



ZOO PARC
de
BEAUVAL

***Aquatic Mammal Welfare
A Key to Conservation Success.
Caring for Individuals, Protecting Species***



EAAM
ANNUAL SYMPOSIUM
11TH - 14TH MARCH 2025

Proceedings of the
EAAM 53rd Annual Symposium
ZooParc de Beauval, Saint-Aignan, Loir-et-Cher, France
11-14 March 2025

European Association for Aquatic Mammals
Rue de la Science 14b, 1000 Brussels, Belgium – information@eaam.be

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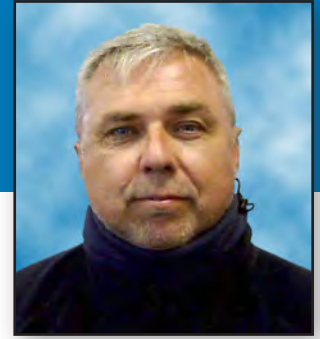
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- Nuno Urbani



Spain, March 2025

Dear colleagues and EAAM friends,

As a new member of the EAAM board, I am truly happy and honored to meet all of you at our 53rd symposium at Beauval Zoo. I will start by thanking our host, Beauval Zoo, for this great opportunity to reunite our community. Beauval Zoo is a reference of excellence in animal management, education, and, finally, conservation efforts.

The threats faced by wild marine mammals around the Globe are concerning. Our community is playing a big role in helping those wonderful animals. Our education programs are informing millions of people at 360 degrees. Our researchers continue to increase our knowledge. Our institutions continue to participate and invest in conservation efforts in situ to ensure a bright future for those creatures and their habitat. EAAM is one of the catalysts of all those efforts.

Unfortunately, today, our important community is also challenged by radical animal activists. These attempts to discredit, even destroy, our institutional members are very dangerous. They have displaced attention from the real problem of marine mammals in their natural habitat. EAAM will continue to defend marine mammals in the wild and guarantee the welfare of the animals in our care.

I would like to thank the Scientific Committee for preparing us, as every year, such a great and interesting program. It is the result of months of restless work, dedication, and expression of a very high level of competence and professionalism.

Again, thanks to our host, Beauval Zoo for this great opportunity. The French debate on cetaceans in human care is currently in the spotlight. Being in France this year has a special meaning.

Finally, thanks to all my colleagues on the board for the time dedicated to the preparation of the 53rd EAAM symposium.

Warm regards,

Robert Gojceta

Robert Gojceta

President-Elect, European Association for Aquatic Mammals (EAAM)



Mexico, March 2025

Dear Esteemed Attendees:

As the EAAM Past President, it is my distinct honor to welcome you to the EAAM Annual Symposium 2025 in the beautiful setting of Beauval. This gathering represents not only a prestigious event in our field but also a critical opportunity to reflect on the current global situation of marine mammals and our collective responsibility toward their welfare and conservation.

In recent years, marine mammals have faced increasing challenges, including habitat degradation, climate change, and human-related threats. As professionals dedicated to their care, study, and conservation, it is imperative that we collaborate, share knowledge, and develop innovative solutions to safeguard their future. Our work has never been more crucial, and together, we can make a tangible impact.

This year's symposium has been carefully curated by our dedicated Scientific Committee and Organizing Committee to offer a comprehensive and insightful program. We are proud to present an array of keynote lectures, research presentations, and interactive workshops led by esteemed experts from around the world. These sessions will address pressing issues, advancements in marine mammal science, and best practices in animal care, welfare, and conservation.

Beyond the scientific program, this symposium is a time for networking, exchange, and inspiration. The opportunity to engage with fellow professionals, researchers, and conservationists fosters the collaborations that drive our field forward. We encourage you to actively participate, share your expertise, and take full advantage of the wealth of knowledge and experience present here.

I extend my deepest gratitude to the EAAM Board for the endless hours discussing and making sure everything works smoothly, and to the Scientific and Organizing Committees for their hard work and dedication in assembling such a remarkable program. Their efforts ensure that this symposium remains a premier platform for advancing marine mammal science and conservation.

Thank you for being part of the EAAM Annual Symposium 2025. Your presence and contributions are invaluable, and I look forward to the fruitful discussions, collaborations, and insights that will emerge over the coming days.

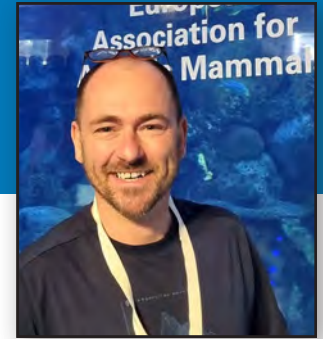
With warm regards,



Guillermo J. Sánchez Contreras
Past President, European Association for Aquatic Mammals (EAAM)



A Letter from EAAM President



France, March 2025

Dear Colleagues and Friends:

We stand at a turning point. The challenges facing aquatic mammals—both in human care and in the wild—have never been greater. Our role, our expertise, and our commitment are now more critical than ever. This is not just a responsibility—it is a call to action.

For over five decades, the EAAM community has been a force of resilience, knowledge, and passion. This 53rd symposium is proof of our unwavering dedication and our ability to adapt, innovate, and lead. Under the theme “Aquatic Mammal Welfare: A Key to Conservation Success,” we are here to push boundaries, to rethink our impact, and to shape the future of marine mammal care and conservation.

The program offers a rich blend of scientific sessions, poster presentations, and technical workshops, all designed to foster collaboration and innovation. Highlights include engaging guest speakers, our conservation evening, and a special guided visit to the renowned Beauval Zoo, providing insights into their exemplary conservation efforts.

These events are not merely opportunities to share knowledge but also to inspire us to rethink our strategies and embrace innovative approaches in our field.

Over the next days, we will challenge ideas, explore new approaches, and forge stronger connections. This symposium is more than a meeting—it is a moment to reaffirm our mission and to inspire the change we want to see.

Let’s embrace this opportunity to evolve, to reinvent, and to lead with vision and purpose.

Welcome to a symposium that will not only inform but transform.

Sincerely,

Martin Böye

President, European Association for Aquatic Mammals (EAAM)

Conference Proceedings

Wednesday - 12 March 2025



EAAM
ANNUAL SYMPOSIUM
11TH - 14TH MARCH 2025

Time:

Activity:

08:00 - 08:30

Registrations

08:35 - 09:00

Official Symposium Opening

09:00 - 10:00

Keynote Speaker – Dr. Jake Veasey

What Emerging Insights from Terrestrial Mammals Can Teach Us About the Future of Marine Mammal Care

SESSION

In and Ex Situ Conservation

10:00 - 10:20

BITA: Saving One Dolphin to Safeguard an Entire Species

– Lorenzo Von Fersen,* Aricia Duarte Benvenuto, Paula Canabarro, Cynthia Smith, Forrest Gomez, Jenny Meegan, Ashley Barratclough, Jay Sweeney, Marta Cremer, Frederico Sucunza, & Eduardo Secchi

10:20 - 10:40

Empowering Contribution of Aquariums and Zoos to the Conservation of Marine Mammals: The Case of the Oceanogràfic

– Daniel García Párraga,* Jose Luis Crespo Picazo, Beatriz Dominguez, José R. Serra, & Leocadia García Bartual

10:40 - 11:00

The Role of Zoos and Aquaria in Research and Conservation of Wild Populations of Marine Mammals: The Experience of the “Delfini Metropolitan” Project (2001-2024)

– Guido Gnone,* Michela Bellingeri, Matteo Maggioli, Gianfranco Malaisi, & Stefano Furlati

11:00 - 11:25

Coffee Break

SESSION

Welfare and Behaviour

11:30 - 11:35

Nice to Meet You!!!! Do Human Interaction Programs Impact Dolphin Welfare?

– Annalisa Zaccaroni,* Cristina Pilenga, Annalisa Duri, Renato Lenzi, Alice Dal Chiele, Guillermo J. Sánchez Contreras, & Manuel Garcia Hartmann

11:35 - 11:40

Sharing an Idea for Medical Training

– Marina García*

11:40 - 12:00

Social Behaviors of Killer Whales and Other Delphinids

– Manon Themelin,* Kathleen M. Dudzinski, Heather Manitzas Hill, & Todd Robeck

12:00 - 12:20

A Rescue Story: The Journey of Two Belugas from Ukraine to Spain

– Robert Gojceta,* Juan Cruz Orzabal, & Andrea Ortola

12:20 - 12:40

Wide-Ranging Intelligent System, Based on Biometric Data, for Animal Behaviour and Welfare Control

– Agustin Lopez Goya,* Manuel de la Riva, & Mario Fernández Sánchez

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Time:

Activity:

12:40 - 12:55

Real-Time Monitoring of *Orcinus orca* Vocal Activity Using Artificial Intelligence: Insights into Communication and Welfare
– Javier Almunia,* J. P. Lüke, & F. Rosa

13:00 - 14:25

Lunch Break

SESSION

Behaviour

14:30 - 14:50

Below Our Visitors' Conscious Mind (with a Spoiler Alert – No Welfare Content)
– João Neves*

14:50 - 15:10

Effects of Experience and Familiarity on Visual Attention and Behaviours of Bottlenose Dolphins (*Tursiops truncatus*) in Presence of Humans
– Alessandro Gallo, Robert Gojceta, Martin Böye,* Alban Lemasson, & Martine Hausberger

15:10 - 15:30

Science and Zoos at the Service of Wild Orcas: Evaluation of the Energetic Cost of Activities in Cetaceans
– Isabelle Brasseur,* Anke van Brug, Gianni Zenovelli, Romain Morel, Myriam Weiss, Michaël Evrard, Cécilia Carles, Steven Mace, Élodie Coursia, Alexandra Sauvage, Tomas Bautista Villaverde, Austin Allen, & Andreas Fahlman

15:30 - 15:50

Video

Perspective Matters: The Importance of Vantage Point When Looking at Behaviors
– Kathleen M. Dudzinski,* Manon Themelin, & John Anderson

15:50 - 15:55

Training

Innovative Concepts in Patagonian Sea Lions (*Otaria flavescens*)
– Angel Manuel Galicia Navarro,* Griselda Mora Baez, & Sarah Winteler

15:55 - 16:00

Life Support Systems

Mechanical Water Disinfection – 1 Year Follow-up
– Norbert Fleck*

16:00 - 16:30

Coffee Break

16:30 - 18:30

Round Table – Training Skills: From Basic to Amazing!

Angelo Henriques,* Nicolas Issenjou,* Gunther van Nieuwenhuyze,* & Isabelle Brasseur*

19:30 - 21:30

Conservation Night

Conference Proceedings

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09:00 - 10:00

Keynote Speaker – Dr. Christophe Guinet

The Foraging Ecology and Demography of the Crozet Islands Killer Whale Population: What We Learnt from a 35-Year Monitoring

SESSION

Cognition and Behaviour

10:00 - 10:20

What If Sealions Could Read? New Area for Cognitive Abilities in Patagonia Sealions at Paris Zoo

– Romain Bruneau,* Bastien Servieres, Maeva Thomas, Aurélien Aumasson, & Alexis Lécu

10:20 - 10:40

Exploring 3D Symbol Discrimination in Orcas: Insights into Cognitive Processing and Conservation

– Steven Mace,* Isabelle Brasseur,* Myriam Weiss, Kathleen M. Dudzinski, & Heather M. Manitzas Hill

10:40 - 11:00

“Fins United”: Single Mixed Social Group Composition of Bottlenose Dolphins (*Tursiops truncatus*) Through Observation, Training and Relationship

– A. Henriques,* F. Iacovone, A. Sigismundi, G. Vazzano, M. Orestano, E. Caramelli, F. Capitani, C. Genovese, D. La Monaca, S. Meini, C. Pilenga, A. Garciblanco Mata, G. Sánchez Contreras, E. Urbina, M. Garduño, & R. Cerrilos

11:00 - 11:30

Coffee Break

SESSION

Veterinary Medicine

11:30 - 11:35

Laser Surgery as Treatment of Oral Papilloma in *Tursiops truncatus* with Voluntary Behaviour

– Pietro Saviano,* Letizia Fiorucci, Lucrezia Ferretti, Marina García, Christian Garcia, Diletta Giolito, Antonio Fernandez, Manuel Arbelo, & Eva Sierra

11:35 - 11:40

How Important Is Colostrum in *Orcinus orca*?

– Manuel Garcia Hartmann,* Lindsay Rubincam, Alejandro Rodriguez, Irina Suvorova, & Kai Mu

11:40 - 12:00

2016-2025: Retrospective on the Challenges Associated with the Medical Care and Well-Being of a Group of Rescued Northern Sea Otter (*Enhydra lutris kenyoni*)

– Romain Potier,* Barbara Blanc, Cindy Braud, & Dominique Barthelemy

12:00 - 12:20

Intercontinental Evaluation of SDMA Values in Order to Establish Reference Intervals in Bottlenose Dolphins (*Tursiops truncatus*)

– Miguel Naranjo de Torres,* Elena Campessi, Gaia Pesce, Lara Fitchel, Eva Álvarez Figueras, & Guillermo Sánchez Contreras

12:20 - 12:40

Multiorgan Disseminated Lymphoma in an Antillean Manatee (*Trichechus manatus manatus*) in Professional Care in Mexico

– Guillermo J. Sánchez Contreras* & C. López-Romahn

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12:40 - 13:00 Improved Analysis of Respiratory Dysfunction in Dolphins: The Role of Spirometry and Electrical Impedance Tomography (EIT)
– Guillermo J. Sánchez Contreras,* C. López-Romahn, E. Sepulveda, N. Falcón, Andy Adler, Tarek el Harake, & Andreas Fahlman

13:00 - 14:30 Lunch Break

SESSION

In Situ

14:30 - 14:50 North Wind and Other Environmental Factors Associated with Habitat Use of Common Bottlenose Dolphins (*Tursiops truncatus*) in the Mediterranean Coastal Area of Marina Baixa
– Carmen M. Arija* & Victor L. Selva

14:50 - 15:10 Functional Profiles of the Respiratory Microbiome: A Window into North Atlantic Right Whale Resilience and Conservation
– Alycia Mahaut,* Carlos Dominguez-Sanchez, Sébastien Blanchard, Emmanuelle Guertin-Blanchette, Christophe Ronveaux, Gabrielle Panyszak, & Richard Sears

SESSION

Veterinary Medicine

15:10 - 15:30 Toxoplasmosis Titres in Dolphins Under Professional Care
– Manuel Garcia Hartmann*

15:30 - 15:50 Phagocytic Capacity as a Diagnostic Tool in Marine Mammals: Clinical Applications
– Consuelo Rubio Guerri,* Mar Felipe-Benavent, Alicia Martínez-Romero, Mónica Valls, Carlos Rojo-Solís, Teresa Álvaro, Daniel García Párraga, & Jose Enrique O'Connor

15:50 - 15:55 FISH to Investigate the Marine Mammal Environment
– Barbara Biancani,* Giorgia Matteucci, Francesco Di Nezio, Samuele Roman, & Federica Mauri

15:55 - 16:00 Complete Oral Health Assessment and Treatment in a Non-Sedated 12 Year Old, Male Walrus (*Odobenus rosmarus*)
– Yves Debosschere* & Alicia Quiévy

16:00 - 16:30 Coffee Break

16:30 - 18:30 **Round Table – Dolphin Welfare 2.0 – An Update**
Katrin Baumgartner,* Manuel Garcia Hartmann,* & Kathleen M. Dudzinski*

18:30 - 19:30 Annual General Meeting – Members Only

21:00 - 23:30 Gala Dinner

Conference Proceedings

Friday - 14 March 2025



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09:00 - 10:00

Keynote Speaker – Debbie Bouma

Shaping Wildlife Tourism: Bridging Zoos and Ecotourism for Sustainable Wildlife Experiences

SESSION

Veterinary Medicine and Physiology

10:00 - 10:20

How *Ex Situ* Helps Understand *In Situ*: Contaminants in Orcas Under Human Care as Reference for Wild Animals

– Annalisa Zaccaroni,* C. Formigaro, M. Silvi, & Manuel Garcia Hartmann

10:20 - 10:40

Update from 4-Year Observations on the Use of Deslorelin (Suprelorin®) in Female Bottlenose Dolphin

– Barbara Biancani,* Ana Salbany, & Géraldine Lacave

10:40 - 11:00

Quality of Life Assessment in Complicated Marine Mammals Medical Cases Under Human Care

– Carlos Rojo-Solis,* Teresa Álvaro-Álvarez, Mónica Valls-Torres, Oriol Talló, Jose Luis Crespo-Picazo, & Daniel García Párraga

11:00 - 11:30

Coffee Break

SESSION

In Situ

11:30 - 11:35

Laterality in Southern Right Whale (*Eubalaena australis*) Mother-Calf Dyads: Intrinsic Behavior or External Influence?

– Carmen M. Arija*

11:35 - 11:55

The Marine Mammals of Walker Bay (South Africa): Interactions and Environmental Influences

– Carmen M. Arija,* Carla Jiménez, Arrate Pastor, Mireia Villafáfila, Carla García, Marta Yagüe, Lucía De la Torre, Déborah N. Méndez, & Fabiola C. Gallardo

SESSION

Veterinary Medicine

11:55 - 12:00

A Metastatic Anaplastic Carcinoma in a 23 Years Old Female California Sea Lion (*Zalophus californianus*)

– Francesco Grande* & Miguel Ángel García Expósito

12:00 - 12:20

Immersion Ultrasonography to Identify and Follow-up Eye Lesions in Marine Mammals

– Géraldine Lacave*

12:20 - 12:40

Occurrence and Prevalence of Ocular Diseases in Bottlenose Dolphins Under Human Care and Potential Predisposing Factors

– Saskia Dreyer,* Kerstin Ternes, Hans-Joseph Heider, & Michael Lierz

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- 12:40 - 13:00 Innate Immune Functions of the Florida Manatee (*Trichechus manatus latirostris*): A Comparative Assessment of Two Study Sites in Florida
– Estelle Rousselet,* Martine de Wit, Lindsay Jasperse, Nicole Stacy, Milton Levin, Rachael Dailey, Mike Walsh, Tom Waltzek, James Wellehan, & Sylvain De Guise
- 13:00 - 13:15 **Official Closure of the Scientific Meeting**
- 13:15 - 14:30 **Lunch**
- 14:30 - 18:30 **ZooParc de Beauval Visit**



Behavioral and Cerebral Laterality in Bottlenose Dolphins Under Human Care

Alejandro Martin*

Case Report: Clinicopathological Description of Hepatopancreatic Duct Obstruction in a Sea Lion (*Zalophus californianus*)

Letizia Fiorucci,* Lucrezia Ferretti, Marina García, Diletta Giolito, Antonio Fernandez, Manuel Arbelo, Eva Sierra, Mario Encinoso, & Christian M. Suárez-Santana

Cetacean Alive Stranding Protocol and Practice: Animal Welfare-Based Guideline for the Response and Management

Ka-Ting Kwok* & Wei-Cheng Yang

Colour-Choice Testing, Anticipatory Behaviour, and Welfare in Bottlenose Dolphins Under Human Care: Exploring a New Approach

Carlijne Raaijmakers*

Decoding Dolphin Dynamics: Observing Object Play Among Bottlenose Dolphins (*Tursiops truncatus*)

Samantha Apostolico, Samantha Gojcaj, Sophia Pertoso, Angelika Falandysz, Diego Salles, Deirdre Yeater, Kathleen M. Dudzinski,* & Manon Themelin*

Did Participating in Interaction Programs Affect Bottlenose Dolphin Behavior Before and After the Program?

Kathleen M. Dudzinski,* Alicia Virthe, Heather Manitzas Hill, Megan Davis, Michelle Samm, Kelly Flaherty Clark, & Todd Robeck

Does Mariculture Farming Influence the Presence and Habitat Use of Common Bottlenose Dolphins (*Tursiops truncatus*) in the Coastal Area of Marina Baixa (Mediterranean Sea, Spain)?

Carmen M. Arija* & Victor L. Selva

Individual Variation in Activity Budgets of a Stable Population of Killer Whales in Managed Care Across a Year

Heather M. Manitzas Hill, Manon Themelin,* Kathleen M. Dudzinski,* Michael Felice, & Todd Robeck
(Presenters: Manon Themelin & Kathleen M Dudzinski)



Occurrence and Seasonal Residency of a Community of Common Bottlenose Dolphins (*Tursiops truncatus*) off Bimini, The Bahamas, from 2006-2016

Maria Maust-Mohl, Laura Eierman, J. Daisy Kaplan, & Kelly Melillo-Sweeting* (Presenter: Kathleen M. Dudzinski)

Ocular Diseases in Bottlenose Dolphins – Imaging Guidelines for Early Diagnosis

Saskia Dreyer,* Kerstin Ternes, Hans-Josef Heiderf, & Michael Lierz

Platelet Function Assays in Marine Mammals: Diagnostic Applications

Mar Felipe-Benavent, Jose Enrique O'Connor, Teresa Álvaro, Mónica Valls, Carlos Rojo-Solís, Daniel García-Párraga, Alicia Martínez-Romero, & Consuelo Rubio-Guerri*

Use of Animal Mediation to Enhance Well Being in Pinnipeds and Humans

Marjorie Egea*

Wild and Under Human Care Bottlenose Dolphin (*Tursiops truncatus*) 3D Culture Models: *In Vitro* Tools to Study Cetacean Pathology

Lucrezia Ferretti,* Letizia Fiorucci, Jose Lara, Marina García, Cinzia Centelleghé, Monica Dettin, Elisabetta Sieni, Alberto Rainer, Andrea Venerando, Federico Caicci, Valentina Zappulli, & Sandro Mazzariol



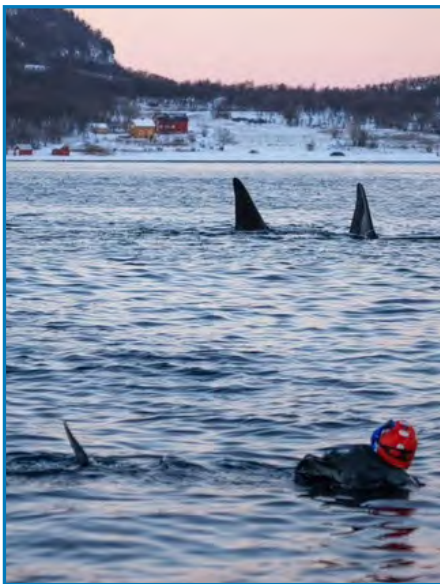
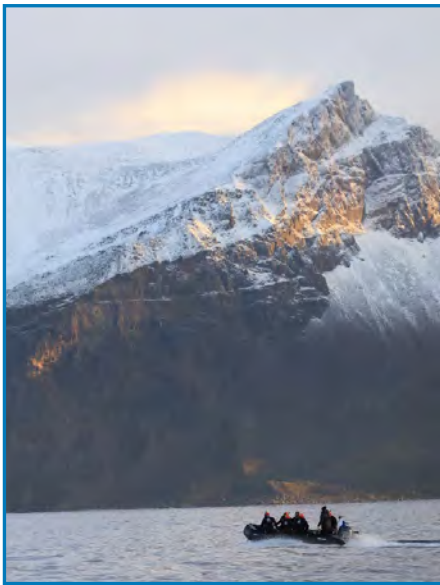
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2025 KEYNOTE SPEAKERS

A Key to Conservation Success



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Keynote Speaker

Wednesday, 12 March 2025



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What Emerging Insights from Terrestrial Mammals Can Teach Us About the Future of Marine Mammal Care



Dr. Jake Veasey

<https://www.carefortherare.com/team>

Care for the Rare

Dr. Jake Veasey trained as a behavioral ecologist specializing in animal welfare science and conservation biology at the universities of London, Edinburgh, and Glasgow. With a career that includes both running and developing major wildlife parks, zoos, and aquariums in Europe, North America, and Southeast Asia, Jake's academic pursuits have shaped his approach to wild animal care and species conservation. A long-term member of the IUCN's Species Survival Commission, Jake advises governments and NGOs worldwide on welfare and conservation policy; and as the founder and CEO of Care for the Rare, Jake's evidence-based approach to understanding the needs of animals is challenging conventional wisdom and driving a revolution in our understanding of the needs of wild animals, and how that influences management and habitat design.



The Foraging Ecology and Demography of the Crozet Islands Killer Whale Population: What We Learnt from a 35-Year Monitoring



Dr. Christophe Guinet

<https://www.cebc.cnrs.fr/predateurs-marins/christophe-guinet>

CNRS research director, Centre d'Etudes Biologiques de Chizé (UMR 7372 CNRS-La Rochelle University)

Doctor in oceanology from the University of Aix Marseille II, Christophe Guinet studied the behavioral ecology of orcas during a one-year stay in British Columbia in 1986, then three years in the Crozet archipelago as part of his doctoral thesis that he completed at the Centre d'Etudes Biologiques de Chizé (CEBC). A center that he now directs. Christophe is responsible for a program to study the polar oceans through the study of marine mammals such as elephant seals or, more recently, hooded seals. These species are used as biosamplers of oceanological parameters using tags specially designed for this purpose (www.meop.net). This program assesses how climate and ocean changes are altering the behavior at sea and the demography of these marine predators. In addition, it studies the interactions between fisheries and cetaceans, particularly between orcas and sperm whales and the toothfish fishery in the French Southern Territories.



Shaping Wildlife Tourism: Bridging Zoos and Ecotourism for Sustainable Wildlife Experiences



Debbie Bouma

<https://wild-encounters.com>

Debbie Bouma, Ecologist, Marine Mammal Specialist, Polar Expedition Leader & Guide (Home base is the Netherlands, but she spends most of the year abroad on expeditions in the Arctic)

Debbie has a passion for marine mammals and animal behavior, with over 10 years of experience as a dolphin trainer at Dolfinarium Harderwijk. Today, Debbie co-owns [Wild-Encounters.com](https://wild-encounters.com) with her partner Johnny van Vliet, a company specializing in ecotourism and unique wildlife experiences in remote Arctic regions, including Norway, Svalbard, Greenland, and the Canadian Arctic.

The expeditions are designed to focus on educating and raising awareness among guests about animal behavior, welfare, and sustainable wildlife conservation. In Svalbard, the focus is on the natural remoteness, observing polar bears, walrus, whales, and more; while winter months are spent leading snorkeling expeditions with orcas and whales in northern Norway.

With a deep passion for animal behavior and welfare, Debbie is dedicated to bridging the gap between zoo-based expertise and the conservation of wild populations. By sharing behavioral insights, Debbie helps expedition guides and tourists observe animals in a sustainable and respectful way, minimizing disturbance to their natural habitats.



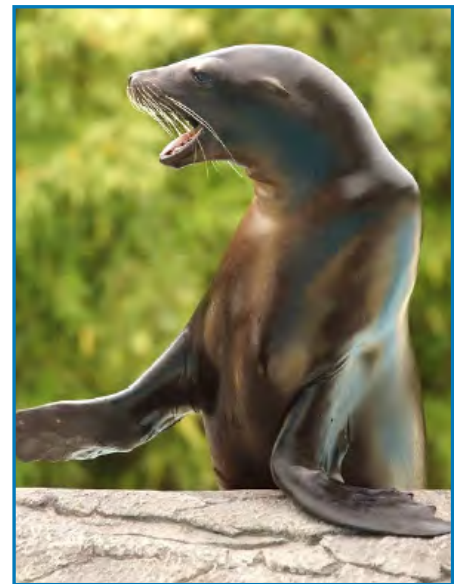
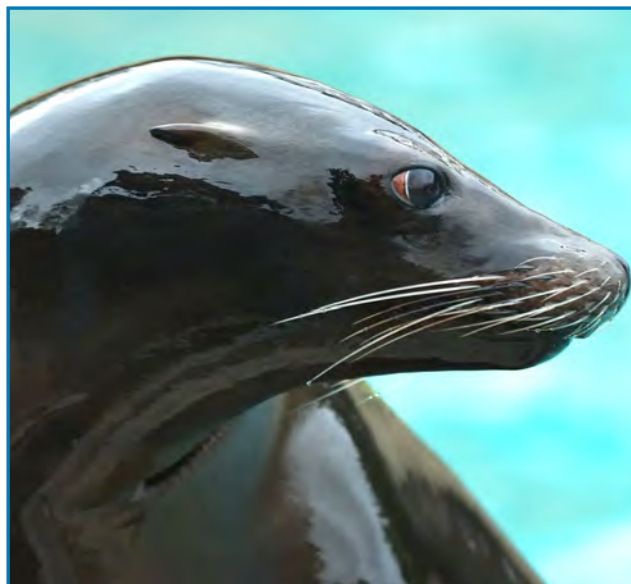
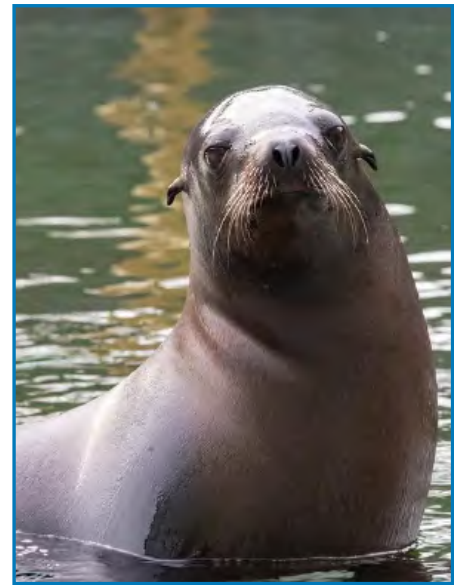
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2025 ABSTRACTS

A Key to Conservation Success



European Association for Aquatic Mammals

Rue de la Science 14b, 1000 Brussels, Belgium – information@eaam.be

Keynote Speaker

What Emerging Insights from Terrestrial Mammals Can Teach Us About the Future of Marine Mammal Care

Dr. Jake Veasey*

(1.) Care for the Rare, London, England (jake@carefortherare.com)

Welfare is the most critical standard by which wildlife attractions are judged - a failure to keep pace with societal and legislative expectations can have far-reaching consequences. These challenges can impact individual facilities but can also drive global, sector-wide changes for specific taxa, as they have done for cetaceans. Here the case will be made that the dramatic erosion in the social license for keeping cetaceans in captivity was predictable and could have been averted by a more proactive, ambitious approach to welfare provisioning. This presentation will examine historical precedents for other high-profile species that demonstrate how different responses to growing social concerns can result in profoundly different outcomes. It will also demonstrate that public perceptions of welfare are often more accurate than they are credited for and show the direction of travel in the social license for keeping species in captivity need not always be one way, if appropriate steps are taken in a timely manner. Finally, it will explore emerging insights into the needs of wide-ranging terrestrial mammals as a potential framework for reimagining a future in which, if marine mammals are to be kept under human care, their welfare is prioritized on a fundamentally different trajectory that keeps abreast of evolving ethical and societal expectations.

Oral Presentation

BITA: Saving One Dolphin to Safeguard an Entire Species

Lorenzo Von Fersen* (1), Aricia Duarte Benvenuto (2), Paula Canabarro (3), Cynthia Smith (4), Forrest Gomez (4), Jenny Meegan (4), Ashley Barratclough (4), Jay Sweeney (5), Marta Cremer (6), Federico Sucunza (7), & Eduardo Secchi (8)

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The Franciscana dolphin (*Pontoporia blainvillei*) is one of the most endangered small cetaceans, facing unprecedented threats from bycatch, habitat destruction, and unexplained live strandings. Populations are rapidly declining, pushing the species closer to extinction. Individual cases, like BITA—a stranded dolphin rescued in Uruguay—demonstrate the critical role of urgent interventions in species conservation. While rehabilitation prioritizes release back into the wild under IUCN guidelines, ex situ care becomes essential when release is not feasible. The Alliance for Franciscana Dolphin Conservation, Rescue, and Rehabilitation (AFCR3) focuses on these efforts, ensuring that stranded individuals contribute to conservation knowledge, scientific research, and public awareness.

Ex situ management fills key knowledge gaps while offering a last line of defense through potential founder populations. Aligning with the IUCN One Plan Approach, such efforts combine in situ and ex situ strategies to ensure species survival. Ex situ individuals like BITA serve as ambassadors, fostering empathy, local engagement, and public support for conservation. The Franciscana dolphin's plight highlights the urgency of sustainable marine management and the need for immediate action. Saving BITA—and dolphins like her—is not just about protecting individuals but securing the future of an entire species and the marine ecosystems they inhabit.

Oral Presentation

Empowering Contribution of Aquariums and Zoos to the Conservation of Marine Mammals: The Case of the Oceanogràfic

Daniel García Párraga* (1, 2), Jose Luis Crespo Picazo (2), Beatriz Dominguez (1, 2), José R. Serra (1), & Leocadia García Bartual (1, 2)

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Marine mammal conservation faces critical threats, including climate change, pollution, habitat degradation, and overfishing. Zoos and aquariums are uniquely positioned to tackle these challenges by leveraging their expertise in animal care. Society increasingly expects these institutions to transform into hubs of conservation, a shift essential for their continued relevance.

The Oceanogràfic embodies this approach through research, education, and direct action. Research initiatives include among others, bioacoustics studies in belugas aiding Arctic narwhal monitoring, immunotoxicology to assess pollutant impacts, non-invasive radiographic techniques to estimate dolphin age, spirometry for diagnosing cetacean respiratory pathologies or physiological studies on metabolic costs. Fieldwork encompasses health assessments of pinnipeds in Antarctica or Galapagos Islands and in bottlenose dolphins in Sarasota Bay, or bioacoustics studies of narwhals and Risso's dolphins in Greenland or Azores respectively.

Educational programmes engage millions of regular visitors but also provide global training in conservation for field professionals, from Thailand and Cape Verde to the Galápagos and Pakistan, Colombia or Brazil. Direct actions include rescuing stranded marine mammals, performing epidemiological studies, and supporting governmental monitoring networks. Notable collaborations range from dolphin rescues from fishing gears in Murcia to the creation of the first veterinary diagnostic lab in Galápagos.

These efforts position the Oceanogràfic as a model for conservation-focused aquarium, proving such transformation is vital for future impact.

Oral Presentation

The Role of Zoos and Aquaria in Research and Conservation of Wild Populations of Marine Mammals: The Experience of the “Delfini Metropolitanì” Project (2001-2024)

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(4.) Marina di Cattolica

(5.) Acquario di Cattolica

Since 2001, Acquario di Genova and Fondazione Acquario di Genova have been studying cetaceans living along the Ligurian coasts of the Pelagos Sanctuary. The project focuses mainly on the ecology and conservation status of the bottlenose dolphin (*Tursiops truncatus*) and has been named Delfini Metropolitanì.

Surveys are carried out onboard twin 5.10-metre-long rubber dinghies. Effort data (sampling tracks) and sighting points of target species (cetaceans and sea turtles) are recorded using GPS devices. During the sighting, data are collected on species, number of individuals, presence of calves and possible interactions with anthropic activities (e.g. trawlers). Photographic data for the identification of individuals are also collected, together with acoustic data.

Since 2024, thanks to the support of the PROMED project, a new research unit, Delfini Metropolitanì - Adriatico, has been active along the Romagna coasts (Adriatic Sea), in collaboration with Acquario di Cattolica, Oltremare and Marina di Cattolica.

During the research period we travelled approximately 40,000 km, recorded 452 sightings and photo-identified a total of 400 individuals of bottlenose dolphins.

The data collected are shared on the Intercet platform (<https://www.intercet.it/>) to be compared with those of other research groups, with the aim of expanding the analysis on a larger scale.

Short Talk Presentation

Nice to Meet You!!!! Do Human Interaction Programs Impact Dolphin Welfare?

Annalisa Zaccaroni* (1, 2), Cristina Pilenga (3), Annalisa Duri (3), Renato Lenzi (4), Alice Dal Chiele (1), Guillermo J. Sánchez Contreras (5), & Manuel Garcia Hartmann (2)

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- (5.) The Dolphin Company, Banco Chinchorro 87, 77504 Cancun, Mexico

The welfare of animals in human care is a cornerstone of their management, particularly for species in contact with the public for educational purposes. Few studies evaluate how this contact might affect the endocrinological welfare of dolphins (*Tursiops truncatus*), as previous studies focussed primarily on the behavioral reactions of bottlenose dolphins.

Our research evaluated an interaction program with humans by quantifying specific stress markers (cortisol and aldosterone) by non-invasive blow sampling, calibrated by blood values. For this research, interactions were done with volunteers, without members of the public, and conducted as per facility protocols and involving 6 dolphins.

Cortisol (1.43 ± 0.71 µg/dl) and aldosterone (1.42 ± 1.82 ng/ml) levels in the blow remained within baseline ranges, never showing increases indicative of dis-stress. Some dolphins seemed to consider the interactions a positive experience, showing behavioural signs of eagerness to participate.

Cortisol changes unrelated to interactions were observed: In all animals, increases were seen in the afternoon, and significant decreases were found in early fall, presumably representative of previously described circumdiurnal and seasonal changes in the hormone response, respectively.

Our endocrinological data indicate that interaction with unfamiliar persons does not negatively alter the dolphins' welfare and could, therefore, be considered a positive enrichment.

Short Talk Presentation

Sharing an Idea for Medical Training

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Often a small step for the trainer can result in a big step for training. Training the dolphin for voluntary gastroscopy can require in some cases a long time. In our experience, we have been able to perform gastroscopy for voluntary behavior successfully from the first attempt simply by modifying another medical behavior that we routinely perform. The introduction of the use of the protective tube of the endoscope in simpler practices such as voluntary hydration, has greatly speeded up the animal's desense to its use in the subsequent practice of endoscopy. In this way the animal has associated the practice of endoscopy with the simpler practice of hydration, reducing distrust.

Oral Presentation

Social Behaviors of Killer Whales and Other Delphinids

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Studies of inter-individual bottlenose dolphin social behaviors are widely represented in the literature for both ex situ and in situ animals. Conversely, the literature is sparse for studies of in situ inter-individual killer whale social behaviors, though their ecology, group foraging, and population dynamics are well represented. The crypticity of some killer whale ecotypes and the challenges of observing these animals from the underwater perspective in their frigid, dark environment might explain this bias, although the increasing use of drones is likely to offer new insight. Alternatively, ex situ groups offer abundant opportunities to study the sociality of these animals in a less challenging way. We describe inter-animal interactions for 8 ex situ killer whales from underwater video and compare results with social behaviors documented for in situ killer whales from drone views that offer underwater, near surface footage. Documented interactions and behaviors are also compared to current knowledge on social behaviors of killer whales, but also other delphinids for which data are more available. The nature of these behaviors, i.e., their affiliative, agonistic, and aggressive connotations, will also be explored. Our observations show great similarities in social behaviors used by killer whale with other delphinids in all settings. The nature of these behaviors seems highly context dependent and based on subtle modifications of each action.

Oral Presentation

A Rescue Story: The Journey of Two Belugas from Ukraine to Spain

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The invasion from Ukraine started in February 2022. The consequences of this tragic war affects also the animal world. Among them, two belugas whales were living at Karkhiv Dolphinarium. The city of Karkhiv is directly exposed to the war. The safety and welfare of the animals was seriously compromised. Karkhiv dolphinarium asked options to relocate them. Oceanografic Valencia, having the only beluga facility in Europe, responded and offered help.

This is the story of the operation focused mainly on the logistical difficulties and the animal's introduction at the Oceanografic

Oral Presentation

Wide-Ranging Intelligent System, Based on Biometric Data, for Animal Behaviour and Welfare Control

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We present a novel technique using wearable activity tracking devices to monitor animal behavior continuously.

The device collects data at a frequency of 12 Hz, generating approximately one million data points per animal per day. Accelerometry and temperature data are automatically uploaded to the cloud when the device comes within proximity of a smartphone. The project also includes the development of an analytical software platform capable of converting accelerometry data into specific behaviors using species-specific algorithms.

To date, a behavioral algorithm for manatees has been calibrated by correlating accelerometry data with manual observational data collected using Zoomonitor. The software is designed to generate activity budgets on 5 different behaviors and issue alerts based on predefined thresholds for activity levels or specific behaviors. This tool aims to operate on portable devices, such as smartphones or tablets, with minimal time required for data interpretation, enabling daily use by animal caregivers, veterinarians, and curators. The goal is to facilitate comprehensive monitoring and analysis of daily activity budgets, caloric expenditure related to physical activity, and the quantity and quality of rest.

Additionally, this methodology has shown potential in detecting and monitoring the progression of certain pathologies and assessing the effectiveness of environmental enrichment programs. We believe this innovative tool under development could become an invaluable resource for enhancing animal health and welfare monitoring in zoological institutions.

By using this technology, we will be able to obtain in the short term a large amount of information on different species of marine mammals, which will lead to better monitoring of their welfare and improved care.

Oral Presentation

Real-Time Monitoring of *Orcinus orca* Vocal Activity Using Artificial Intelligence: Insights into Communication and Welfare

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Real-time detection and classification of vocalizations in killer whales (*Orcinus orca*) is critical for understanding communication and behavior in managed environments and free range populations. This study presents an Artificial Intelligence-driven (AI) system designed to detect acoustic events and classify orca vocalizations in the pools of Orca Ocean, Loro Parque. By applying advanced signal processing techniques and machine learning algorithms, the system processes hydrophone data streams in real time, significantly reducing data storage needs and facilitating efficient information extraction.

The detected acoustic events form a valuable dataset for further analysis of vocal behavior and its relationship to welfare indicators. Preliminary analysis suggests no clear correlation between vocal production and welfare parameters, such as general health status and observed behavioral patterns. However, this method offers a scalable framework for monitoring vocal activity, providing insights into orca communication and behavior under human care.

This approach highlights the potential of integrating AI tools in cetacean research, contributing to improved monitoring protocols and advancing our understanding of communication dynamics in managed populations. Such systems may also be adaptable for use in open-water environments, further bridging the gap between controlled and natural habitats.

Below Our Visitors' Conscious Mind (with a Spoiler Alert – No Welfare Content)

João Neves*

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Marine mammal parks represent crucial platforms for environmental education and conservation awareness. This study explores the complex psychological mechanisms underlying proenvironmental behavioral intentions among zoo visitors, employing a Structural Equation Modeling approach to understand how value orientations, environmental awareness, and personal norms interact to shape potential conservation actions.

Through a comprehensive analysis of 503 adult visitors to Zoomarine Algarve, the research revealed that behavioral intentions towards marine conservation are not linear but dynamically interconnected. The final model demonstrated that visitors' environmental attitudes are shaped by a complex interplay between biocentric and anthropocentric value orientations, awareness of environmental consequences, and personal normative beliefs.

The results show the procedural complexity that exists for the formation of pro-conservation attitudes and behaviors, a complexity that we often underestimate in our daily lives. The key findings offer insights for the EAAM members, including the need to develop communication strategies that address both biocentric and anthropocentric perspectives, design educational programs that link awareness of environmental consequences to personal motivation, create experiences that cultivate personal norms and individual responsibility, and craft narratives that demonstrate the interconnectedness of human and ecological interests.

Effects of Experience and Familiarity on Visual Attention and Behaviours of Bottlenose Dolphins (*Tursiops truncatus*) in Presence of Humans

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Visual attention is fundamental in intra- and interspecific interactions, shaped by species-specific cognitive abilities and relationship quality. In human care settings, bottlenose dolphins (*Tursiops truncatus*) regularly interact with caretakers, with visual attention patterns and laterality influenced by the type of stimulus and familiarity. This study examined whether experience and familiarity with humans affect visual attention and associated behaviours in nine dolphins under human care. Using motionless human tests, we found that experience in the facility increased play and vocalizations near humans, irrespective of familiarity. However, familiarity strongly influenced presence and visual laterality; dolphins spent more time near familiar humans and predominantly used their right eye for glances. These findings highlight the role of familiarity and past experiences in shaping dolphins' cognitive processing of stimuli and offer insights into the evolution of human-animal relationships in managed care contexts.

Science and Zoos at the Service of Wild Orcas: Evaluation of the Energetic Cost of Activities in Cetaceans

Isabelle Brasseur* (1), Anke ven Brug, Gianni Zenovelli, Romain Morel, Myriam Weiss, Michaël Evrard, Cécilia Carles, Steven Mace, Élodie Coursia, Alexandra Sauvage, Tomas Bautista Villaverde (2), Austin Allen (3), & Andreas Fahlman (4)

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Knowing cetacean metabolic rates is essential to quantifying the population-level impacts of disturbances. Are humans causing them to spend more energy than they need to survive? Electronic instruments, called biologging tags, are deployed on wild orcas and contain sensors that measure activity. To translate these activities into energy expenditure (how many calories they are using), it is necessary to know the oxygen consumption rate of the animals, which is impossible to measure in the wild. It is these reference data, which were collected at the Marineland Antibes, France by two physiologists. Between March 2022 and November 2023, the trainers dedicated to orcas put their training expertise at the service of science. The animals were desensitized to the material necessary for collecting calibration data at rest and after dynamic apnea. The orcas, equipped with tags to measure activity, learned to breathe, according to their natural rhythm, in an instrument capable of measuring energy expenditure. This research complements data collected with bottlenose dolphins in professional care. Modeling dolphin and orca data together will provide information on the energy needs of cetaceans in the natural environment from the smallest species to the largest.

Perspective Matters: The Importance of Vantage Point When Looking at Behaviors

Kathleen M. Dudzinski* (1), Manon Themelin (1), & John Anderson (1)

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Studies of mobile, aquatic species are often limited to surface views, with less data available from underwater. For decades, bottlenose dolphins have been studied from above or at the water's surface, which constraints research to association patterns, synchronous behaviors, and group movements. Some human-habituated populations have been studied underwater, offering great insights into their social life. Since ~2010, technology flourished to offer smaller waterproof cameras, wider lenses, extended battery life, and increased storage, which impacts cetacean research logistics. More recently, a new vantage has opened a world of possibilities with unmanned aerial vehicles (UAV/drones). Still, do drones really provide a better perspective from surface or underwater views? From seven ~30-min. sessions, video from underwater, surface, and drone perspectives were compared to inform overlap versus difference for observations on an ex situ bottlenose dolphin population. We focused comparison on object play, pair swimming position, and contact exchanges. All perspectives were impacted by weather conditions that interfered with underwater visibility or data collection directly. Drone and underwater views offered different advantages to studying specific behaviors. Surface observations could only provide punctuated, point data when animals surfaced or swam by the camera. Although each perspective provided different details, underwater and drone views were complementary and having both available will augment any animal behavior studies.

Short Talk Presentation

Innovative Concepts in Patagonian Sea Lions (*Otaria flavescens*)

Angel Manuel Galicia Navarro* (1), Griselda Mora Baez (1), & Sarah Winteler (1)

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The complexity of concepts increases progressively: starting with a simple act of repeating a behavior, to performing a sequence of behaviors, copying another individual's actions and recognizing a specialist based on specific behavior. In our training, we introduced innovative concepts focused on repetition, copying and sequences behaviors. These methods aim to enhance cognitive understanding and adaptive skills among our subjects. All participants in our cognitive training range from six to twenty-nine years old, ensuring a diverse representation across age groups. This training is designed to cater to various developmental stages, facilitating individualized learning experiences. Our findings demonstrate favorable outcomes, indicating that structured cognitive training can effectively foster behavioral complexity and adaptability by fostering these innovative approaches, we aim to contribute valuable insights into behavioral cognition, emphasizing the importance of tailored training in promoting cognitive development across different age ranges. Overall, this study highlights the significance of progressive learning techniques in shaping behavior and cognitive abilities, paving the way for future research and applications in the field of behavioral science.

Short Talk Presentation

Mechanical Water Disinfection – 1 Year Follow-up

Norbert Fleck* (1)

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A year ago I started an experiment with mechanical water disinfection / microfiltration in two hobby aquariums and presented the first results at the 2024 Symposium at Loro Parque. This year's short presentation will show the results and evolution of these setups after more than a year without water changes, as well as results with additional setups. Originally developed for industrial applications, mechanical disinfection and microfiltration (down to 0.05 µm absolute) of water-based liquids is proving to be an exceptionally cheap and sustainable method of controlling water quality in small to medium-sized aquariums, while reliably removing parasites, fungi, algae, bacteria and even some viruses from the cycle. My experiments are aimed at developing the method further and exploring its potential as an LSS component for aquatic mammal facilities that can operate without the use of disinfectants.

Round Table

Round Table on Training Skills: From Basic to Amazing!

Angelo Henriques* (1), Nicolas Issenjou* (2), Gunther van Nieuwenhuyze* (3), & Isabelle Brasseur* (4)

- (1.) Zoomarine, Italy
- (2.) Zoo de La Palmyre, France
- (3.) Baudewijn Sea Park, Belgique
- (4.) Marineland Antibes, France (i.brasseur@marineland.fr)

Animal training is a cornerstone of successful care and management for species under human care. While widely recognized for its impact on marine mammals and some big terrestrial species like elephants, the benefits of training extend across all species, ages, and health conditions. This round table will bring together international experts to share diverse experiences and discuss practical training techniques. From foundational skills to advanced achievements, we will showcase examples that highlight how training fosters animal welfare, supports scientific research, enhances conservation efforts, and creates profound, meaningful connections between animals and their caretakers. This session aims to inspire innovation and deepen our collective understanding of the critical role training plays in the modern zoo and aquarium landscape.

Keynote Speaker

The Foraging Ecology and Demography of the Crozet Islands Killer Whale Population: What We Learnt from a 35-Year Monitoring

Dr. Christophe Guinet*

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In this presentation I will provide a synthesis over a 40-year period of the foraging ecology, demography and population trend of Crozet killer whales encompassing three periods: 1) prior the Patagonian toothfish fishery (i.e. 1995) relying on shore-based photo-identification; 2) during a period (1996-2002) of intense illegal fishery activity, and 3) since 2003 a fishery operated by licensed vessels. In recent years, fishery observers, completed by a small amount of shore-based pictures, conduct most photo-identification effort. As soon as the fishery started, depredation behaviour (i.e. the removing of fish from the lines by killer whales) was documented, with dramatic consequences on their demography. Over the 1996-2002 period killer whales interacting with the fishery exhibited very high mortality rates, while killer whales not interacting were unaffected. After intense illegal fishing ended, fishery interacting killer whales had a higher but still low survival rate but exhibited a high fecundity. However, despite this high fecundity rate, increased food resources availability this population is still declining suggesting that these killer whales are exposed to increased mortality. Currently they are evidences that this higher than expected, mortality rate is related to undeclared-unregulated fishery activity, occurring within and outside the Crozet EEZ. Extensive research was conducted in trying to reduce depredation rates and interaction with fishing vessels to insure the conservation of this unique killer whale population.

Oral Presentation

What If Sealions Could Read? New Area for Cognitive Abilities in Patagonia Sealions at Paris Zoo

Romain Bruneau* (1), Bastien Servieres (1), Maeva Thomas (1), Aurélien Aumasson (1), & Alexis Lécu (1)

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The ability of sea lions to recognize a target has been demonstrated numerous times and forms the basis for positive reinforcement training. At the Paris Zoological Park, we tried to push this training much further. With our Patagonian sea lions, we have embarked on a year-long training initiative aimed at memorization and recognition of their written names spelled out in full. Calligraphy represents a complex form that requires a more meticulous analytical capacity than the differentiation of a simple geometric shape. As our training progressed, we not only proved that our sea lions are capable of memorizing and distinguishing complex forms such as printed words, but we were also surprised to see how well they can visually detect very subtle differences and the avoid pitfalls.

In this presentation, we wish to share all the phases of the training we conducted, outline the difficulties encountered, and present our results. These conclusions could open a discussion about the cognitive analytical abilities of this species.

Oral Presentation

Exploring 3D Symbol Discrimination in Orcas: Insights into Cognitive Processing and Conservation

Steven Mace* (1), Isabelle Brasseur* (1), Myriam Weiss (1), Kathleen Dudzinski (2), & Heather M. Manitzas Hill (3)

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- (3.) Psychology Department, St. Mary's University, San Antonio, Texas, USA

In collaboration with St. Mary's University, Dolphin Communication Project, Eckerd College, and Sacred Heart University, Marineland Antibes conducted a study to explore orca cognitive abilities in discriminating three-dimensional objects. The project aimed to assess how orcas process visual stimuli in the form of 3D symbols and respond to them when presented simultaneously vertically or horizontally.

Keijo, a male orca born in 2013, was trained from 2021 to associate three different objects with three specific behaviours. After pre-testing confirmed a 90% correct response rate during sequential presentations, more complex tests involved presenting two or three symbols simultaneously. Keijo predominantly performed only one behaviour and showed a slight preference for symbols positioned at the bottom (61%).

This research has implications for understanding orca cognitive processing and conservation, as it could enhance knowledge of their interactions with natural and artificial objects in the ocean. Additionally, the study proved enriching for Keijo and inspired public interest in orca conservation through cognitive research.

Oral Presentation

“Fins United”: Single Mixed Social Group Composition of Bottlenose Dolphins (*Tursiops truncatus*) Through Observation, Training and Relationship

Angelo Henriques* (1), Federica Iacovone (1), Andrea Sigismundi (1), Gaia Vazzano (1), Marta Orestano (1), Elena Caramelli (1), Federica Capitani (1), Carla Genovese (1), Daniele La Monaca (1), Saverio Meini (1), Cristina Pilenga (1), Alejandro Garciblanco Mata (1, 2), Guillermo Sánchez Contreras (2), Edgar Urbina (2), Manuel Garduño (2), & Rosi Cerrilos (2)

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- (2.) Dolphin Company, Cancun, Mexico

After several years of managing subgroups within a mixed population of bottlenose dolphins, an accurate and focused process was successfully implemented at Zoomarine Italy Dolphinarium. This process involved bringing together a group of five females and six males through consistent ethological observation, a gradual socialization process, and the excellent application of 'shifting' and 'choice & control' training techniques by the trainers.

The primary goal was to foster positive relationships among the dolphins by facilitating safe and engaging interactions that enhance their well-being and create a cohesive social environment. By carefully monitoring and adapting to the changing social dynamics of the group, a flexible mixed group with a balanced hierarchy was successfully established. This structure allows for effective management of daily separations and reunions, respects the preferences of the animals, and ensures a safer and more efficient workflow for the trainers.

Short Talk Presentation

Laser Surgery as Treatment of Oral Papilloma in *Tursiops truncatus* with Voluntary Behaviour

Pietro Saviano* (1), Letizia Fiorucci (2), Lucrezia Ferretti (2), Marina García (2), Christian Garcia (2), Diletta Giolito (2), Antonio Fernandez (3), Manuel Arbelo (3), & Eva Sierra (3)

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The most frequent treatments of oral papilloma are classic surgery, cryosurgery or laser surgery. "Cira", *T. truncatus*, female, 27 years old, presented cauliflower papilloma caused by Papillomavirus. We used TFD Gold 6 surgery laser by QuantaSystem. Advantages of the use of laser in this surgery are absence of bleeding, precision and no need of suture. The animal has been trained to receive voluntarily the injection of local anaesthesia and the papilloma's excision with laser. The animal has been displayed in beaching, Lidocaine in a dosage of 2 mg/kg has been administered with insuline syringes in 3 points (cranial, medial and caudal) around the papillomatous lesions of the tongue by voluntary behaviour. After 3 minutes we have successfully removed the first pedunculated papilloma (length: 3mm) with its base with the laser. Total estimated time 5 minutes. We have reinforced Cira and we have given her a rest. We recalled the animal and we injected lidocaine again to remove the second papilloma, around 1 cm, sessile base. We waited 8 minutes before starting. The total procedure lasted 24 minutes.

Short Talk Presentation

How Important Is Colostrum in *Orcinus orca*?

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Odontocete pregnancy depends on a diffuse epitheliochorial placentation and therefore their offspring do not receive prenatal protective immunity by maternal antibodies. Their first humoral -or acquired- immunity is passive, provided by the transfer of large amounts of immunoglobulins from the mother to the newborn through the very first milk, called colostrum. During a very limited window of time, the newborn's gastrointestinal system is able to reabsorb into the bloodstream, rather than digest, the immunoglobulins from this milk. It is well known in cows and horses, for example, that neonates without adequate colostrum intake in terms of quantity, quality and timing usually perish.

In the past, killer whale neonates with insufficient colostrum intake have been successfully hand-reared using a 'passive' vaccine, a concentrate of immunoglobulins from adult animals.

In this presentation, we describe two cases of killer whale calves that survived our hand-rearing without colostrum or passive vaccination, but with significant medical support. A third case was mother-reared, but remained for 38 hours without colostrum and without veterinary intervention. This latter calf initially developed well but died of a congenital abnormality unrelated to its immune response. In these three cases of killer whales the "indispensable" role of colostrum seems dubious.

Oral Presentation

2016-2025: Retrospective on the Challenges Associated with the Medical Care and Well-Being of a Group of Rescued Northern Sea Otter (*Enhydra lutris kenyoni*)

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In 2016, after a long and thorough accreditation process designed by the US Fish and Wildlife Services, Oceanopolis received a bachelor group of 3 Northern Sea Otter (*Enhydra lutris kenyoni*) from a rehabilitation center in Alaska and became the third European institution holding this charismatic species. Shortly after transfer, two individuals died and although the main cause of death could not be identified in both cases, presumption of negative energy balance was made. Adjustment in the transfer/acclimatation protocol were successfully implemented during the transfer of another group of 2.0 Northern Sea Otter (NSO) later the same year. Between 2016 and 2025, all NSO were submitted to an annual check-up under general anesthesia. Considering their diet and ability to process and ingest a variety of shellfish and other invertebrate, specific attention was made to oral and dental health. Morbidity was low and primarily associated with gastrointestinal system. Diet includes a great variety of items, and any modification should be slow and gradual. Stress resulting from environmental disturbance in the vicinity of the enclosure seems to have a significant impact on behavior and well-being. Since drug availability in Europe is different from North America, routine anesthetic protocol had to be adjusted and a mixture of Medetomidine/Butorphanol/Midazolam with Isoflurane for maintenance has proved to be a safe and reliable alternative to the fentanyl/midazolam used previously.

Oral Presentation

Intercontinental Evaluation of SDMA Values in Order to Establish Reference Intervals in Bottlenose Dolphins (*Tursiops truncatus*)

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Symmetric dimethylated arginine (SDMA) has proven to be of great use in veterinary medicine as an indicator of kidney function. Little is known about the reliability of this parameter in marine mammals, and especially in bottlenose dolphins (*Tursiops truncatus*).

A pilot study was conducted and presented during the last EAAM symposium, and since then 7 facilities in Europe, the USA and Mexico have joined efforts. In this expanded study, SDMA levels in a larger and diverse cohort of healthy bottlenose dolphins across multiple age and sex groups have been analyzed. The ultimate goal is to establish species-specific reference intervals to enhance diagnostic capabilities for kidney function in this species.

Preliminary results confirm SDMA's consistency as a reliable biomarker, underscoring its potential for early detection of renal issues. Establishing these reference intervals represents a critical step toward improving health management practices for dolphins in human care and the wild. These findings could also guide broader applications in cetacean medicine and conservation efforts.

Oral Presentation

Multiorgan Disseminated Lymphoma in an Antillean Manatee (*Trichechus manatus manatus*) in Professional Care in Mexico

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A wild-born and rescued adult male Antillean manatee (*Trichechus manatus manatus*) living at a Mexican facility succumbed after exhibiting intermittent anorexia, lethargy, and progressive weight loss despite treatment. At necropsy, generalized lymphadenitis and multiple white nodules in the lungs were observed. Histopathology revealed extensive lymphoid infiltration in the lungs, liver, heart, and lymph nodes, consistent with T-cell lymphoma. However, immunohistochemical analysis using markers CD3, CD4, CD8, CD20, and CD79 α yielded negative results. Although the diagnosis remains lymphoma, the lack of immunoreactivity suggests either the presence of an uncommon lymphoma subtype or the absence of validated antibodies for sirenians—a limitation frequently encountered in marine mammal diagnostics. Molecular methods, such as PCR-PAAR, are being conducted to provide greater accuracy in determining the lymphoid lineage of this neoplastic process.

From a conservation perspective, this case highlights the importance of proactive health monitoring and advanced diagnostics in manatees under professional care. Neoplastic diseases underscore the need for early detection and collaborative research to address species-specific diagnostic gaps. Improving diagnostic tools will enhance disease management and contribute to the long-term health and viability of manatee populations, both in professional care and in the wild.

Oral Presentation

Improved Analysis of Respiratory Dysfunction in Dolphins: The Role of Spirometry and Electrical Impedance Tomography (EIT)

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A 16 years old male Indopacific bottlenose dolphin (*Tursiops aduncus*) was noted with a severe respiratory dysfunction. The dolphin was diagnosed with pleural effusion on the left lung based on ultrasound and radiographs. After 11 days, the effusion evolved to pulmonary collapse. Spirometry confirmed a significant reduction in expiratory flow and tidal volume with no compensatory increase in inspiratory or expiratory duration. This indicated an inability to adapt to the underlying impairment. Electrical impedance tomography (EIT) provided a dynamic visualization of intrapulmonary activity, revealing chaotic air movement inside the lung and uneven ventilation across lobes. These findings suggested the presence of alveolar collapse and potential functional blockages resulting in intrapulmonary air redistribution. EIT and spirometry both showed that while intrapulmonary air movement occurred during breaths, ventilatory exchange with ambient air was severely compromised. 20 days after the pulmonary collapse was diagnosed, the specimen died, and the necropsy confirmed the finding. The use of these diagnostic tools increase the precision in the management of respiratory diseases, enabling individualized care plans that can potentially optimize recovery and improve overall patient outcomes.

Oral Presentation

North Wind and Other Environmental Factors Associated with Habitat Use of Common Bottlenose Dolphins (*Tursiops truncatus*) in the Mediterranean Coastal Area of Marina Baixa

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The common bottlenose dolphin (*Tursiops truncatus*) is a highly opportunistic species that can inhabit a wide range of marine ecosystems in the warmer and temperate regions of the world. The great variety of coastal ecosystems influences the presence of the species in different areas. A total of 222 hours of observation were conducted to determine the presence of bottlenose dolphins along the Marina Baixa area (Alicante, Spain). Linear transects and coastal sampling points were used to collect the data. A large number of environmental and anthropogenic variables were recorded, and their influence on the frequency of dolphin appearances was evaluated. The results showed that no human factors limit the presence of the species. However, several environmental factors had a statistically significant influence, particularly wind and wave conditions. North wind was found to be the most important factor influencing the dolphins' use of the coastal habitat in our study area ($H=15.39$, $p=0.031$). This type of wind is associated with a reduction in temperature and an increase in swell, altering the general sea conditions and drawing the dolphins closer to our specific study area along the coast.

Oral Presentation

Functional Profiles of the Respiratory Microbiome: A Window into North Atlantic Right Whale Resilience and Conservation

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The respiratory microbiome is essential to the health of marine mammals, offering insights into host-environment interactions and the effects of anthropogenic stressors on at-risk populations. This study investigated the respiratory microbiome and its functional profiles in North Atlantic right whales (*Eubalaena glacialis*) in the Gulf of St. Lawrence, Canada, with the aim of identifying potential health and disease indicators to inform conservation efforts.

In September 2024, blow samples were non-invasively collected from 20 whales using a drone equipped with sterile Petri dishes. DNA was extracted, and the 16S rRNA gene was sequenced using Illumina technology. The raw sequences were analysed using the DADA2, phyloseq, and Tax4fun2 pipelines in R software.

Preliminary findings revealed significant diversity in the respiratory microbiome, providing valuable insights into the health status of the sampled individuals. The bacterial genera *Psychrobacter*, *Tenacibaculum*, and *Oceanovirga* were identified as key contributors to distinct functional pathways associated with metabolism, environmental information processing, and genetic information processing.

This research underscores the importance of respiratory microbiome studies as a tool for non-invasive health monitoring of endangered marine species. Integrating microbiome functional profiling into conservation strategies can enhance our understanding of how these animals respond to anthropogenic and environmental pressures.

Oral Presentation

Toxoplasmosis Titres in Dolphins Under Professional Care

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Toxoplasmosis is a parasitic disease caused by *Toxoplasma gondii*. Approximately one third of the world's human population is infected with this parasite. Cats are its final host. Mammals and birds are susceptible, and certain species are known to be particularly affected, although in most species infection doesn't usually lead to clinical disease.

Seropositivity and, less commonly, clinical disease has been described in cetaceans and pinnipeds ex situ. Clinical cases under professional care are very rare but have been published.

We tested serum from dolphins in two different facilities, one hermetically closed to cats and the other with the confirmed presence of stray cats around the outdoor pools.

Although no clinical disease had ever occurred in either facility, the results showed that in both sites the majority of animals had titres against *Toxoplasma*. There were significant differences between age groups.

We discuss the possible routes of introduction of toxoplasmosis into both facilities and conclude that surveillance for toxoplasmosis appears to be appropriate for clinicians, as the disease may occur under professional care. We also conclude that the presence of cats influenced the level of titres found, but even in the absence of cats most animals were seropositive.

Oral Presentation

Phagocytic Capacity as a Diagnostic Tool in Marine Mammals: Clinical Applications

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This study explores the adaptation of a human immune assay to measure phagocytic capacity in marine mammals, focusing on its clinical applications. Objectives included establishing physiological baseline values and evaluating its utility in diagnosing immune alterations. The assay, which measures the ingestion of *E. coli* and respiratory burst activity, was adapted for bottlenose dolphins (*Tursiops truncatus*), beluga whales (*Delphinapterus leucas*), walrus (*Odobenus rosmarus*), and sea lions (*Otaria flavescens*).

Two clinical cases demonstrated its relevance. In one dolphin with chronic *Rhizopus microsporus* infection, the assay detected significantly increased phagocytic activity ($77.2\% \pm 0.9\%$) compared to healthy individuals ($59.6\% \pm 1.27\%$, $p < 0.0001$). In another dolphin, routine monitoring revealed decreased phagocytic activity (30%) and respiratory burst (7.2%) before the onset of a yeast infection. These findings validated the assay's ability to detect immune activation and suppression, respectively.

This tool enables early diagnosis and monitoring of immune dysfunction, improving preventive veterinary care in aquariums. By standardizing immune assessments across species and facilities, it also facilitates research into marine mammal immunology and health. The study demonstrates the potential of phagocytic capacity assays to revolutionize marine mammal veterinary practices.

Short Talk Presentation

FISH to Investigate Marine Mammal Environment

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Fluorescence in situ hybridization (FISH) is a molecular cytogenetic technique that allows the localization of a specific DNA sequence. It is commonly used to diagnose genetic diseases or for gene mapping. In clinical microbiology it could be used for *Candida* identification directly from blood-culture.

Severe *Candida* infections are increasing and are associated with considerable morbidity and mortality. Rapid and accurate differentiation of *Candida* species is essential also for therapeutic decisions. Cultural analysis is the gold standard technique necessary to determine the presence of the pathogen and its sensitivity to specific antimicrobial agents. Culture usually takes days to have the complete results, FISH could be used for rapid identification of specific pathogens.

In our study we applied the FISH to investigate the aquatic environment and the possible role of it in the spreading of *Candida* infections in a group of bottlenose dolphins that had been tested with blowhole and fecal culture and resulted positive to *C. albicans*, *C. tropicalis*, *C. glabrata*, and *C. parapsilosis*.

Water samples were collected from different pools and analyzed by FISH using five different probes specific for *Candida albicans*, *Candida parapsilosis* complex, *Candida krusei*, *Candida glabrata* and *Candida tropicalis*.

Given the potential for *Candida* strains isolated from dolphins to spread into the water, it is imperative to implement measures to test the environment, to prevent the introduction of fungi into the pools and transmission between individuals.

Short Talk Presentation

Complete Oral Health Assessment and Treatment in a Non-Sedated 12 Year Old, Male Walrus (*Odobenus rosmarus*)

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Although periodontitis is a common condition in both humans and domestic animals, it has been rarely documented in walrus. In a study conducted on 75 animals, periodontitis was identified in only 0.8% of cases (Winer et al., 2016). The pain associated with periodontitis can vary depending on the severity of the condition. Early stages, referred to as gingivitis, may cause little to no pain, with symptoms such as swollen or bleeding gums being more noticeable. However, as the condition advances to periodontitis, the pain can become more severe and troublesome. A 12 year old, male walrus, suffering from significant oral pain due to advanced periodontitis, required a complete oral health assessment and treatment (COHAT).

In veterinary medicine, it is widely accepted that periodontitis can only be treated under full anaesthesia. This poses a challenge in walrus due to the high risk of hypoxia caused by their diving reflex, alongside difficulties with intubation and ventilation. Consequently, a plan was devised to perform COHAT on a conscious walrus through medical training. This case report will outline the training process and demonstrate the successful outcome achieved by treating the animal.

Round Table – Dolphin Welfare 2.0 – An Update

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Dolphin welfare is a rapidly developing field within animal welfare science. After 8 years of work and with support of EAAM, the Dolphin-WET, a practical tool to assess the welfare of individual dolphins in managed care, was published in February 2024. In this roundtable, we will share experiences with this tool and present its app version.

Furthermore, new research techniques and trends in dolphin welfare science will be summarized and presented in terms of their functional applications.

The welfare of wild cetaceans has also come under increasing scrutiny, and the welfare assessment methods available in the literature will be reviewed.

This roundtable will bring together all these new developments for a productive scientific exchange.

Keynote Speaker

Shaping Wildlife Tourism: Bridging Zoos and Ecotourism for Sustainable Wildlife Experiences

Debbie Bouma*

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The human desire to connect with nature drives ecotourism and wildlife experiences, offering transformative moments like hearing a whale's song or watching dolphins play in the wild. However, the growing demand for these encounters often leads to challenges, including disturbances to animals and their habitats. By bridging the gap between ex-situ expertise, in-situ conservation, and citizen science, we can create wildlife experiences that inspire conservation, respect animal welfare, and gather valuable data to protect these species.

Zoos and aquariums play a critical role in this effort. Their decades of research on animal behavior, welfare, and enrichment provide essential insights for guiding ethical ecotourism practices. For example, understanding stress signals, optimal distances, and natural behaviors from ex-situ studies helps create wildlife encounters that prioritize the well-being of animals while enhancing guest experiences. These institutions also demonstrate the value of allowing animals to choose their level of engagement, a principle that can be applied in ecotourism settings such as whale-watching and snorkeling tours.

Additionally, the integration of citizen science projects into ecotourism opens doors for researchers to collect large-scale, meaningful data on species behavior and ecology. Drawing from my 10 years as a dolphin trainer and 5 years in Arctic expeditions, this presentation will showcase how zoos, aquariums, and ecotourism can work together to inspire conservation and ensure the protection of wildlife for future generations.

Oral Presentation

How Ex Situ Helps Understand In Situ: Contaminants in Orcas Under Human Care as Reference for Wild Animals

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Orcas (*Orcinus orca*) are relevant top ecosystem sentinels. Understanding how toxicants, such as heavy metals (TEs) and organic compounds (OCs), are either successfully metabolised or accumulated will help understand their health effects in the wild. Despite years of research on stranded animals, little is known about the precise pharmacokinetics of TEs and OCs in living specimens. Animals under human care can be proxies for pharmacokinetic studies by assessing dietary intake and subsequent physiological excretion. In addition, the controlled environment and diet may reduce confounding factors that cannot be excluded in the wild.

Our present work reports the quantification of TEs and OCs in orcas under human care using samples from non-invasive sampling methods, dietary samples and blood collected for routine health assessment.

Calculated intakes were extremely high for OCs, which is a cause for concern. Exposure to TEs was low, except for lead, where levels were higher than those observed in wild bottlenose dolphins. After parturition, mothers showed changes in some essential elements.

The results obtained show how animals kept in a controlled environment can be a good reference for wild conspecifics, improve our understanding of the toxicokinetics of contaminants and provide a tool for exposure assessment.

Oral Presentation

Update from 4-Year Observations on the Use of Deslorelin (Suprelorin®) in Female Bottlenose Dolphin

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The use of contraceptive techniques is of paramount importance for reproductive programs in zoological settings in order to maintain healthy and sustainable populations and maximize genetic variability preventing inbreeding.

Several different hormonal contraception methods have been used in cetaceans. Secondary effects like endometriosis, pyometras, ovarian cysts or cycles irregularities, failure to prevent pregnancy, specific legislation or too high costs have been pointed out as reasons for discontinuation.

For these reasons, and successful long-term uses with minimum secondary negative effects reported in multiple mammal species, 14 *Tursiops* spp. females were started on Deslorelin (Suprelorin®). All animals received multiple implants, inserted in the epaxial musculature. For the initial implant and where activity had resumed, females received a short course of the progestogen Altrenogest to suppress initial implant-induced stimulation. Weekly ultrasound examinations were performed to monitor ovarian activity and to document the resumption of follicular recruitment, indicating the endpoint of implant effect.

One of the major concerns within the community on the use of the implant in dolphins is what happens at the end of the indicated period of activity and its reversibility: it has to be considered that differently from other mammalian terrestrial species, in cetaceans the implant is not normally removed at the end of the indicated period of activity. In prolonged use, the cumulative effect can be potentially observed.

The updated data of 4 years Suprelorin® usage in a dolphin population will be presented, highlighting the return of ovarian activity in a female and the following pregnancy.

Oral Presentation

Quality of Life Assessment in Complicated Marine Mammals Medical Cases Under Human Care

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Due to the improvements accomplished in the management practices of marine mammals in the last decades, their longevity under human care has increased dramatically and surpass the achieved by their wild counterparts from 1.65 to 3.55 times depending on the species (Tidière et al., 2023). These include advanced veterinary care, environmental, nutritional and enrichment enhancements, as well as the voluntary cooperation of animals in routine examinations through positive reinforcement training. This extended longevity is linked to a higher likelihood of degenerative or neoplastic diseases that may ultimately deteriorate the animal's clinical condition and, many times, lead to welfare issues that prolong in time.

Decision to euthanize these cases rely mostly on the veterinarian, as it is the professional which holds the medical knowledge and legal authorization to perform the procedure. But it sometimes confronts higher management and other staff perceptions about the case and the animal's condition. To objectivize the decision, QoL assessment tools have been developed and used in the last years in zoological collections, but as they evolve from its use in domestic species, present limitations with aquatic creatures. Here we present an example of a QoL assessment tool that will be shared with the audience to survey how other institutions evaluate and manage these complicated situations.

Short Talk Presentation

Laterality in Southern Right Whale (*Eubalaena australis*) Mother-Calf Dyads: Intrinsic Behavior or External Influence?

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Most of the studies conducted on southern right whale mother-calf dyads have focused on nursing activity or the calves' growth. However, not much attention has been paid to mother-calf laterality: the relative position between the two animals. Do the calves swim mainly on the right or left side of their mothers in a consistent manner? Does the relative position change as the calves grow? Is there any effect of environmental factors on this? To answer these questions, 233 observations of mother-calf dyads were conducted in two different breeding areas: Walker Bay (South Africa) and Golfo Nuevo (Argentina) during several breeding seasons (2018-2024). The results do not show an intrinsic preference for the right or left side, but rather a significant influence of the surroundings. The mothers position themselves between the calves and the coast in a statistically significant way when the calves are smaller or when the sea level pressure is low and exist a weather instability. Moreover, there are significant differences in the behaviour of the mothers in both study areas, with mothers standing between the coast and the calves in a much higher proportion in Argentina (crushed stone beaches) than in South Africa (cliffs and rocks).

Oral Presentation

The Marine Mammals of Walker Bay (South Africa): Interactions and Environmental Influences

Carmen M. Arija* (1, 2), Carla Jiménez (2), Arrate Pastor (2), Mireia Villafáfila (2), Carla García (2), Marta Yagüe (2), Lucía De la Torre (2), Déborah N. Méndez (2), & Fabiola C. Gallardo (2)

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Walker Bay, located on the southwest coast of South Africa, is recognized as one of the most important breeding areas for southern right whales (*Eubalaena australis*) in Africa. This bay also serves as a feeding ground for humpback whales (*Megaptera novaeangliae*), Bryde's whales (*Balaenoptera edeni*), Cape fur seals (*Arctocephalus pusillus*), and various dolphin species. The present study aims to determine whether the presence of other marine mammals influences the use of the bay by right whale mother-calf pairs and to evaluate the relationship between environmental factors and the density and diversity of marine mammals in the bay. To achieve this, full-day observations were conducted over 15 days during the 2024 right whale breeding season from various points along the Walker Bay coast. The results indicate that right whale mothers utilize the bay regardless of the presence of other species, although the occurrence of the rest of the whales, dolphins and cape fur seals shows positive correlations among them. Additionally, right, humpback and Bryde's whales exhibit different usage patterns. Each species has its own specific relationships with environmental factors, with wind and dew point emerging as the most significant variables affecting the presence and diversity of marine mammals in Walker Bay.

Short Talk Presentation

A Metastatic Anaplastic Carcinoma in a 23 Years Old Female California Sea Lion (*Zalophus californianus*)

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In August 2023 a small subcutaneous lump appeared under the left pectoral fin. We started checking it by US: size, consistency and structure. X-Rays of the lump were performed with a negative result. A first ultrasound guided fine needle aspiration was tried by voluntary behavior at the end of August with no specific result. Then, local and general US examinations were performed almost weekly to monitor the situation. In October 2023, the lump appeared to have a partial second lump into the first one with different aspect and hecogenicity. X-Rays and US of the lungs showed something of abnormal. However, she was in good condition, eating well and participating all the usual activity of the pinnipeds area. In February 2024, a second ultrasound guided fine needle aspiration was performed with a result of a strong suspicion of epithelic neoplasia. Then, she started limping a bit with the left pectoral fin and she was put under NSAID before with no result and a corticosteroid later with positive result about lameness and attitude. A CT-scan was performed on the 23rd February confirming the presence of metastasis in several organs.

Oral Presentation

Immersion Ultrasonography to Identify and Follow-up Eye Lesions in Marine Mammals

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Eyes are often examined with an ophthalmoscope or a slit-lamp but the confirmation of internal lesions is more difficult in case of corneal opacities or in less trained animals, especially pinnipeds. In recent years voluntary eye ultrasonography by immersion, both in pinnipeds and cetaceans, has become an excellent tool to obtain a better and more detailed visualization of all the internal structures of the eye. Not only are the animals much keener to participate through this approach but it allows a much earlier and better appreciation of pathologies and changes occurring over time. Pathologies such as disruption of the corneal epithelium and endothelium, corneal oedema, corneal ulcers, uveitis, cataractous changes, anterior and posterior luxation, changes in build-up of fluids in the respective chambers, foreign body, retinal detachment and other disorders have all been identified. As surgical removal of the lens has become frequent in pinnipeds, immersion ultrasonography has been particularly useful for the postsurgical control. A great majority of the animals do eventually develop vitreous degeneration, with the presence of floaters and/or asteroid hyalosis, vitreous pockets and posterior vitreous detachment. These findings may indicate that surgery early in the cataract development and full vitrectomy may be a recommendation pinnipeds.

Occurrence and Prevalence of Ocular Diseases in Bottlenose Dolphins Under Human Care and Potential Predisposing Factors

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As part of a study on the ocular health of bottlenose dolphins (*Tursiops truncatus*) under human care, the eyes of 129 animals across 14 institutions were examined from 2018 to 2022. The results revealed that 189 of the 258 eyes examined and 99 of the 129 animals examined demonstrated eye diseases. Surprisingly, 42 of the 99 animals that were classified as having eye disease in this study had not been previously diagnosed with pathological disorders in the eyes. This clearly indicates that ocular diseases in bottlenose dolphins are often underdiagnosed, likely because early-stage diseases are frequently overlooked. For example, if conditions causing keratopathies are not improved in a timely fashion, the status of a keratopathy can worsen leading to deeper, often painful conditions such as corneal ulcers and stromal abscesses. This poster provides images of different medical conditions such as keratopathies, cataracts and entropion and their different stages using digital photography. These images provide a comprehensive guideline for veterinarians and animal keepers for early-stage diagnosis of eye diseases. For example, eye photography by keepers at regular time intervals could reveal starting and ongoing ocular conditions. Veterinarians can then provide appropriate treatment early and stop the condition from worsening.

Innate Immune Functions of the Florida Manatee (*Trichechus manatus latirostris*): A Comparative Assessment of Two Study Sites in Florida

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The Florida manatee (*Trichechus manatus latirostris*) is listed as threatened by the US Fish and Wildlife Service. It faces numerous challenges and threats to the population including watercraft injury, habitat loss, and cold stress. Two unusual mortality events in Indian River Lagoon and Gulf of Mexico occurred in 2013, with over 830 dead manatees. To assess manatee health and stressors, conservation agencies organize yearly captures of free-ranging manatees at Crystal River (CR, Florida's west central coast) and Brevard County (BC, Florida's east central coast). The objective of this study was to establish baselines of the innate immune system for both populations. In 2014 and 2015, blood samples were analyzed for immune functions from CR (n=30) and BC (n=12) manatees. CR manatees had significantly higher neutrophil phagocytosis (42.2%) than monocyte phagocytosis. CR manatees had significantly lower neutrophil respiratory bursts and higher monocyte oxidative bursts compared to BC. In manatees from CR, IL-2 measured by qPCR was significantly lower whereas IL-12 and INF- γ were significantly higher than BC. These data show that the immune system responses differ between both manatee populations probably due to different habitat, diet, or environmental stressors. These markers of innate immune system are suggested as markers of welfare.



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Behavioral and Cerebral Laterality in Bottlenose Dolphins Under Human Care

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Lateralization refers to the different specialization of the brain's hemispheres. The right hemisphere controls the muscles on the left side of the body, while the left hemisphere controls those on the right side. Lateralized behavior occurs when an individual exhibits a significant and consistent bias in the direction of movement, lateral orientation, or the use of a limb on one side of the body. Perhaps the most familiar example of this is being left- or right-handed in humans, although it can also be observed in animals and plants.

In this study, conducted between 2023 and 2025, we aimed to deepen our understanding of this field in cetaceans, focusing on two individuals of the bottlenose dolphin species under human care. Through three trials of data collection, we observed that each individual showed a predisposition in their choices. This information helps us to extrapolate and apply it to future training, particularly for medical behaviors, thus enhancing animal welfare. On the one hand, we train behaviors knowing their lateral preferences; on the other hand, we give them the power to choose, providing them with free choice.

Case Report: Clinicopathological Description of Hepatopancreatic Duct Obstruction in a Sea Lion (*Zalophus californianus*)

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The lack of data regarding the populations in nature and the impossibility of subjecting all carcasses necropsied led to believe that the incidence of neoplasms in marine mammals was low. The California sea lion (*Zalophus californianus*) is an exception because there are numerous studies that describe both benign and malignant tumors in this species. A 31-year-old male California sea lion (*Zalophus californianus*) hosted in Jungle Park, Tenerife (Spain) started to show anorexia, lethargy and abdominal pain, lost of weight. Several complete CBC and US scan were performed and the results showed an alteration in the biliary ducts (GGT elevations and peri-portal cuffing). A steroid and antimicrobial therapy has been administered to the animal. However, due to the loss of the clinical condition the animal was euthanized. A CT scan was realized after death. Necropsy showed: severe cystic hyperplasia of gallbladder, bile duct obstruction, a multifocal pancreatic adenoma (insulinoma), and multifocal papillary intraductal adenoma confirming the clinical findings.

Poster

Cetacean Alive Stranding Protocol and Practice: Animal Welfare-Based Guideline for the Response and Management

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The handling of wild stranded cetaceans has increasingly drawn public attention due to their ecological and ethical implications. In Taiwan, these events present operational and emotional challenges, emphasizing the need for structured response strategies and improved public understanding.

The present study assessed public perceptions and emotional responses to cetacean strandings and examined the challenges and ethical dilemmas faced by rescue responders, aiming to develop welfare-based guidelines.

This research employed a mixed-methods approach. We collected quantitative data from 654 survey respondents to assess public understanding and reactions. Semi-structured interviews with 10 rescue responders selected through snowball sampling, explored operational and ethical challenges in rescue processes.

Survey findings revealed limited understanding and radical, irrational reactions, often compromising cetacean welfare. Interview analyses identified six aspects: (1) ethical dilemmas in rescue operations, (2) resource and logistical constraints, (3) psychological stress on responders, (4) coordination challenges among multi-stakeholders, (5) public misconceptions, and (6) opportunities for education.

This study proposes a cetacean alive stranding protocol that integrates veterinary science and the identified challenges as a welfare-based guideline. We expect that these findings will contribute to international standards, help promote conservation in other regions, and foster global collaboration in cetacean rescue efforts.

Poster

Colour-Choice Testing, Anticipatory Behaviour, and Welfare in Bottlenose Dolphins Under Human Care: Exploring a New Approach

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The welfare of cetaceans under human care, particularly bottlenose dolphins, is a topic currently under heavy scrutiny. However, there is a lack of scientific methods that are both accurate in determining this welfare, as well as easy and accessible to be executed by the animal's caretakers next to their daily schedule. Therefore, this study developed a completely new method of welfare testing, a colour-choice test, based on a cognitive judgement bias test previously performed by another group of scientists. The results of the colour-choice test will be compared to the prevalence of anticipatory behaviour and scores of the Dolphin-WET to determine its accuracy. The results of the colour-choice test remain inconclusive, as the data cannot support the notion that the dolphins fully understood the test. However, with an altered training method there is potential for further development of the test. Poster

Decoding Dolphin Dynamics: Observing Object Play Among Bottlenose Dolphins (*Tursiops truncatus*)

Samantha Apostolico (1), Samantha Gojcaj (1), Sophia Pertoso (1), Angelika Falandysz (1), Diego Salles (2), Deirdre Yeater (1), Kathleen M. Dudzinski (3), & Manon Themelin (3)

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Whereas several studies focused on object play in dolphins, few have examined details about observers, i.e., individuals just watching the play event without participating. It has been suggested that calves and juveniles are more likely to observe others engaging in object play, but not enough evidence has been collected. Object play among bottlenose dolphins at the Roatan Institute for Marine Sciences was documented from 28 sessions recorded underwater. 692 object play events including observers were analyzed, involving 18 dolphins. We expected calf and juvenile dolphins to be the most frequent observers and longer play bouts to attract a greater number of observing dolphins. Data analyses showed that juveniles were the most frequent observers. However, there was not enough evidence to support the idea of longer play bouts (30-70 s) having a greater chance of attracting observers than shorter bouts (0-30 s). Our result showed that even though juvenile dolphins seem to observe object play more than any other age group, further analyses are required to determine if juveniles are more likely to become actors in the future based on their role as observers.

Did Participating in Interaction Programs Affect Bottlenose Dolphin Behavior Before and After the Program?

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Assessing the impact of dolphin-human interaction programs on the behavior of dolphin participants is critical to caring for the welfare of these animals. Studies with limited sample sizes have shown minimal or neutral effects of these programs on dolphin behavior. In the current study, spontaneous behavior was assessed before and after in-water dolphin interaction programs (DIPs) for 18 dolphins across two summer blocks (2022 and 2023) at a large facility in southern United States. Dolphins were observed in morning and afternoon sessions to evaluate possible time-of-day effects, and no animal participated in more than two back-to-back DIPs. The results indicated that dolphins displayed similar types of behavior before and after DIPs, with the majority of behaviors including solitary swimming. Social interactions between dolphins occurred as pair swims or socio-sexual interactions; minimal agonistic interactions were observed. No time-of-day effects occurred, but anticipatory behavior was exhibited by the majority of the animals immediately before or after the DIPs. This study supports findings of previous studies that suggested DIPs had neutral effects on dolphin behavior. Additional research should evaluate individual animal responses to program participation.

Poster

Does Mariculture Farming Influence the Presence and Habitat Use of Common Bottlenose Dolphins (*Tursiops truncatus*) in the Coastal Area of Marina Baixa (Mediterranean Sea, Spain)?

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Long-term associations between fish farms and groups of bottlenose dolphins have already been documented in different areas of the world, such as Hawaii, Greece, Sicily, and Galicia (Spain). However, there is no information about their effect on bottlenose dolphins in Spanish Mediterranean waters. To address this question, 116 hours of observations were conducted from several coastal sampling points along Marina Baixa (Alicante, Spain) during 2022–2023. The number of fish farms visible from each sampling point ranged from 0 to 2. No significant influence was found between the presence or number of fish farms in each area and the frequency of habitat use by the dolphins ($H=1.07$, $p=0.301$; $H=1.23$, $p=0.541$, respectively). Nevertheless, the study reveals a statistically significant correlation between the number of fish farms and both group size and the presence of calves ($r=0.44$, $p=0.041$; $r=0.76$, $p<0.001$, respectively). This indicates that areas with two fish farms are not used more frequently than those with none or just one, but they are predominantly used by larger family groups with calves. Further data collection is needed to clarify this relationship, as our observations are still ongoing. Poster

Poster

Individual Variation in Activity Budgets of a Stable Population of Killer Whales in Managed Care Across a Year

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Activity budget investigations facilitate understanding of how individuals manage daily activities. We explored and described behavioral activities of a group of ex situ killer whales. From 261 h of coded surface video collected from April 2022 to January 2023, we scan-sampled day-time hours to examine eight behavioral categories bimonthly. Minimal sex differences were found within each behavioral category across month and hour block. Females exhibited significantly more attention to trainers and rubbing on environment than males. Individual variability was documented for all behavioral categories. The youngest male showed the most proximity and direct interactions with conspecifics (social behavior) while all adults, females and males, showed similar levels of social behavior. Three adult females and one adult male spent about a third of all scans observing their trainer(s) as they moved around the habitat. This observational killer whale behavior has been described in other delphids as an anticipatory behavior, which indicates a willingness to participate in future interactions and has been confirmed as a state of positive well-being. All killer whales actively engaged with peers and their environment. These findings are similar to that observed in various other delphids and support the interpretation that this killer whale group is healthy socially and individually. Our results add to the growing body of knowledge about how killer whales manage their actions across different social settings given their surroundings.

Occurrence and Seasonal Residency of a Community of Common Bottlenose Dolphins (*Tursiops truncatus*) off Bimini, The Bahamas, from 2006-2016

Maria Maust-Mohl (1), Laura Eierman (2), J. Daisy Kaplan (3), & Kelly Melillo-Sweeting* (3)

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Though multiple communities of common bottlenose dolphins (*Tursiops truncatus*) have been documented in The Bahamas, this 11-year study describes, for the first time, the occurrence, abundance, and spring/summer residency patterns near the island of Bimini. Using opportunistic boat-based surveys, a digital photo-identification catalogue of 129 individuals was constructed. Dolphins were sighted most often in waters 5 to <12m deep and in groups of 2-5 individuals. Using yearly sightings, 30 individuals (23.2%) qualified as at least seasonal residents, 39 dolphins (30.2%) as frequent and 60 dolphins (46.5%) as sporadic. The number of cataloged dolphins seen annually ranged from 14 to 66 individuals ($M = 33.7$, $SE = 5.4$). The number of newly discovered dolphins increased each year until 2012, after which few dolphins were added (0.9%). The Jolly-Seber model, an open population mark-recapture analysis, was implemented using the POPAN formulation in MARK v10.1, with a top model consisting of a constant survival probability, time-varying capture probability, and time-varying probability of entry. The total population estimate was 147.25 individuals ± 8.06 SE. Estimated abundance each summer increased through 2009-2011 and then decreased through 2016. These baseline data allow for continued monitoring, comparisons to dolphin communities elsewhere in The Bahamas, and further exploration of their behavior, particularly considering increased human activities in the area.

Ocular Diseases in Bottlenose Dolphins – Imaging Guidelines for Early Diagnosis

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As part of a study on the ocular health of bottlenose dolphins (*Tursiops truncatus*) under human care, the eyes of 129 animals across 14 institutions were examined from 2018 to 2022. The results revealed that 188 of the 258 eyes examined and 99 of the 129 animals examined demonstrated eye diseases. Surprisingly, 42 of the 99 animals that were classified as having eye disease in this study had not been previously diagnosed with pathological disorders in the eyes. This clearly indicates that ocular diseases in bottlenose dolphins are often underdiagnosed, likely because early-stage diseases are frequently overlooked. For example, if conditions causing keratopathies are not improved in a timely fashion, the status of a keratopathy can worsen leading to deeper, often painful conditions such as corneal ulcers and stromal abscesses. This poster provides images of different medical conditions such as keratopathies, cataracts and entropion and their different stages using digital photography. These images provide a comprehensive guideline for veterinarians and animal keepers for early-stage diagnosis of eye diseases. For example, eye photography by keepers at regular time intervals could reveal starting and ongoing ocular conditions. Veterinarians can then provide appropriate treatment early and stop the condition from worsening.

Platelet Function Assays in Marine Mammals: Diagnostic Applications

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This study aimed to establish physiological reference values for intraplatelet calcium mobilization as a biomarker of platelet activation in marine mammals and to evaluate its clinical utility. Using flow cytometry adapted from human medicine, the assay was applied to five species: bottlenose dolphins, beluga whales, walruses, sea lions, and seals. Platelets were stimulated with ADP, and calcium mobilization was analyzed to identify interspecies differences and detect abnormalities in clinical cases.

Two clinical cases demonstrated the diagnostic potential of this approach. A sea lion with hemorrhagic enteritis exhibited hyperreactive platelets with elevated basal calcium levels and exaggerated responses to stimulation, reflecting heightened platelet activity due to hemorrhage. A bottlenose dolphin with acute hemorrhagic gastritis displayed increased initial calcium mobilization but efficient reuptake, indicating compensatory mechanisms despite platelet overactivation.

These findings highlight the assay's ability to detect platelet dysfunction associated with hemostatic disorders. By providing early diagnostic insights, the method enables timely interventions, improving veterinary care and preventive medicine for marine mammals. The assay also offers potential applications in environmental health monitoring and stress assessment, advancing the understanding of marine mammal physiology and contributing to their conservation.

Use of Animal Mediation to Enhance Well Being in Pinnipeds and Humans

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Animal mediation provides wellness by encouraging positive interactions during activities with animals. At our facility, Harbor seals (*Phoca vitulina*) and Patagonian sea lions (*Otaria flavescence*) have been housed in the same pool since 2001. They are trained for medical, dynamic, playful and cognitive behaviors, in order to participate in educational presentations daily. The Seaquarium has a longstanding commitment as a public service stakeholder for local community and regional partners. In 2024, the Seaquarium joined the national network of scientific and technical centers AMCSTI (Le réseau professionnel des cultures scientifique, technique et industrielle). Thus, sharing knowledge about marine life and inclusivity has become a new leading commitment in our compagny strategy. Animal mediation enable marine mammals trainers to deepen their knowledge and understanding of the animals under their care, and provides an immersive experience for visitors with physical, psychological and cognitive challenges. This presentation will detailed how this innovative approach change the trainer's work, the animal's behavior and the visitor experience.

Wild and Under Human Care Bottlenose Dolphin (*Tursiops truncatus*) 3D Culture Models: *In Vitro* Tools to Study Cetacean Pathology

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There is an urgent need to develop cetaceans' study models as a conservation strategy to protect both ex-situ and wild populations.

Hence, Bottlenose dolphin immortalized fibroblasts isolated from freshly deceased animals were used for the first time to develop a micro-physiological platform: bottlenose dolphin skin on chip (OoC). Moreover, the same fibroblasts were seeded into novel collagen-free scaffolds based on hyaluronic acid and ionic-complementary self-assembling peptides such as RGD-EAbuK and EAbuK-IKVAV that have been compared to Matrigel. Viability assays and morphology observation were carried out in the several matrices and in the OoC. Histological and fluorescent staining, electron microscopy (TEM) analyses, viability assays and RT-PCR have been performed in the scaffold systems. Additionally, to obtain biological material for other future in vitro studies, we collected plasma and buffy coat from under human care (UHC) bottlenose dolphins. These studies allowed us to identify collagen-based dolphin skin OoC and HA-EAbuK-IKVAV scaffold as the best three-dimensional (3D) models in terms of cell viability, growth and ECM components. Given the importance of in vitro 3D models for pathophysiological studies, sampling activities could become a part of the routine veterinary check-up and of postmortem investigations of the UHC cetaceans.

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