



**JOINT ACCOBAMS/ASCOBANS/SPA-RAC WORKSHOP
ON MARINE DEBRIS AND CETACEAN STRANDING**



24th ASCOBANS Advisory Committee -
Vilnius, 25-27 September 2018

Sandro Mazzariol - Cetaceans' strandings Emergency Response Team
University of Padova - Italy
IWC Stranding Expert Panel Chair



**REPORT OF THE JOINT ACCOBAMS/ASCOBANS/ECS/SPA-RAC WORKSHOP
ON MARINE DEBRIS AND CETACEAN STRANDING**



Stranding Networking

1.1. Stranding events

- Evaluation of the needs for further development of national stranding networks;
- Promotion of establishment of National Stranding Networks under the national coordination/support;
- Promotion of harmonization of stranding protocols (collection, analysis, etc.) in order to exchange common data, as appropriate* ;
- Assessment of existing stranding protocols. Tiered guidelines- simpler as required: What is the *de minimis* approach? *;
- Addition of tiered marine debris collection protocols to updated ACCOBAMS/ASCOBANS strandings protocols;
- Implementation of relevant Capacity building ;
- Promotion/exchange of best practices in addressing cetacean stranding events*;
- Particular focus in areas of known high density of marine debris (e.g. Adriatic);
- *Special focus on stranding data from low densities and/or data deficient species (e.g. Grampus).*

1.2. Data banks

- Collation of existing data- which species, which regions, etc.;
- Inventory of all stranding information available from stranding data banks;
- Promotion of the establishment of regional tissue databank where there are none (e.g. Black Sea area);
- Improvement of communication between tissue data banks and between possible providers. Improvement also of access in both ways, providing and collection;
- Establishment of the minimum set of samples and the proper way of collection for tissue banks.

* See ASCOBANS Resolution 8.10 (2016) and ACCOBAMS Resolution 6.22 (2016)

Necropsies - Improve general results from necropsies

- Investigation of pathogens presence;
- Investigation of contaminant levels released by debris ingestion and by prey ingestion (trophic transfer);
- Establishment of a list of the most important pollutants, pathogens, etc. which should be investigated in order to have a starting base line in common studies;
- Investigation of potential impacts of underwater anthropogenic noise;
- Identification of research groups/labs that may be able to analyse material collected by stranding networks;
- Identification of best practices worldwide;*
- Harmonization of pathology sampling methodologies;*
- Consideration should be given in using categorization of debris resulting from the MedSealitter project;
- Establishment of a common approach in interpreting results from postmortem analyses identifying a common language and code for mechanisms, as well as causes of death.

Data Gaps

- Collection and collation of existing and prospective “negative” data (absence of marine debris) recorded during necropsies;
- Identification and assessment of data banks and new tools/techniques globally;
- Improvement of stranding context by relating to species population distribution and abundance.

Research needs with future proofing

- Aerial surveys / boat surveys (see MedSealitter project): cost/benefits analyses;
- Investigation of relevance of using other animals (marine turtles” and seabirds) protocols for including marine debris data in cetacean stranding monitoring;
- Look into human impacts and initiatives; WHO initiatives, etc.;
- Encourage national/international collaborations.

Policy

- Promotion of relations stranding-marine debris data for advocating conservation policies.

Environmental Pollution 243 (2018) 519–527



Contents lists available at ScienceDirect

Environmental Pollution

journal homepage: www.elsevier.com/locate/envpol



Retrospective study of foreign body-associated pathology in stranded cetaceans, Canary Islands (2000–2015)[☆]

R. Puig-Lozano^a, Y. Bernaldo de Quirós^{a,*}, J. Díaz-Delgado^a, N. García-Álvarez^a, E. Sierra^a, J. De la Fuente^a, S. Sacchini^a, CM. Suárez-Santana^a, D. Zucca^a, N. Cámara^a, P. Saavedra^b, J. Almunia^c, M.A. Rivero^a, A. Fernández^a, M. Arbelo^a

Highlights

- Foreign bodies were found in 7.7% (36/465) studied cetaceans in the Canary Islands in a 16 year period.
- Severe digestive disease (impactions and gastrointestinal perforations) caused the death of 13 animals (2.8%, 13/465).
- Plastic was the most common item found (80.6%).
- Poor body condition and deep diving behavior were risk factors for foreign body ingestion.
- Adult age was a protective factor for foreign body ingestion.

when possible and, when not, efforts to document the presence of marine debris, both ingested and entangled, should still be put into place; and

IWC SC 67/b

- (b) Debris should be characterised by material, size, colour, shape, mass and volume and, where possible, identified to source.
- (c) Develop effective cooperation with the ongoing regional initiatives on marine debris, including ghost nets;
- (d) Assess the impact of plastic materials on cetaceans;
- (e) Discuss requirements for the development of a common approach and joint guidelines.

*The sub-committee **recommended** the organisation of an intersessional workshop on Marine Debris, preferably to coincide with the World Conference on the Biology of Marine Mammals in Barcelona in December, 2019.*

*The Committee **draws attention** to the fact that marine debris remains a threat, and that in particular, exposure to plastics (including microplastics) is a rapidly emerging area of concern. It therefore:*

RESOLUTION 6.22**CETACEAN LIVE STRANDING**

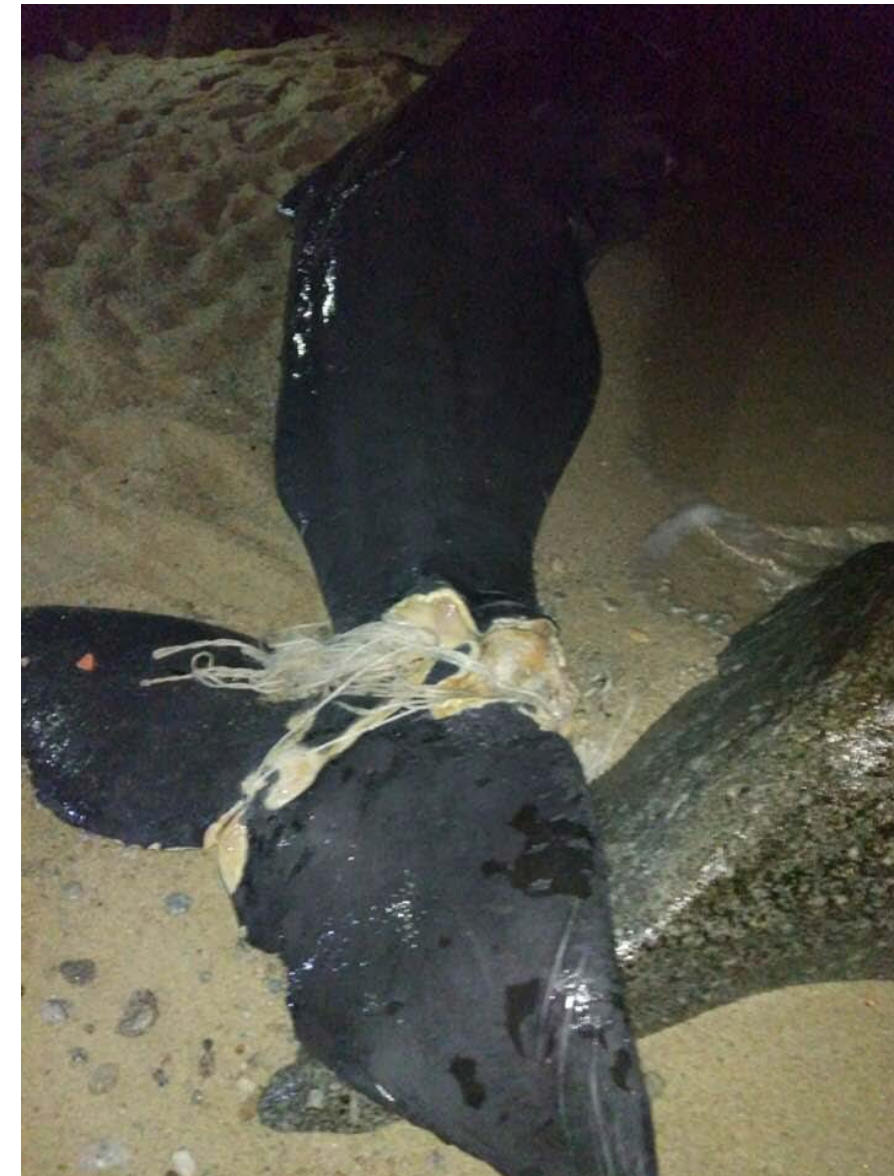
- Necropsies should be routinely carried out according to comparable procedures and approaches for data sharing
- Different situation of the stranding network in different countries
- Consider resources commonly present in each countries
- Support countries without national protocols (procedures, forms and data collection)
- Minimum standard for those countries with an established procedure
- Multilevel

Protocol for basic post-mortem examination: multi-level approach

BASIC:

basic gross examination and data collection

- collection of data on stranding event (date and location coordinates)
- data on animal involved (species, sex, age class, physiological status)
- measuring the animal
- gross examination with general description of main findings
- possible external signs of human interaction
- external and stomach content examination: presence and quantification of macro-plastic and marine litter (including ghost nets)



Protocol for basic post-mortem examination: multi-level approach

INTERMEDIATE

sampling for general ancillary analyses

- sampling and performing microscopic examination and tissue bank
- sampling and performing microbiology
- sampling and performing toxicology
- sampling and performing and life history
- sampling for sound related mortalities
- sampling marine debries for identification and quantification



Protocol for basic post-mortem examination: multi-level approach

ADVANCED

specific postmortem examinations and analyses with specific data and samples collection

- Dolphin morbillivirus
- Human interaction (bycatch, marine debris ship strikes)
- Sound related mortality
- Mass strandings

by-catch: basic

THEME SECTION

Criteria and case definitions for serious injury and death of pinnipeds and cetaceans caused by anthropogenic trauma

Editors: Michael J. Moore^{1,*}, Julie van der Hoop¹, Susan G. Barco², Alex M. Costidis^{3,9}, Frances M. Gulland⁴, Paul D. Jepson⁵, Kathleen T. Moore⁶, Stephen Raverty⁷, William A. McLellan⁸

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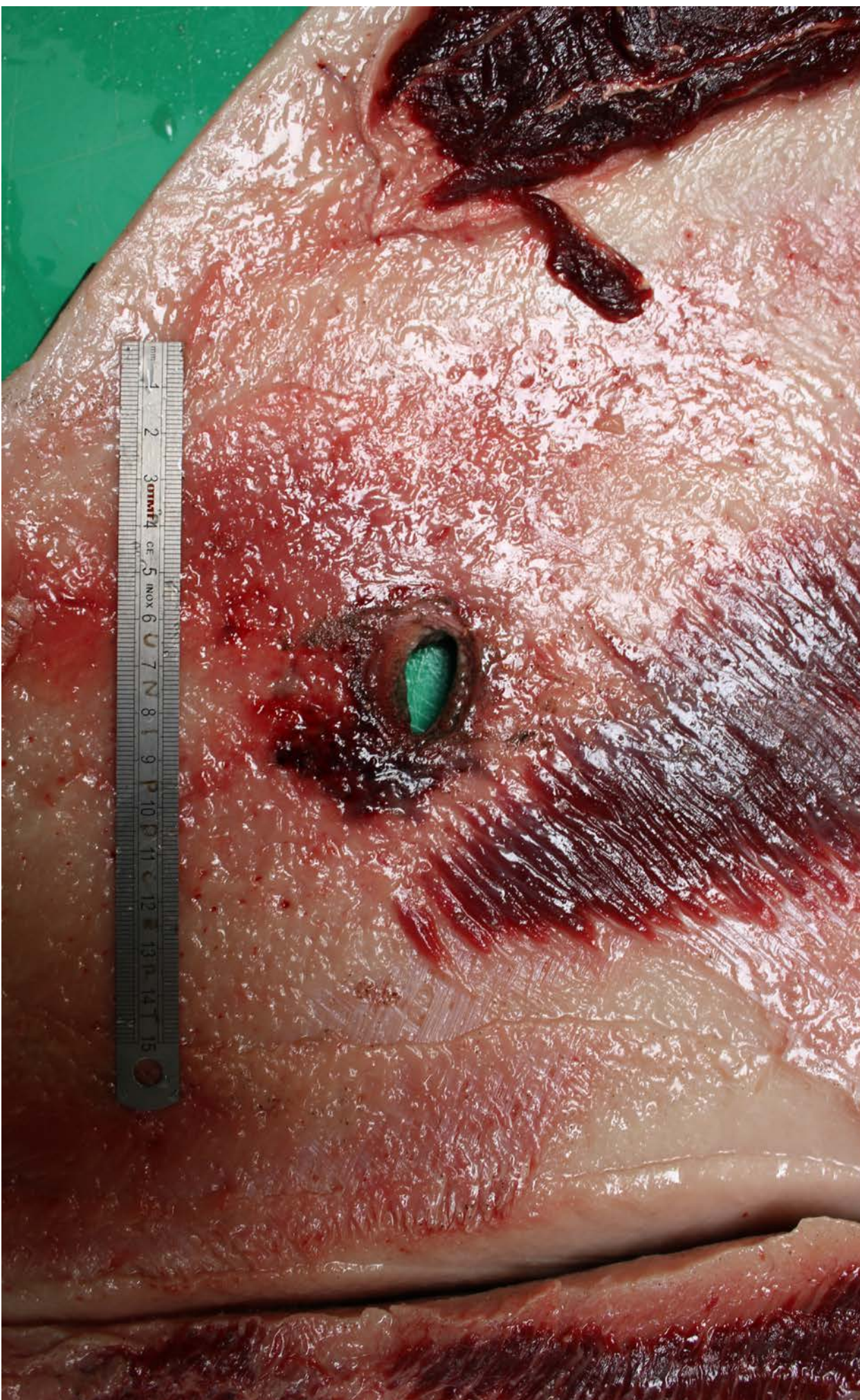
⁶International Fund for Animal Welfare, Varmouth Port, Massachusetts 02675, USA

⁷British Columbia Ministry of Agriculture, Abbotsford, British Columbia V3G 2M3, Canada

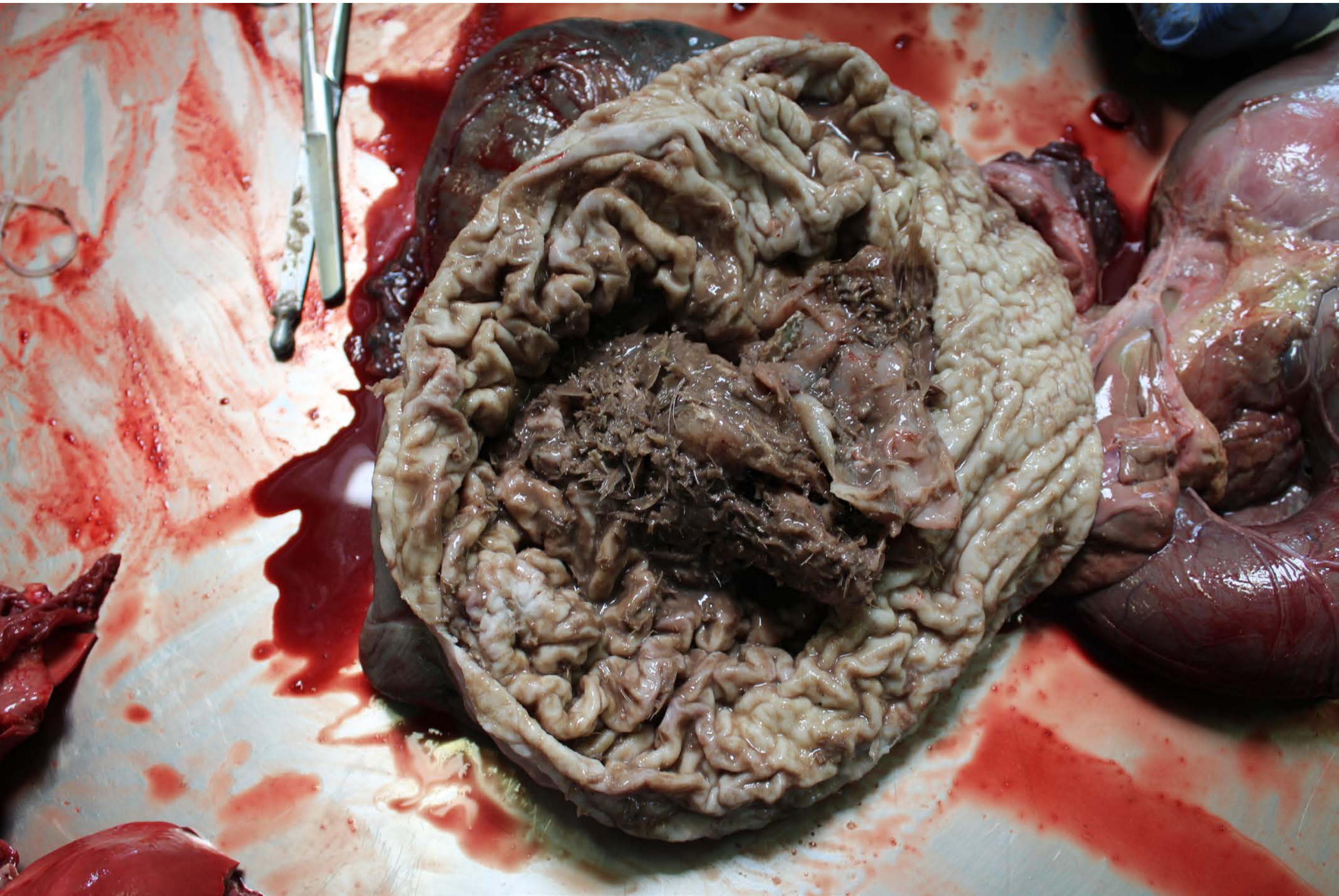
⁸Biology and Marine Biology, University of North Carolina Wilmington, Wilmington, North Carolina 28403, USA

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Recent feeding



by-catch: basic (need training)

OPEN ACCESS Freely available online

PLOS ONE

Compositional Discrimination of Decompression and Decomposition Gas Bubbles in Bycaught Seals and Dolphins

Yara Bernaldo de Quirós^{1*}, Jeffrey S. Seewald², Sean P. Sylva², Bill Greer^{3,4}, Misty Niemeyer⁵, Andrea L. Bogomolni^{1,6}, Michael J. Moore¹



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Research in Veterinary Science

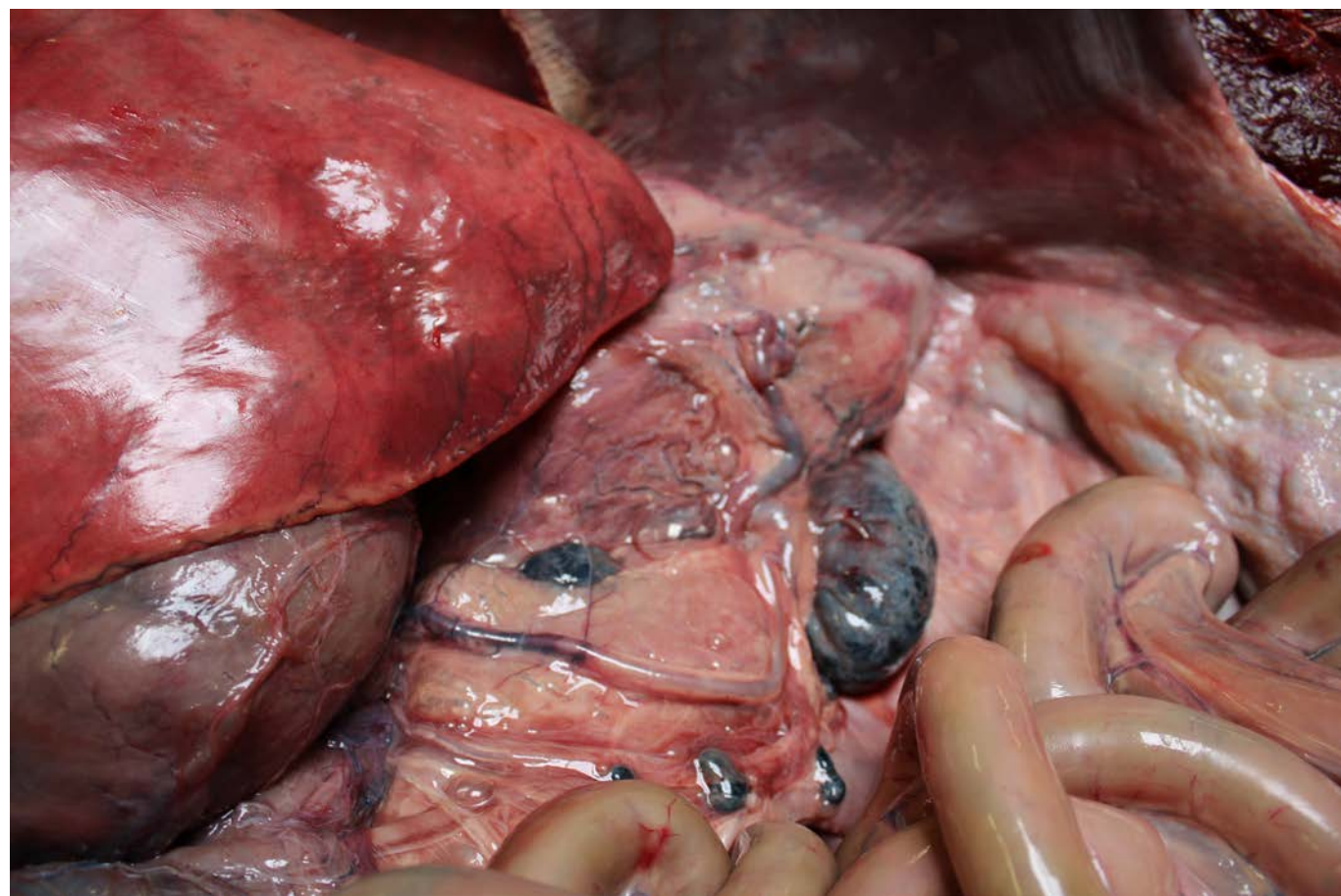
journal homepage: www.elsevier.com/locate/rvsc



Differentiation at necropsy between *in vivo* gas embolism and putrefaction using a gas score



Yara Bernaldo de Quirós^{a,*}, Pedro Saavedra^b, Andreas Møllerløkken^c, Alf O. Brubakk^c, Arve Jørgensen^{c,d}, Oscar González-Díaz^e, Jose L. Martín-Barrasa^{f,g}, Antonio Fernández^a



by-catch: intermediate

Nondomestic, Exotic, Wildlife and Zoo Animals—Original Article

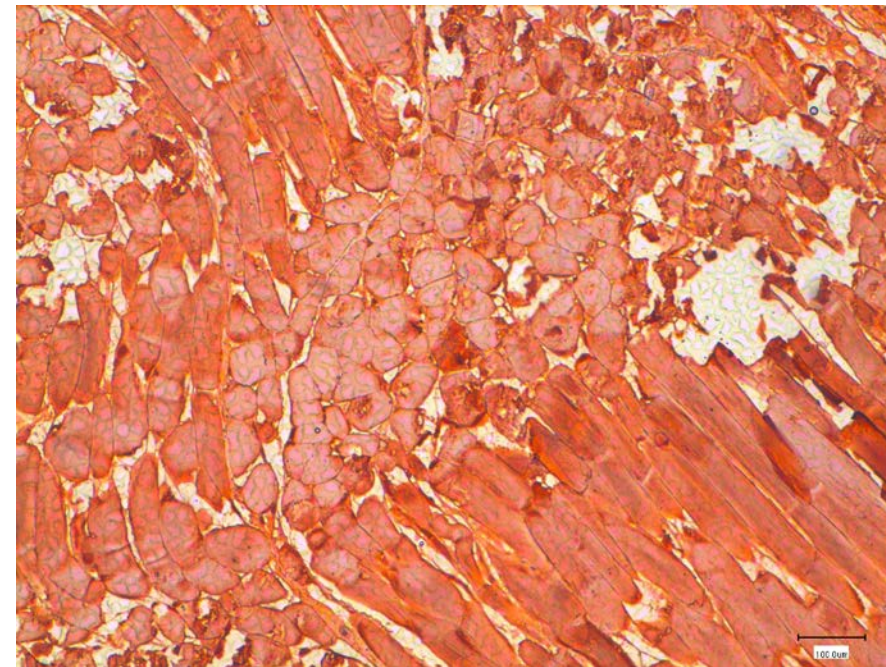
Muscle Pathology in Free-Ranging Stranded Cetaceans

E. Sierra¹, A. Espinosa de los Monteros¹, A. Fernández¹,
J. Díaz-Delgado¹, C. Suárez-Santana¹, M. Arbelo¹,
M. A. Sierra², and P. Herráez¹

Veterinary Pathology
2017, Vol. 54(2) 298-311
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DOI: 10.1177/0300985816660747
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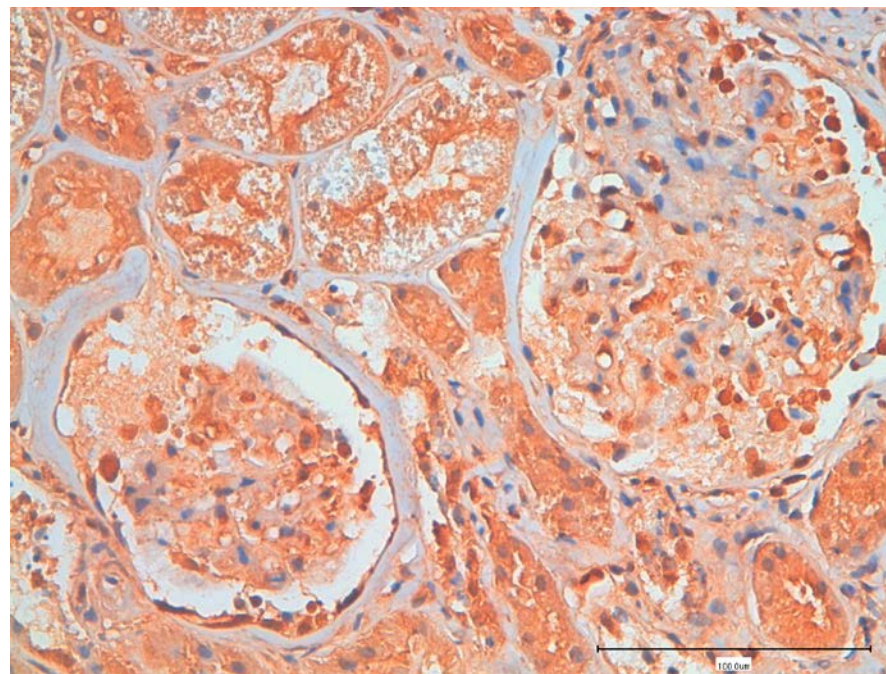
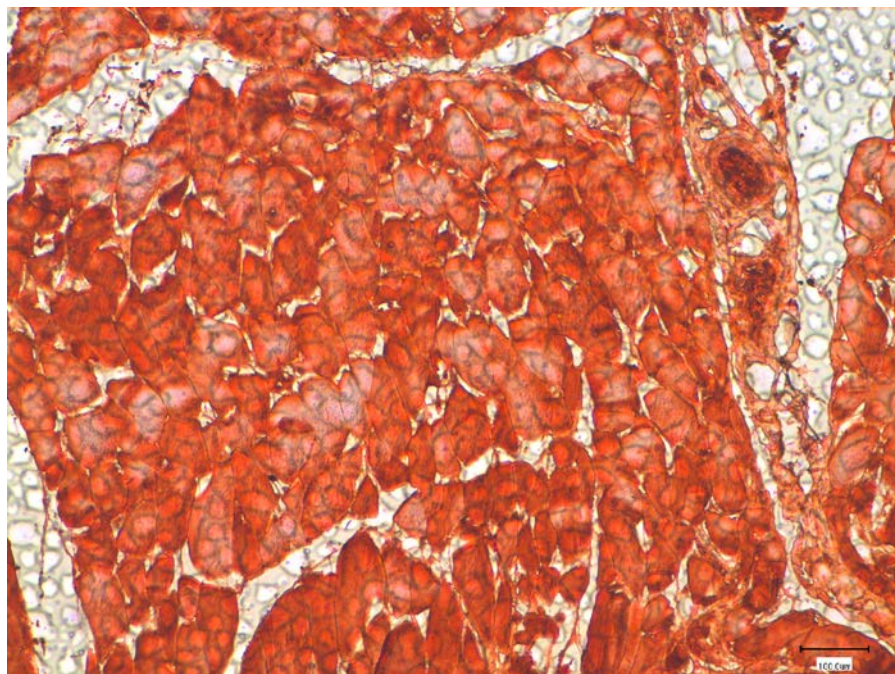


Capture myopathy due to entanglement

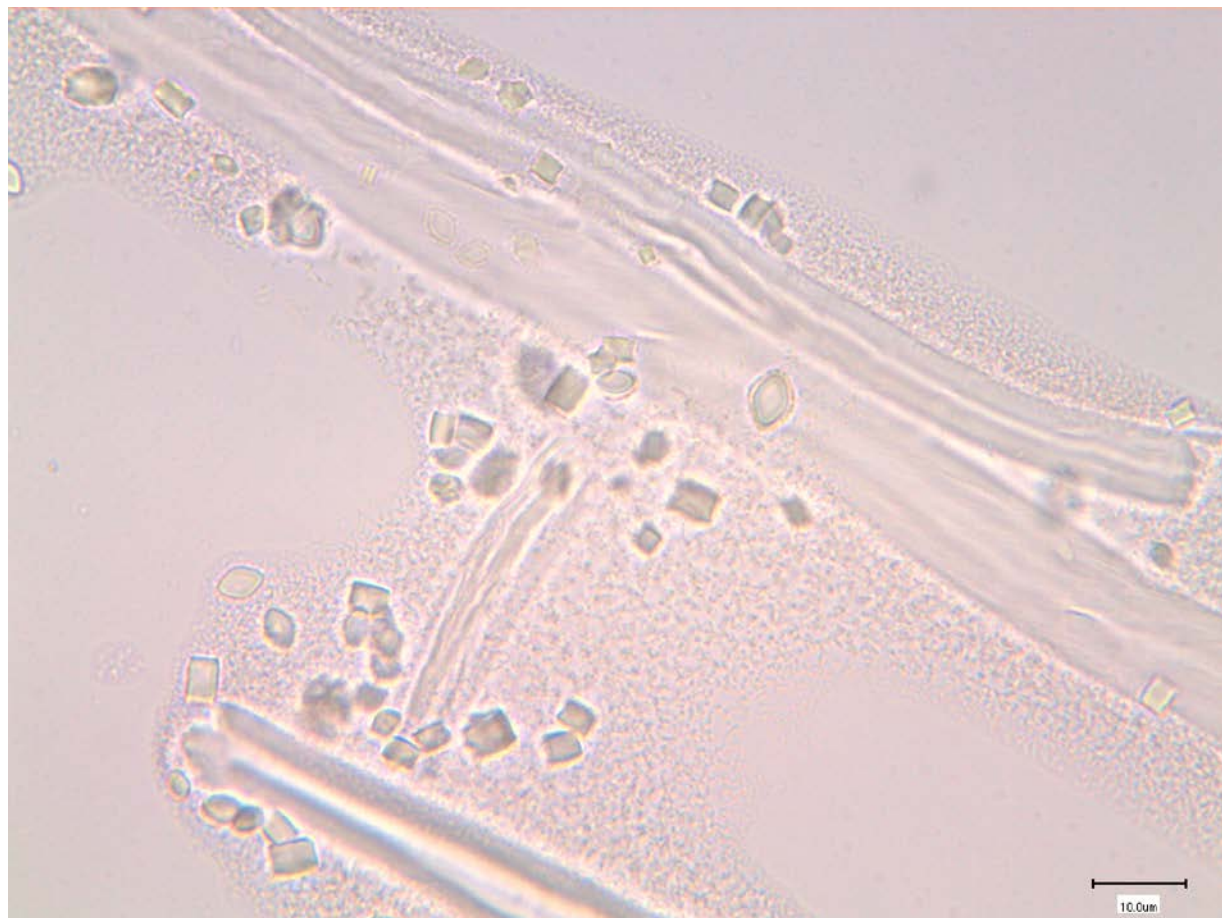
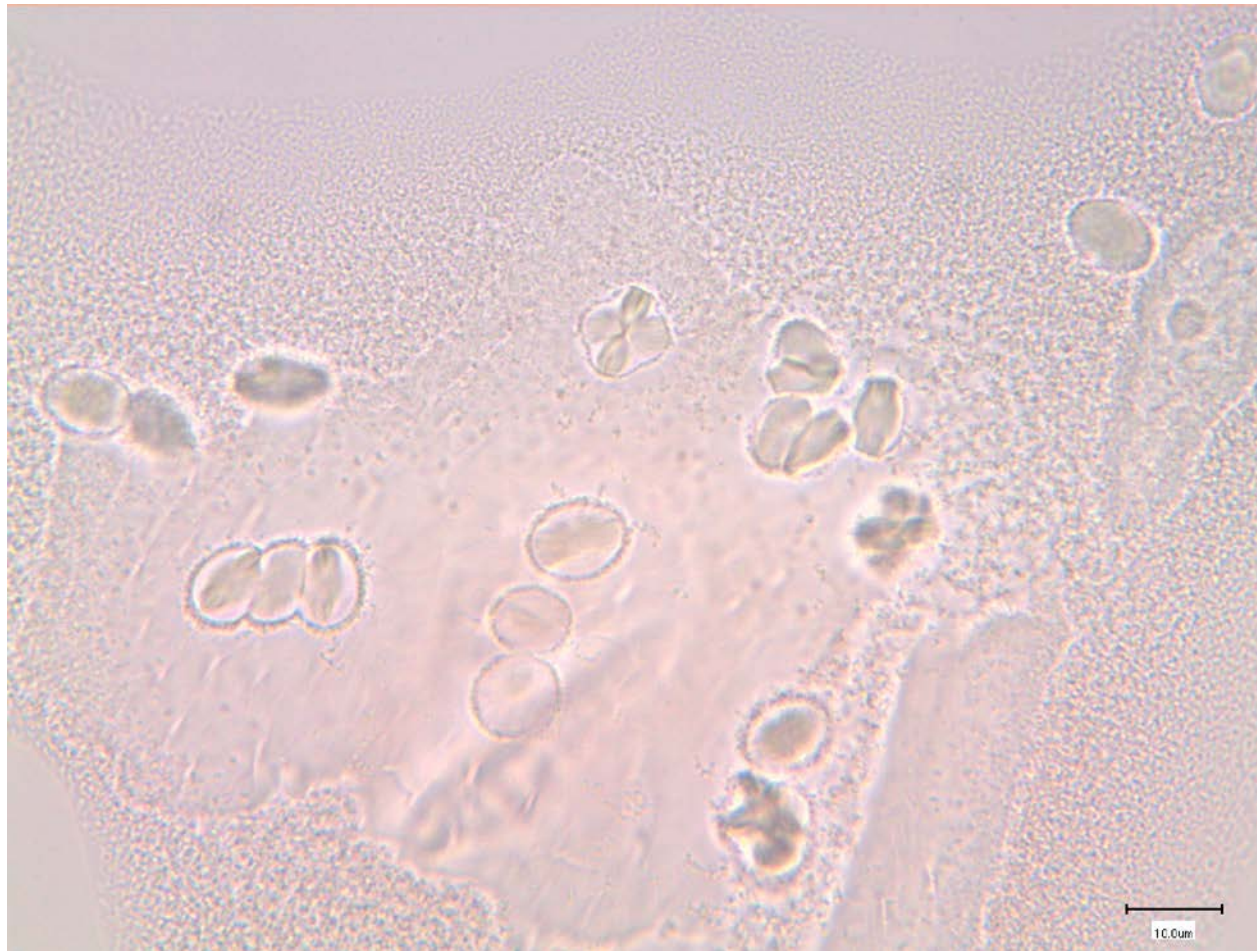


IHC anti-
myoglobin

IHC anti-
fibrinogen



by-catch: advanced



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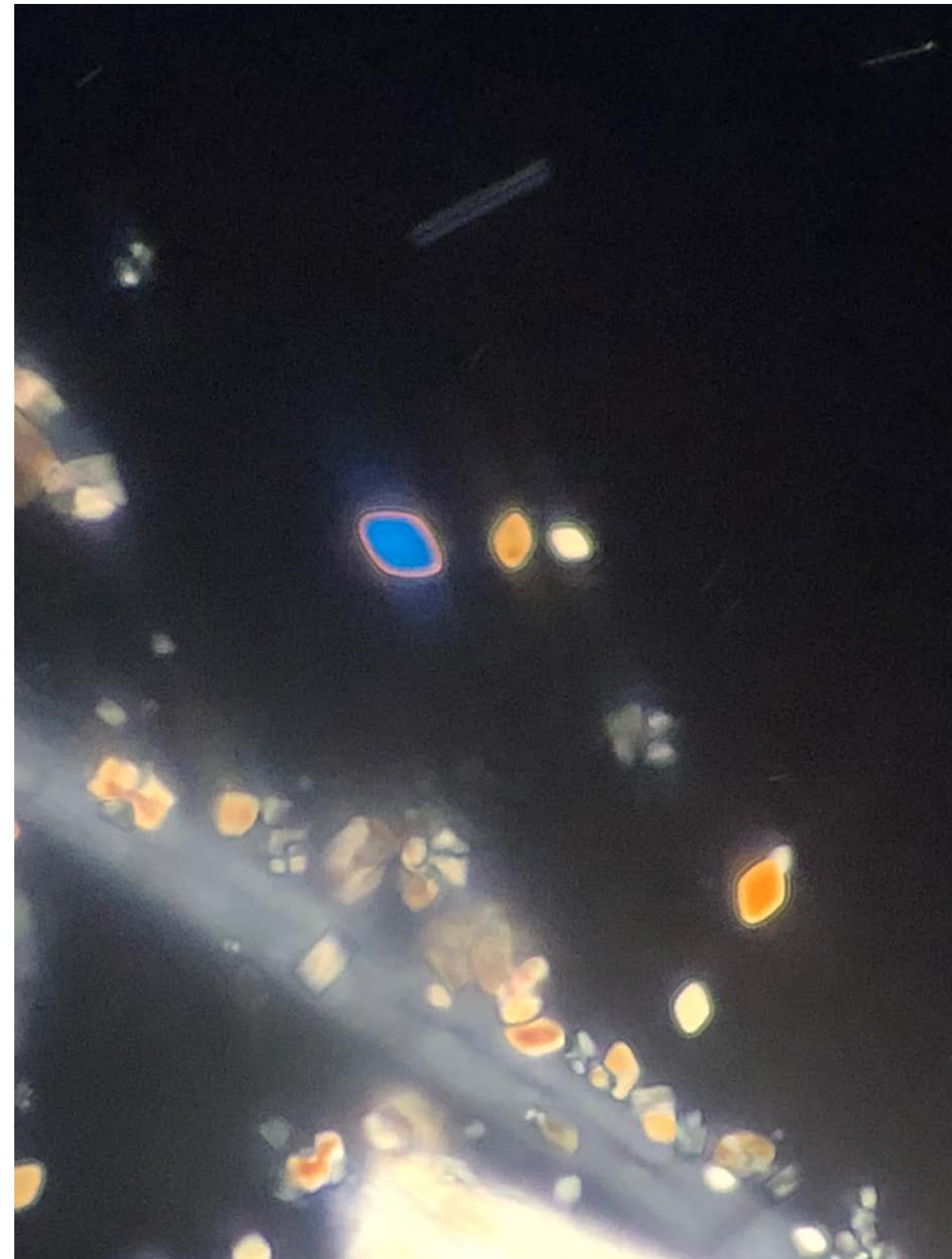


Rapid Communication

The diatoms test in veterinary medicine: A pilot study on cetaceans and sea turtles



Silva Rubini^a, Paolo Frisoni^b, Chiara Russotto^a, Natascia Pedriali^a, Walter Mignone^c,
Carla Grattarola^d, Federica Giorda^d, Alessandra Pautasso^d, Stefania Barbieri^e,
Bruno Cozzi^f, Sandro Mazzariol^{f,*}, Rosa Maria Gaudio^b



Conclusion

- Protocols vs best practices
- Cooperation for the next steps being inclusive
- Harmonization of existing/in process postmortem protocols (at least in Europe) - simple, minimal and based of evidences
- Definition/Harmonization best practices regarding investigation of specific problems (viral, bycatch, marine debris, etc.)..but we need input to be functional to IWC/ACCOBAMS/ASCOBANS
- ACCOBAMS will proceed with best practices on stranding management (dead vs alive, small vs large, single vs mass strandings) for the next MoP (Nov 2019)
- Regional experts/laboratories
- Best practices should be updated (wiki? periodic review?)