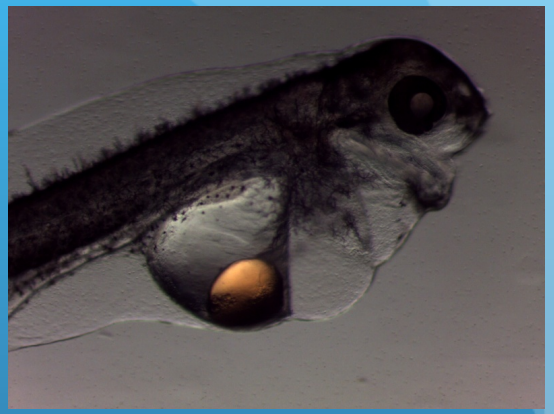
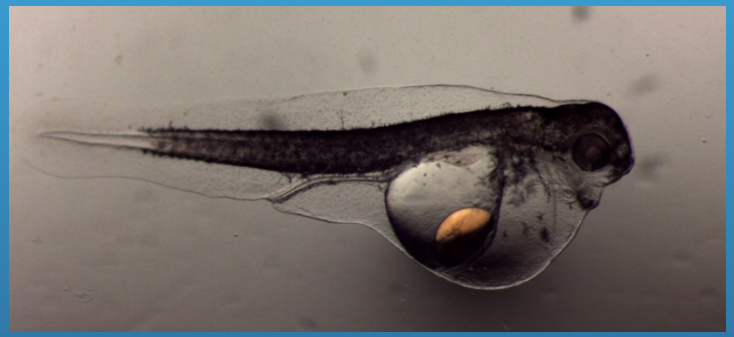
Malformed individuals IEO

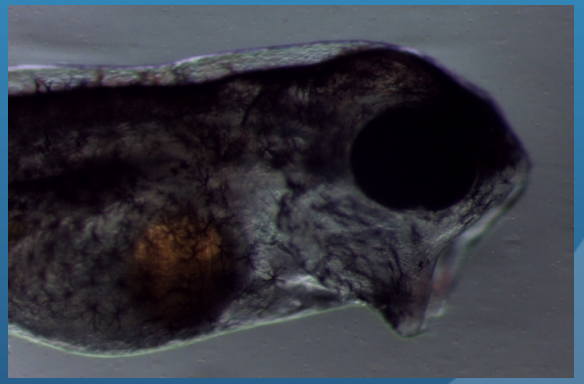


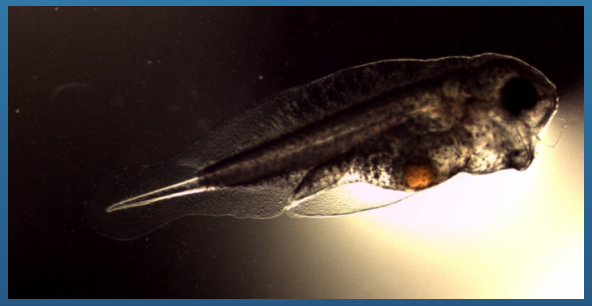






Yolk sac and jaws deformities





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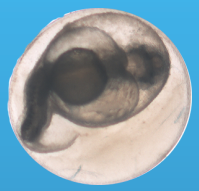
DIVERSIFY

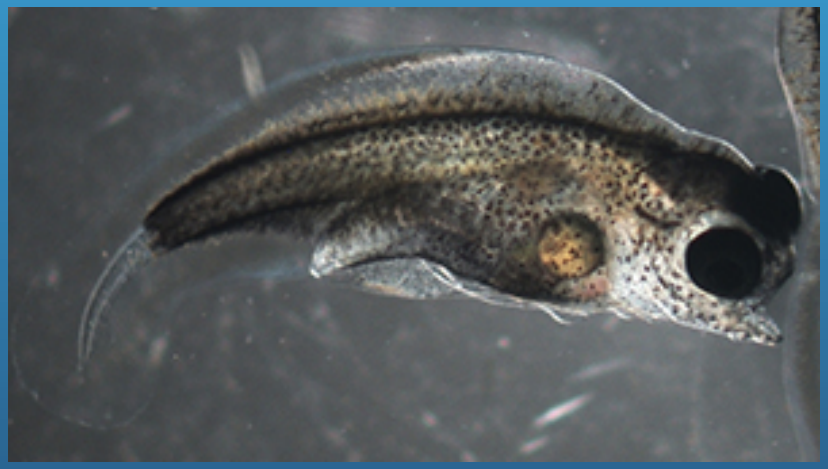
Malformed individuals AF

AQUARIUM FINISTERRAE



C & Z embrio and larvae shape

Absence of mouth or jaw deformities at early larval stages



Deformities middle larval development stages

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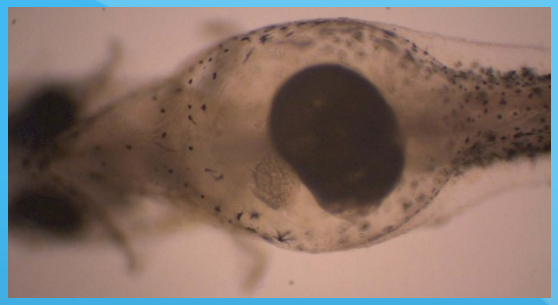
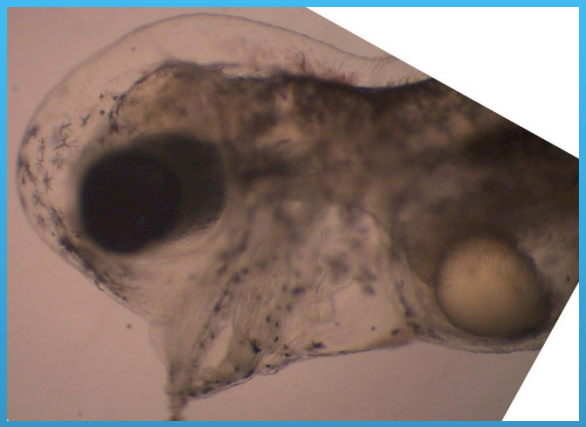
Malformed individuals





A syndrome related to swollen yolk sac.

- Blue Sac Disease – (BSD) common in trout. Several reasons suggested; most common toxicity from Nitrogen compounds such as ammonia , oxidative stress plays significant role.
- Swollen Yolk Sac Syndrome (SYSS) described in Murray cod, (freshwater fish in Australia). Related to inadequate nutrition of the broodstock.

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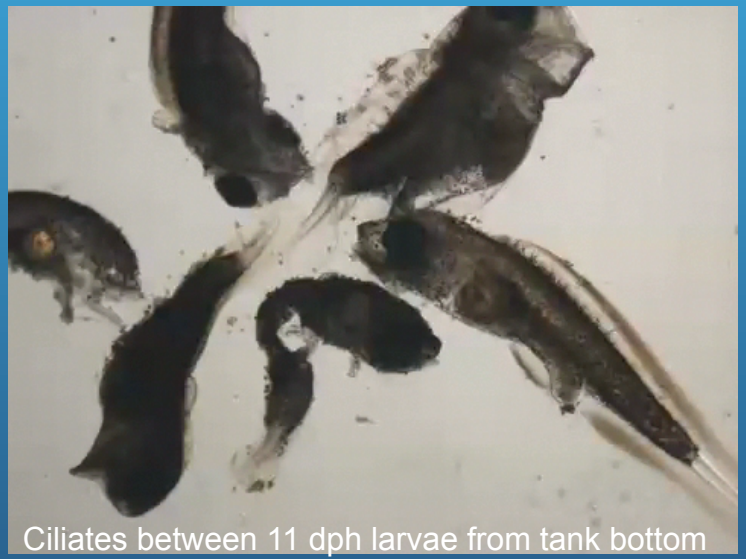
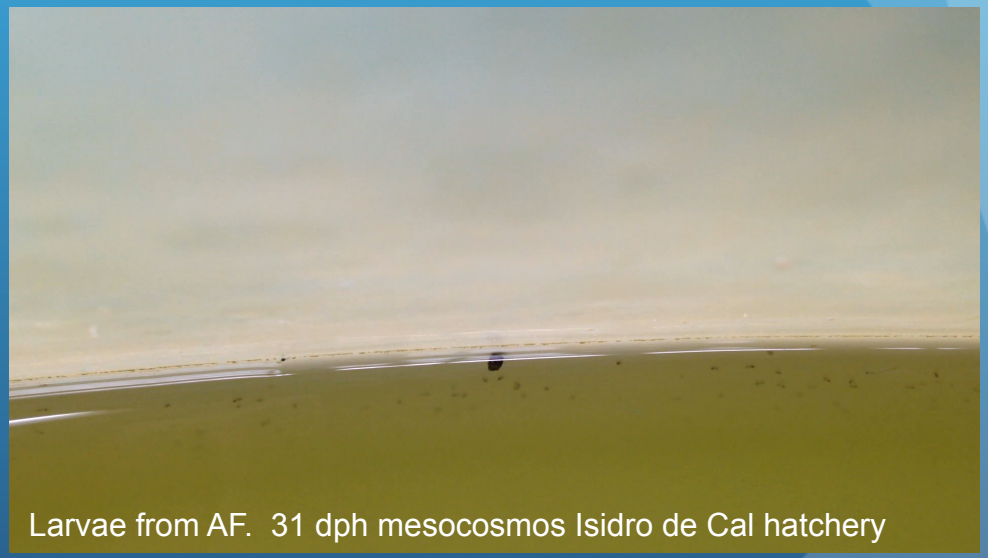
Malformed individual

- Important larval behaviour:
- They tend to swim close to bottom or walls of the tank where they look for their preys.
- So they are more sensitive to spread-out derived from bottom detritus ciliates / Bacterial diseases.
- Larvae from Aquarium rearing at the Isidro de la Cal hatchery cultured with mesocosmos Copepod and *Nannochloropsis spp* reached 31dph but this year all remaining on 28 dph died in the following days.



Ciliates between 11 dph larvae from tank bottom



Larvae from AF. 31 dph mesocosmos Isidro de Cal hatchery

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Going forward in larval development:

We need to improve:

- Larvae availability.
- Bloodstocks food diet: We will probably detect these effects on 2016 spawning season as we started to improve diet January 2015.
- Larval rearing in 2016 with mesocosmos:
- Determine rearing optimal temperature.
- Hatching and rearing tanks prophylaxis and daily cleaning discussed protocol.

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