

Abundance estimate of sperm whales (*Physeter macrocephalus*) in the Canary Islands

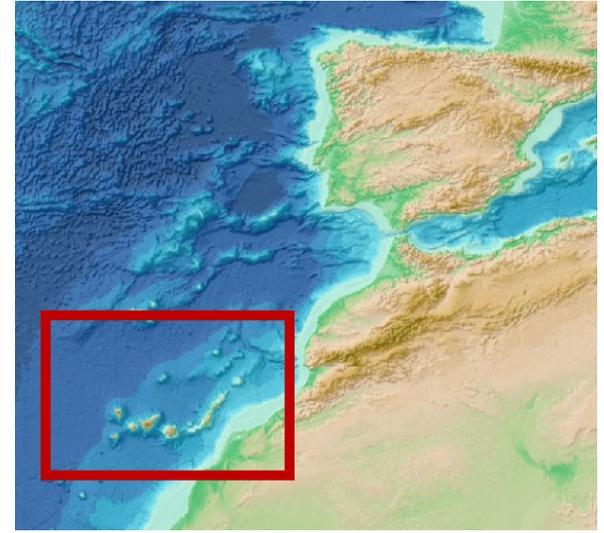
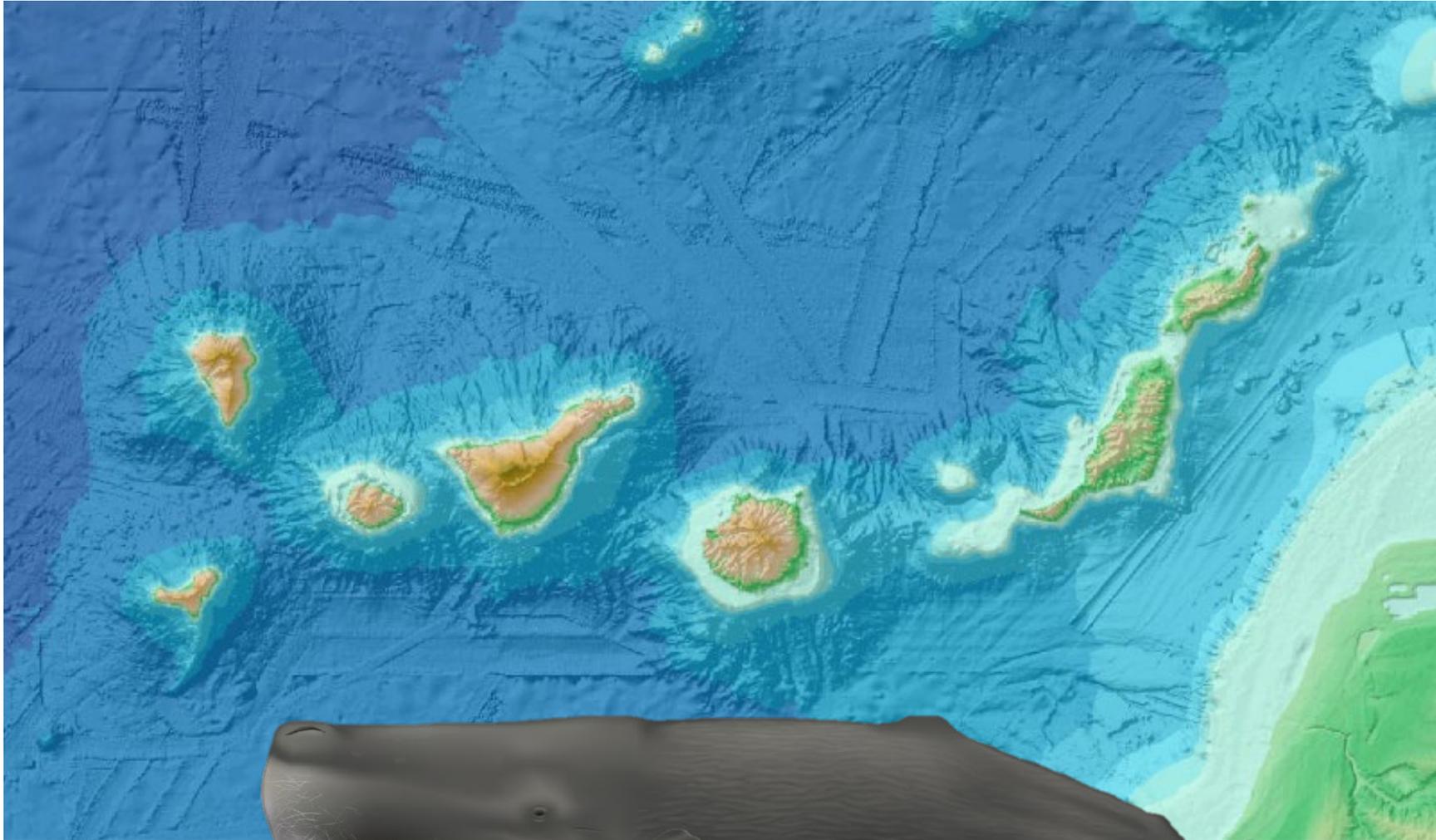


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Introduction



Introduction

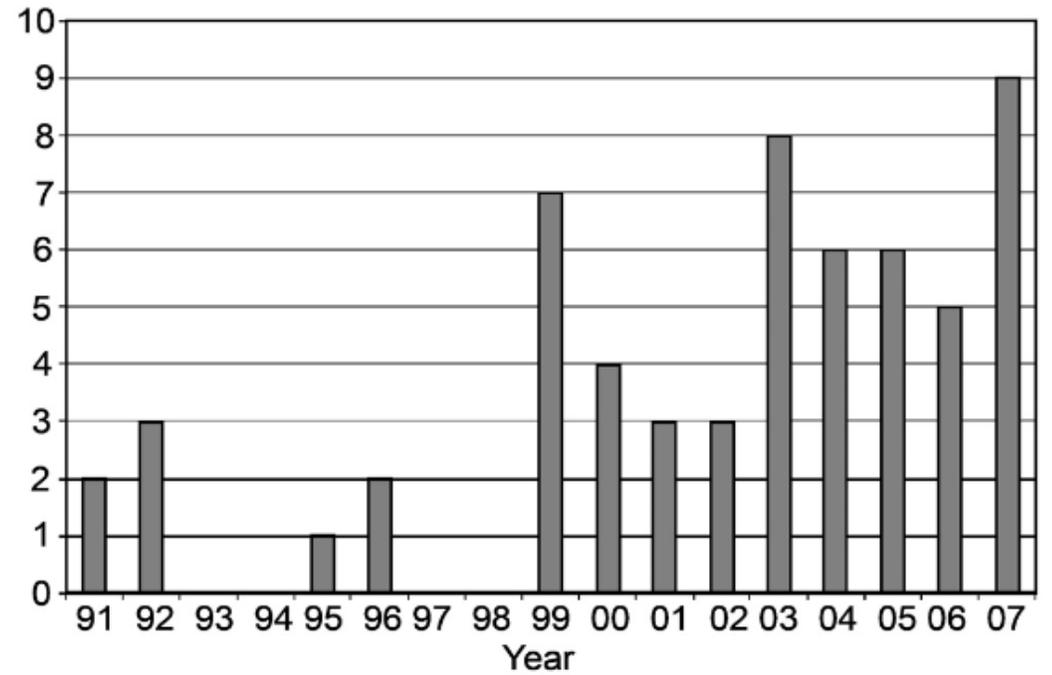
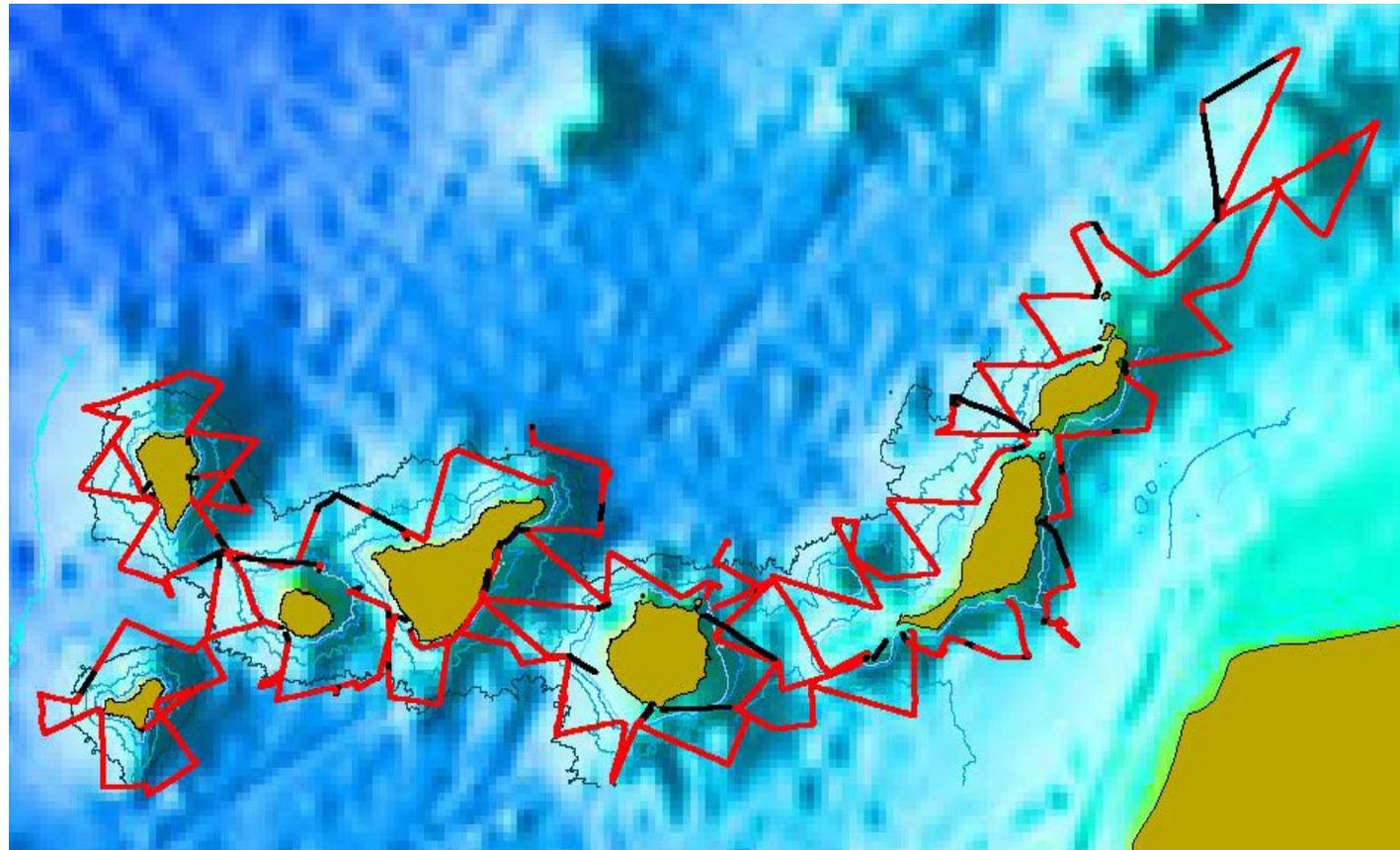


Fig. 2. Temporal distribution of vessel whale collisions in the Canary Islands 1991–2007 ($n = 59$).

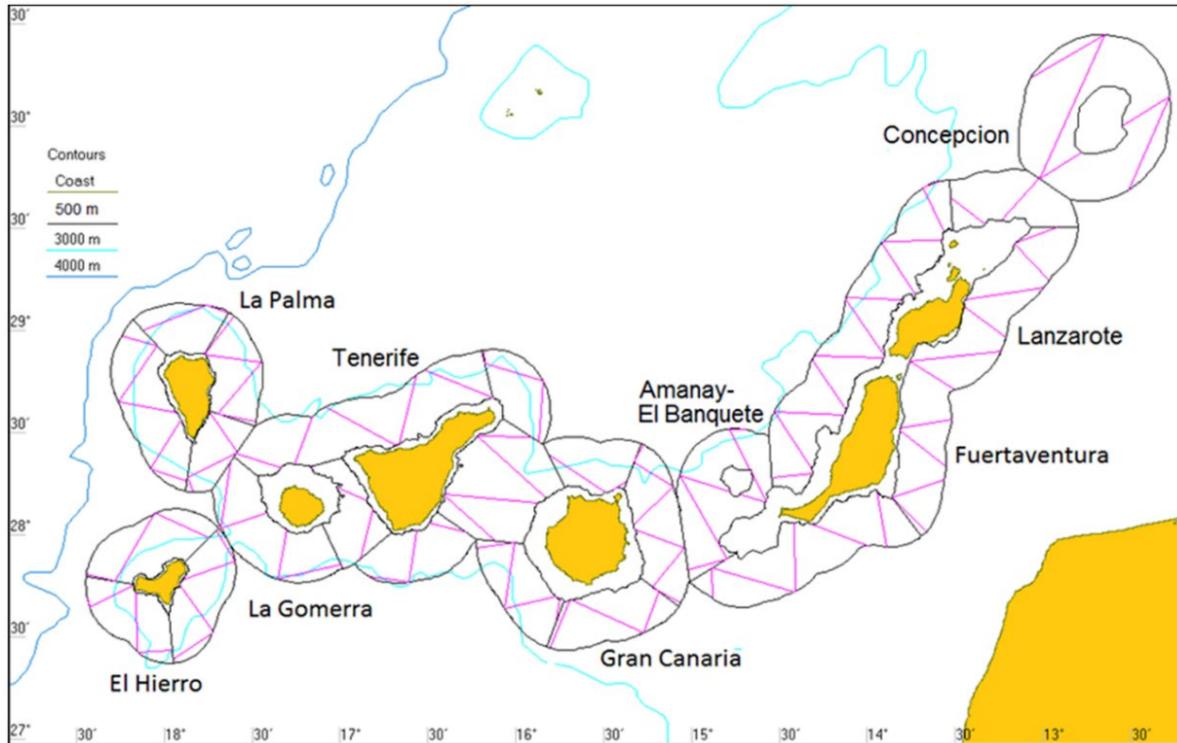
Carrillo & Ritter, 2010

Objective

To provide a second abundance estimate replicating the same methodology a decade ago

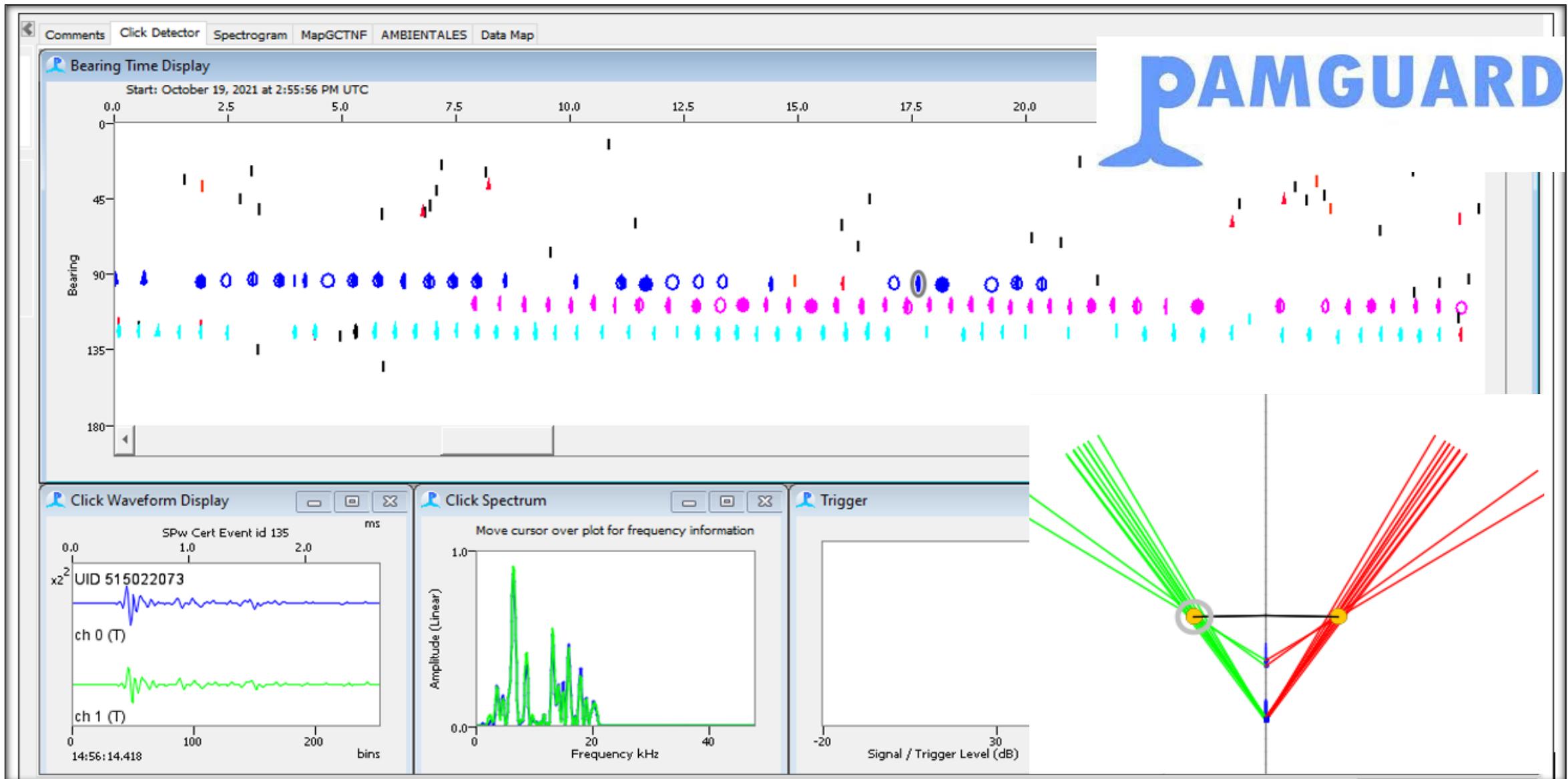


Mat & Met: Survey design

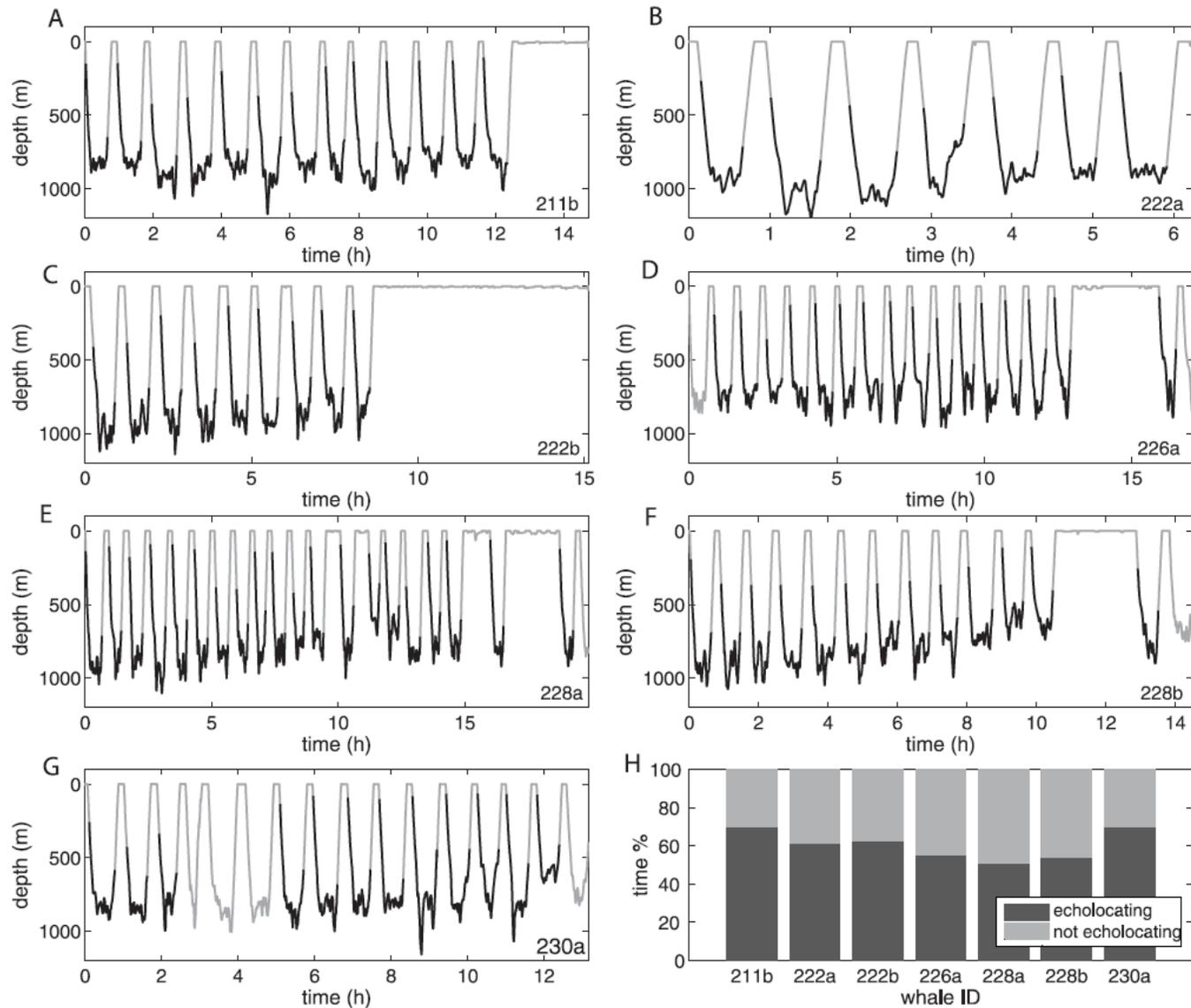


Length (L) = 2012 km
Area = 53748.67 km²

Mat & Met: Click analysis



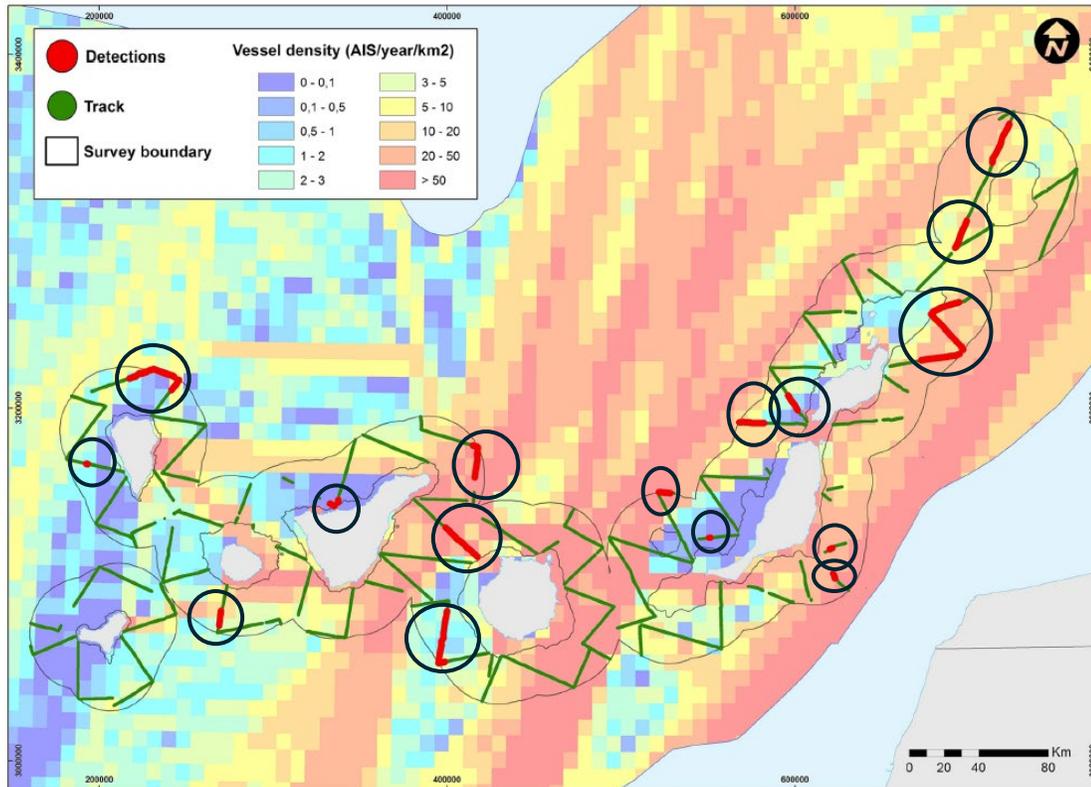
Mat & Met: $g(0)$ estimation



$g(0) = 0.92$

Results: number of detected sperm whales

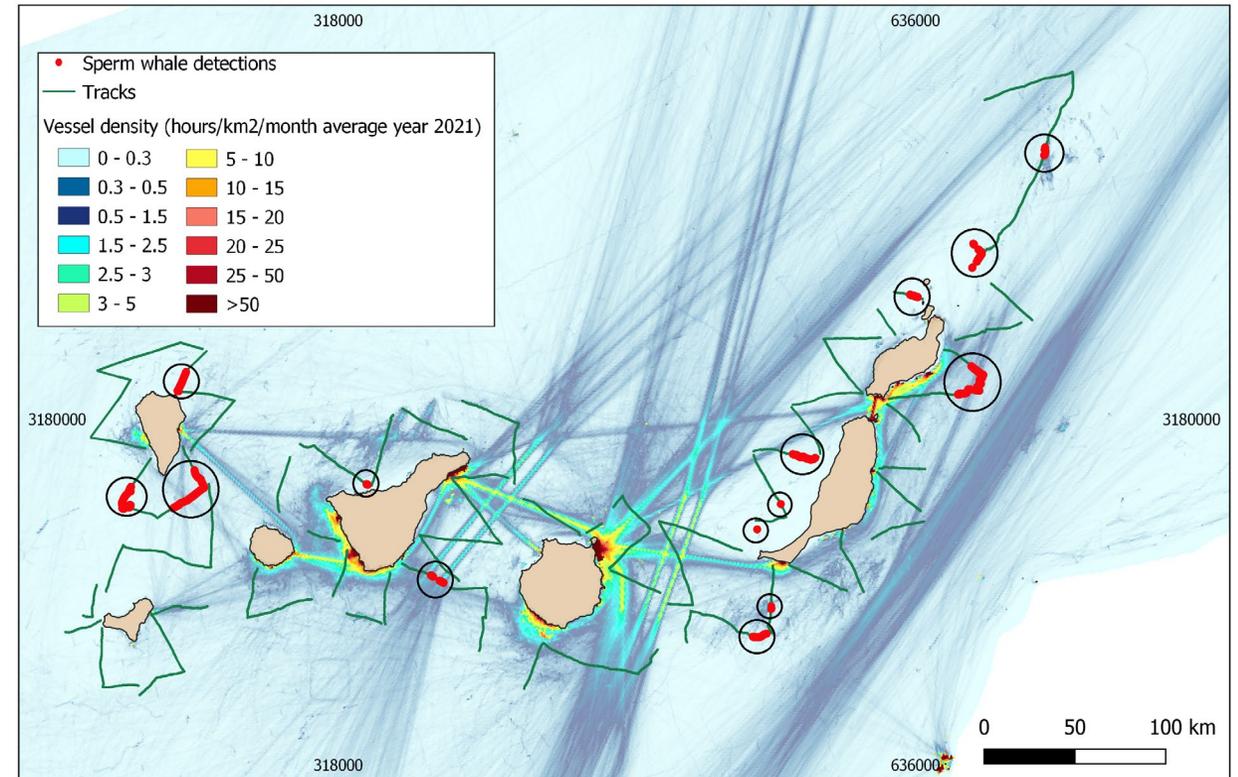
Año 2010



n = 85

Fais *et al.*, (2016)

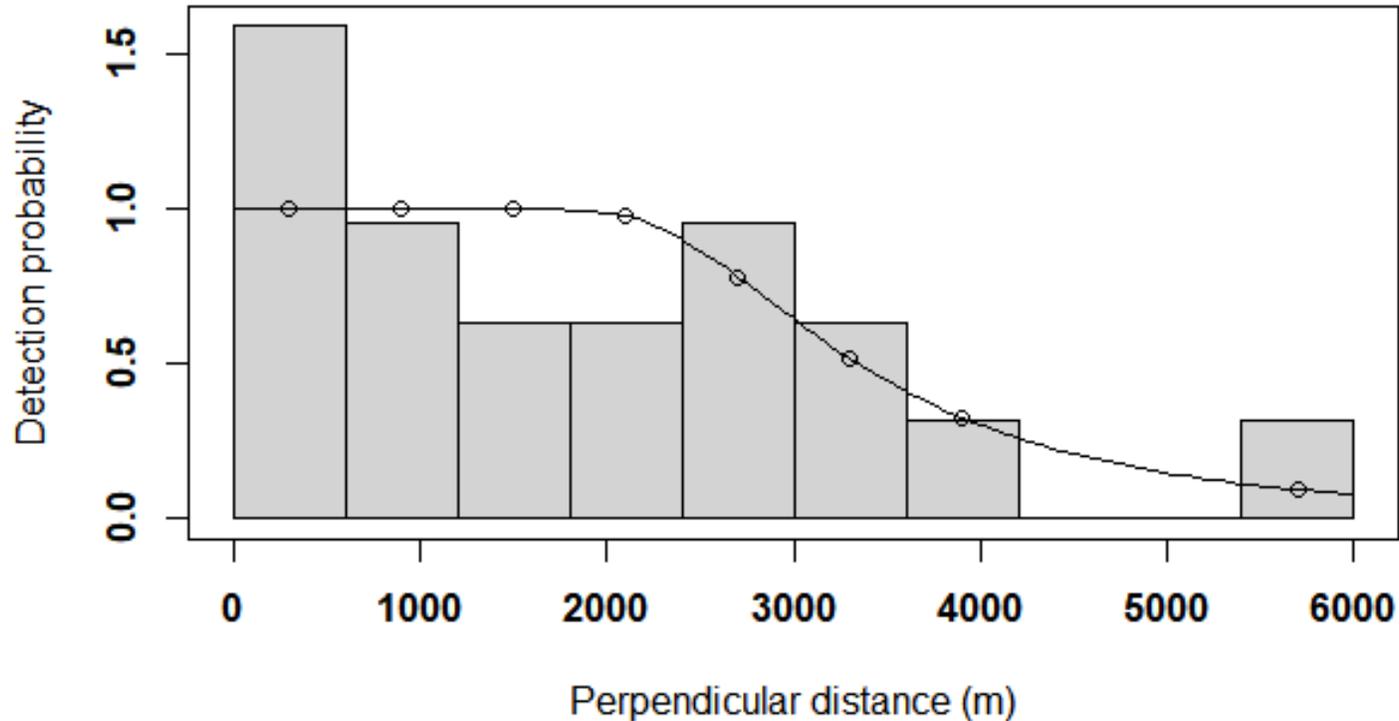
Año 2021



n = 30

Miranda *et al.*, (en prep.)

Results: abundance estimates of sperm whales (N)



n = 30 individuals

$\hat{\mu} = 3.6$ km

A = 53748.67 km²

L = 2012 km

$g(0) = 0.92$

N = 117
(95% CI 85 -185)

$$\hat{D} = \frac{n}{2\hat{\mu}L} \times \frac{1}{g(0)} \text{ [whales/unit area]}$$

Results: abundance estimates of sperm whales (N)

n = 85 individuals

$\hat{\mu} = 4.1$ km

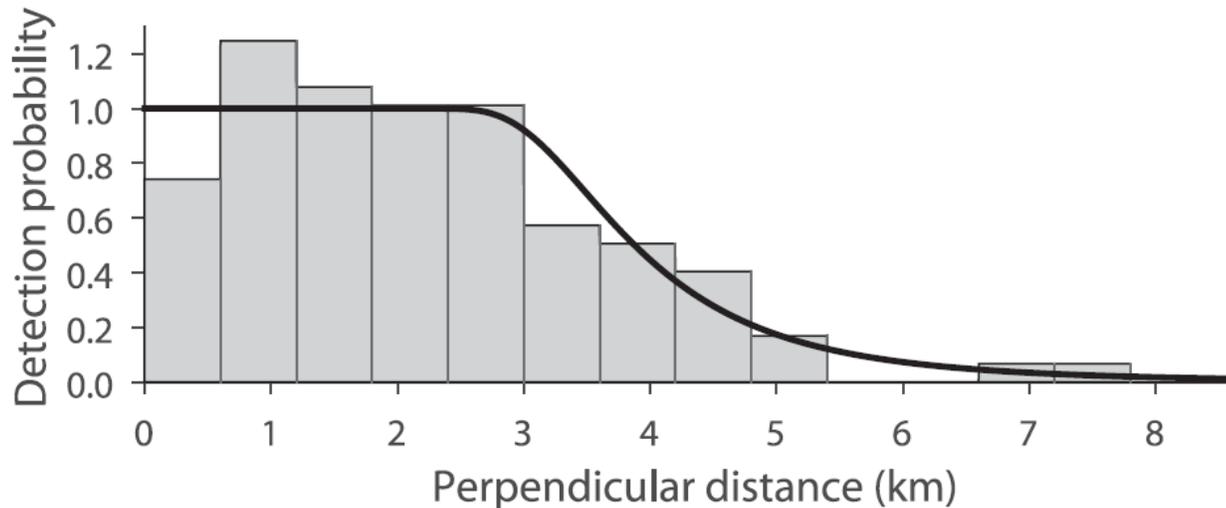
A = 53748.67 km²

L = 2668 km

g(0) = 0.92

N = 224
(95% CI 120 - 418)

D = 4.24 ind/1000 km²
(95% CI 2.27 - 7.89)



Fais *et al.*, (2016)

n = 30 individuals

$\hat{\mu} = 3.6$ km

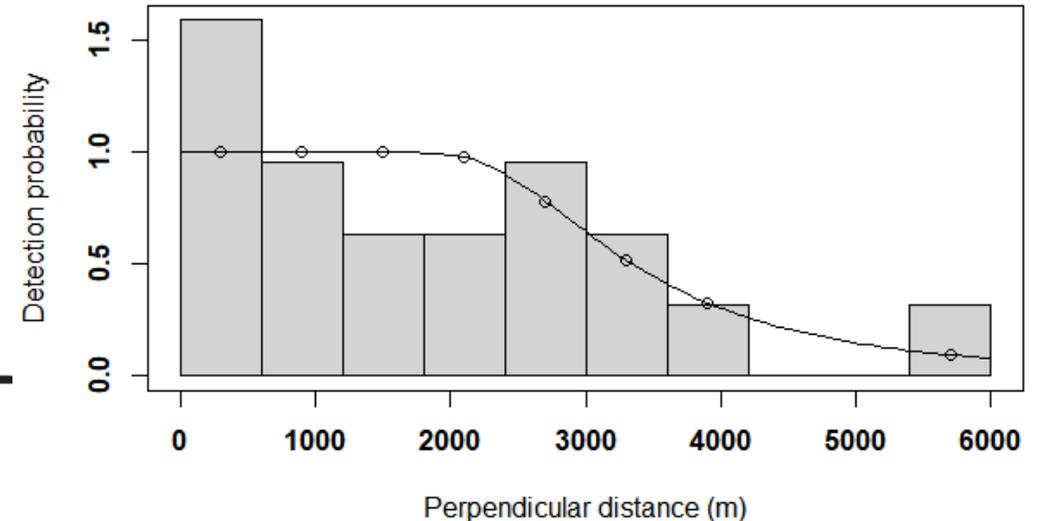
A = 53748.67 km²

L = 2012 km

g(0) = 0.92

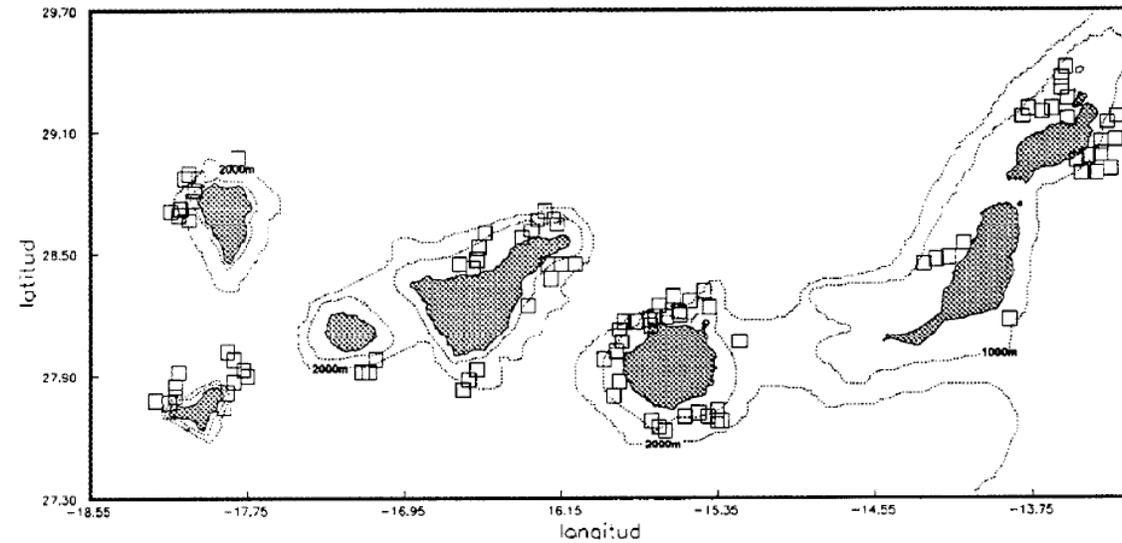
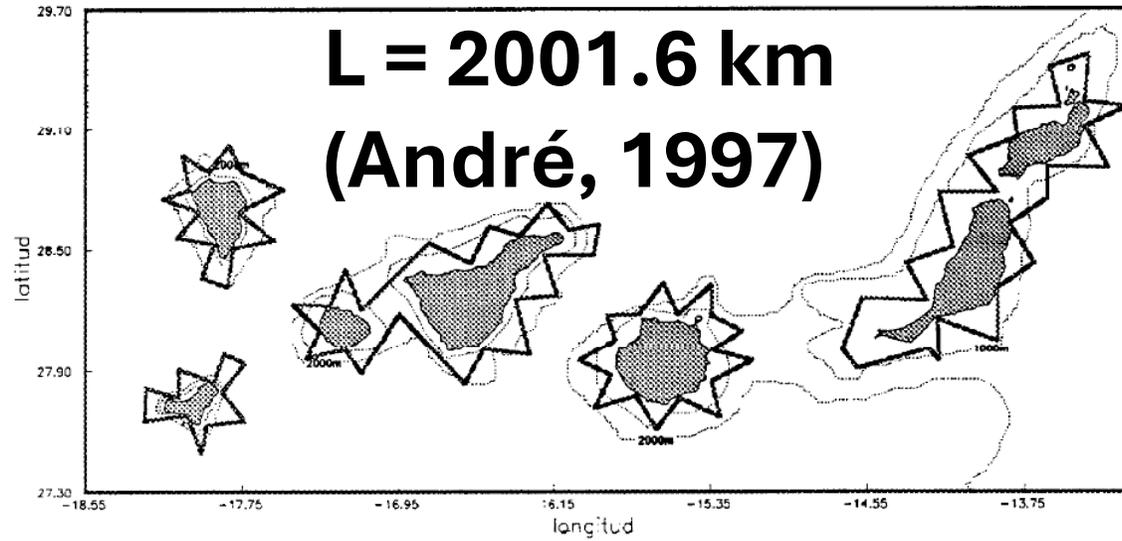
N = 117
(95% CI 85 -185)

D = 2.18 ind/1000 km²
(95% CI 1.59 - 3.44)

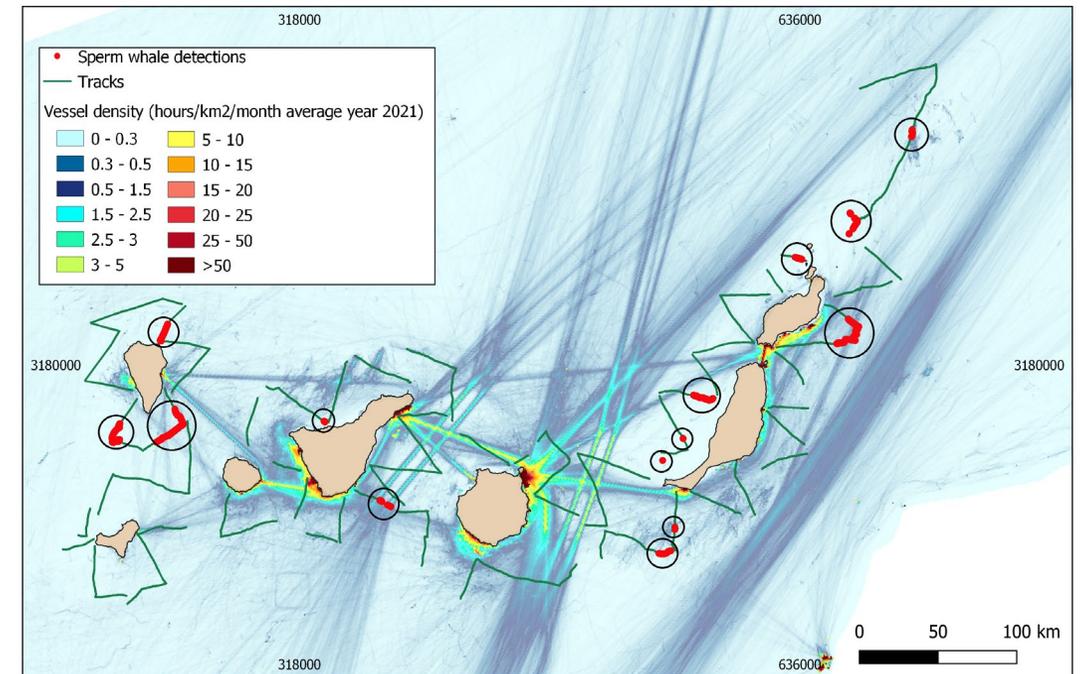


Miranda *et al.*, (en prep.)

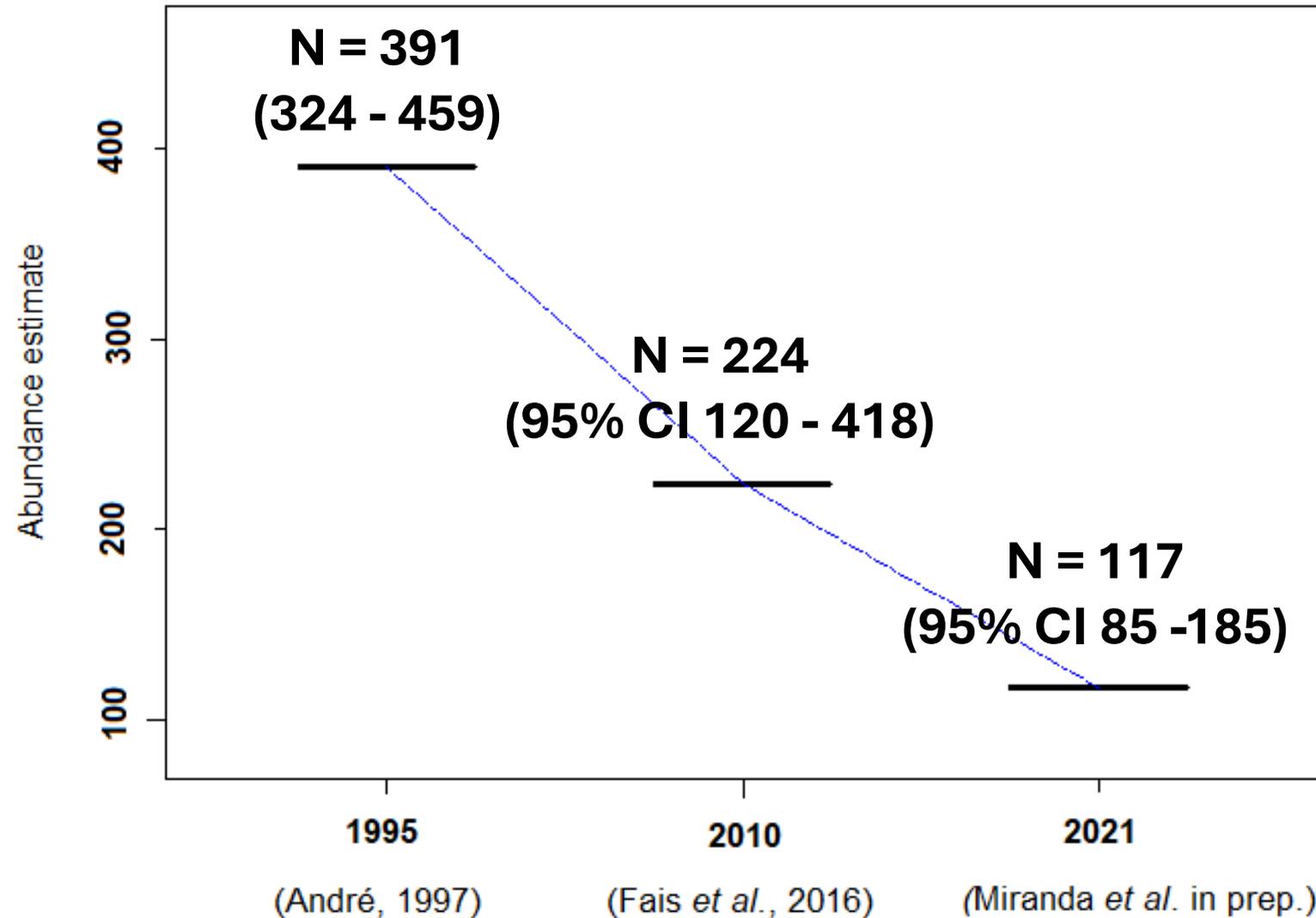
Discussion



**L = 2012 km
(Miranda, 2021)**

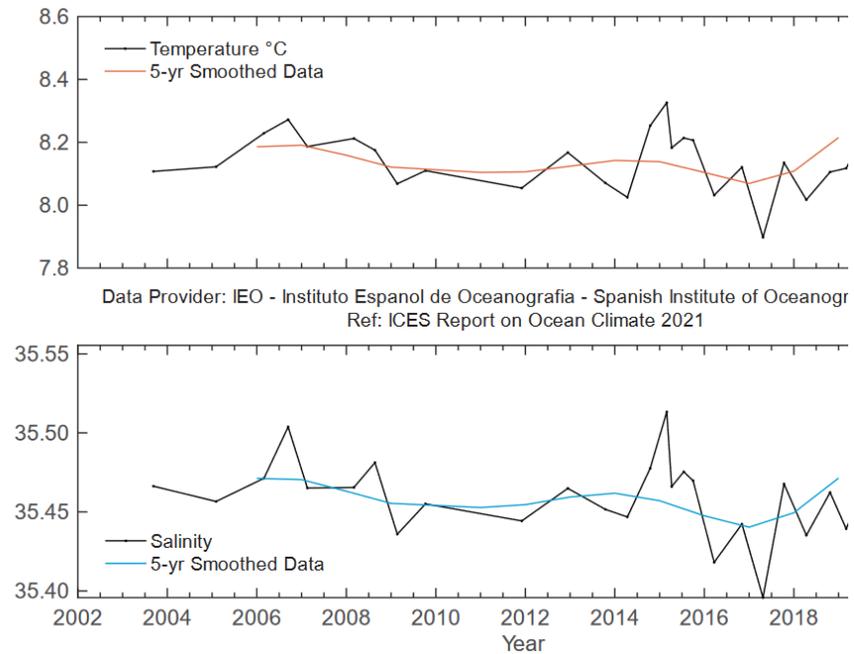


Discussion



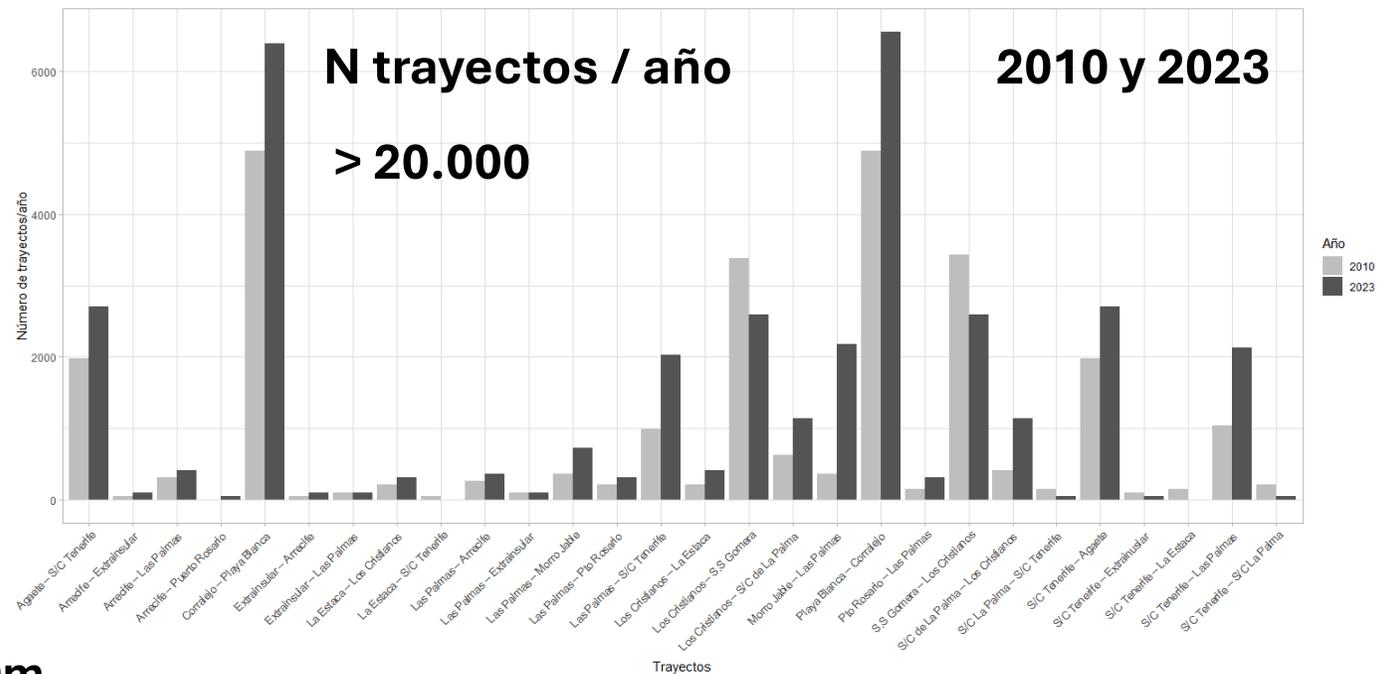
Discussion: Why?

Climate change ?



Vélez et al. IROC-ICES 2021. T y S a 800-1400m

Strike rate ~ 2/year from 1999
(Diaz-Delgado et al., 2018; Arbelo et al., 2013)



It cannot be ruled out that the decline may have been caused by collisions

Thanks for your attention



NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX