



Hélène LABACH  
hlais3m@gmail.com



# Analysis of 23 years of Risso's dolphin's photo-identification in North-Western Mediterranean Sea, first results on movements and site fidelity

Hélène Labach<sup>1,3</sup>, Frank Dhermain<sup>1,3</sup>, Jean-Michel Bompar<sup>1</sup>, Franck Dupraz<sup>1,3</sup>, Jérôme Couvat<sup>1</sup>, Léa David<sup>2,3</sup> and Nathalie Di-Méglio<sup>2,3</sup>

(1) GECEM Groupe d'Etude des Cétacés en Méditerranée, clinique vétérinaire du redon, 13 boulevard du redon, 13009 Marseille, France

(2) EcoOcéan Institut, 18 rue des Hospices, 34090 Montpellier, France

(3) GIS3M Groupement d'Intérêt Scientifique pour les Mammifères Marins de Méditerranée, Parc national de Port-Cros, allée du castel Sainte Claire, BP70220, 83406 Hyères cedex, France

## INTRODUCTION

In the context of the French PELAGOS Sanctuary Research program 2010-2012, the GECEM, in partnership with the GIS3M and EcoOcéan Institut, conducted a study on Risso's dolphin population in North-Western Mediterranean Sea. This study allowed collecting new photo-ID data and comparing two catalogues of photo-ID aggregated by the GECEM since 1989 and EcoOcean Institut since 1994.



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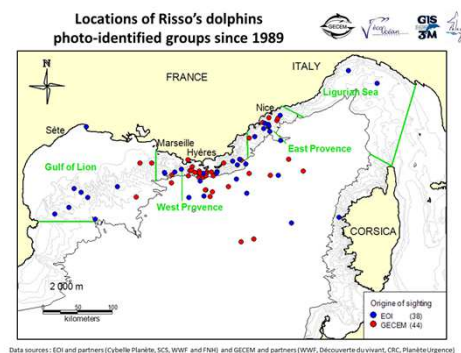
## MATERIAL & METHOD

- Study area : North Western Mediterranean Sea  
5 areas : OffShore (bathy>2000m), Gulf of Lion, West Provence, East Provence, Liguria
- Matching of 2 Risso's dolphins photo-ID catalogues collected by the GECEM and EcoOcéan

### Catalogues' content

Catalogue	Period	Number of groups photo-identified	Number of pictures	Number of Right profiles	Number of Left profiles	Number of both sides Identifications
GECEM	1989-2012	44	621	331	290	146
EOI	1994-2011	38	531	215	201	147

- Calcul of fidelity rate for dolphins recaptured at least 2 times:  
FR=Number of sightings of an individual in a specific area/Total number of sightings of the individual



## RESULTS

### Recaptures

- 896 identifications, 754 individuals, 179 recaptures (20%) concerning 122 dolphins
- 68% of the recaptured dolphins observed only twice and 7% observed at least 4 times.
- 16% of the recaptures occurred during the same year and 84% occurred in different years distant from 1 to 18 years.

### Sites frequentation

- 73% of the sightings occurred on the continental slope
- Fidelity rate calculated for different areas show a high fidelity for the West Provence continental slope and a transient use of the offshore area.

### Repartition of sightings and fidelity rate in the different areas

Areas	Gulf of Lion	West Provence	East Provence	Liguria	Offshore	Mean
Number of sightings	23	194	67	2	15	
Number of individuals sighted	18	100	42	2	14	
Fidelity Rate Mean (SD)	0,58 (0,25)	<b>0,78</b> (0,25)	0,63 (0,27)	0,5 (0,00)	0,42 (0,21)	0,58 (0,14)

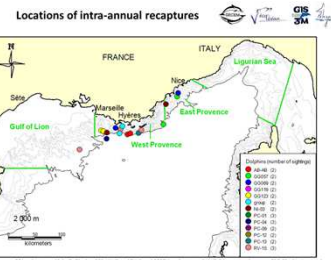
### Movements

#### Intra-annual :

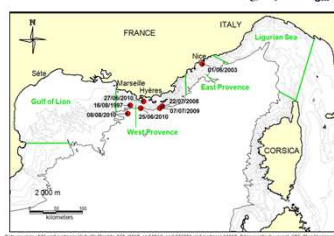
- Mean distance between intra-annual recaptures: 33 km (EC=38) and maximum: 132 Km
- Distance between two intra-annual sightings independent of the time, maximum speed of movement: 7km per day.

#### Inter-annual :

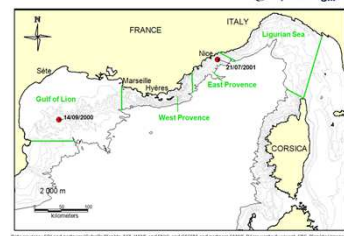
- Mean distance between two inter-annual sightings: 59 km (EC=61; min=2; max=309).
- 75% of the recaptures occur within 100 km from the other sightings of the individual and 63% within 50 km.
- Two individuals show long distance movements (more than 200 km).



### Sightings of the dolphin PC-04



### Sightings of the dolphin GG227



## CONCLUSIONS & PERSPECTIVES

This study shows the interest of long-term photo-identification for the study and management of this species. Gathering for the first time so many data on this population, these preliminary analyses comfort the hypothesis of a seasonal and regular use of the West Provence continental slope as a foraging area. The following analysis of this matching should provide interesting data on population structure. More data collecting all year round should help to conclude on a seasonal frequentation of these areas. The comparison with other catalogues in the North-Western Mediterranean basin should improve the understanding of the movements and the structure of the Risso's dolphin's population.

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## AKNOWLEDGEMENTS

