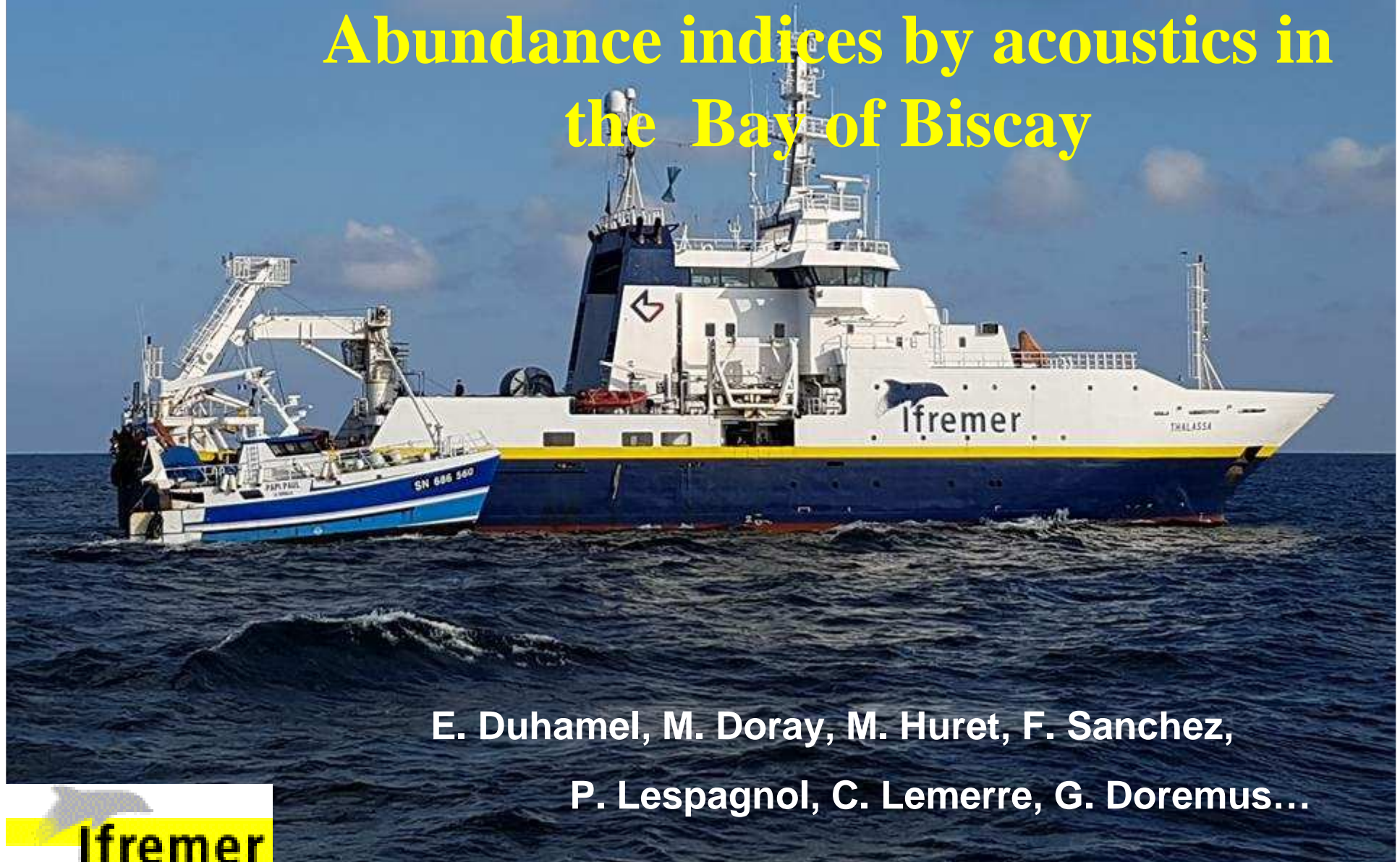


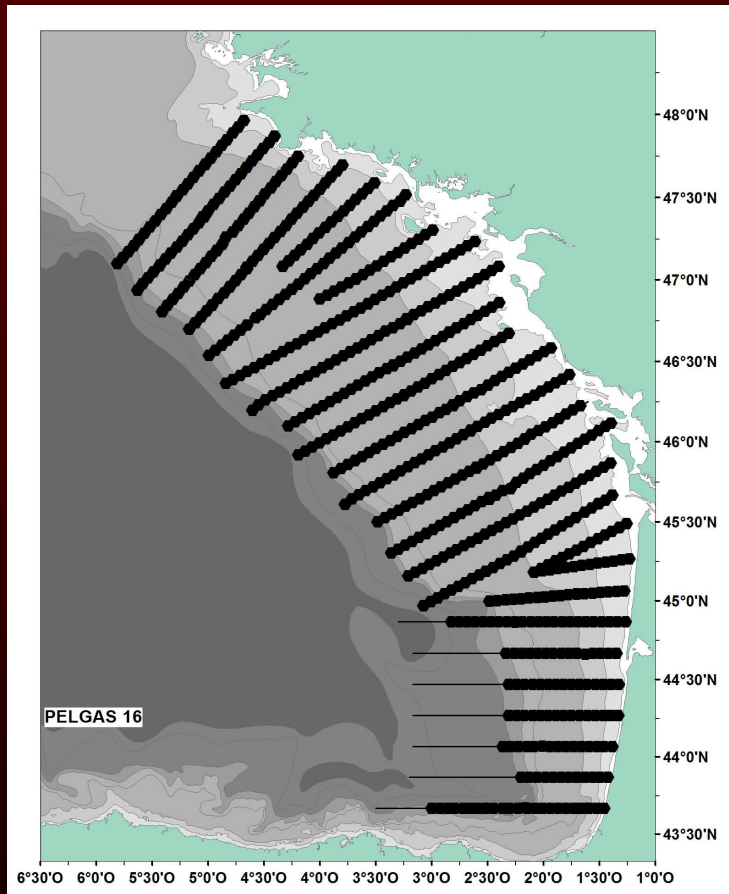
- PELGAS16 acoustic survey -
Abundance indices by acoustics in
the Bay of Biscay



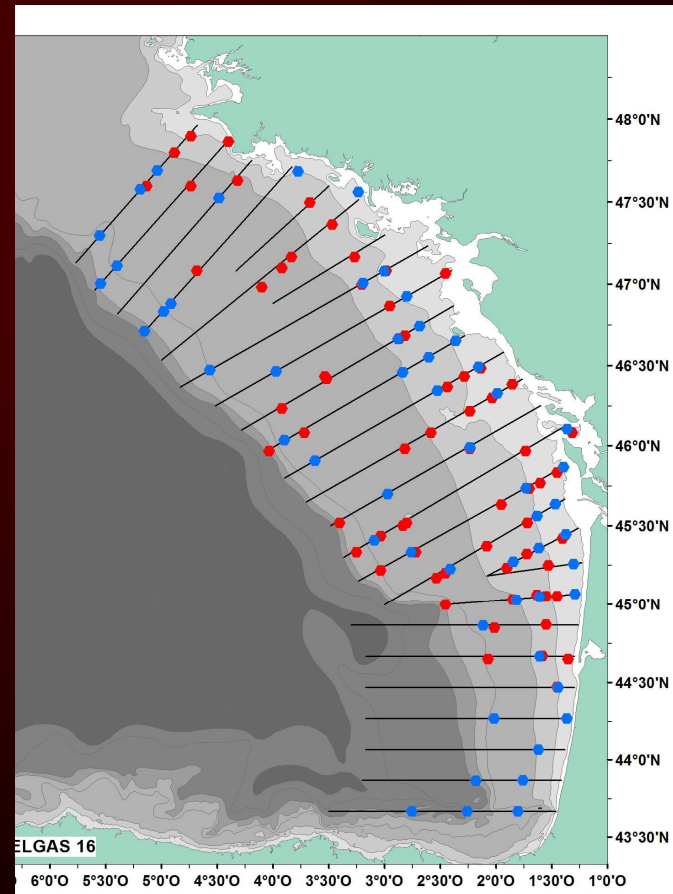
E. Duhamel, M. Doray, M. Huret, F. Sanchez,

P. Lespagnol, C. Lemerre, G. Doremus...

Acoustic transects network
1876 nautical miles usable for
assessment purpose



Fishing operations
Thalassa & Commercial



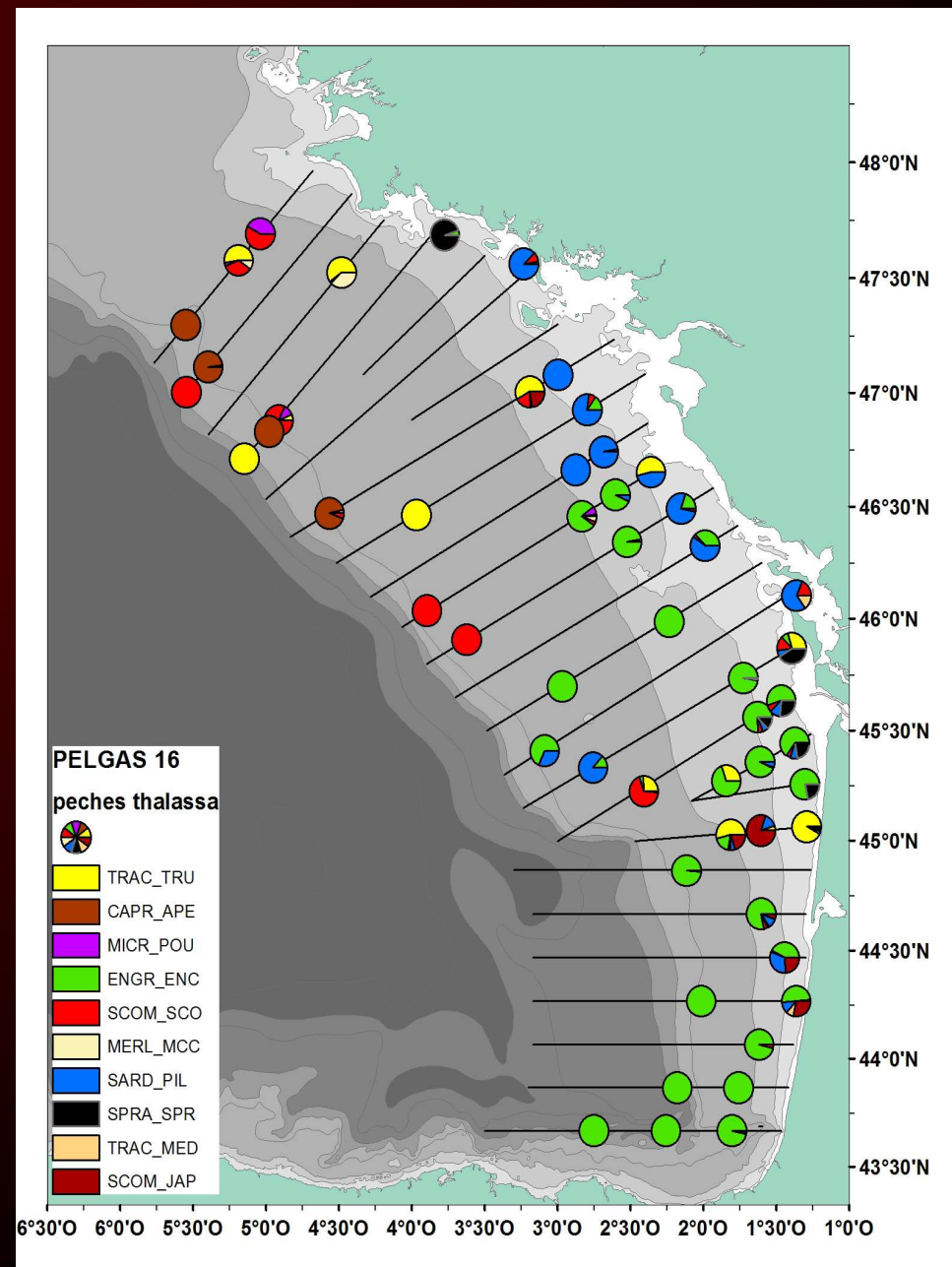
2 types of
vessels :

- Thalassa (*blue*)
- commercial (18
days) (*red*)

Thalassa :

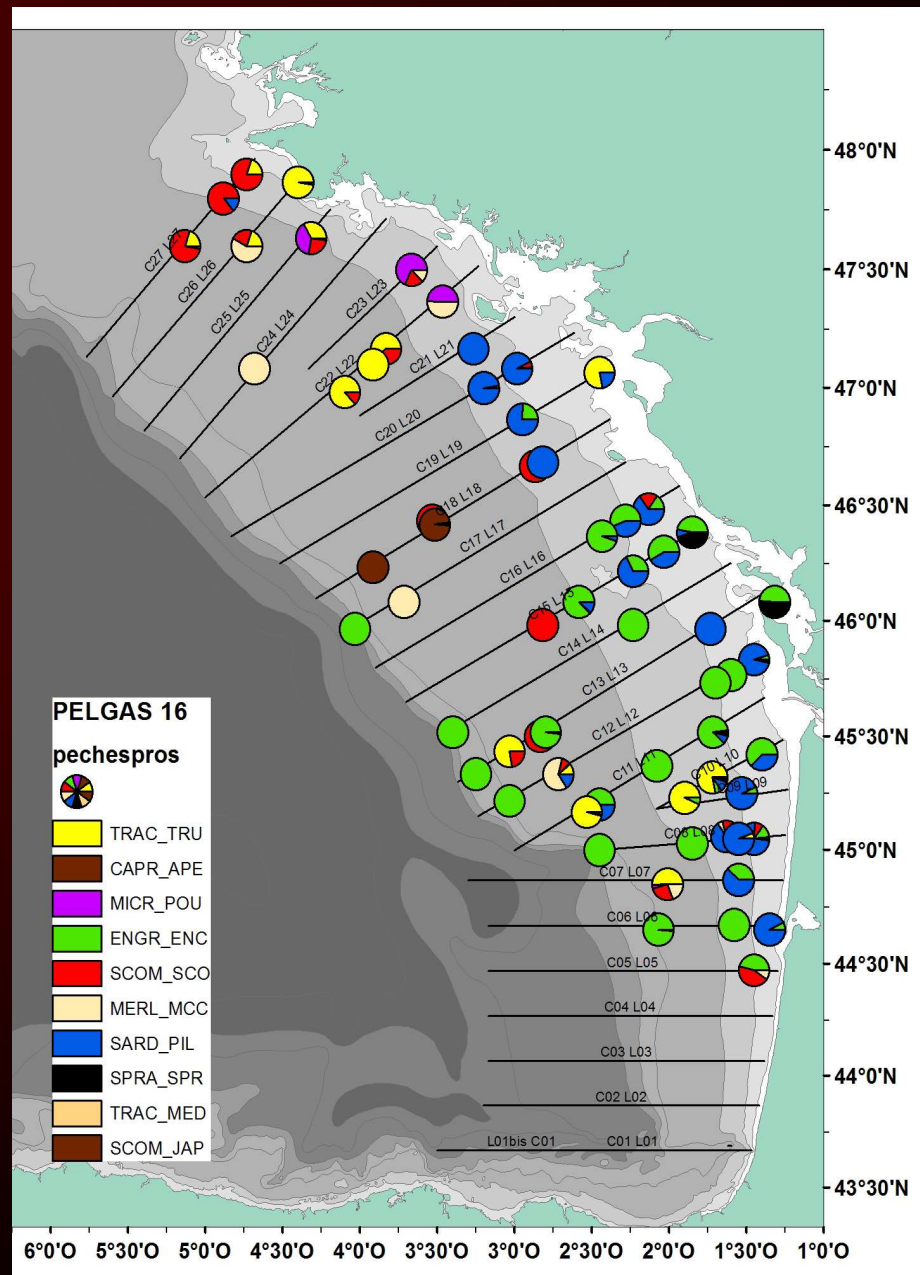
54 hauls

(mainly in the layer
from the bottom to
40m upper)

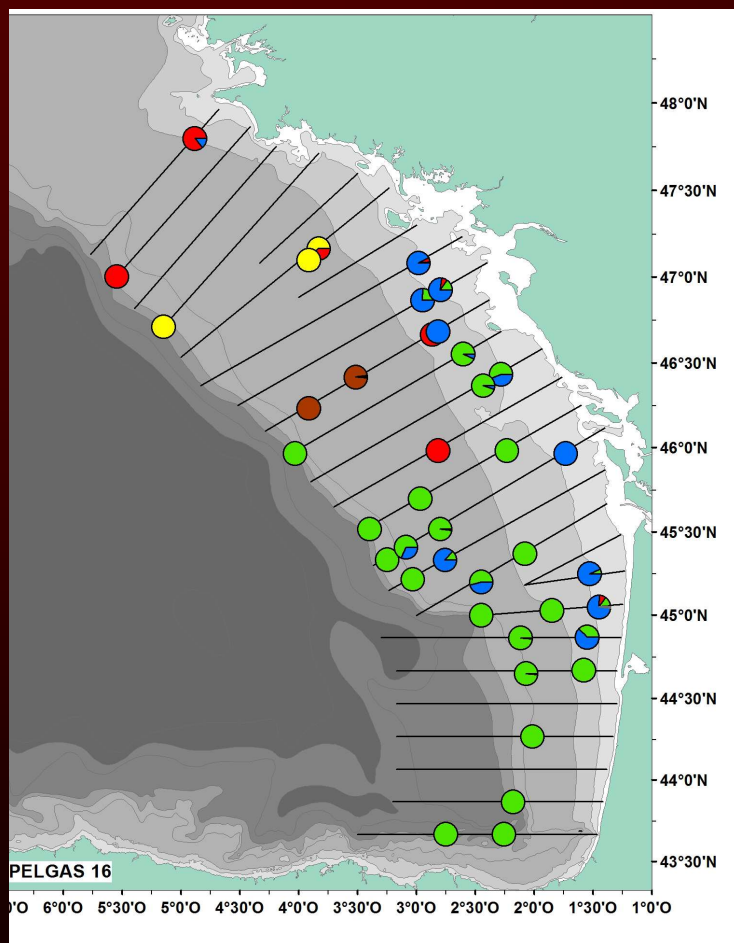


Commercial vessels (pair trawlers)

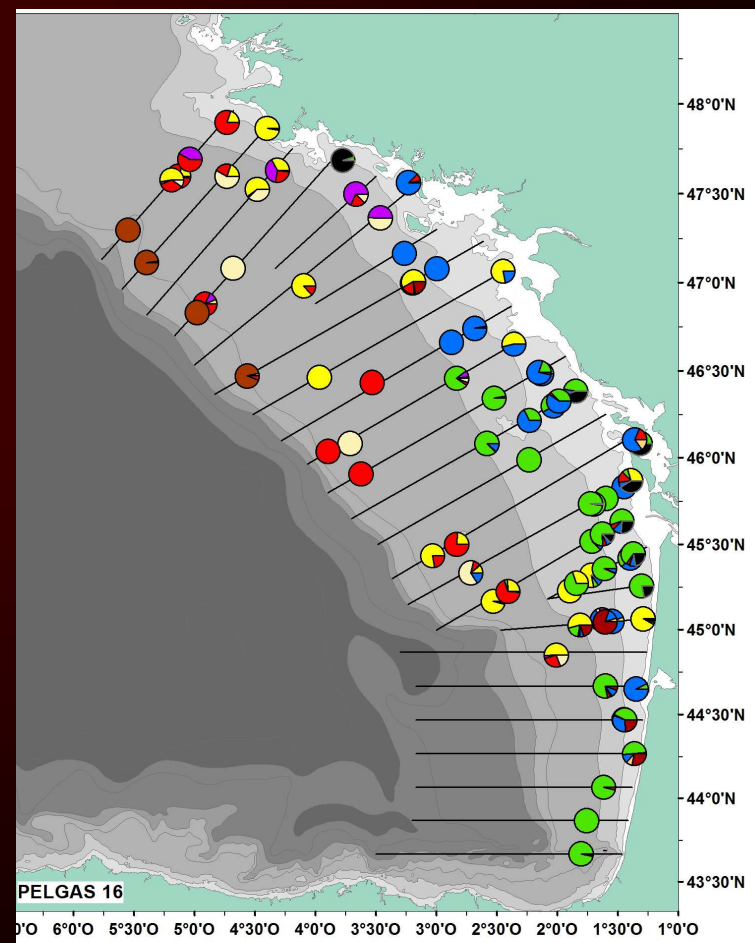
65 hauls



Surface hauls (39)



Classical hauls (77)



	thalassa	commercial	total
surface hauls	12	27	39
classic hauls	42	35	77
null	0	3	3
total	54	65	119

Total

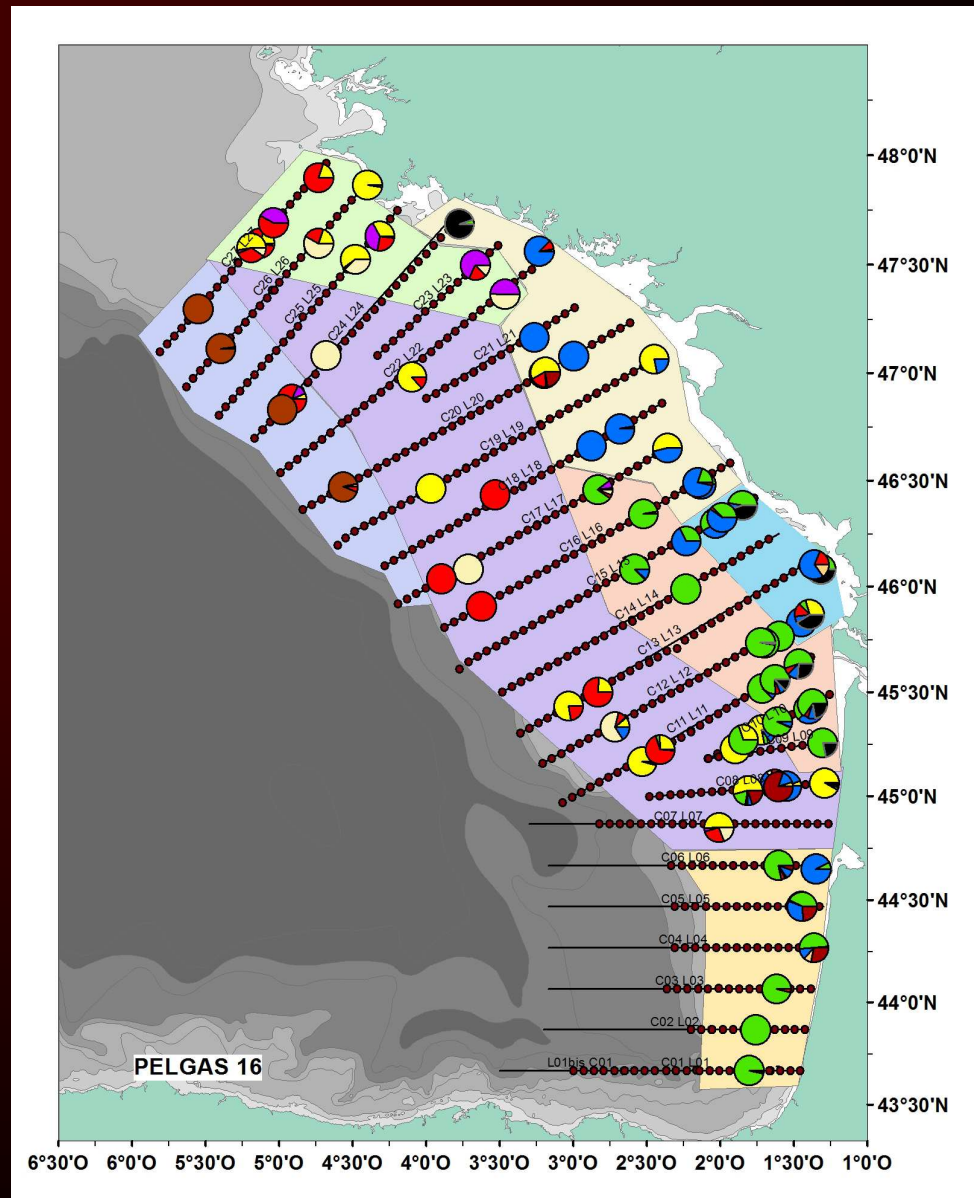
37

75

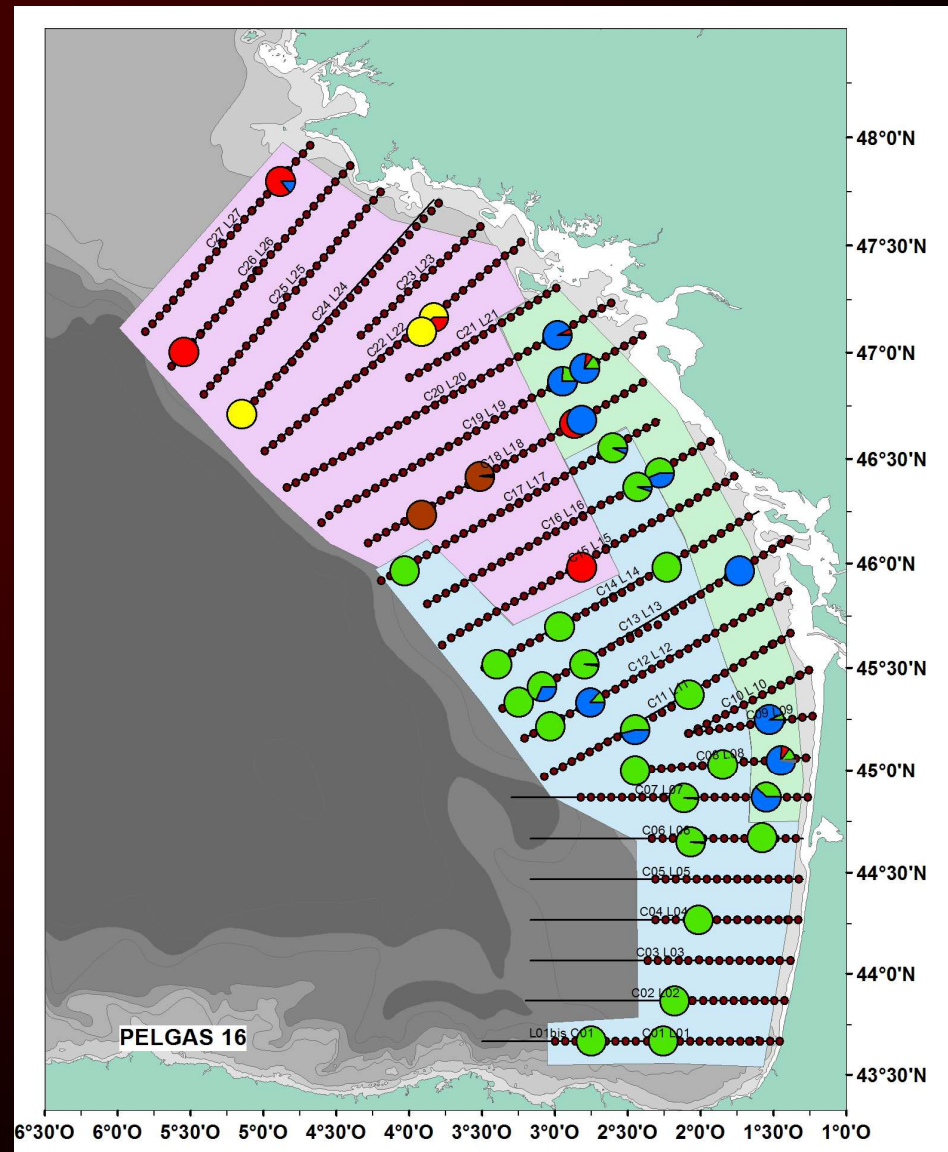
112

116 hauls were usable for echoes identification and biological parameters

Coherent classical strata (except surface echotraces) according to species distributions for abundance indices estimates



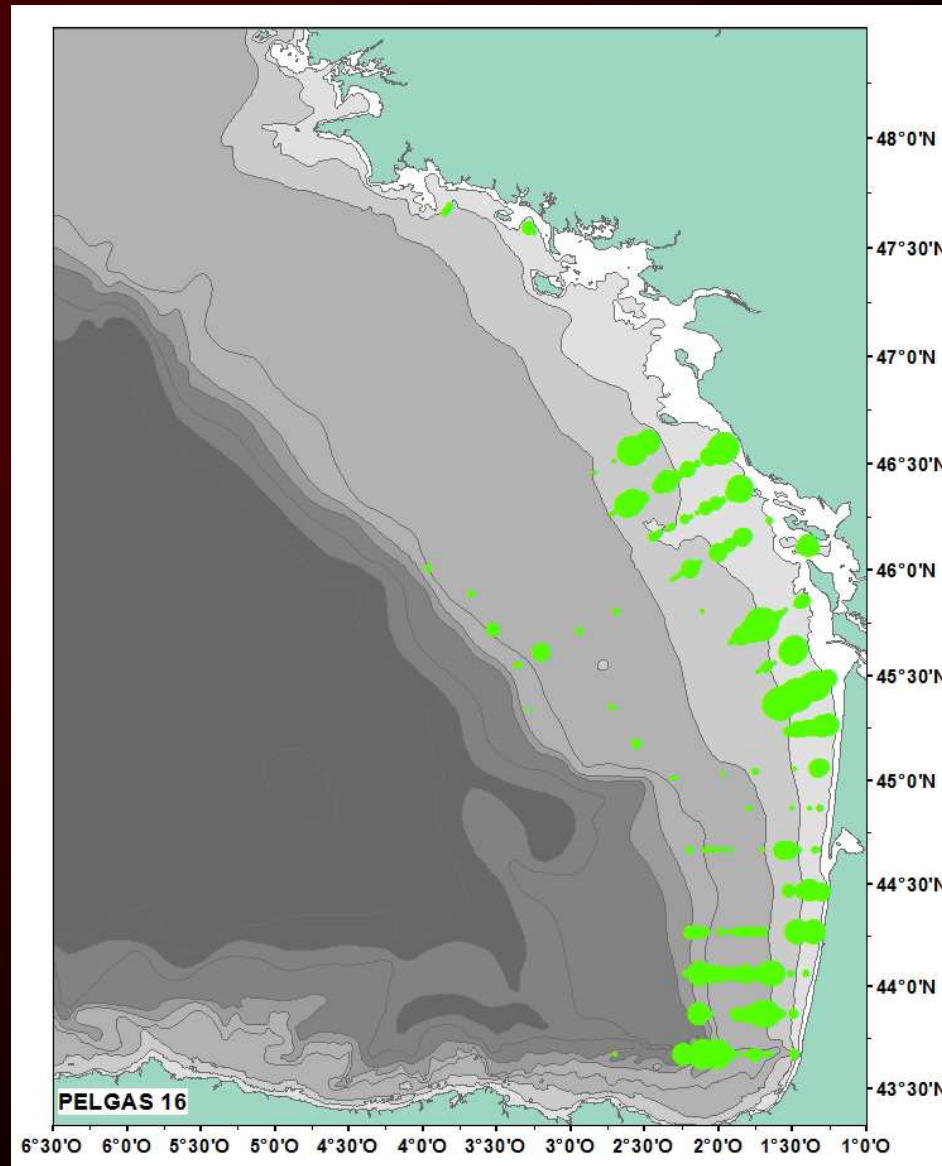
Coherent surface strata according to species distributions for abundance indices estimates



Classic/surface abundance index estimates (PELGAS16)

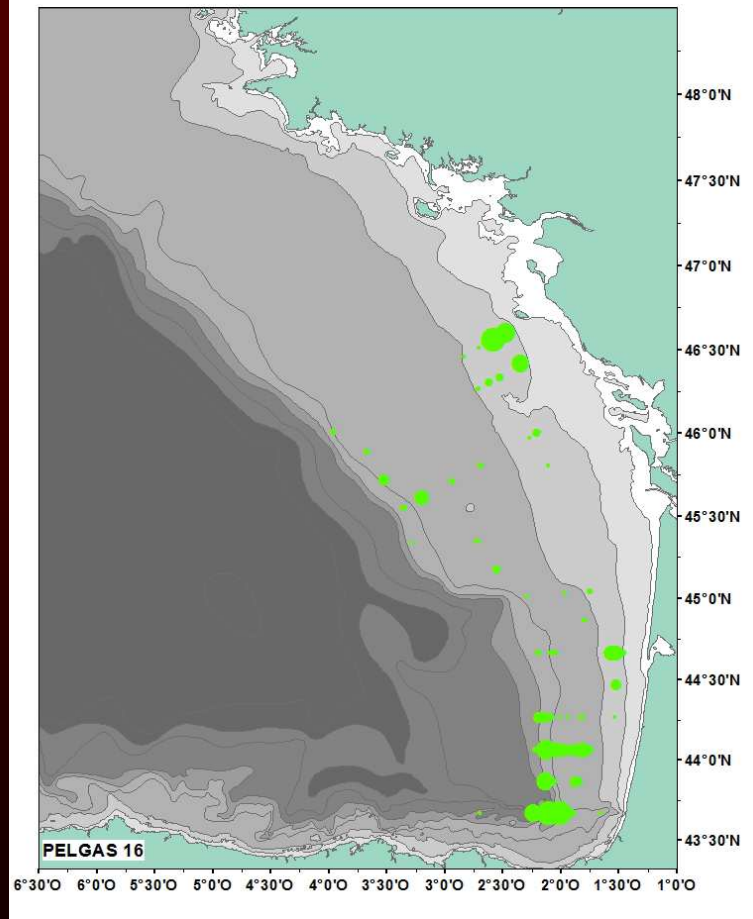
	classic	surface	total
anchovy	71 168	18 558	89 727
sardine	228 308	1 435	229 742
blue whiting	17 934	162	18 096
horse mackerel	115 840	3 390	119 230
sprat	36 593	0	36 593
chub mackerel	111 197	183 452	294 649
hake	16 780	0	16 780
boarfish	4 475	0	4 475

**Adult anchovy
distribution
(biomass / ESDU)**

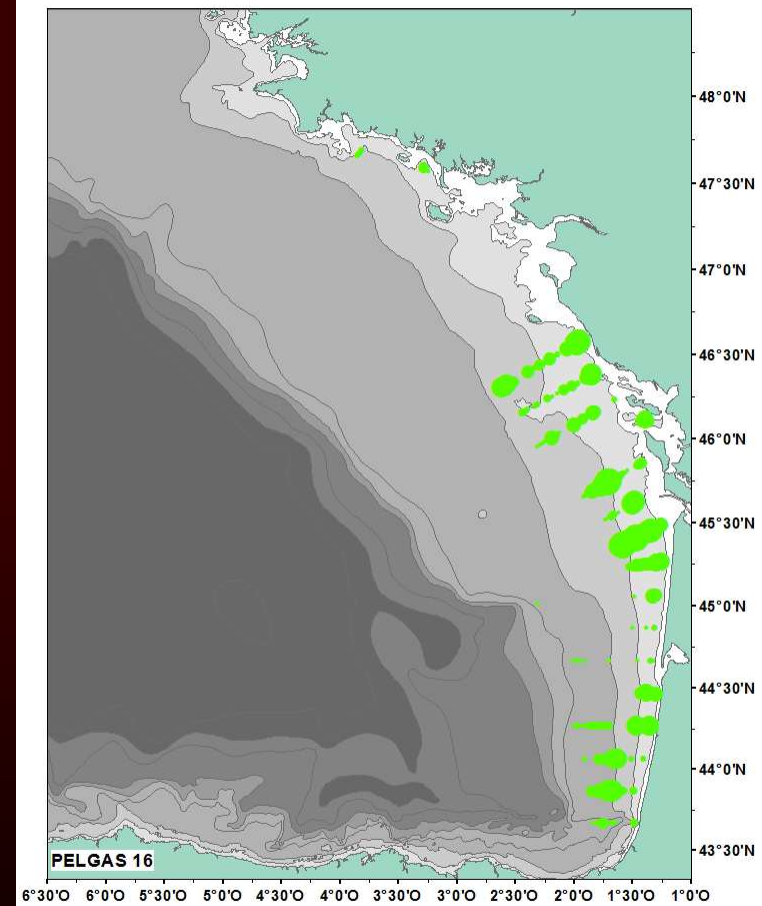


Adult anchovy distribution (biomass / ESDU)

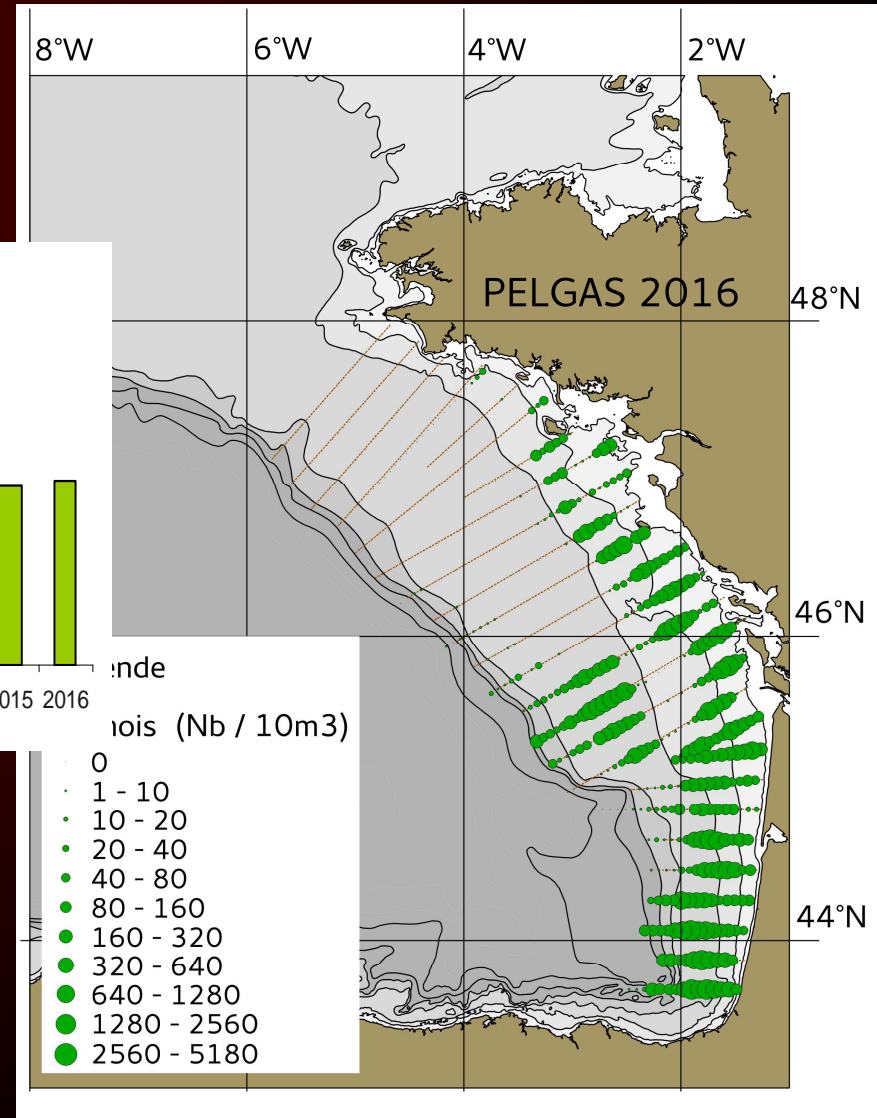
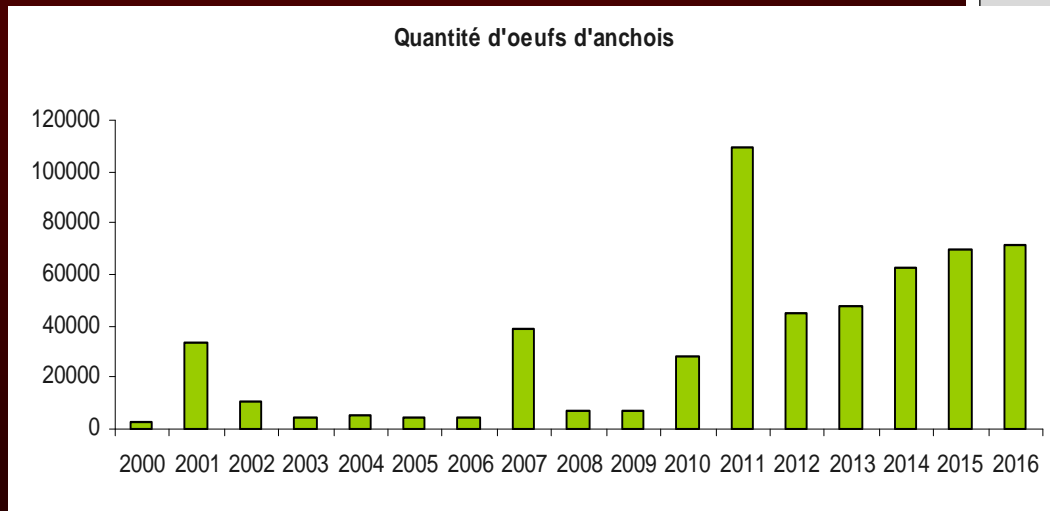
surface



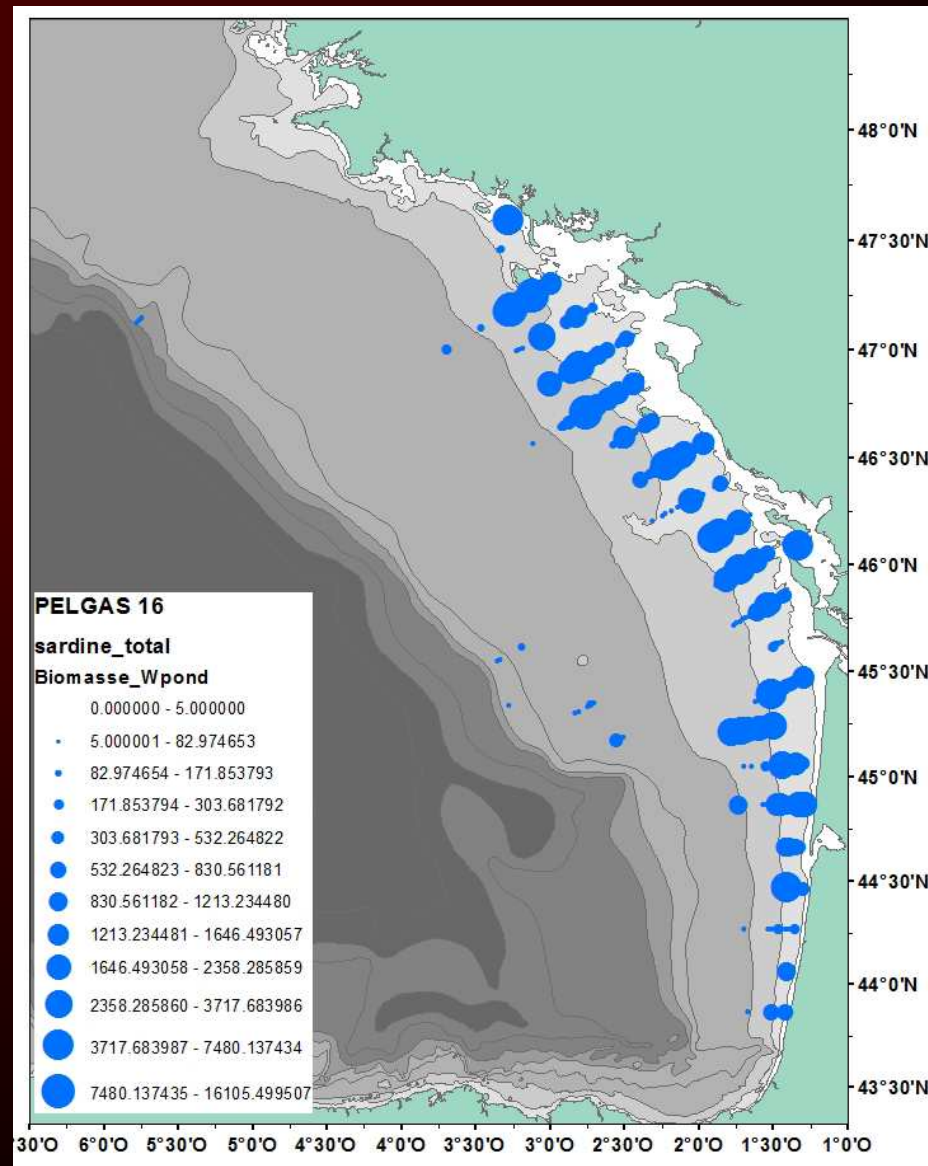
classic



anchovy eggs distribution (CUFES)

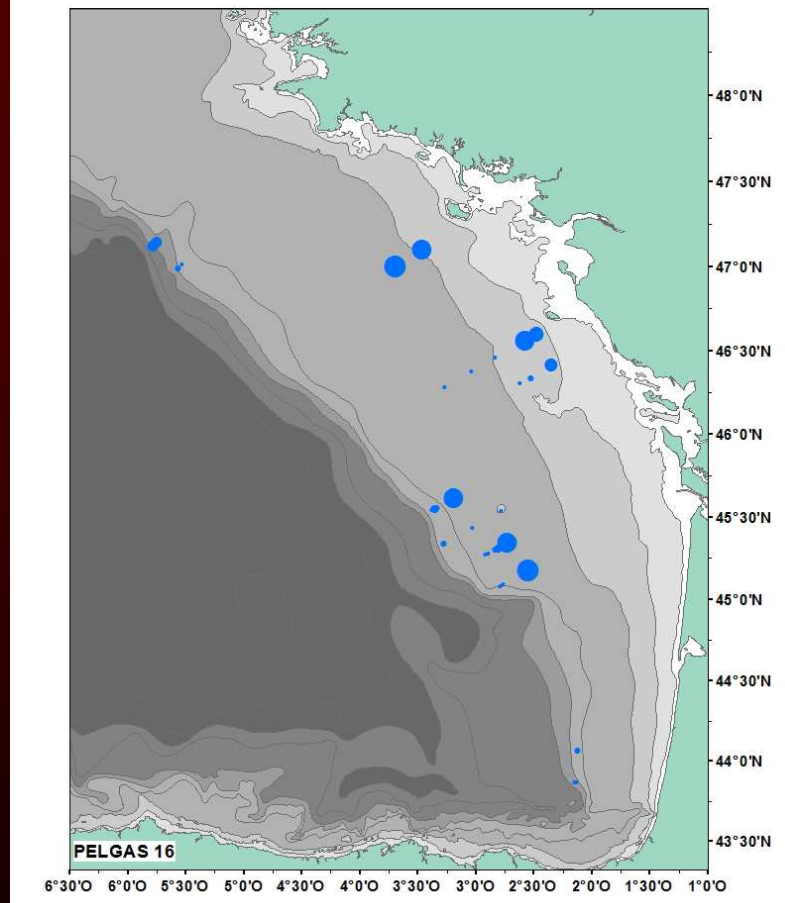


Adult sardine distribution (biomass / ESDU)

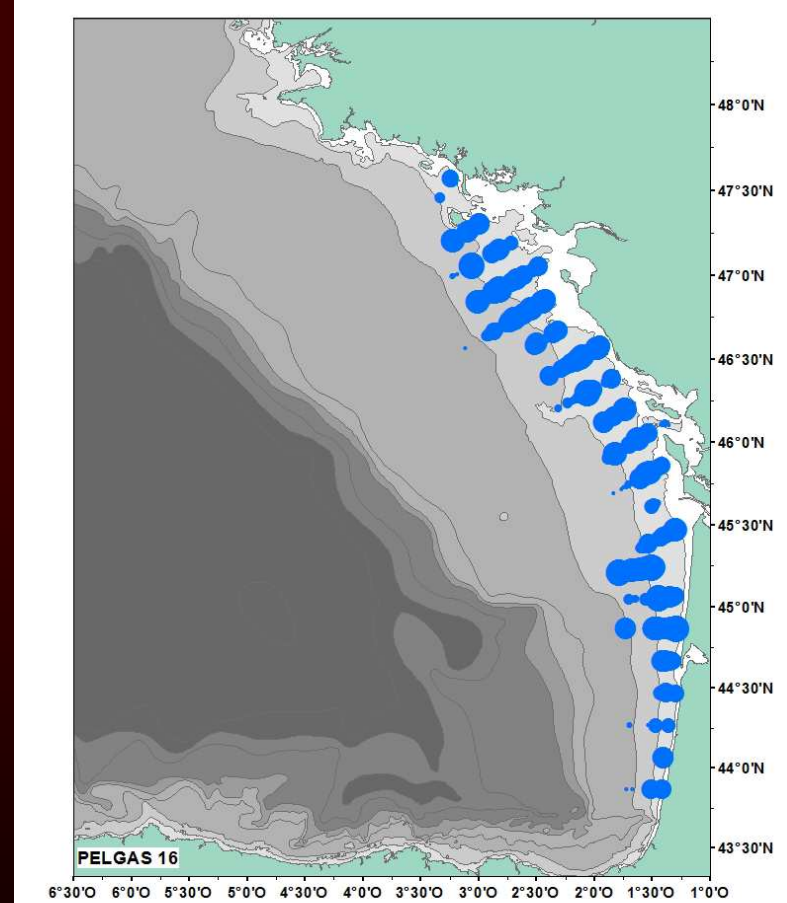


Adult sardine distribution (biomass / ESDU)

surface

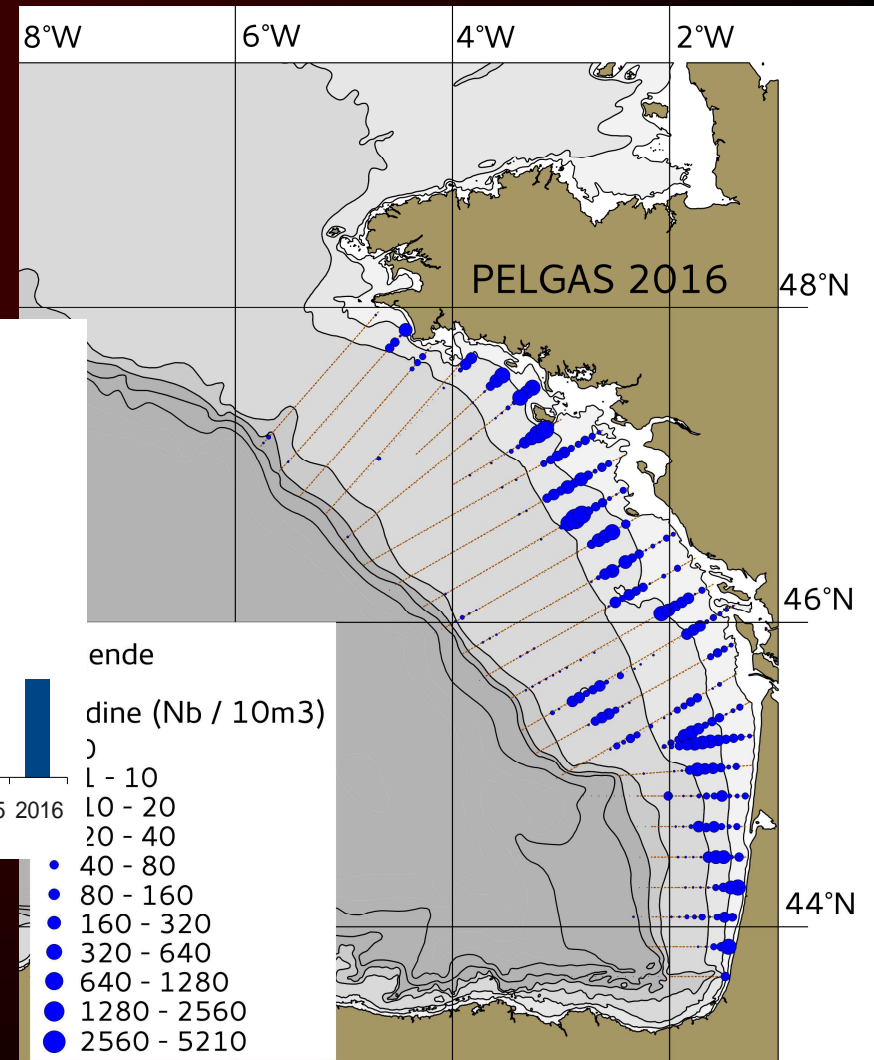
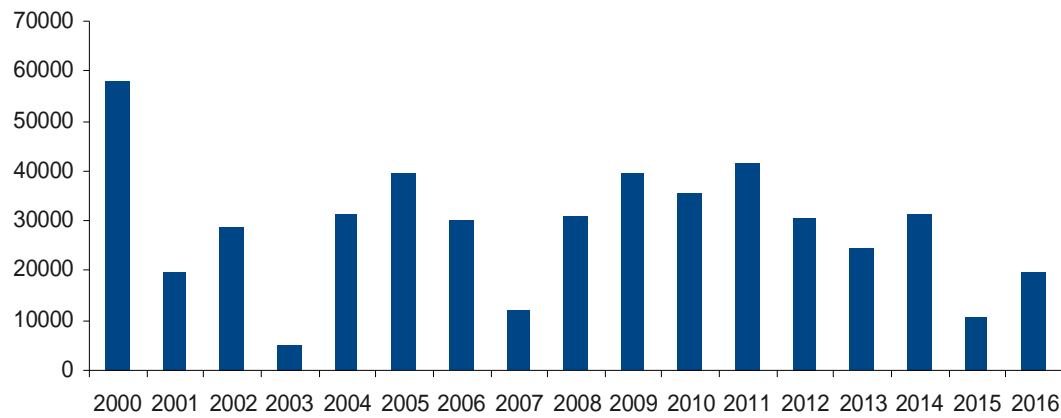


classic

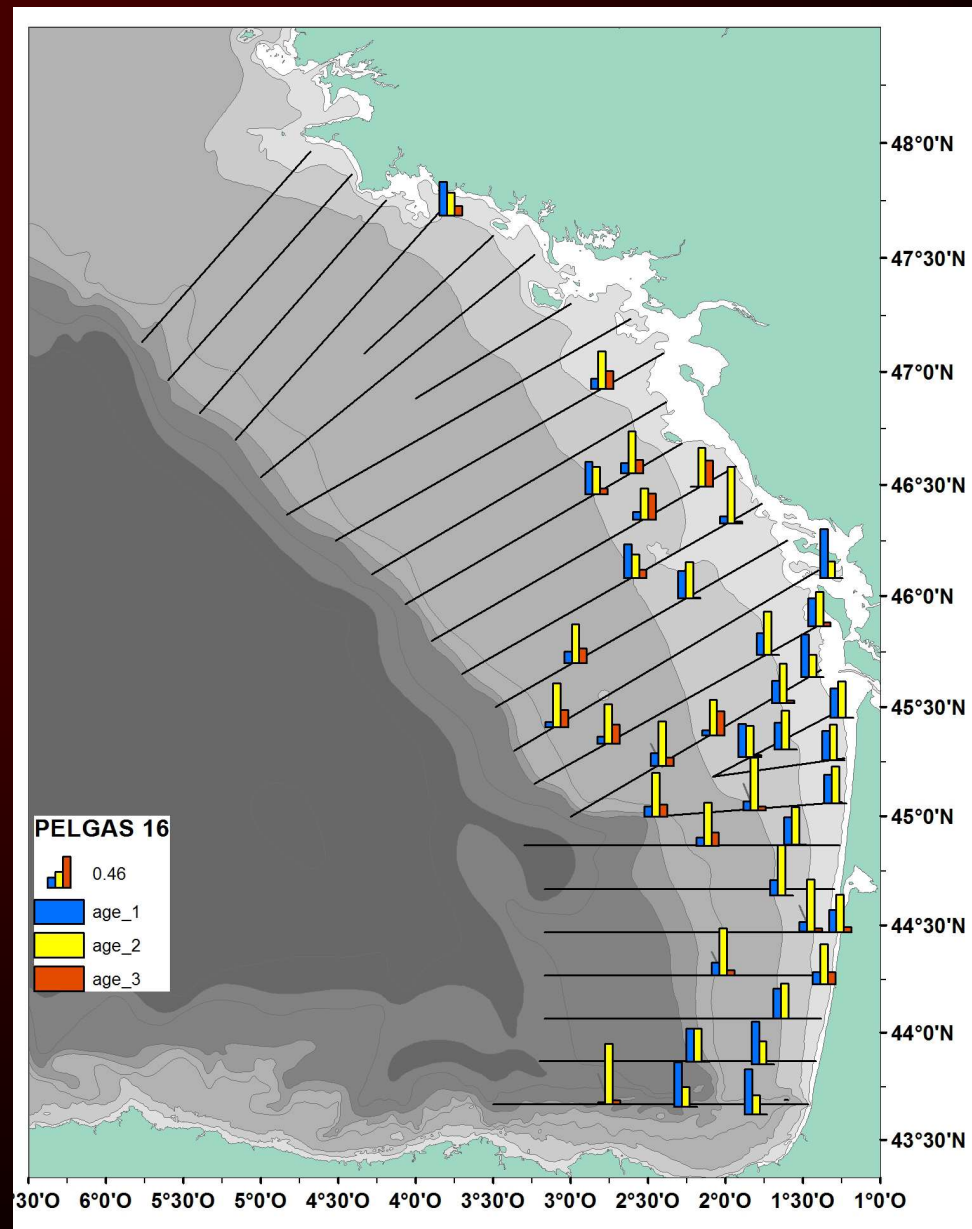


sardine eggs distribution (CUFES)

Quantité d'oeufs de sardine

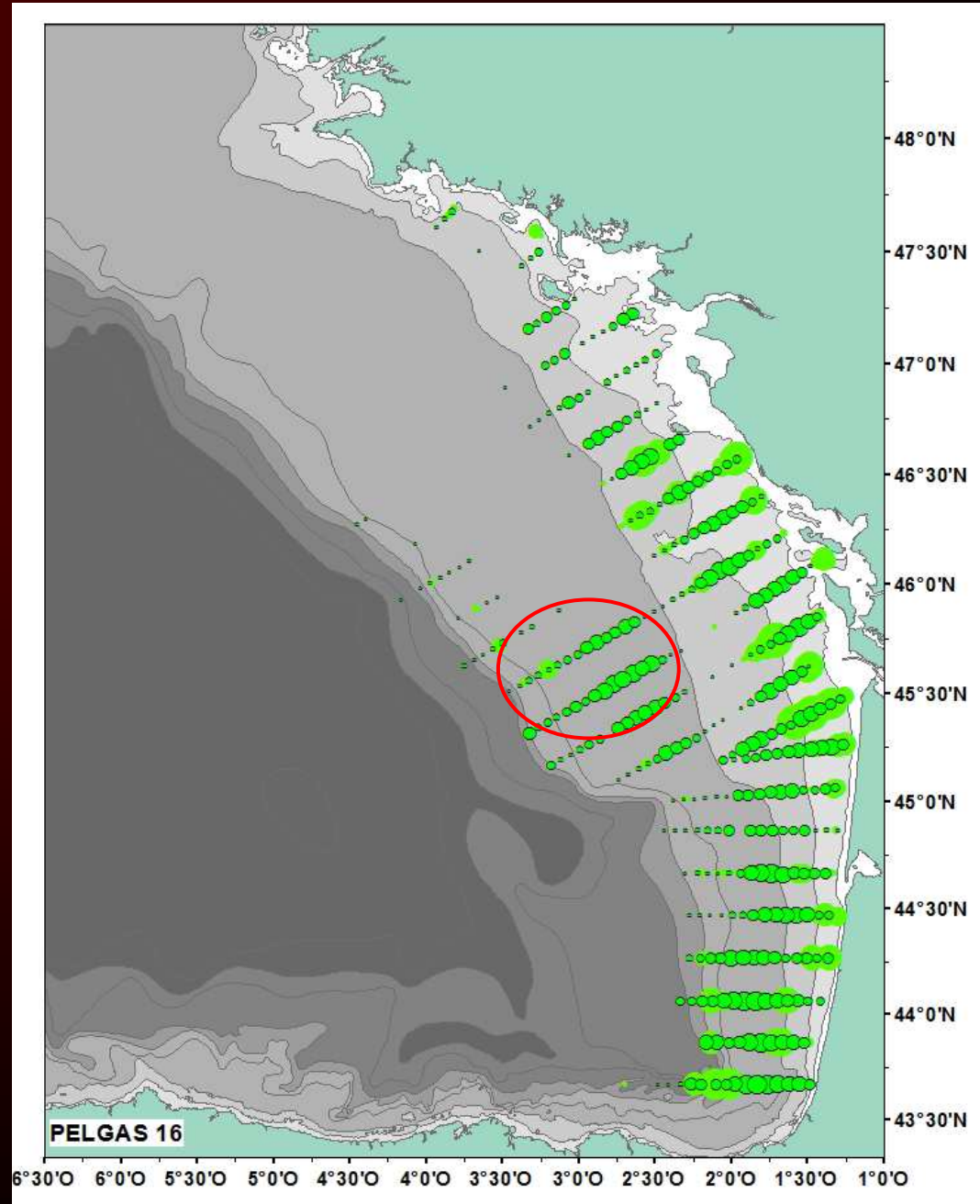


Anchovy age distribution (PELGAS16)

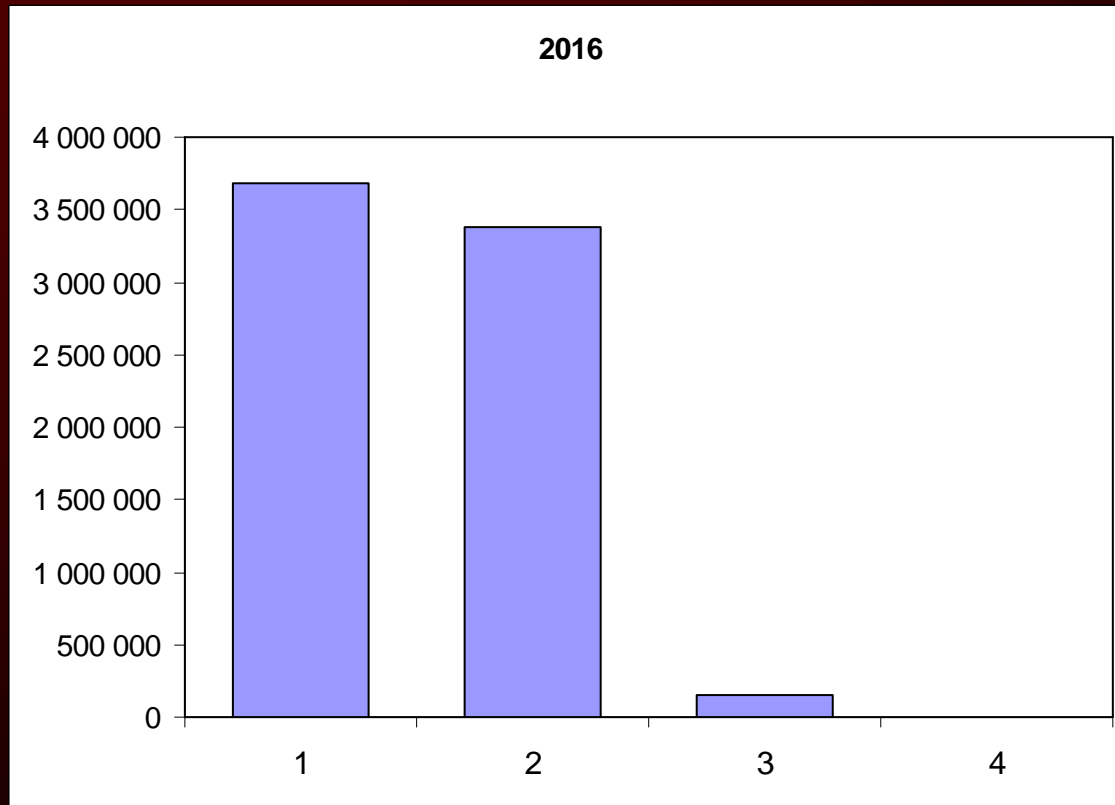


Comparison adults & eggs...

-> maybe an underestimation of anchovy offshore ?



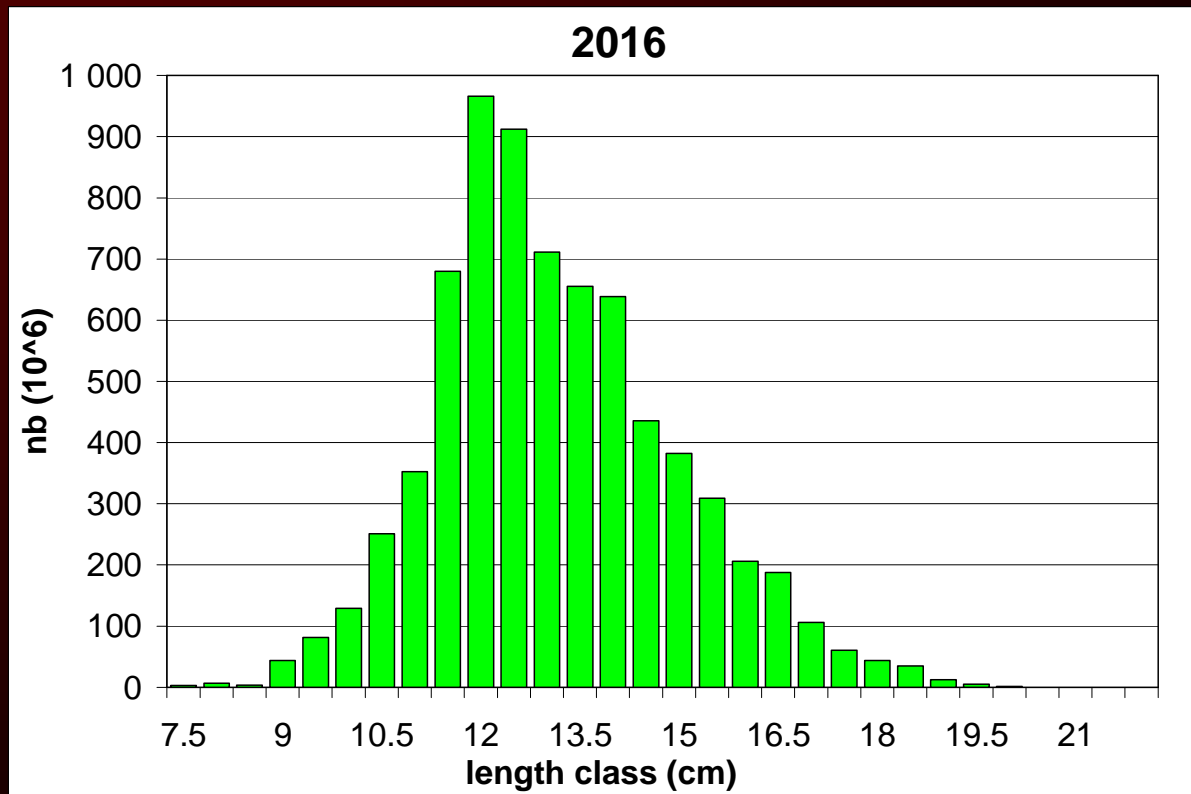
Age distribution of anchovy



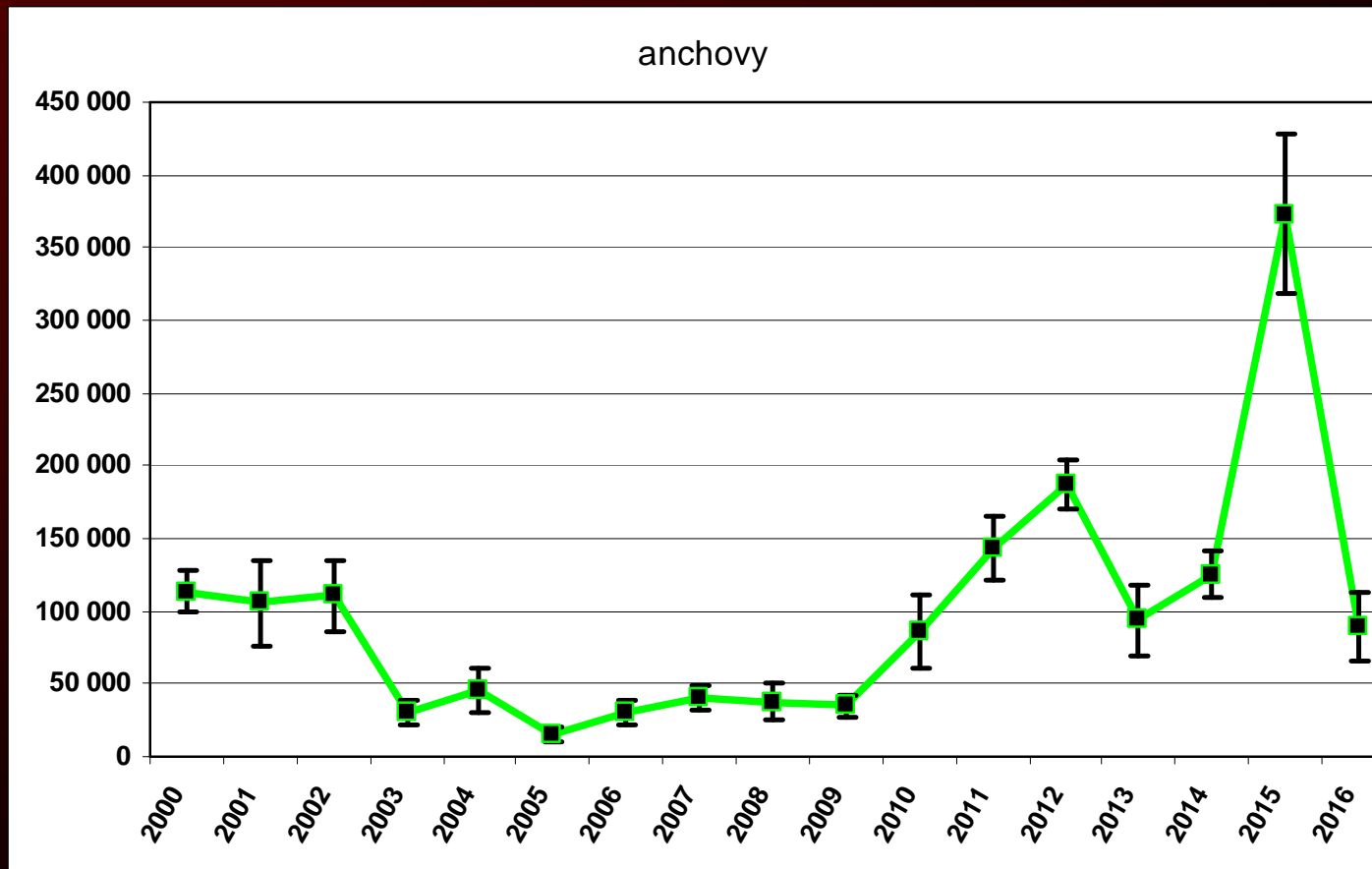
	PEL16 - % - N
age 1	51.06%
age 2	46.71%
age 3	2.14%
age 4	0.08%

	PeI16 - % - W
age 1	39.68%
age 2	54.71%
age 3	5.46%
age 4	0.15%

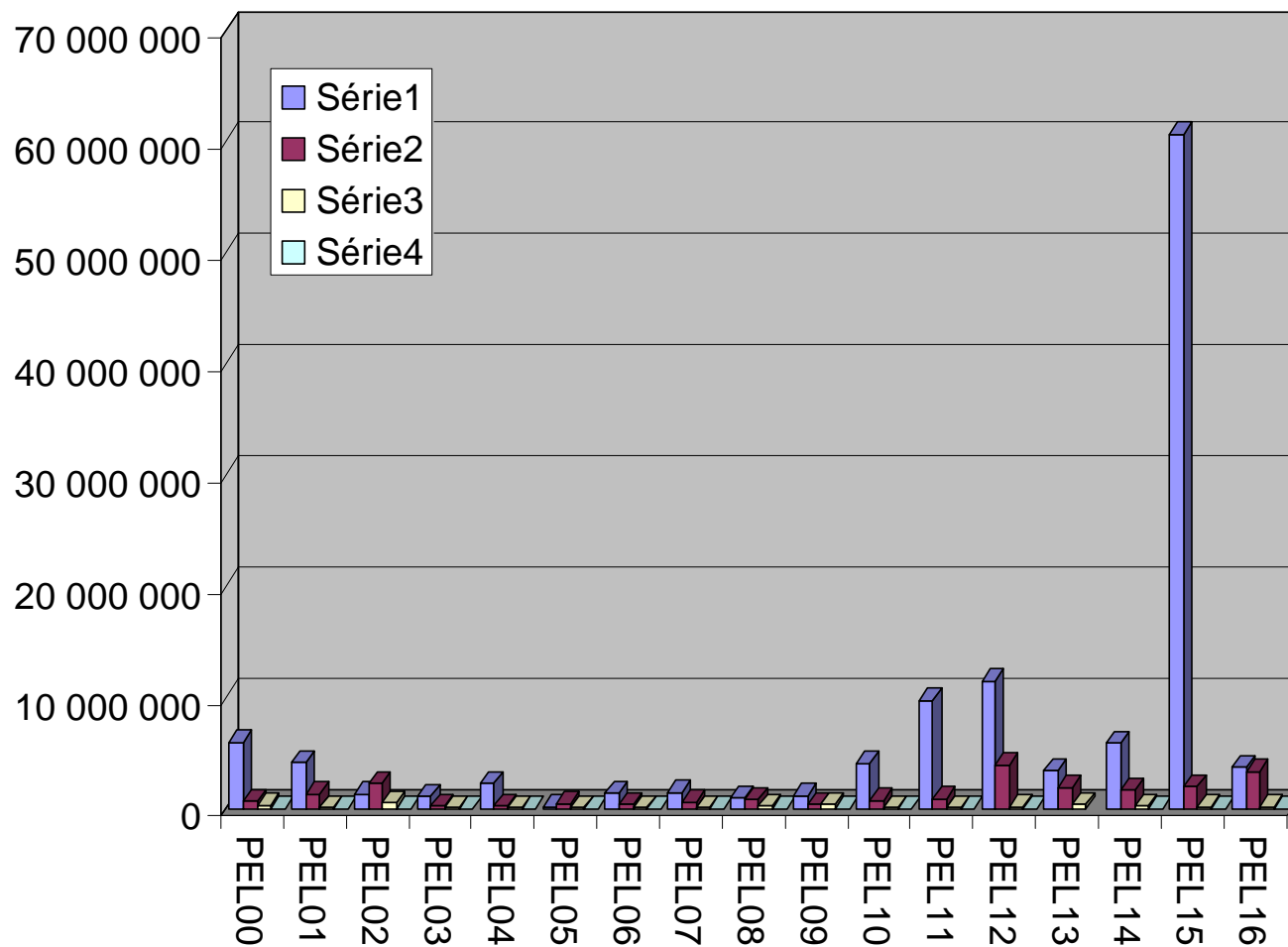
Length distribution of anchovy



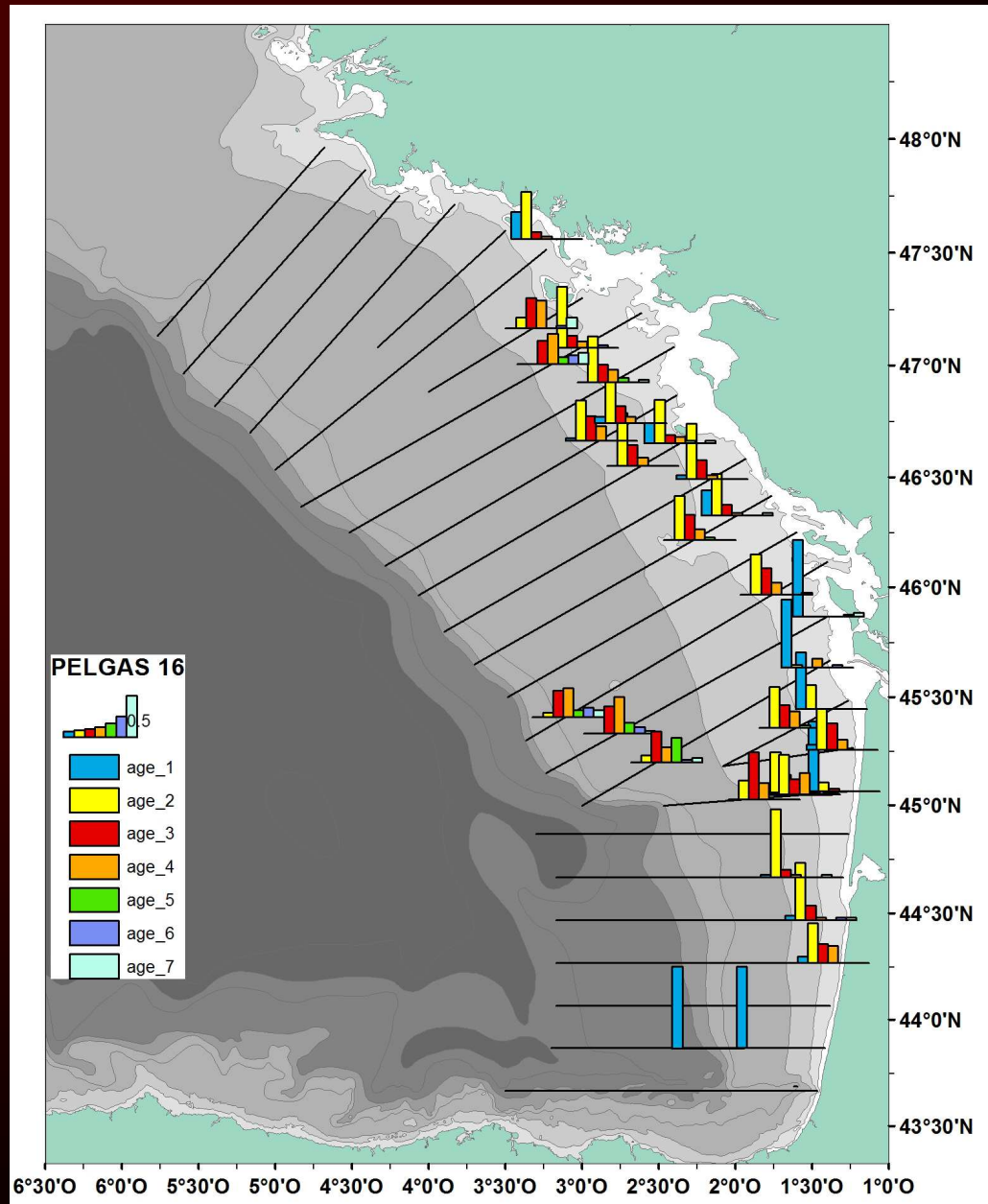
Serie of abundance indices - Anchovy



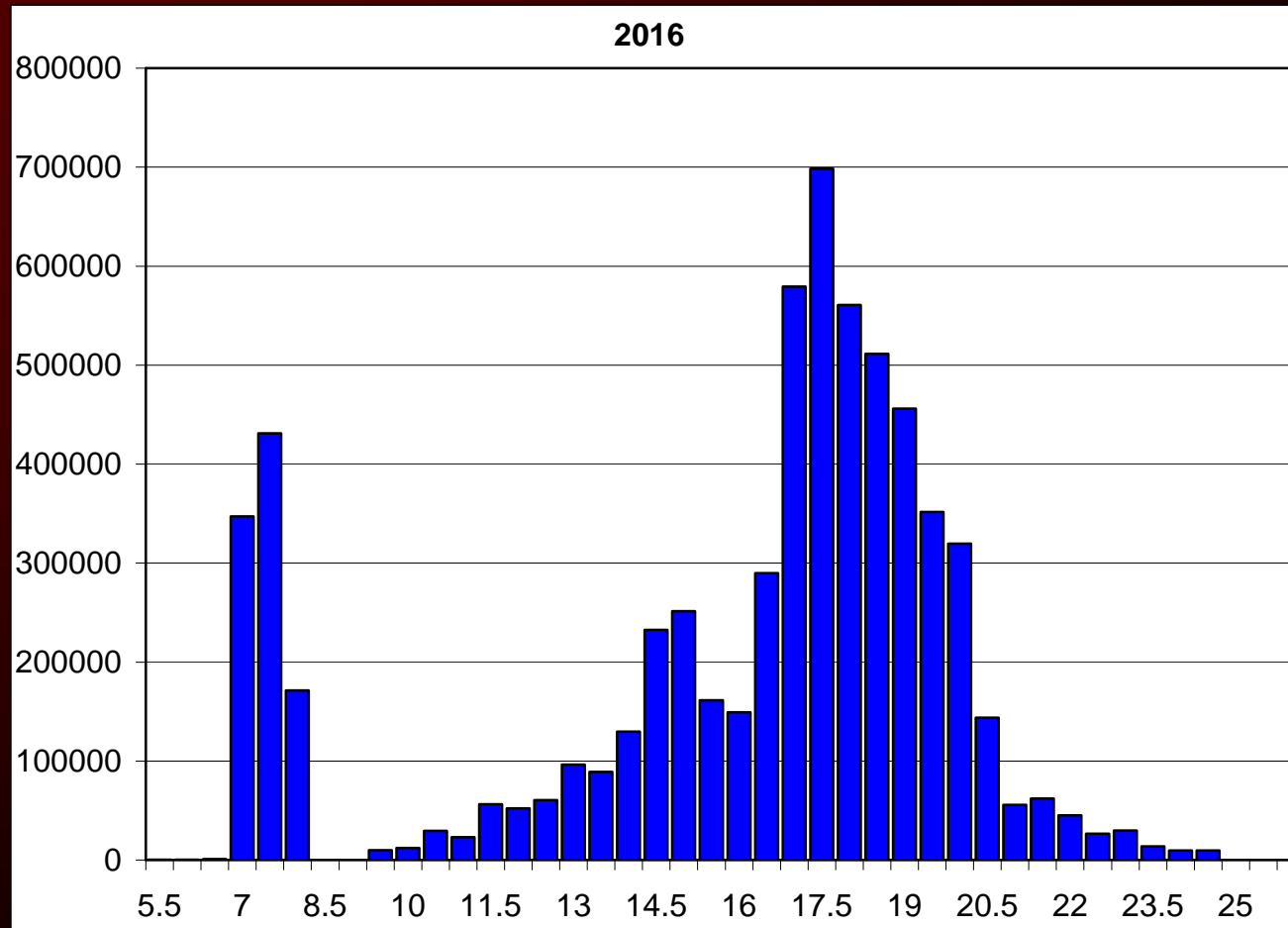
Age distribution of anchovy along PELGAS series



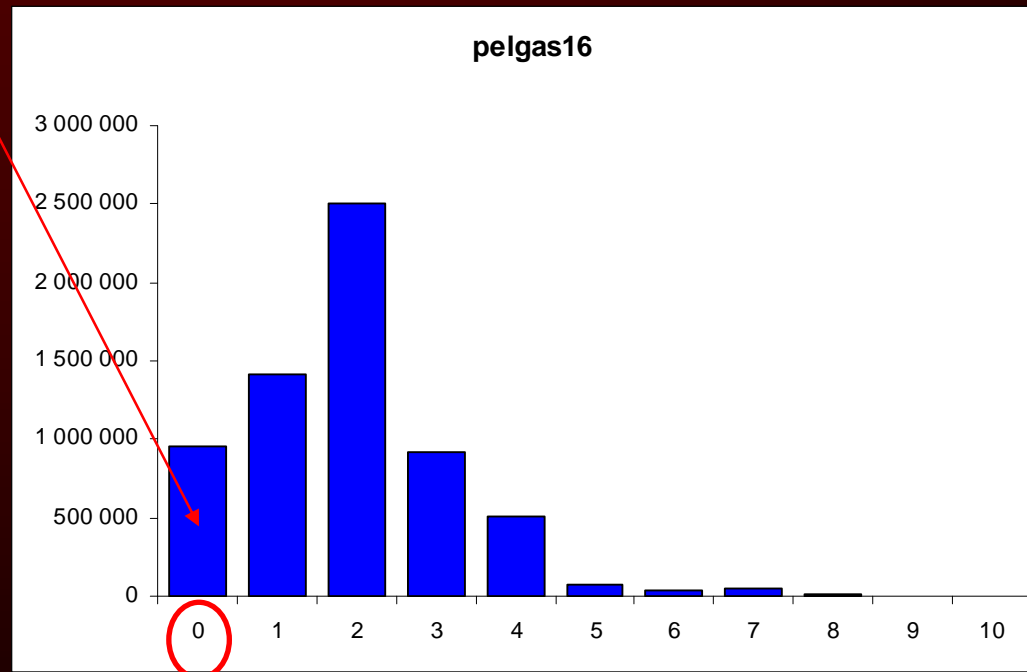
Sardine age distribution (PELGAS16)



Length distribution of sardine



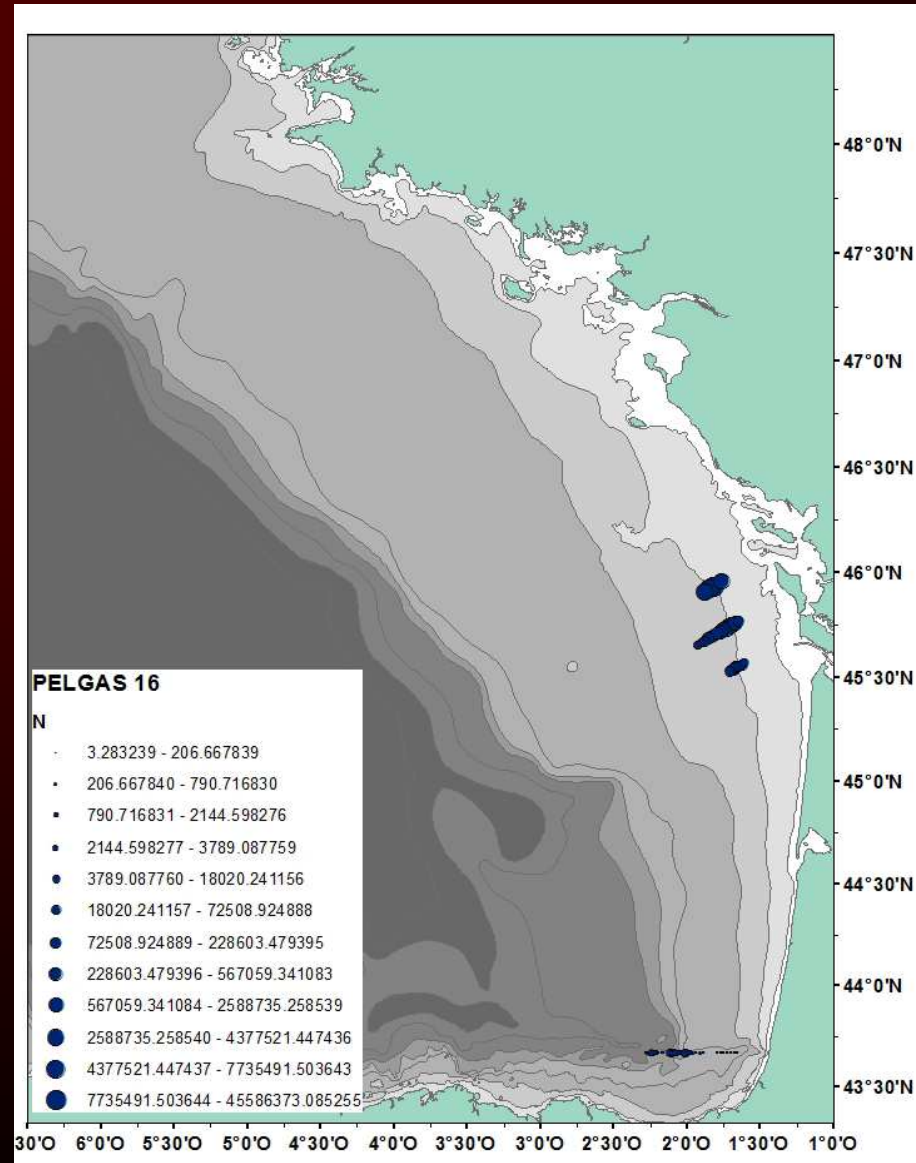
Age distribution of sardine



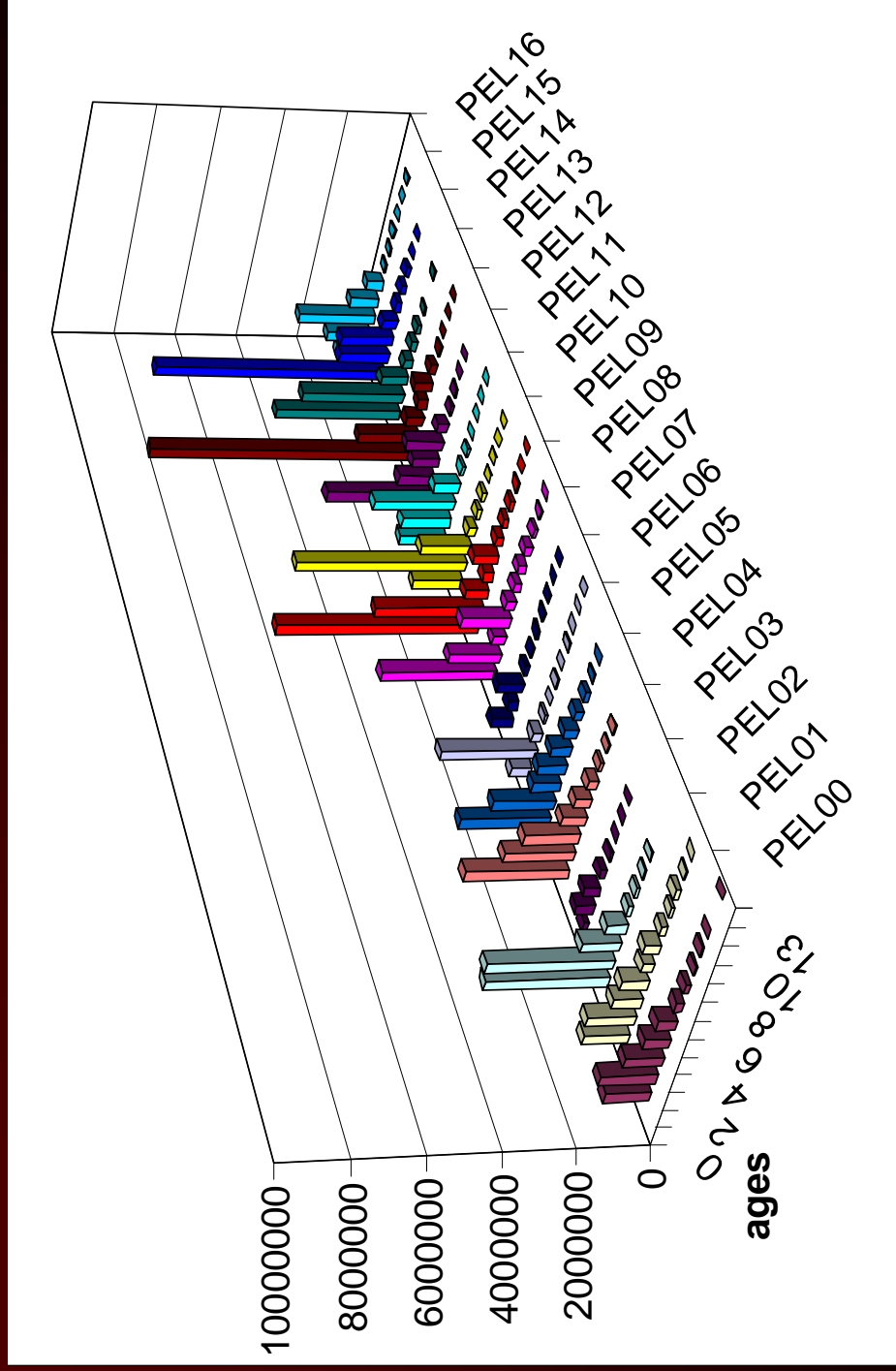
	pel16 - % - N
age 0	14.70%
age 1	21.85%
age 2	38.68%
age 3	14.22%
age 4	7.89%
age 5	1.13%
age 6	0.50%
age 7	0.80%
age 8	0.16%
age 9	0.05%
age 10	0.02%

	PEL16 - W - %
age 0	1.18%
age 1	13.31%
age 2	44.86%
age 3	21.17%
age 4	13.37%
age 5	2.28%
age 6	1.17%
age 7	2.03%
age 8	0.45%
age 9	0.13%
age 10	0.05%

Location of sardine juveniles (age 0)

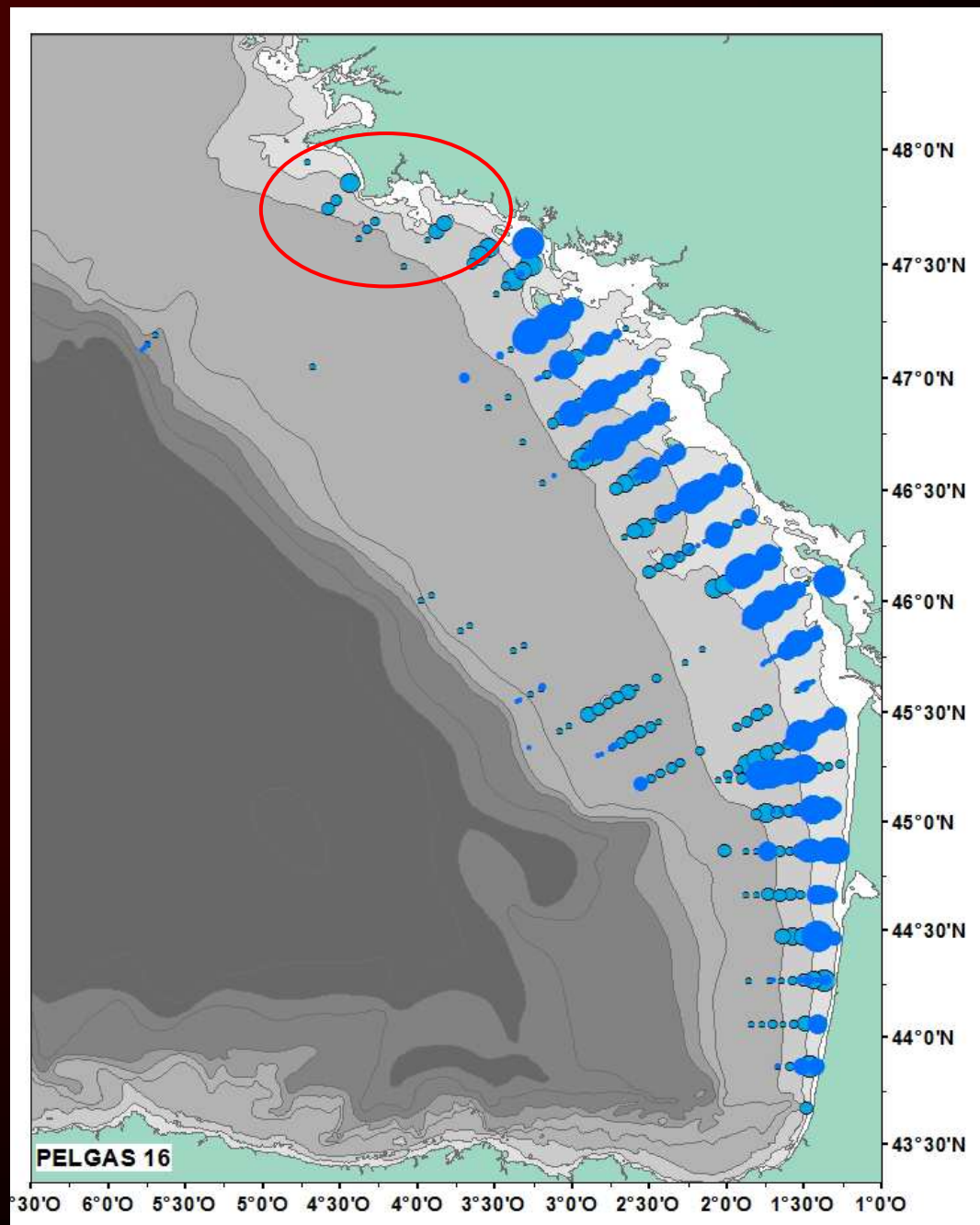


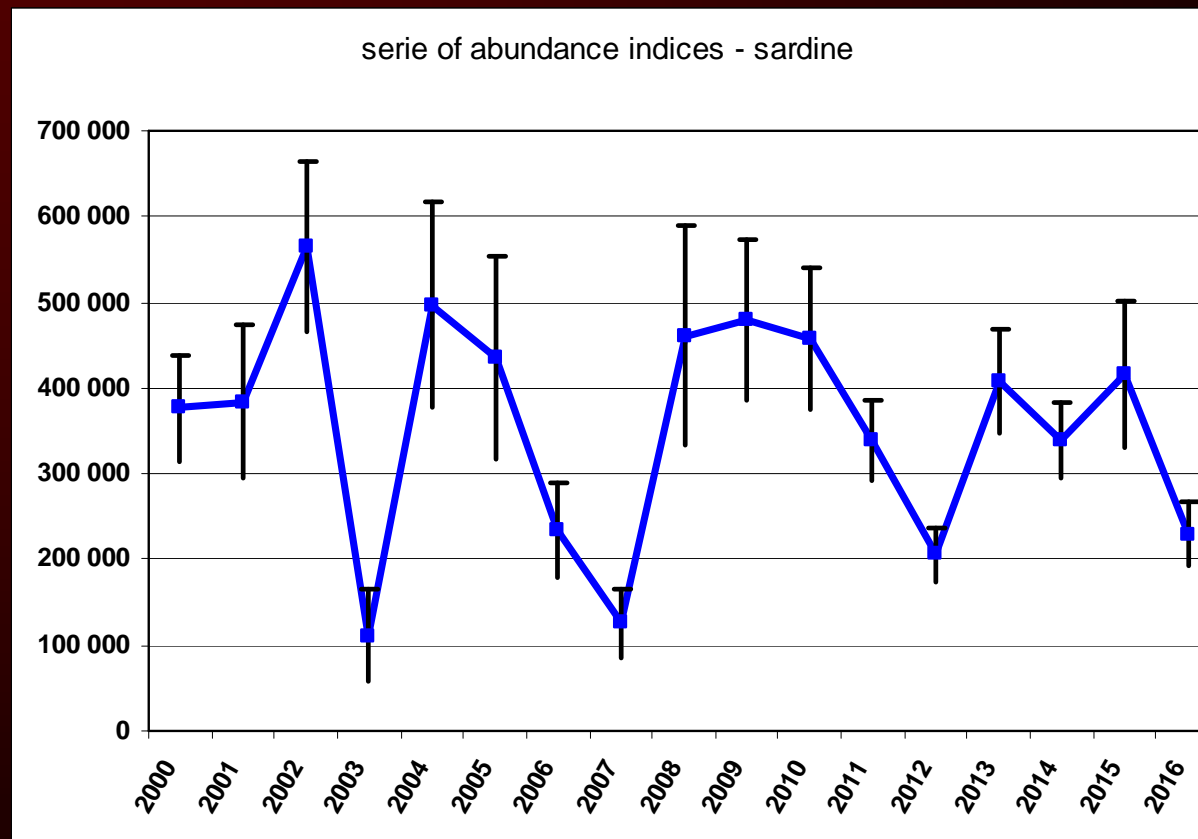
Age distribution of sardine along PELGAS series



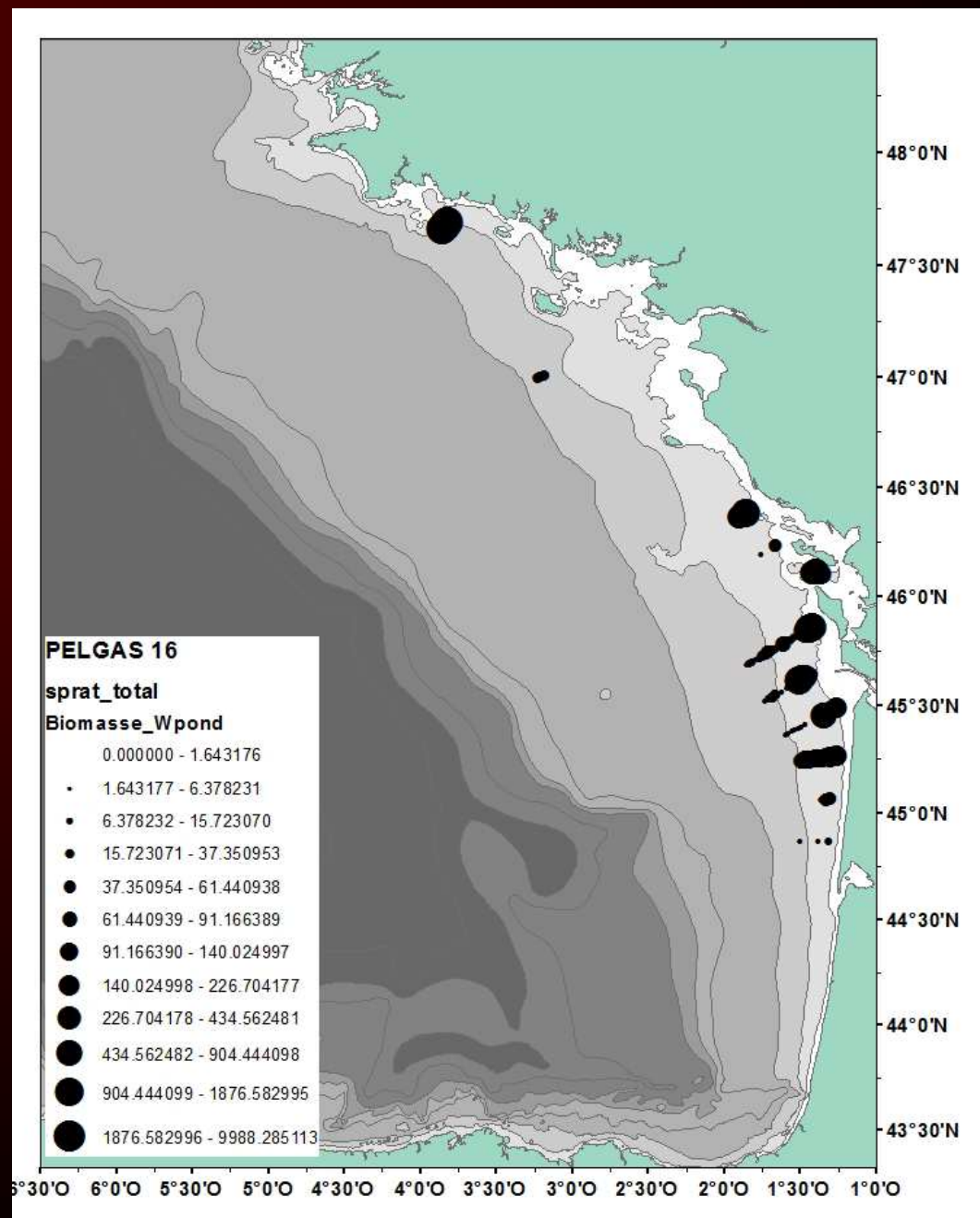
Comparison adults & eggs...

-> maybe an underestimation of sardine in Brittany ?

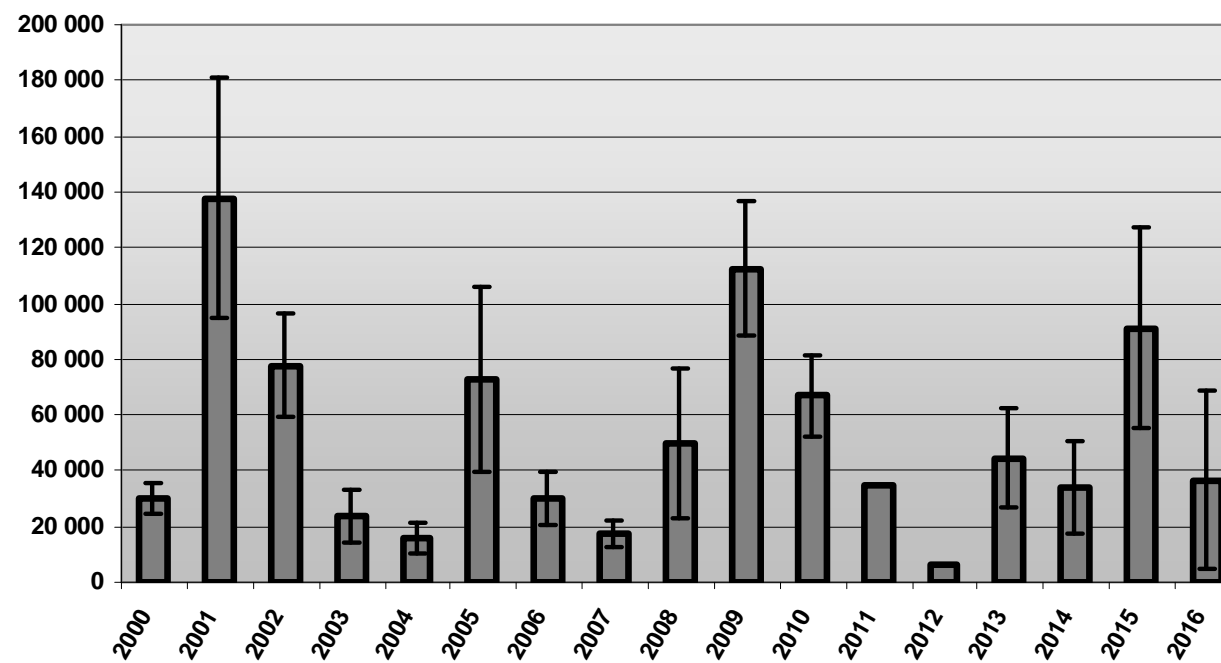




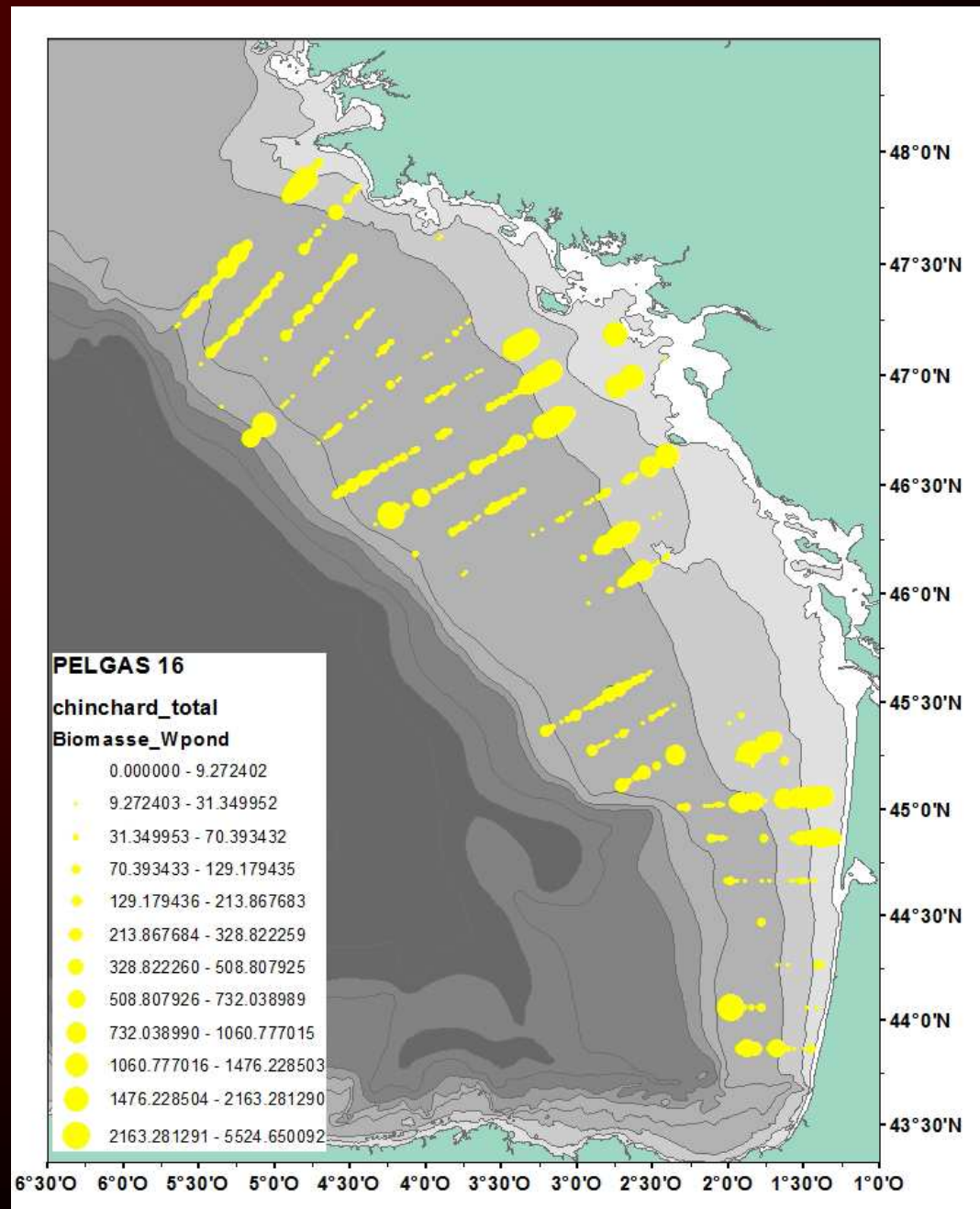
Sprat distribution



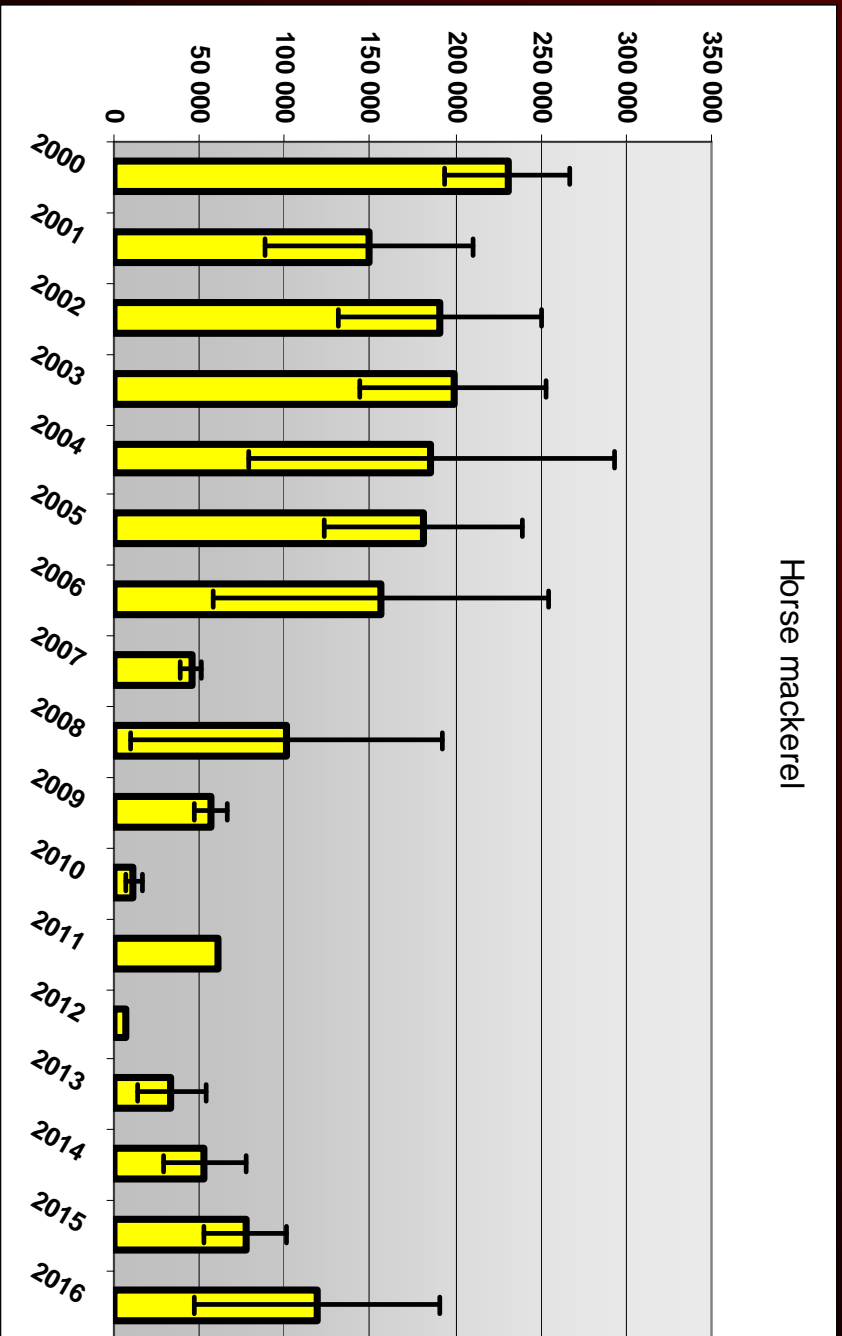
serie of abundance indices - Sprat



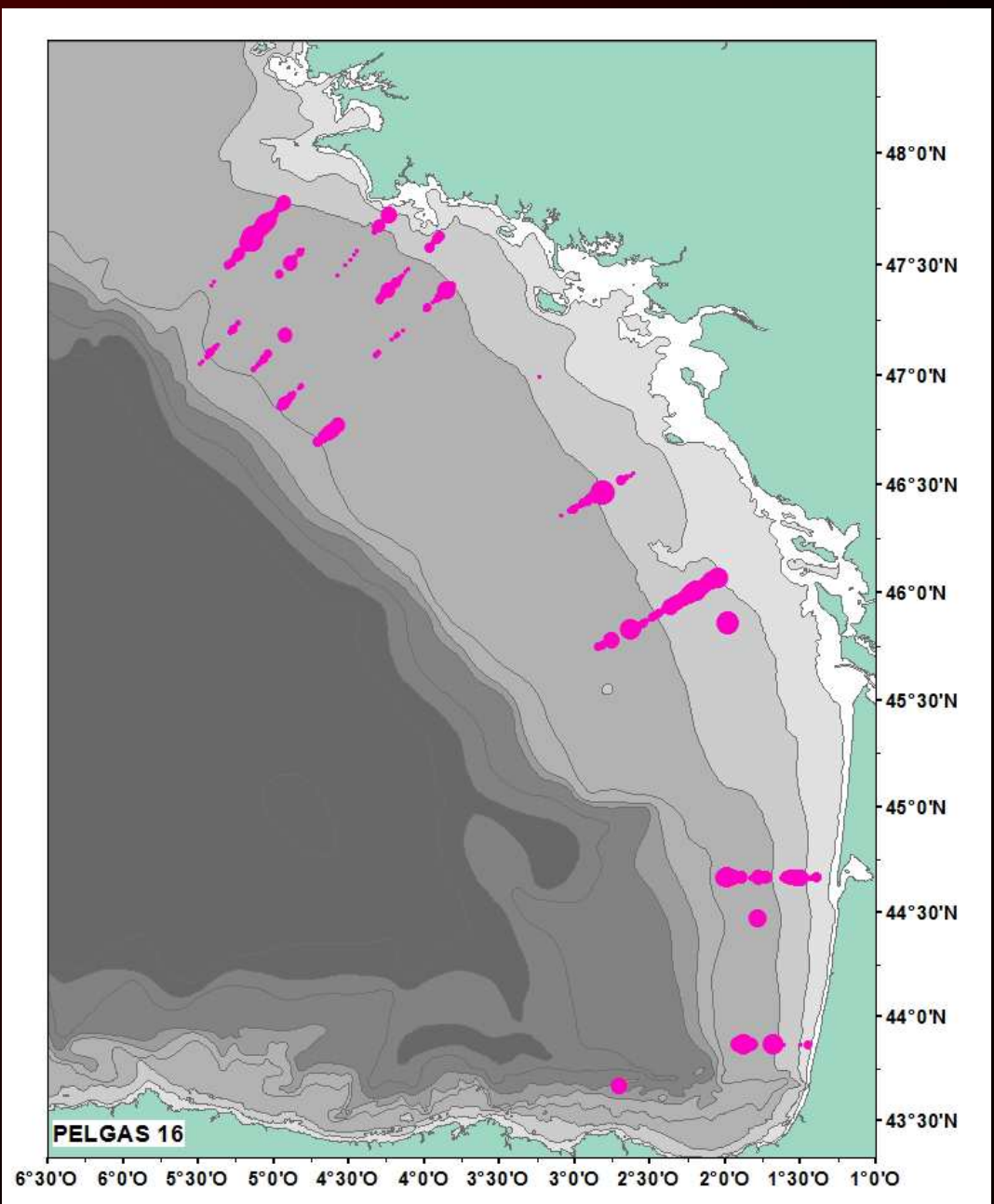
Horse mackerel distribution



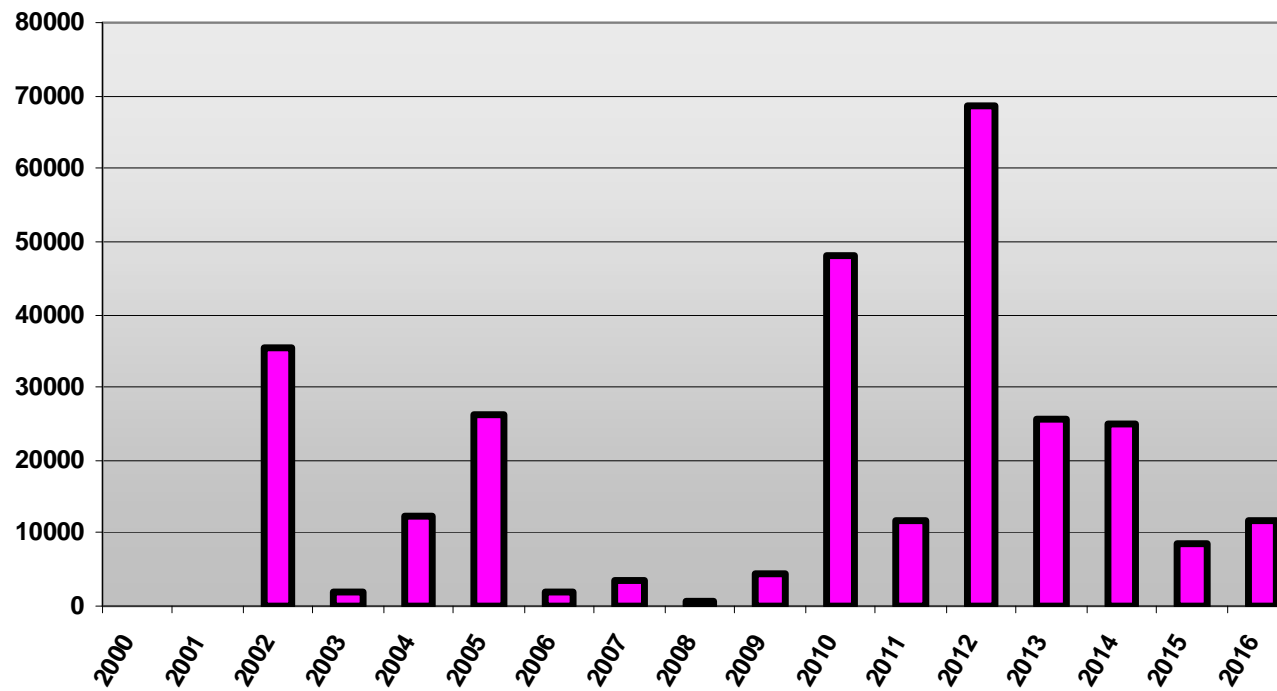
Horse mackerel



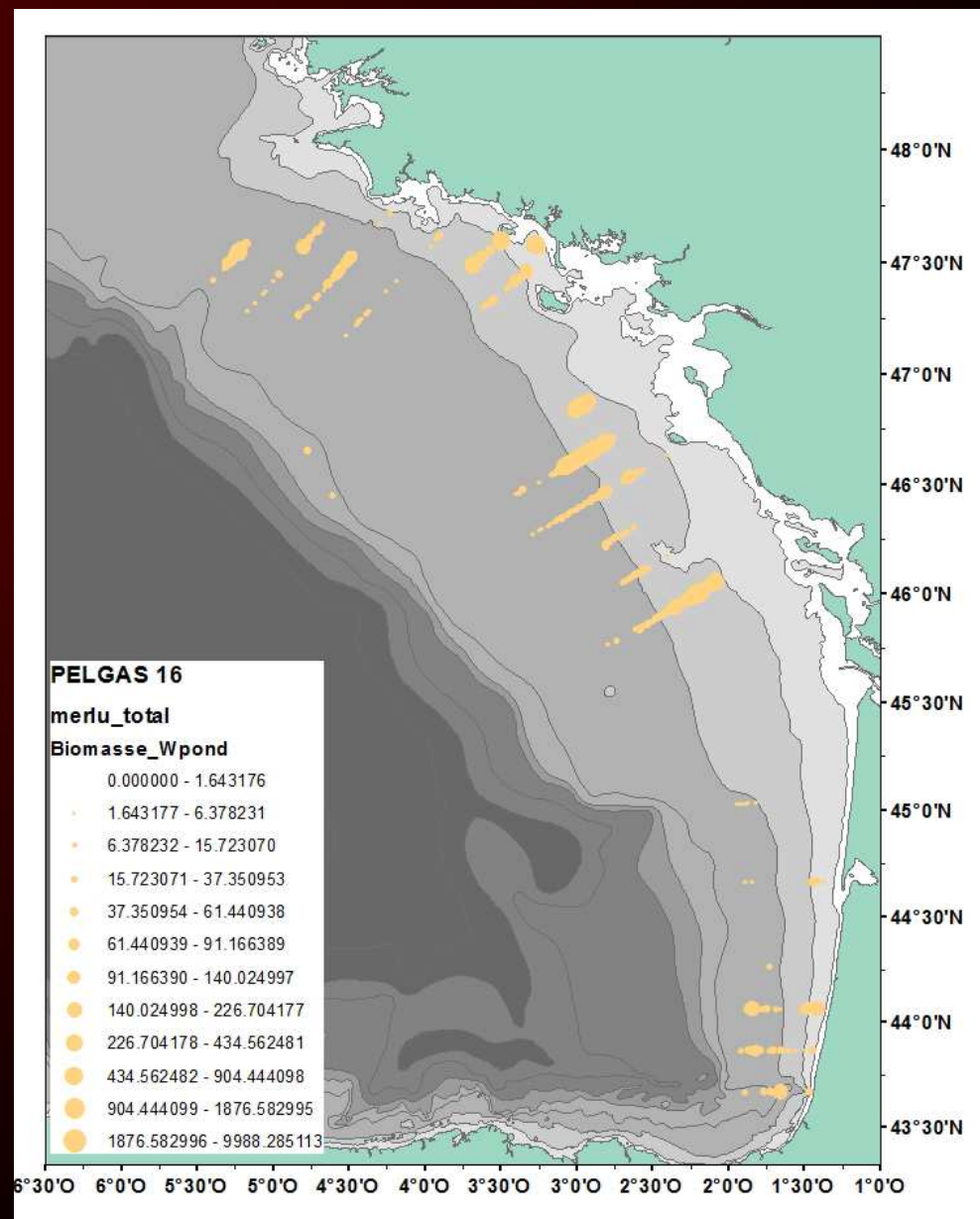
Blue Whiting distribution



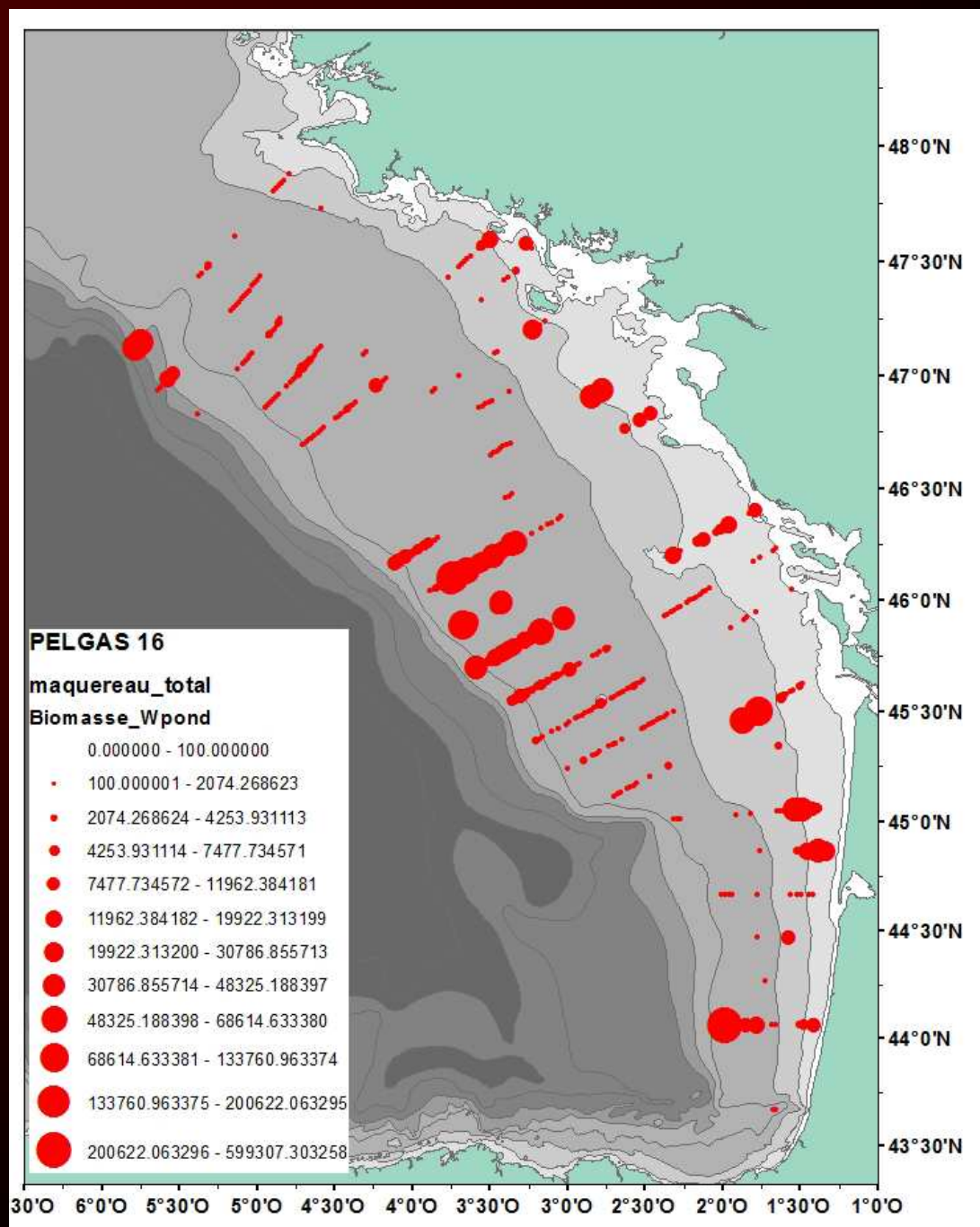
serie of abundance indices - blue whiting



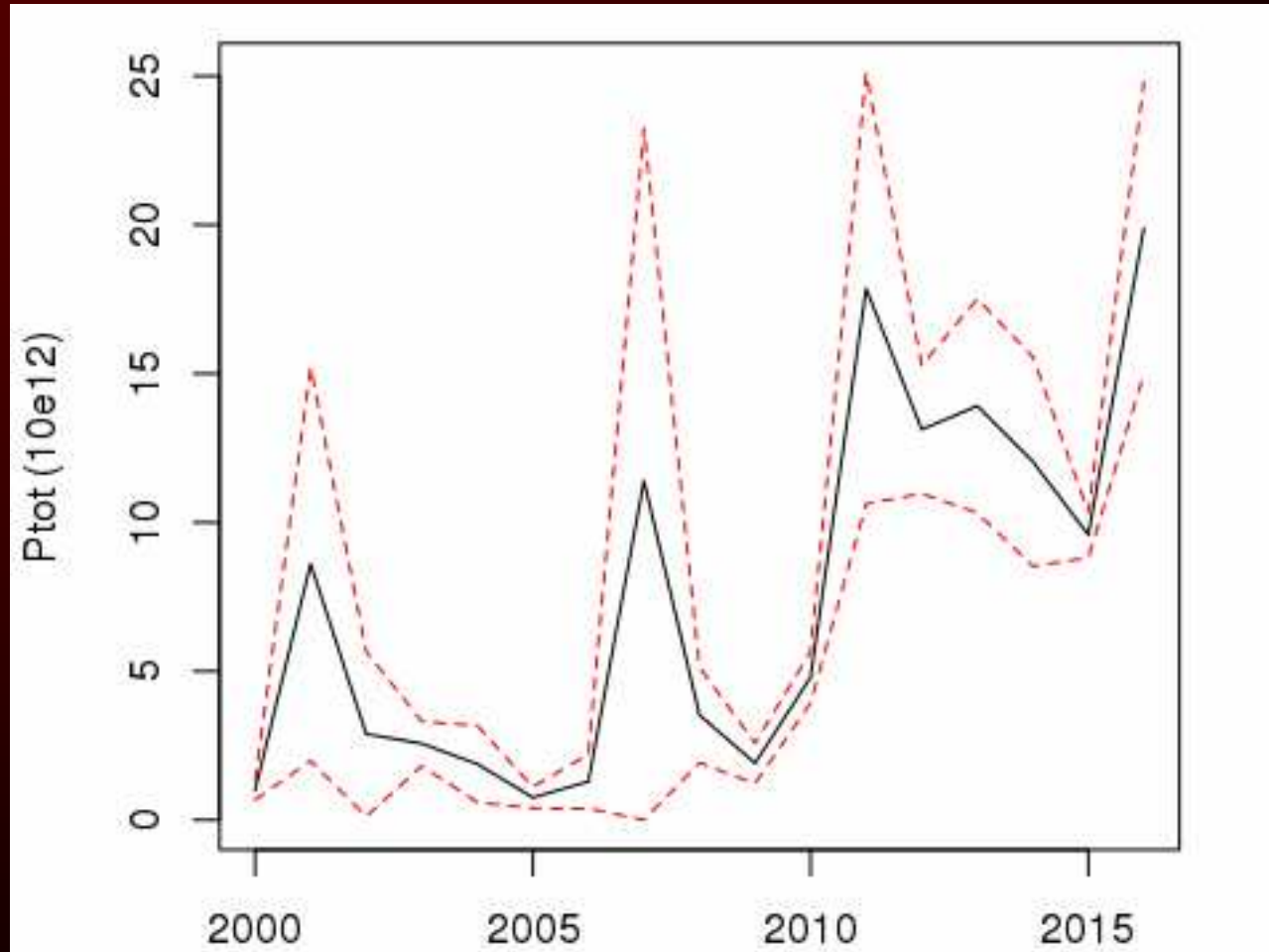
Hake distribution



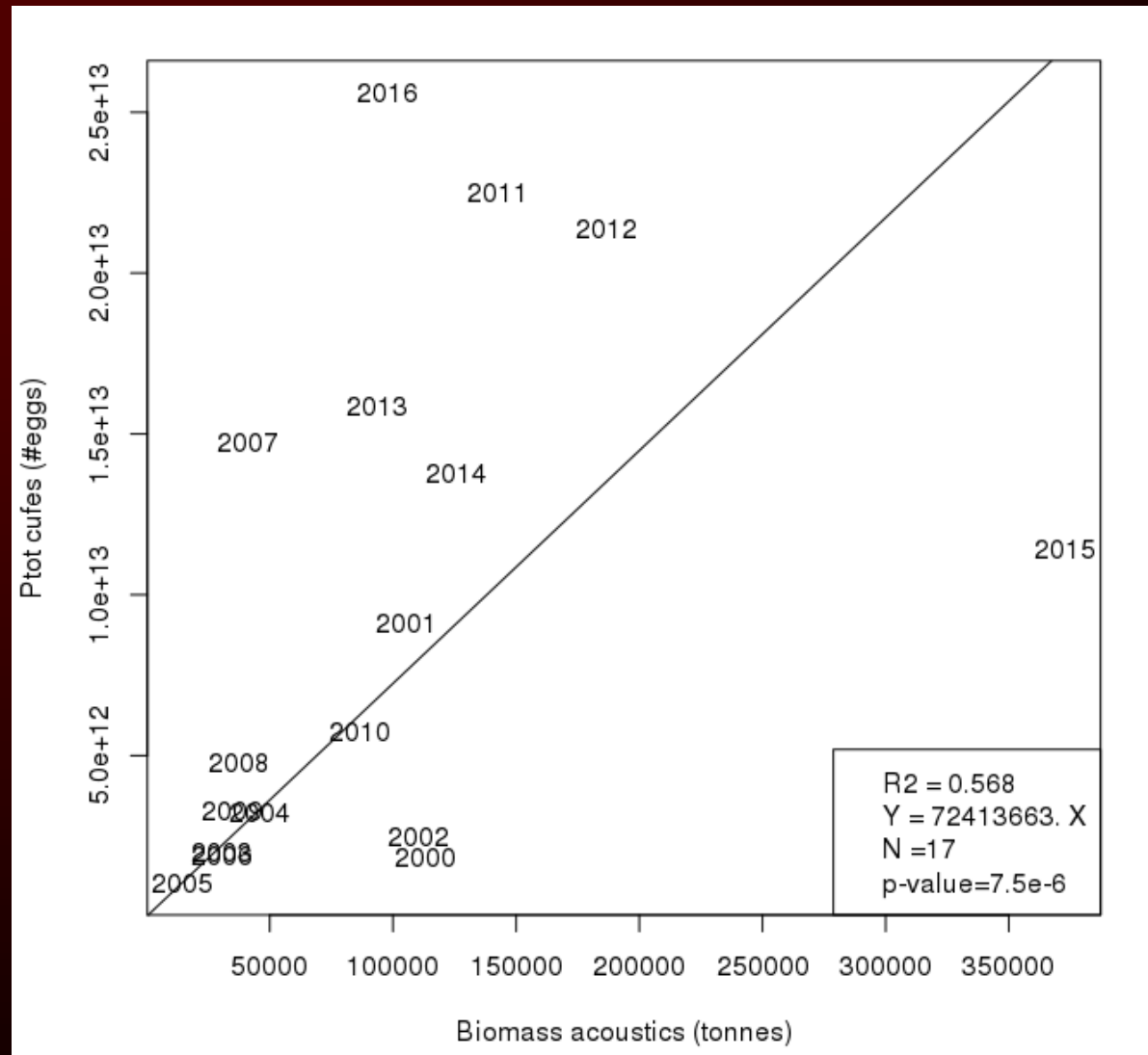
mackerel distribution



The CUFES index : Ptot (anchovy)



Comparison Acoustic / CUFES index (Ptot)



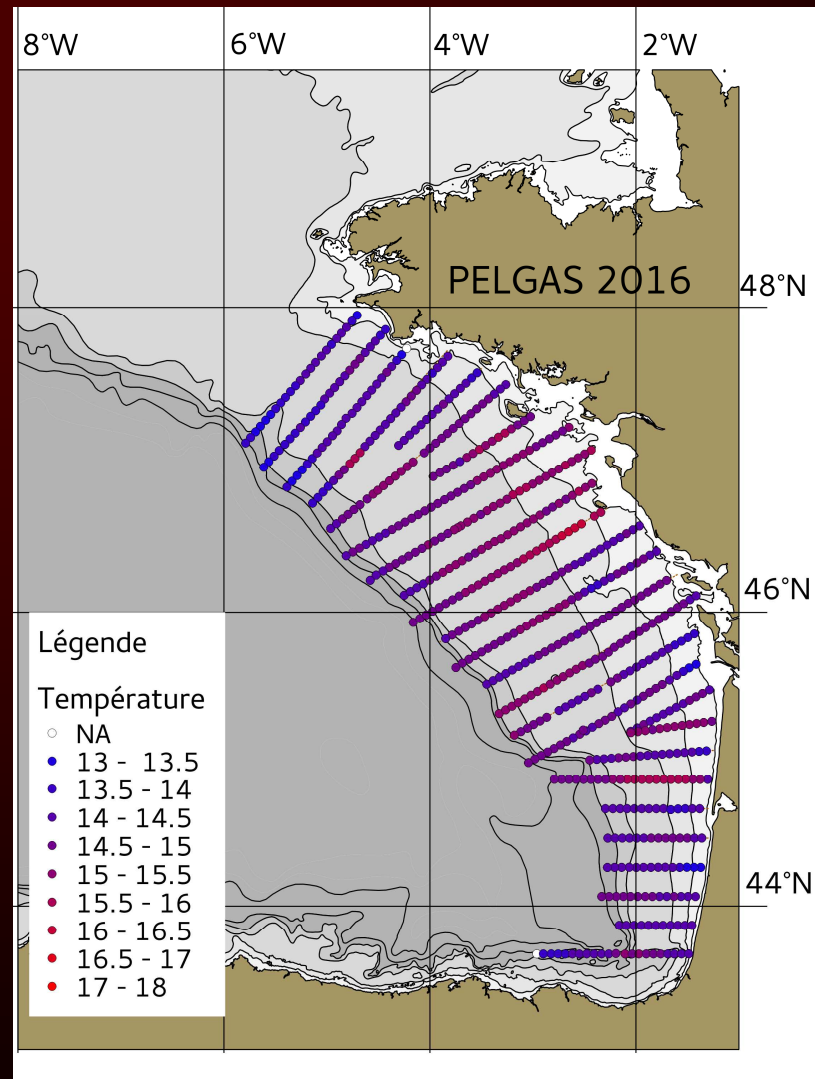
Estimation of the daily fecundity

(slope = DF: # eggs $g^{-1} d^{-1}$) by the ratio Ptot/B.

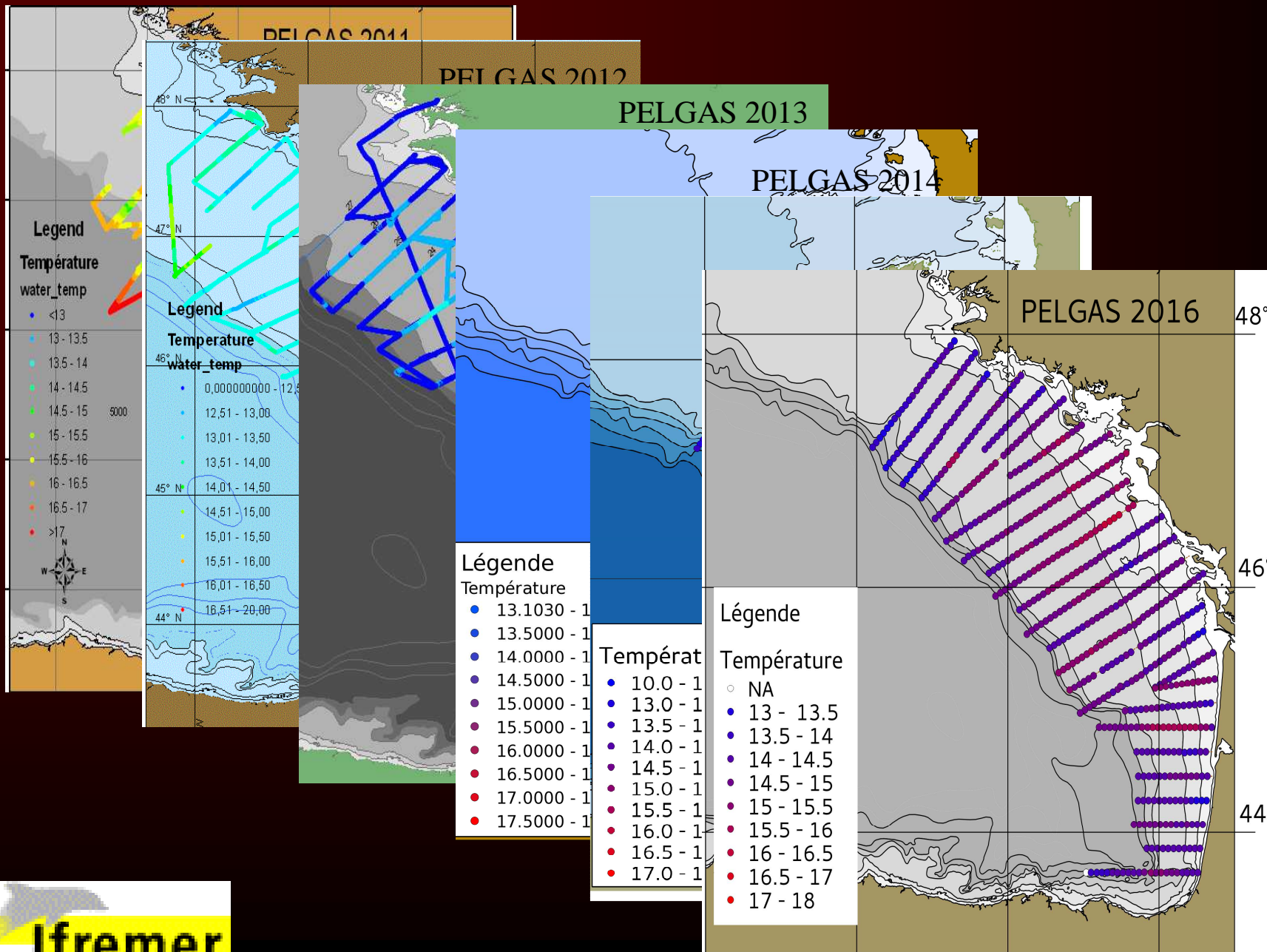
Comparison P_{tot} pelgas / P_{tot} bioman

Coming soon...

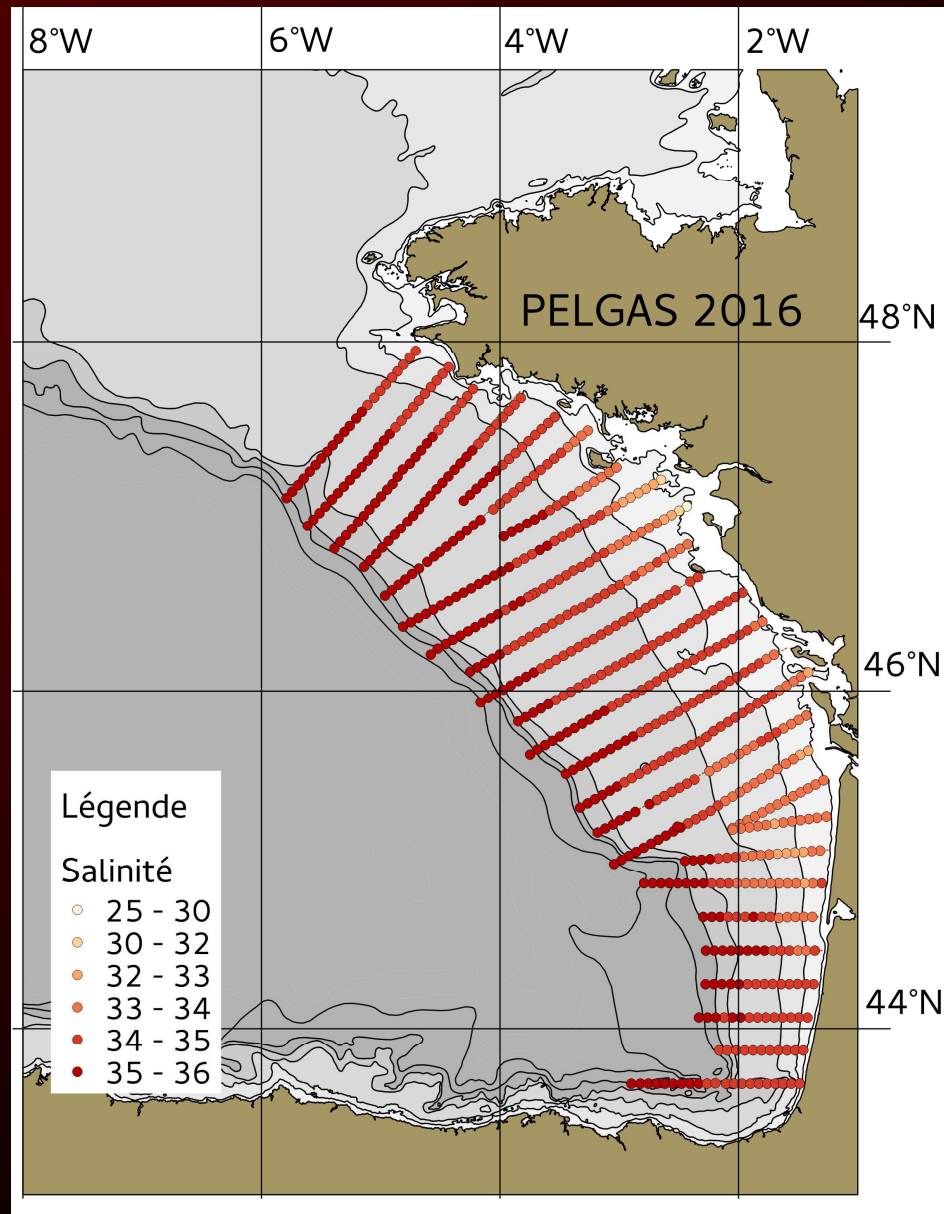
Sea Surface Temperature 2016



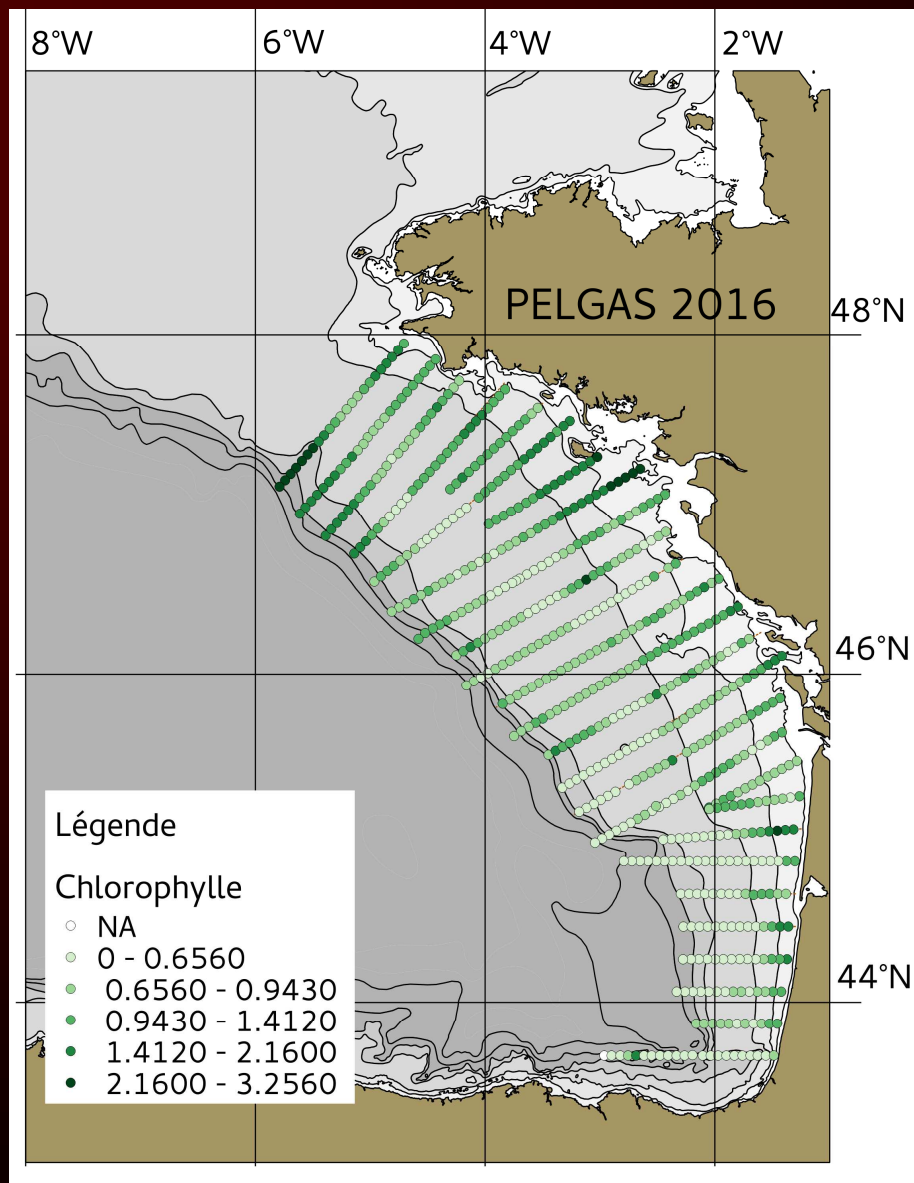
Comparison temperatures 2011 / 2012 / 2013 / 2014 / 2015 / 2016



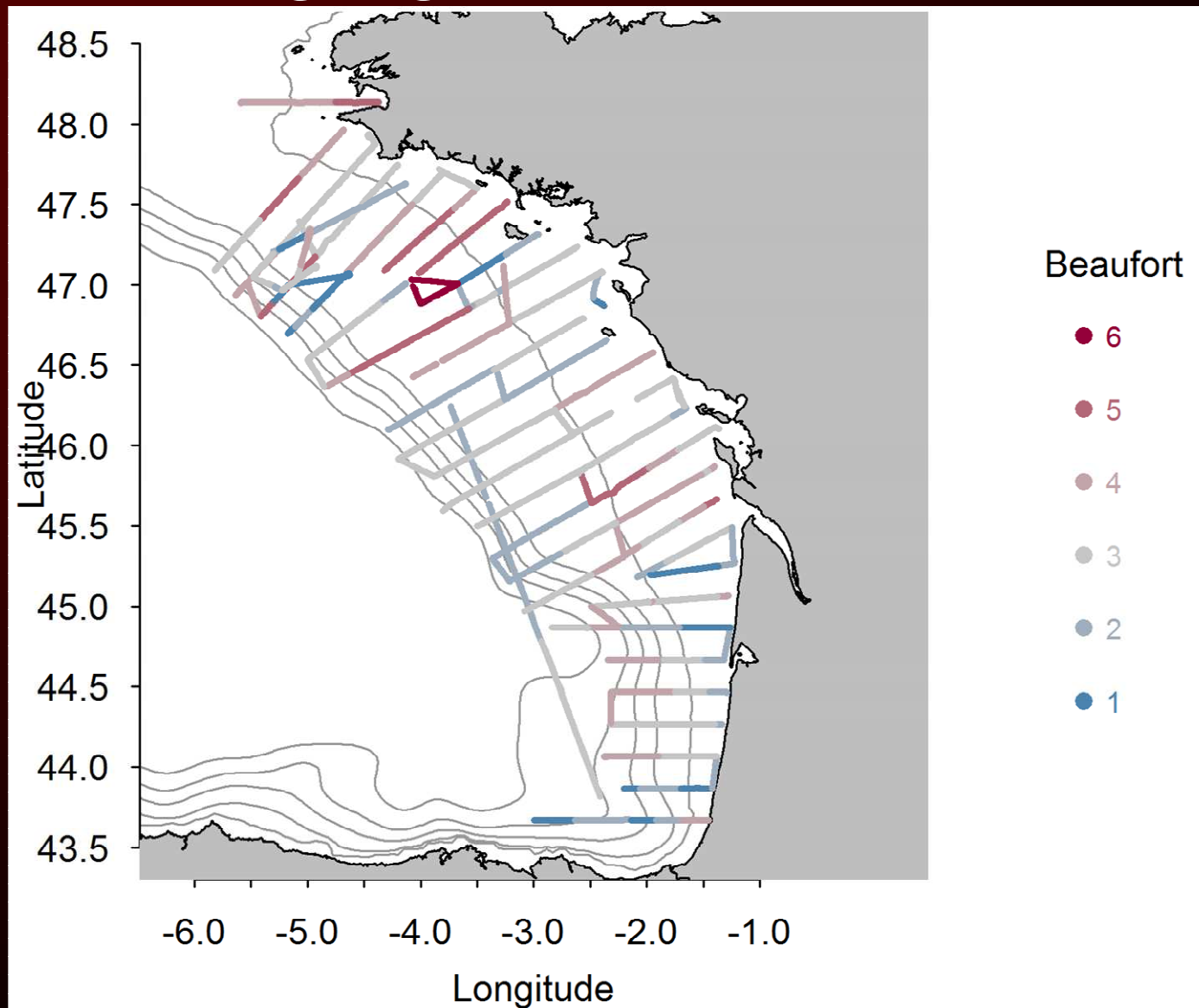
Salinity 2016



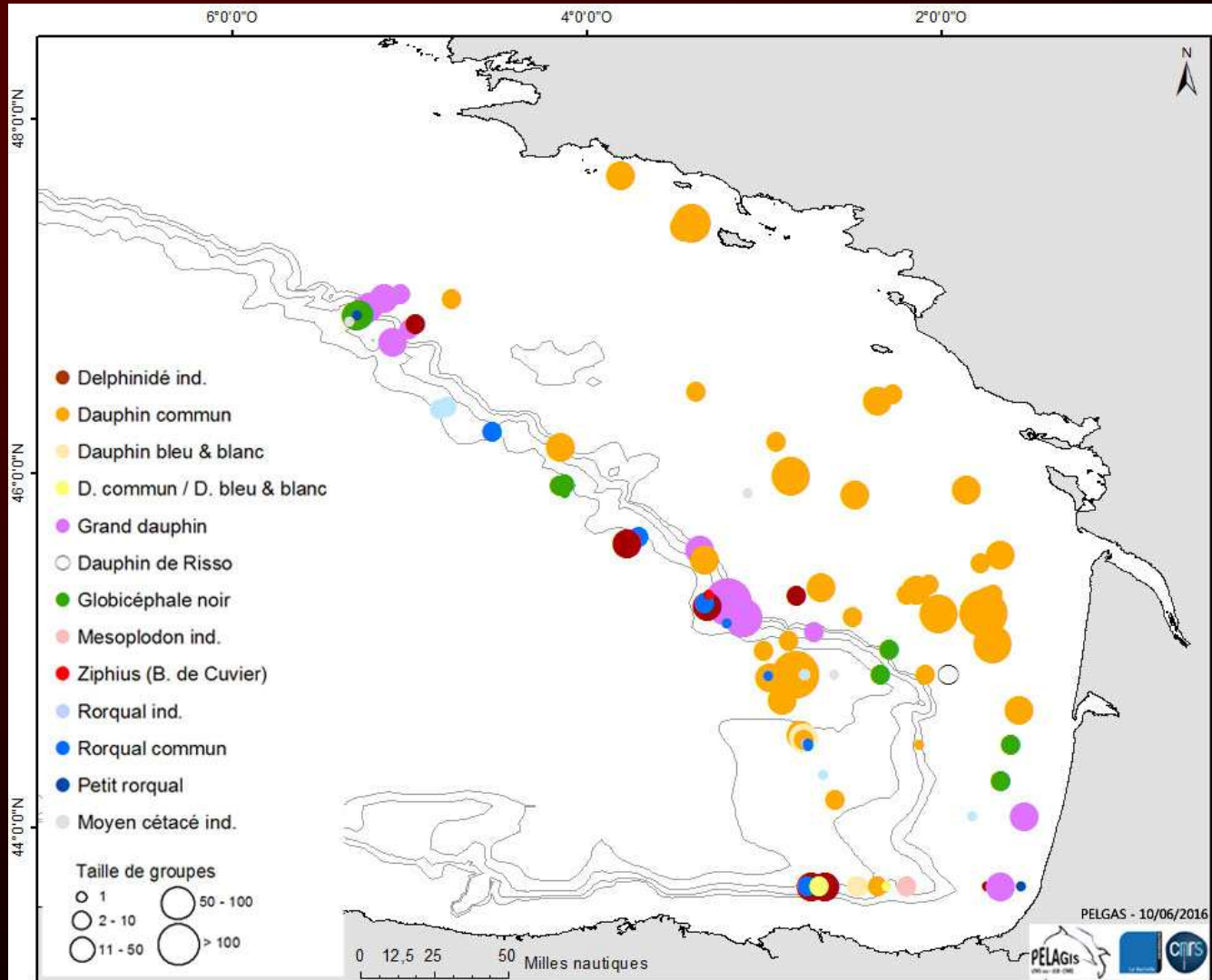
Fluorimetry 2016



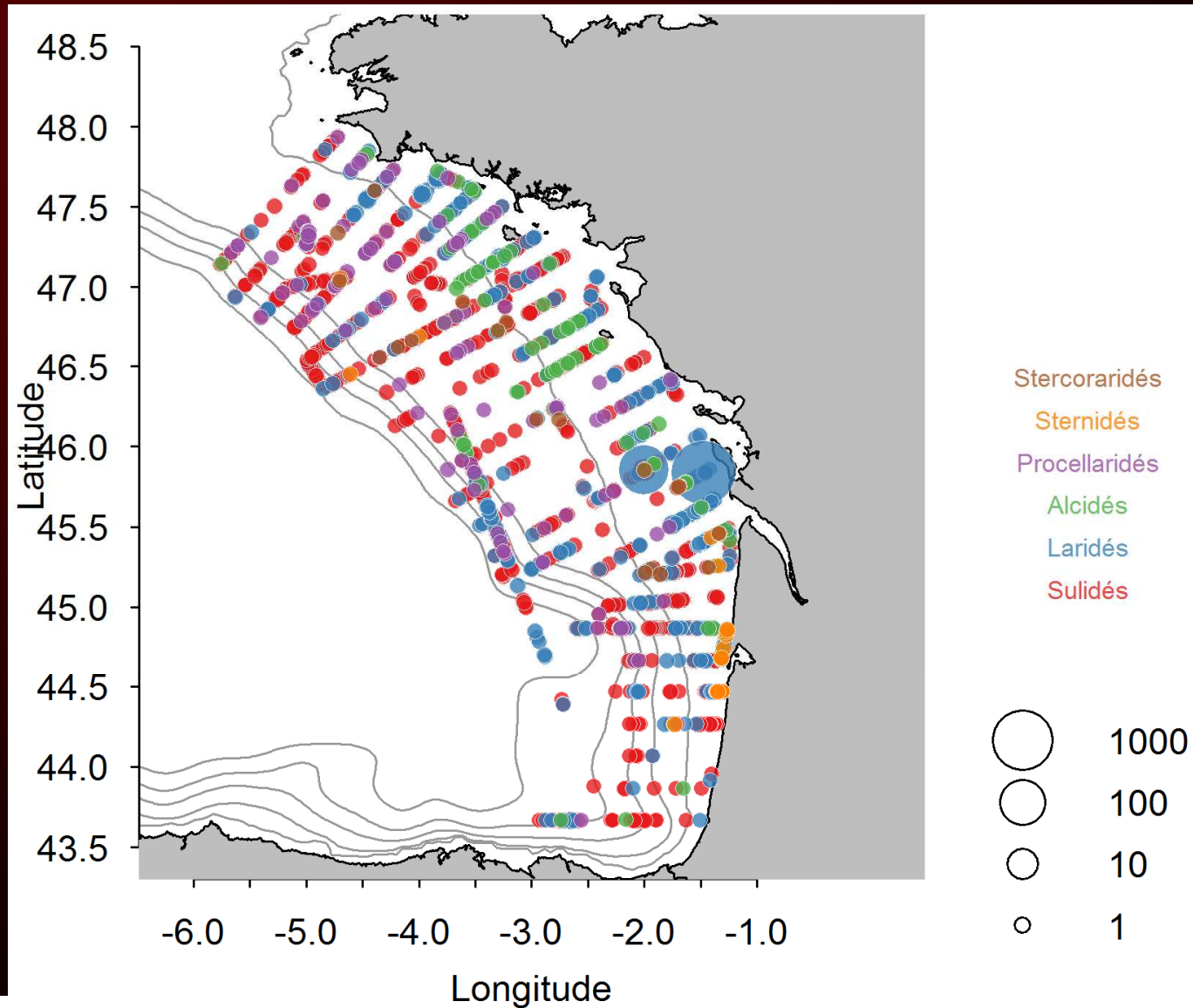
Sightings effort and conditions



Mammals



Birds



?