

Historical killings of common dolphins in the Northeast Atlantic and Mediterranean, 19th-20th century

Marie A.C. Petitguyot ¹, Giovanni Bearzi ^{2,3,4}, Graham J. Pierce ¹

¹ Instituto de Investigaciones Marinas, Consejo Superior de Investigaciones Científicas, Vigo, Spain;

² Dolphin Biology and Conservation, Cordenons, Italy; ³ OceanCare, Wädenswil, Switzerland;

⁴ CNR National Research Council, ISMAR Institute of Marine Sciences, Venice, Italy



Collection Musée de la
carte postale - Baud ©

PIRIAC (L.-Inf.) - Tête de Marsouin

1. OBJECTIVES

Characterise historical conflicts between fishers and small cetaceans

Focus on French speaking countries (France, Algeria, Tunisia, Morocco) – particular interest in the French Mediterranean

- ① Understand the context and the chronology of the conflicts
- ② Describe methods used to kill cetaceans
- ③ Identify species of cetaceans killed
- ④ Quantify the number of cetaceans killed

2. MATERIAL & METHODS

Online archives

+5,000 documents examined - 311 kept
16th-20th century (focus 19th-20th)

French Mediterranean zoological collections

18 institutions (museums, universities, research institutes)
19th-21st century



Bibliothèque Nationale de France©



Collection Musée de la carte postale. — Baud©

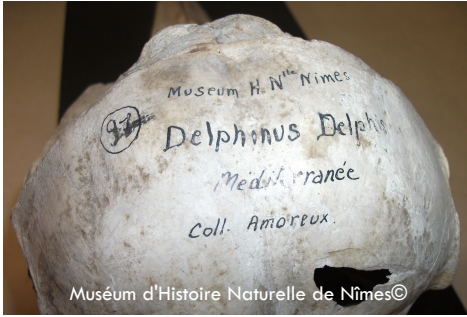


FIG. 219. — Le Dauphin de la Méditerranée. Longueur 1^m,54.

A. Bouvier, 1891. Bibliothèque Nationale de France©



Muséum d'Histoire Naturelle de Nîmes©



Muséum d'Histoire Naturelle de Nîmes©



Université de Montpellier — Mehdi Mouana©

3. RESULTS ① CONTEXT & CHRONOLOGY

Context

Perceived decrease in catches of **commercially important fish** (i.e., sardines, anchovies, mackerels, etc.)

The fishing community blamed small cetaceans:

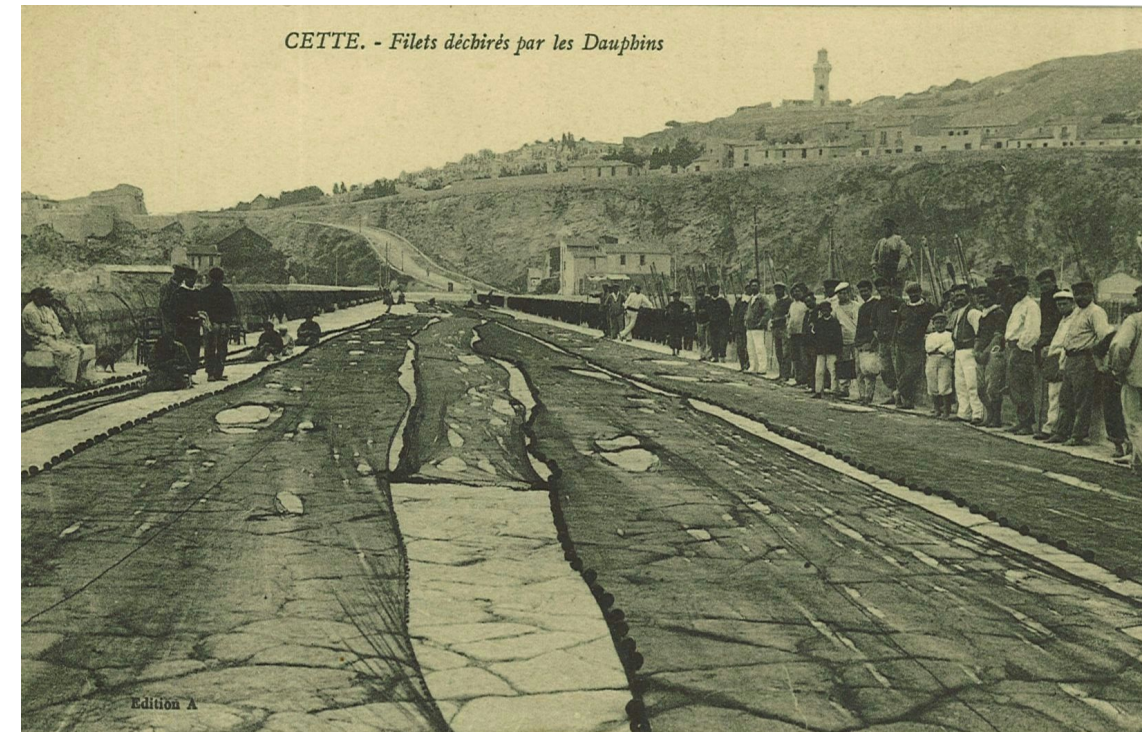
- scare fish away from nets
- damage nets when taking fish from the nets, or get themselves entangled in nets

→ loss of money

→ complaints to government

Chronology

- Conflicts from the end of the 16th century – mid-20th century
- Intensification from 18th century onwards
- Culling campaigns and bounties 1850s – 1950s



"CETTE - Fishing nets destroyed by dolphins", postcard published around 1910, Collection Musée de la carte postale – Baud©, visible at: <https://www.cartolis.org>

3. RESULTS ① CONTEXT & CHRONOLOGY

Culling campaigns

1. Bounty rewards to the fishing community and seafarers

Paid by the government, counties' representatives and Prud'homies

- France 63 years (1865-1927) (2.50-35 francs per animal) (1 Franc \approx 4.06 euros)
- Algeria 36 years (1904-1939) (5-10 francs per animal)
- Tunisia 1900?
- Morocco ?

2. Military patrols sent along the coast

- France (1883-1932)
- Algeria (1902-1913)



Bibliothèque Nationale de France©

Source gallica.bnf.fr / Bibliothèque nationale de France

3. RESULTS ② METHODS USED

Classification according to frequency of use

1. Commonly used methods

- Herding & beaching
- Fishing nets
- Harpoons, lances
- Torpedoes, bombshells
- Cannons
- Shotguns, rifles

2. Tried and abandoned methods

- Bellot's needles
- Ocellus method
- Explosive cartridges

3. Not implemented or of unknown frequency

- Delbreuil method (hypnotising animals with light)
- Explosives mines and explosive cartridges
- Poisoned baits
- Prayers
- Rabies
- Gaz projectiles
- Seaplanes and airships

La Nature, 1926

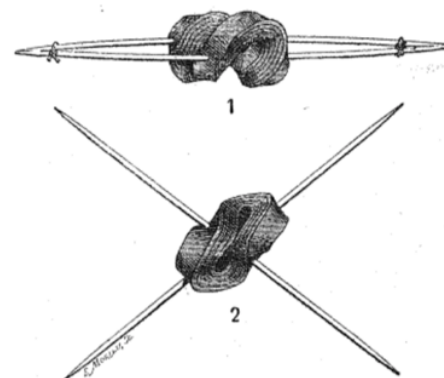


Fig. 1. — Aiguilles Bellot fermées (1) et ouvertes (2).
(D'après La Nature, 1^{er} septembre 1894.)

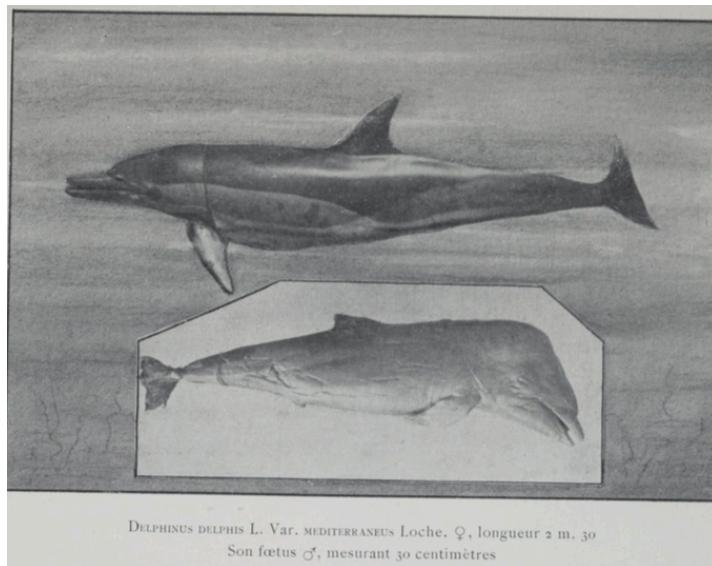
Le Petit Journal. Supplément illustré, n° 640, 22nd of February 1903. Bibliothèque Nationale de France©



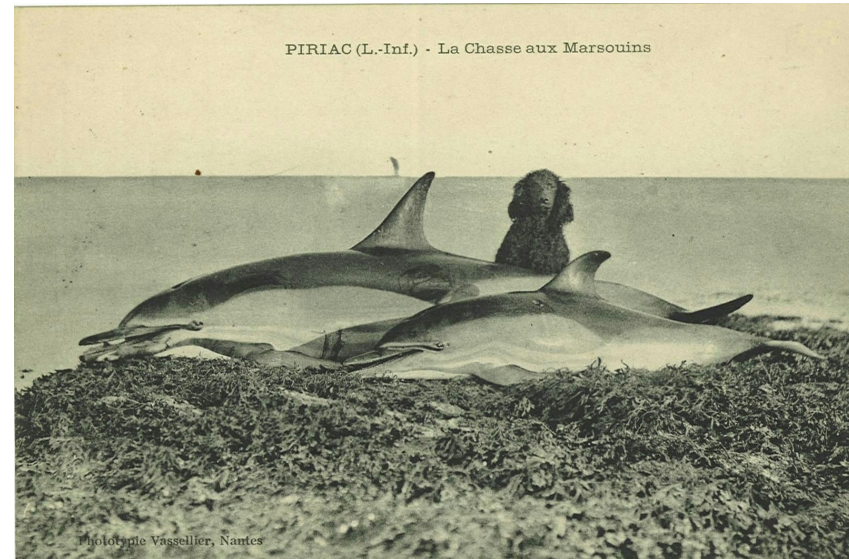
3. RESULTS ③ SPECIES KILLED

A few names used to refer to various species: “*porpoises*”, “*belugas*”, etc. → makes it difficult to know the species

- Photos
- Illustrations
- Descriptions in zoology books
- Information about morphology, behaviour, prey



M.L. Pourcel, 1910. Bibliothèque Nationale de France©



Collection Musée de la carte postale – Baud©. Postcard published around 1910.



L'Echo d'Alger, n°10235, 14th of August 1938.
Bibliothèque Nationale de France©

3. RESULTS ③ SPECIES KILLED

Zoological collections from the French Mediterranean → 104 specimens from the French Mediterranean and Monaco

1. External morphology



2. Bones morphology



3. Bones measurements



3. RESULTS ③ SPECIES KILLED

FA: French Northeast Atlantic
FM: French Mediterranean
A: Algeria

Most common species



Common dolphin (*Delphinus delphis*) FA, FM, A



Bottlenose dolphin (*Tursiops truncatus*) FA, FM, A

Rarer species



Striped dolphin (*Stenella coeruleoalba*) FM, A



Harbour porpoise (*Phocoena phocoena*) FA



Pilot whales (*Globicephala melas*, *Globicephala macrorhynchus*) FM



Risso's dolphin (*Grampus griseus*) FA, FM

Illustrations: accobams.org; sanctuaire-agoa.fr

3. RESULTS ④ NUMBERS KILLED

Not possible to access numbers per species

France

- No access to bounty time-series → but potentially available in regional archives ^{1, 2}
- **Minimum estimate** from historical documents + scientific publications ^{1, 2}: 6,614 animals
 - 5,590 animals killed during a 5-year period (1921-1925) ³

Algeria

- Access to bounty time-series
- **Minimum estimate** 8,352 animals killed between 1900-1939

Additional mortality not taken into account (military, animals sinking when killed, difficulty to carry the carcasses back to land, etc.)

At least tens of thousands of small cetaceans killed, particularly in the French Mediterranean

Tens of thousands of small cetaceans killed

¹ Faget, 2009; ² Fichou and Levasseur, 2004; ³ Legendre, 1926

4. CONCLUSION

Previous work

Adriatic ¹, Italy ², Sardinia ², Greece ³, Spain ⁴, France ^{5,6}

Thesis results

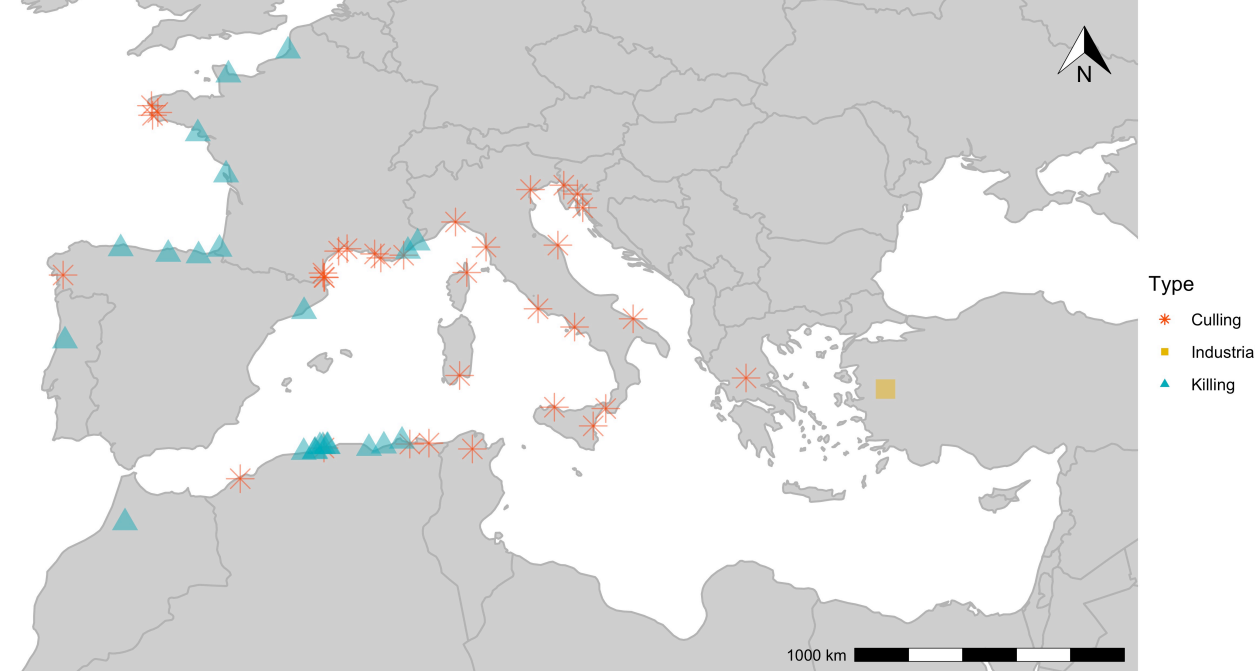
France, Corsica, Algeria, Tunisia, Morocco

- Tens of thousands of common dolphins killed in the Northeast Atlantic and Mediterranean during the 19th-20th century

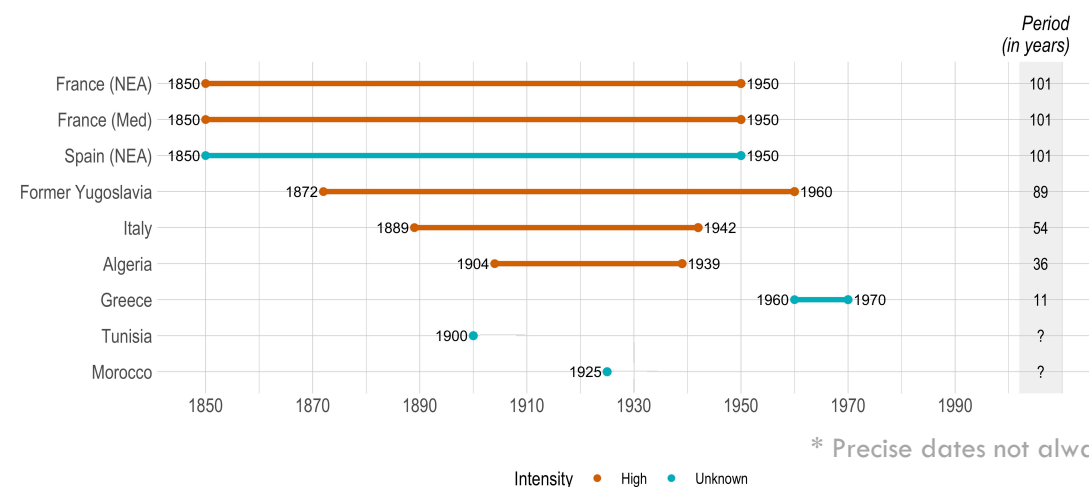
- Killings particularly important in the **Mediterranean**

→ **Populations seriously depleted**

A step further towards historical baselines of abundance and distribution to use to compare with the present status of populations



Culling campaigns (fishers, seafarers and the military) *



1: Bearzi et al. 2004; 2: Meliàdò et al. 2020; 3: Foskolos et al. 2020; 4: Valdés Hansen, 2004;2009; 5: Fichou and Levasseur, 2004; 6: Faget, 2009.

ACKNOWLEDGMENTS

CONTACT:

Marie PETITGUYOT

mpetitguyot@iim.csic.es



FUNDING

This research is funded under the SeaChanges ITN - Marie Skłodowska-Curie Actions-ITN grant n°813383

BONES IDENTIFICATION

Youri VAN DEN HURK; Marisa TEJEDOR FUENTES

ZOOLOGICAL COLLECTIONS

Institut océanographique, Monaco: Michèle BRUNI

Muséum National d'Histoire Naturelle de Paris: Aude LALIS; Céline BENS

Musée des Confluences, Lyon: Didier BERTHET

Musée Zoologique de Strasbourg: Marie-Dominique WANDHAMMER

Muséum d'Histoire Naturelle d'Aix en Provence: Nicolas VIALLE

Muséum d'Histoire Naturelle de Bordeaux: Matthieu LANDREAU

Muséum d'Histoire Naturelle de Marseille: Christophe BORRELY

Muséum d'Histoire Naturelle de Nice: Olivier GERRIET

Muséum d'Histoire Naturelle de Nîmes: Laura MORAZZANI; Agnès SERVIÈRE;
Adeline ROUILLY

Muséum d'Histoire Naturelle de Perpignan: Didier MARY

Muséum d'Histoire Naturelle de Toulouse: Henri CAP

Muséum départemental du Var: Jérémie MIGLIORE

Muséum d'Histoire Naturelle de La Rochelle: Adeline AUMONT

Muséum d'Histoire Naturelle de Troyes: Ghislain GREGOIRE

Université de Nantes (collection de zoologie): Priscilla DECOTTIGNIES; Bruno COGNIE

Université Claude Bernard Lyon 1 (collection de zoologie): Blandine BARTSCHI

Université de Montpellier: Mehdi MOUANA; Audrey THERON; Anne-Lise CHARRUAULT

Musée de la Carte Postale de Baud: Pauline BISIAUX