

Wreckfish captures in Galicia and interest of the species for the industry

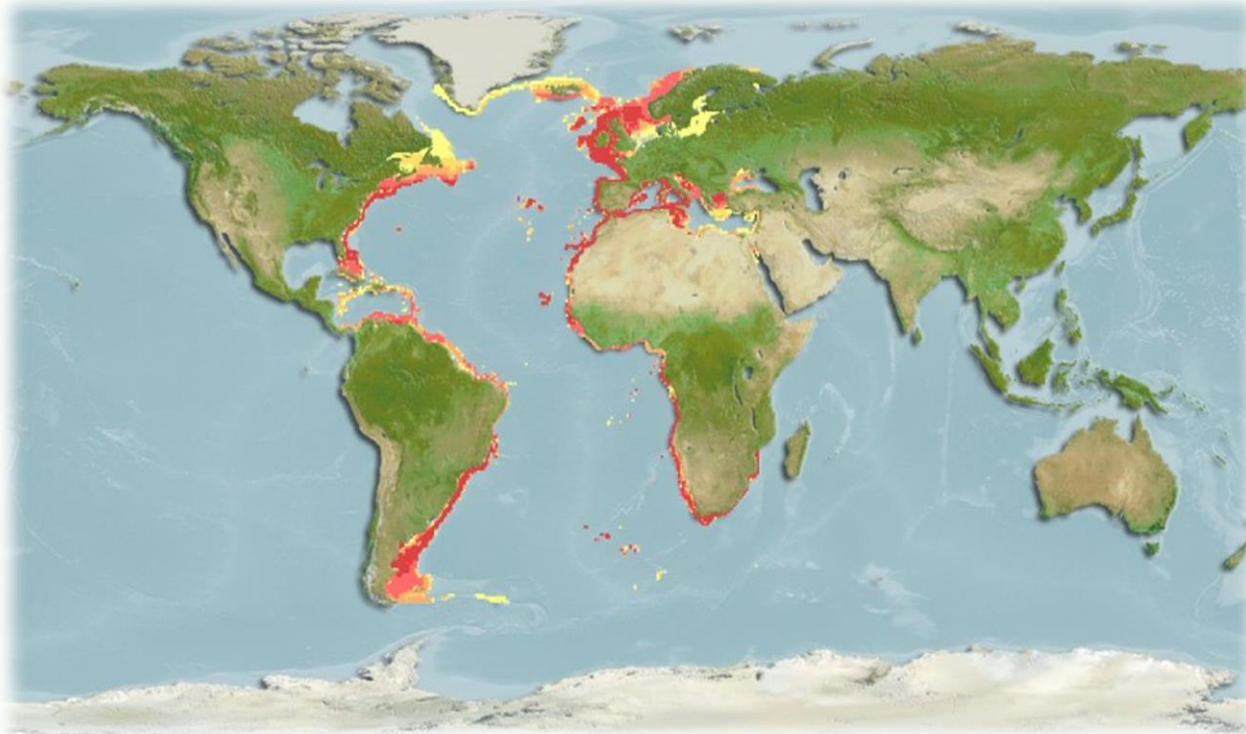
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IGAFA
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Wreckfish distribution



Wreckfish is widely distributed, but populations are relatively disjunct; populations in the North Atlantic appear to be isolated from those in the southern hemisphere

The majority of global landings (79%) are declared from the Food and Agriculture Organization's Northeast Atlantic fishing zone

Wreckfish habitat



JUVENILE
<3 KG

Juvenile wreckfish are found in surface waters, often near floating debris

ADULTS
> 3KG

Adult wreckfish prefer steep, rocky ocean bottoms and deep reefs, which provide food and shelter. They are often found near caves

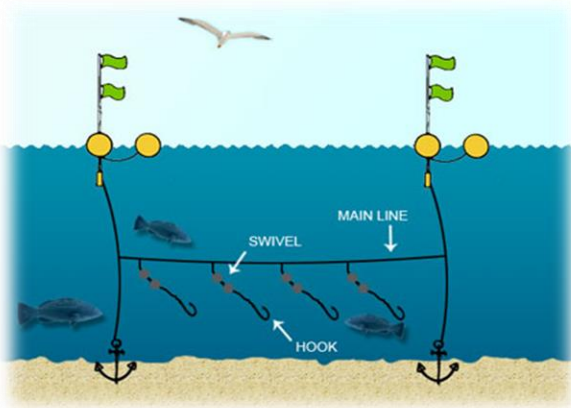
Catching methods

- **Juveniles:** by a net (similar purse seine) that surrounds a floating objects



- **Adults:**

Long-line



Hook



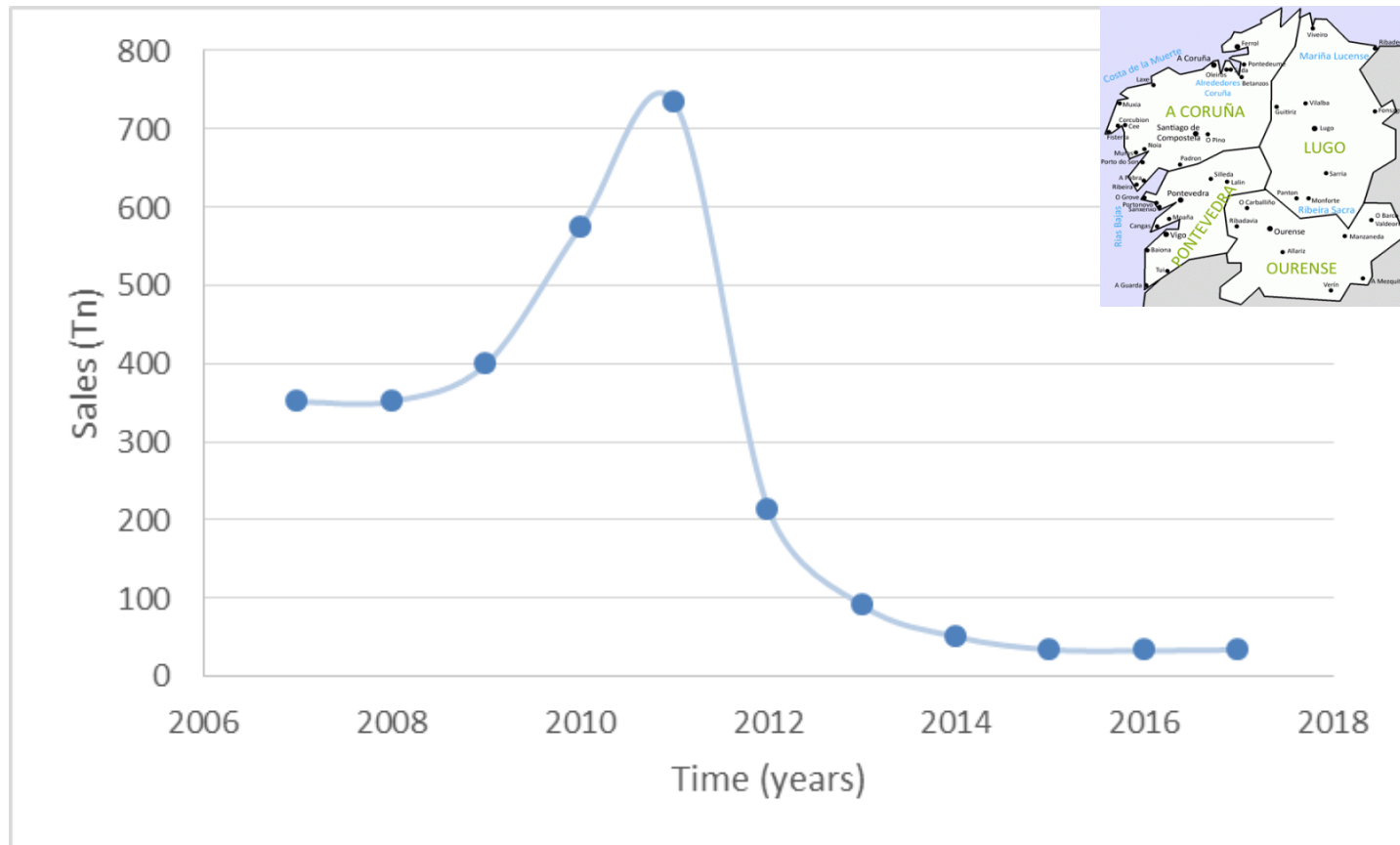
Wreckfish fisheries

The following data on Wreckfish fisheries exist in the literature:

- ✓ The estimated catch from the **USA** showed a relatively steady decline from 576,3 mt (38,205 fish) in 1992 to 71,3 mt (4,958 fish) in 2000 (Sedberry *et al.* 1999, Vaughan 2001). **This is a drop of 87%.**
- ✓ Annual landings of wreckfish from the **Azores** (off Portugal) climbed slowly from around 50 to 100 mt in the 1970s and 1980s to a peak of 425 mt 1994. In 1995 the catch dropped rapidly to 246 mt and was down to 139 mt by 1998. As the Wreckfish is an incidental catch for a mixed-species demersal fishery which has continued to produce increased landings, it seems the decline is a reflection of decreasing Wreckfish stocks. **The decline from 1994 to 1998 was 67%** (data from Sedberry *et al.* 1999, ICES Marine Data Centre 2001).
- ✓ In **Madeira** (off Portugal) the Wreckfish fishery developed slowly with landings rising from 5 metric tonnes in 1988 to a peak 55 mt in 1994. Landings then dropped 51% to around 27 mt in 1996. For this location the reduction in wreckfish stocks is assumed to be 15%.

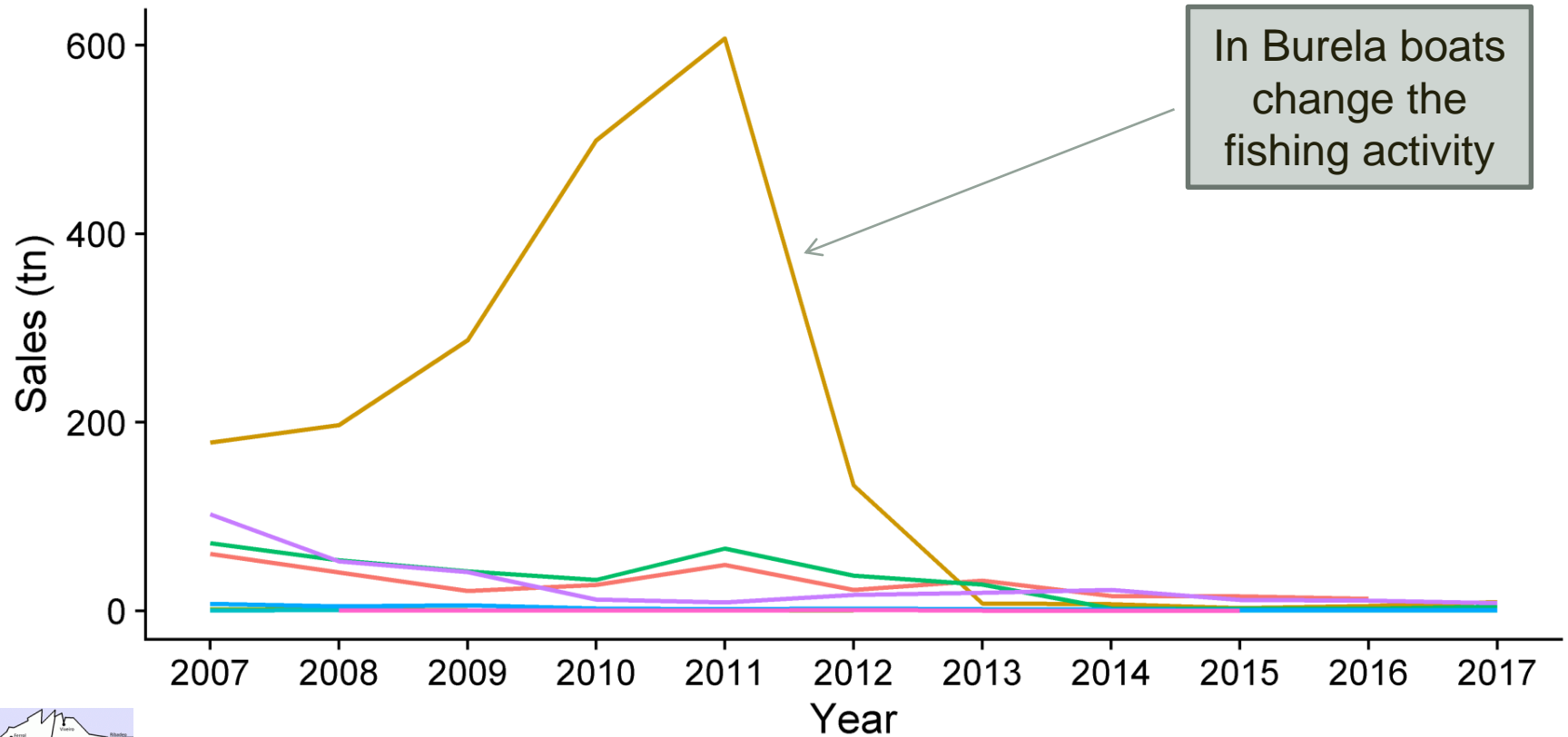
Where fisheries have suddenly targeted wreckfish specifically (Brazil, USA, Portugal), the fishery has reached a peak and then gone into decline within a few years.

Wreckfish captures in Galicia



The sales have decreased from 351 mt in 2007 to 34 mt in 2017.

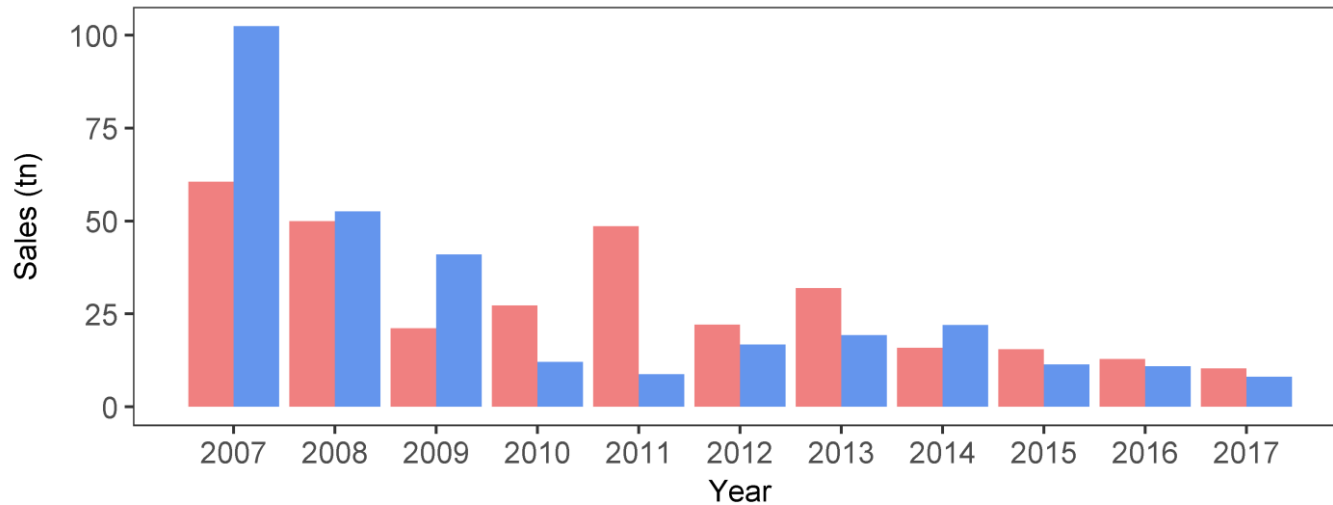
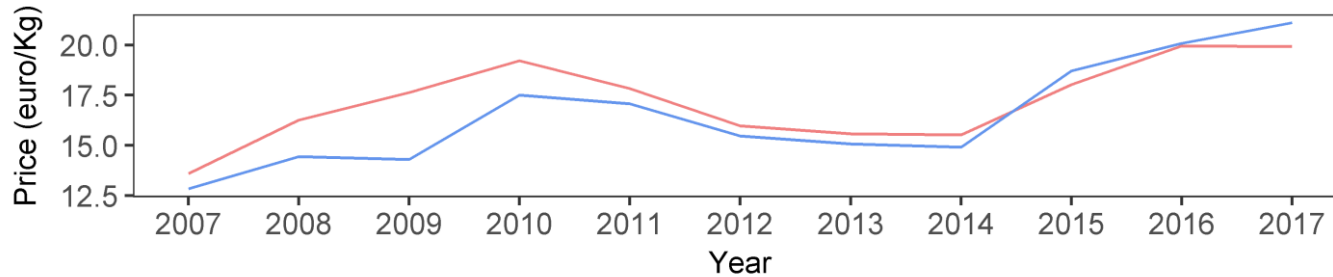
Wreckfish captures in Galicia



Port

— Coruna	— Cedeira	— Fisterra	— Vigo
— Burela	— Celeiro	— Ribeira	— Corcubion

Wreckfish captures in Galicia



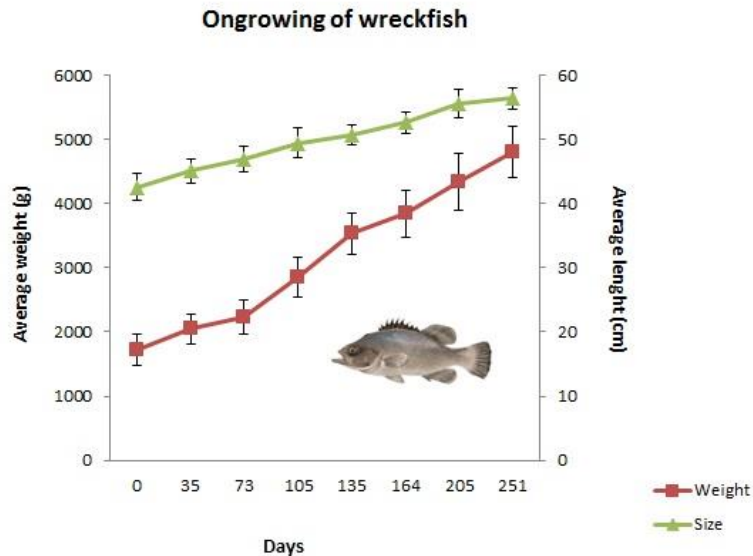
Port ■ Coruna ■ Vigo



The sales decreased from 60,5 mt (2007) to 10,2 mt (2017) in A Coruña and from 102,4 mt (2007) to 8.77 mt (2017) in Vigo. The prices varied in the last ten years between 13-22 €/Kg

Relevance of wreckfish for aquaculture

Fast growth: 1,7 kg to 4,8 kg in 283 days



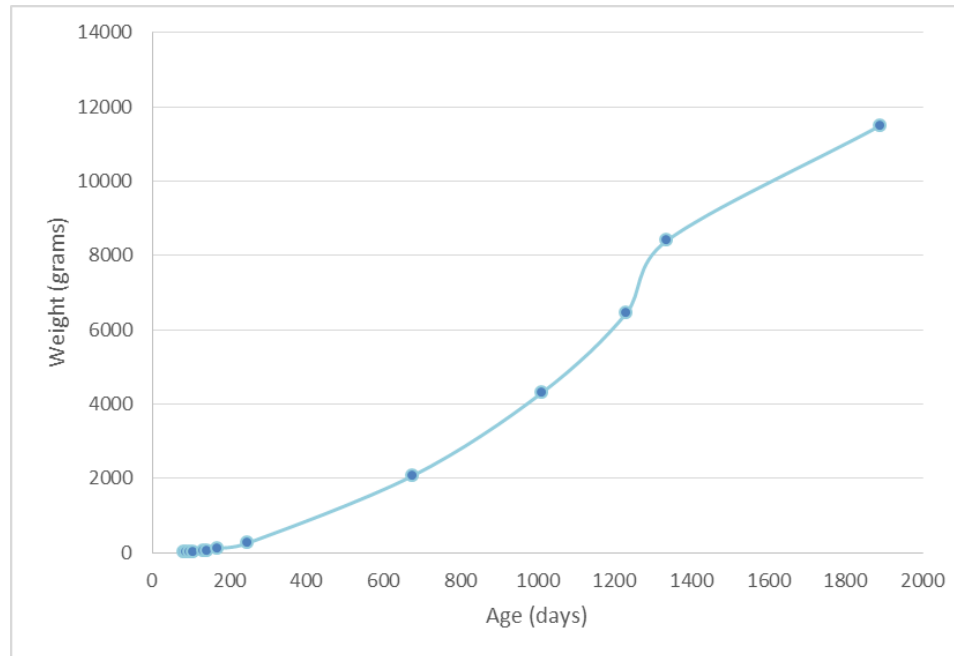
DAY	AVERAGE WEIGHT (g)	AVERAGE LENGHT (cm)	CF	FCR	SGR	TEMPERATURE °C
0	1722	42,50	2,24			
35	2044	45,08	2,23	1,39	0,49	15,60
105	2228	46,83	2,17	1,99	0,23	18,20
137	2846	49,41	2,36	1,22	0,76	16,51
167	3535	50,75	2,70	0,90	0,73	15,59
196	3841	52,58	2,62	1,59	0,29	15,90
237	4342	55,50	2,54	1,30	0,31	14,97
283	4801	56,33	2,68	1,54	0,21	13,14
AVERAGE			2,44	1,42	0,41	

Growth the wild individuals (10) in IGFA (Rodriguez *et al*, 2014)

FC: Condicion factor; SGR: Specific dayly growth rate; FCR: Food conversion rate

Relevance of wreckfish for aquaculture

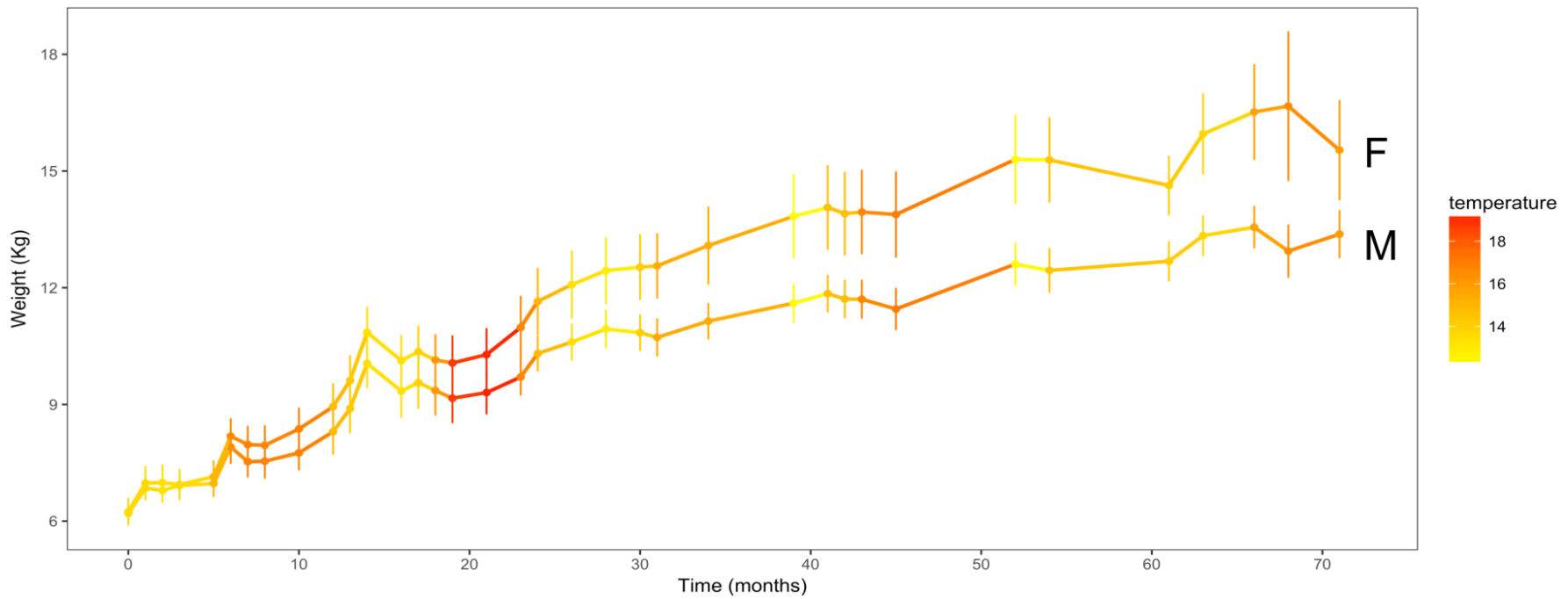
Fast growth: 5 kg in 3 years & 8 kg in 4 years



Growth curve of one individual from Isidro de la Cal, maintained in Aquarium Finisterrae

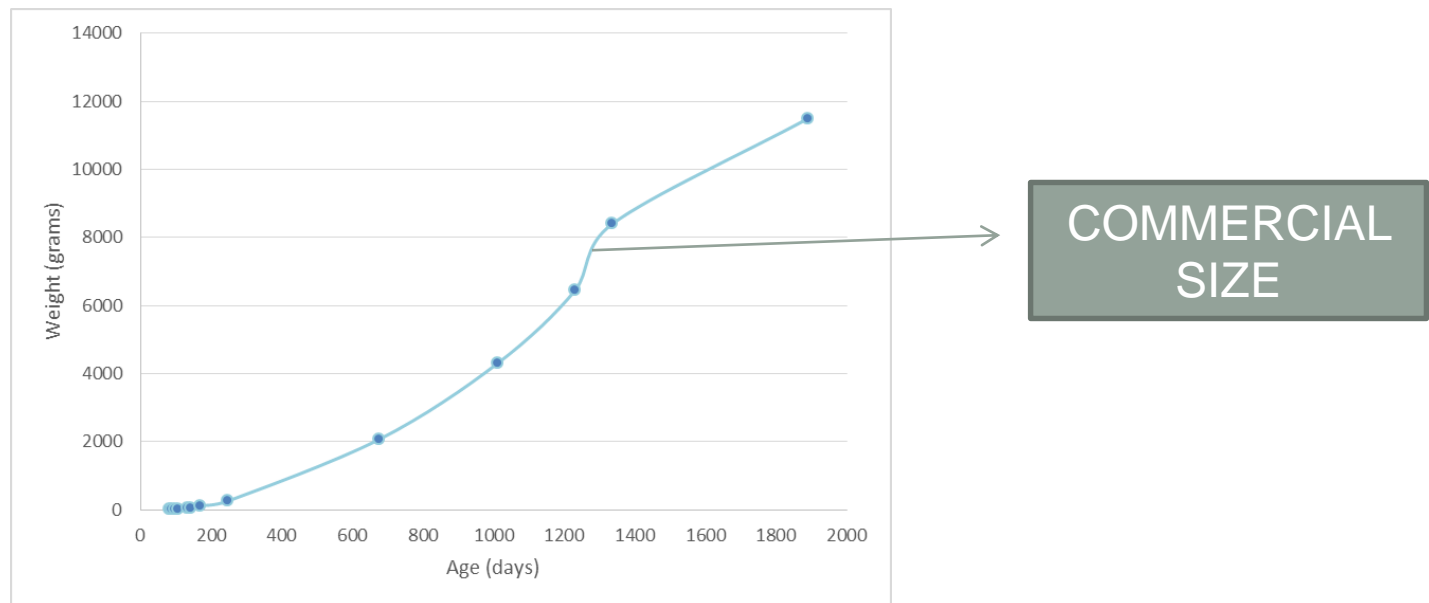
Relevance of wreckfish for aquaculture

Gender differences: female wreckfish are significantly heavier than males, as observed in many other marine fish species (Rodriguez *et al*, 2017)



Relevance of wreckfish for aquaculture

Late reproductive maturation allows commercialization before sexual maturity and avoids problems linked to maturation (e.g. reduction in growth, or loss of organoleptic properties).



The lengths and ages at which 50% of females and males matured were 944 and 808 mm total length, and 14.4 and 11.2 yr, respectively (Wakefield *et al*, 2013)

Relevance of wreckfish for aquaculture

- ✓ High market price and limited fisheries landings.
- ✓ Acclimatizes easily to captivity
- ✓ Accepts inert food easily
- ✓ Can culture in cages

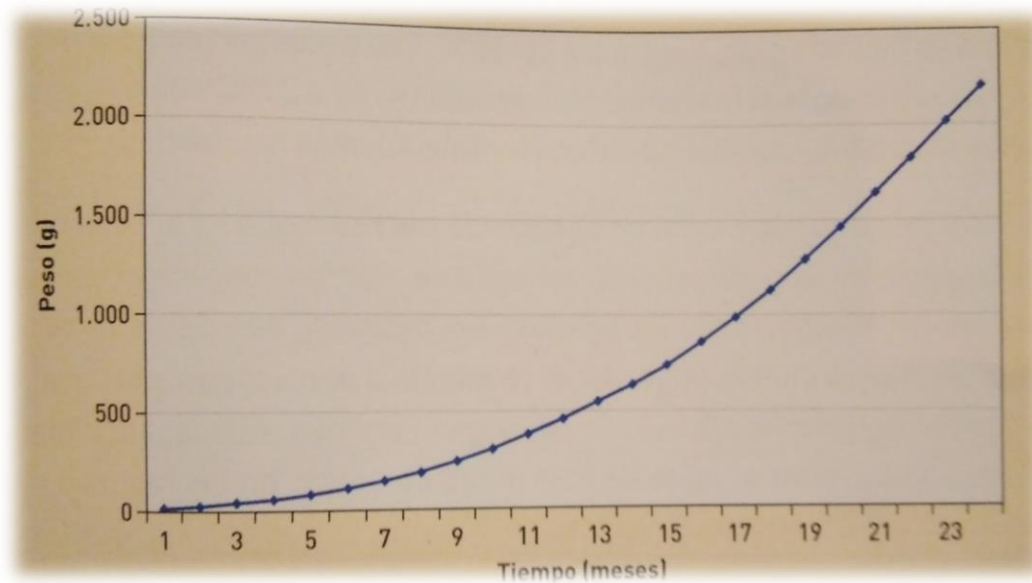


Other species for cold water culture

Turbot (*Scophthalmus maximus*)



x Reaches commercial size (2kg) in two years



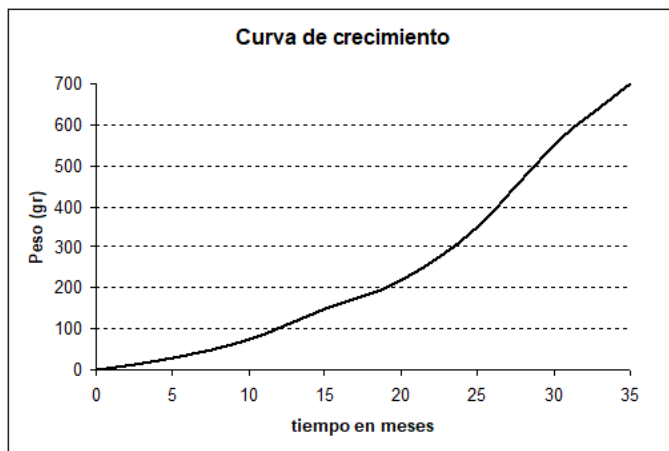
x Can only be cultured in tanks on land



Other species for cold water culture

Black spot sea bream (*Pagellus bogaraveo*)

- x Produced only in one farm (55.26 mt in 2017)
- x Slow growth (commercial size in 3 years)
- x Low survival in larval rearing
- x Deformities in the operculum



Other species for cold water culture

Black spot sea bream (*Pagellus bogaraveo*)

- x Cultivated in Galicia from 2005 to 2009 (only one farm)
- x Cultured abandoned due to:
 - Low price in some European countries
 - First maturity before reaching commercial size
 - Low rate of larvaria eclosion
 - Low survival in larval rearing



Other species for cold water culture

Pollack (*Pollachius pollachius*)

- x Cultivated in Galicia from 2005 to 2009 (only one farm)
- x Cultured abandoned due to:
 - Low price in some European countries
 - First maturity before reaching commercial size
 - Low rate of larvaria eclosion
 - Low survival in larval rearing



Key bottlenecks in wreckfish culture

- Improvement of the survival of larvae
- Development of specific food for ongrowing individuals
- Characterize the behavior of individuals in cage culture
- Long period of time to reach maturation size



Conclusions

- Among the new species to be exploited for commercial aquaculture, wreckfish (*Polyprion americanus*) is one of the most interesting ones
- It is necessary to continue researching reproduction, larval culture and on-growing so that in 5-6 years the first specimens of this species arrive on the market



Thanks for your attention!!!!