



Oregon State University Marine Mammal Institute

MARINE MAMMAL INSTITUTE MONTHLY eNEWS

The MMI eNews is a platform for communicating the activities and accomplishments of the faculty, staff, and students of the OSU Marine Mammal Institute. Toward the end of each month, we'll share our recent and upcoming fieldwork, publications, news items, workshops, outreach, awards, and more.

August–September 2024

RESEARCH UPDATES

Developing a robust satellite-linked smart tag for long-term monitoring of large cetacean behavior, Neah Bay, Washington, 2023–2026: During the second half of July, **Ladd Irvine, Tomas Follett and Craig Hayslip** traveled to Neah Bay, WA, together with collaborators Alex Zerbini (Marine Ecology and Telemetry Research) and Jeff Harris and Peter Mahoney (NOAA Marine Mammal Laboratory), to conduct field deployments of a redesigned tag for monitoring the dive and feeding behavior of large whales. The humpback whales, and the fog, were both abundant at the entrance to the Strait of Juan de Fuca, and the team was able to successfully deploy all tags a week ahead of schedule, while also logging multiple sightings of Southern Resident killer whales (not candidates for tagging). Resight effort scheduled until October is now being conducted to monitor tagged whales to verify tag robustness and monitor for any unanticipated health effects to the whale. PIs: Ladd Irvine (ladd.irvine@oregonstate.edu), **Daniel Palacios, Lisa Ballance**, and Alex Zerbini.



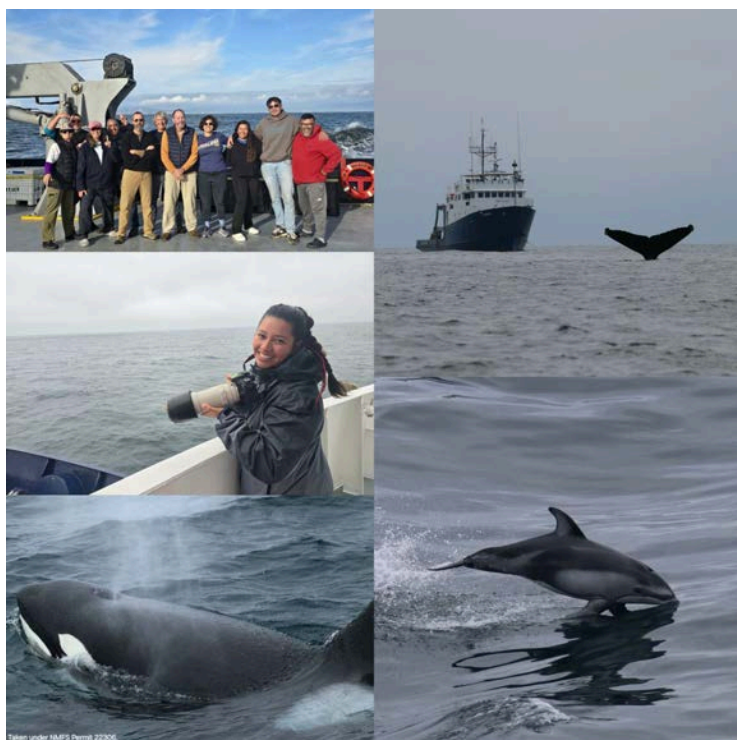
Left: Ladd Irvine, Craig Hayslip, Jeff Harris and Tomas Follett preparing for a day on the water.

Bottom: A tagged whale surfaces shortly after tag deployment.



California Current Cetacean and Ecosystem Assessment Survey (CalCurCeas) Leg 1, NOAA, US West Coast, July–August: This summer, **Charlene Perez Santos** participated in the 2024 California Current Cetacean & Ecosystem Assessment Survey (CalCurCEAS) aboard the research vessel R/V *Bold Horizon*, and conducted by NOAA Fisheries' Southwest Fisheries Science Center. The team embarked on July 24, navigating from central California through to southern Oregon, battling Beaufort 6 winds before reaching calmer conditions. Leg 1 surveyed the offshore waters of northern California, Oregon, and Washington, ending in Astoria on August 12, and covering over 500 km of trackline. Marine mammal species included short-beaked common dolphins; killer, fin, and humpback whales; Dall's and harbor porpoise; sperm, blue, minke, and Baird's beaked whales; Pacific white-sided, striped, Risso's, and northern right whale dolphin; and an unidentified member of the genus *Mesoplodon*. A notable

encounter on July 29 involved a group of transient killer whales interacting with a young elephant seal off southern Oregon. This survey is essential for enhancing our understanding of marine mammal and seabird distribution along the US West Coast, providing critical data for assessment and management under the US Marine Mammal Protection Act. Thanks to PI Jeffrey E. Moore, Jeff.e.moore@noaa.gov of Southwest Fisheries Science Center.



Photographs were taken under NMFS Permit Number 22306 issued to the Southwest Fisheries Science Center.

Overlap Predictions About Large whales (OPAL), Oregon, USA, July 30–August 13: The OPAL field team, including **Leigh Torres, Lindsay Wickman, Alejandro Fernández Ajó, Lisa Hildebrand, and KC Bierlich**, have searched for groups of humpback whales over three separate fieldwork days this summer, with the aim of collecting photographs and biopsies of individuals. On July 30, the team collected biopsy samples and/or photographs from three humpback whales and two blue whales off the coast near Coos Bay, despite challenging, foggy conditions. After a day of no sightings during a survey from Newport on August 2, Leigh, KC, and Lindsay returned to Coos Bay on Aug 13. It was a lucky day; not long after a sighting of Risso's dolphins, the team sighted a large aggregation of around 60 humpback whales! Over the next seven hours, the OPAL team collected over 5,000 photographs and 18 biopsy samples. At least 38 unique individuals were sighted, of which 25 have previous sighting histories in the [Happywhale](#) database. Biopsy samples were sent to MMI, where genetic analysis will be used to determine sex and distinct population segment (breeding stock). These data will help us understand humpback whale distribution and exposure to fishing gear. Work funded by NOAA section 6 Species Recovery Grant #NA19NMF4720109). PI Leigh Torres (leigh.torres@oregonstate.edu). (Accompanying photos are on the next page.)

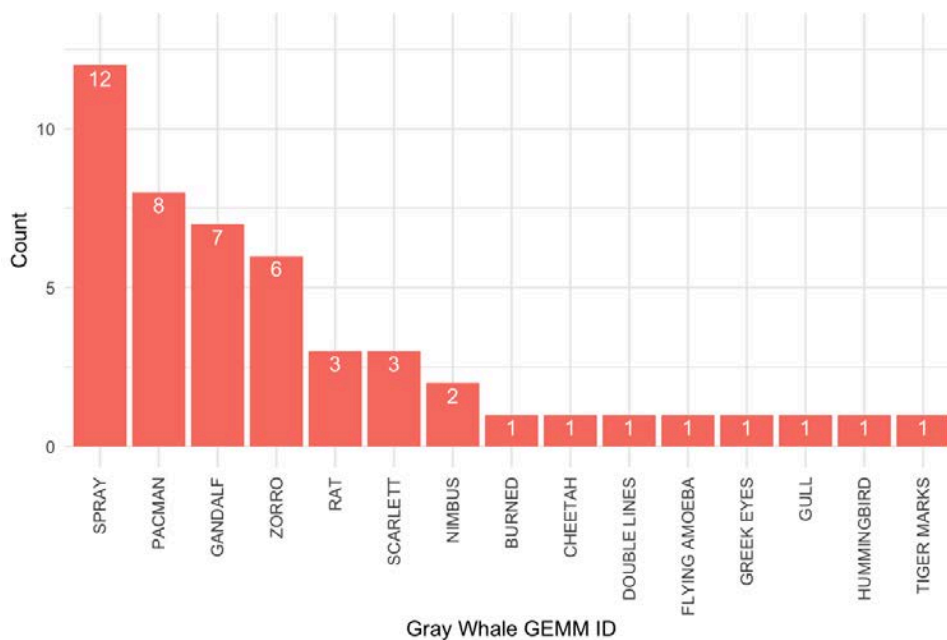


Left: A scene from OPAL fieldwork: a biopsy sample from a humpback whale awaits processing, and KC Bierlich photographs individuals from the bow of Ruby.

Above: Lindsay Wickman processes a biopsy sample from a humpback whale during OPAL fieldwork.

Gray Whale Response to Anthropogenic Noise Informed by Technology and Ecology (GRANITE), May–October: The [GRANITE](#) field team (**Leigh Torres, Alejandro Fernández Ajó, KC Bierlich, Lisa Hildebrand, Clara Bird, and Natalie Chazal**) is about halfway through their annual field season with 20 days out on the water. So far, gray whale numbers within the study area have been low compared with other years, with a total of 15 different individuals sighted (for reference, last year's MMI August eNews reported 44 individuals at this point in the season). The graph below shows the total number of days each individual has been observed by the GRANITE team this year. Note that the whale most frequently sighted this summer is an older female named Spray. Despite the low whale numbers this season, the team has successfully collected 8 fecal samples, conducted 43 UAS (unoccupied aerial

systems, also known as drones) flights, and completed 30 zooplankton net tows. This continuous collection of prey data and replicate samples from the high-residency individuals will help us understand their space use patterns relative to environmental conditions and prey, and how their health (measured through body condition and hormones) respond to change. PI Leigh Torres, leigh.torres@oregonstate.edu.



Scar-based Long-term Assessment of Trends in Whale Entanglements (SLATE), Oregon, January 2023–December 2024: This is the second summer of SLATE's collaboration with three fishermen to collect photographs of humpback whales, and the sightings have been rolling in! So far, one fisherman has sighted 46 humpback whales over 12 separate encounters. These photos of whales' flukes also enabled the identification of 29 unique individuals from these sightings. **Lindsay Wickman** uploaded these individuals to the [Happywhale](#) database, where past sighting locations included Hawaii, Mexico, Central America, and various locations along the West Coast of the US and Canada. For many of these individuals, fishermen sightings represent the first time these individuals have been recorded in Oregon. These new sightings provide invaluable data on the movement patterns of humpback whales in Oregon, which will subsequently be used in SLATE's models of an individual's entanglement risk. In addition to humpback whales, fishermen have also submitted photographs of orcas, blue whales, and Risso's dolphins. Project funded by Oregon Department of Fish and Wildlife (CPF Fund 421-22), in collaboration with Cascadia Research Collective. PI **Leigh Torres** (leigh.torres@oregonstate.edu).



Above left: A humpback whale slapping its pectoral fin near a fishing vessel. Above right: A humpback whale breaches in the fog. Both photos were taken by Cyle Barnhart.

Measuring gene expression to assess stress from ocean noise on humpback whales, Washington, May 2024–April 2025: We started a new project to explore the use of transcriptomics, or measuring rates of gene expression, in skin tissue as a potential innovative method to monitor and investigate sublethal effects of anthropogenic activities measured in the ocean soundscape. Working with **Angie Sremba** and Bob Dziak in the NOAA Pacific Marine Environmental Laboratory Acoustics lab, this project will focus on describing rates of gene expression in humpback whale skin tissue samples collected by **Ladd Irvine** and NOAA Marine Mammal Lab collaborators Jeff Harris and Peter Mahoney during satellite tag deployments off Neah Bay, WA (see earlier Research Update above). Rates of gene expression will be linked to levels of glucocorticoid hormones and ocean soundscape levels in the surrounding area. Soundscape levels and ocean noise levels will be determined by **Samara Haver** using data from the Noise Reference Station moored hydrophone near the Olympic Coast National Marine Sanctuary. The project is funded by the National Marine Fisheries Service. PIs: Angie Sremba, Bob Dziak, Samara Haver, Ladd Irvine.



Left: The team prepares for a day on the water.

Right: The fruits of a long day on the water: skin and blubber tissue samples.



Theodolite Overlooking Predators and Zooplankton/Journey for Aspiring Students Pursuing Ecological Research (TOPAZ/JASPER) Field Work, Port Orford, OR, July 15–August 23: The 2024 field season of TOPAZ/JASPER has reached its conclusion, marking the 10th consecutive year of place-based data collection and an impressive legacy of mentorship and immersive experiences for high school, undergraduate, and graduate students alike. The students presented the results from these integrated projects on August 23 to Port Orford community members. This year the team accomplished over 103 hours of survey effort with 29 hours of whale activity. They also counted 7,543 individual zooplankton, reaching far beyond the total count of the 2023 season by thousands. We are excited to have reached this decadal accomplishment, especially as it marks another new era with **Celest Sorrentino** taking over as team lead. PI: **Leigh Torres**, leigh.torres@oregonstate.edu.



Above left: The team as they are about to embark on their first kayak training day. Pictured are Oceana Powers-Shmitz, Sophia Kormann, Eden Van Maren, and Celest Sorrentino.



Above right: Allison Dawn tracks a whale on the theodolite while Celest Sorrentino observes the whale through binoculars.

Mystery Mesoplodon Expedition (MYMEX), Baja California Norte, Mexico, May 25–June 27: This collaborative research project between federal governments and universities of Mexico and the US (CONANP-SEMARNAT, Navy Pacific, NOAA Fisheries' NE & SW Fisheries Science Centers, Marine Mammal Institute of Oregon State University, and Universidad Autónoma de Baja California Sur) involved 11 sea-going scientists and 5 crew aboard MMI's research vessel *Pacific Storm*, and an equally critical shore-side party of 7 from 5 institutions. Our goal was to link a previously recorded sound (termed BW43) with the beaked whale species that makes it, using a towed acoustic array, drifting hydrophones, and a combination of visual sightings, photos from handheld cameras and a drone, skin and blubber biopsy samples, and eDNA samples. There are 4 species of beaked whales that are known only from dead specimens on beaches. We suspected BW43 was produced by one of these. We chose the waters offshore of northern Baja California, Mexico, because the call has been recorded most frequently there. We searched for 20 days in ragged conditions: unseasonably cold, high winds, and heavy seas, recorded the calls on a handful of days, and managed to see animals on just three of those. Amazingly, one of those days was the only one in our entire survey with winds less than 10 knots, and despite the animals remaining distant from the vessel, we managed to stay with them all afternoon, collecting thousands of photographs from our high-powered camera lenses. Even more remarkable, the third of our three encounters brought a pair of curious animals close enough to the back of the ship for **Craig Hayslip** to collect eDNA and **Bob Pitman** to collect a biopsy sample. Close scrutiny of the photographs and quick work from **Scott Baker** and **Debbie Steel** back at MMI, and our colleagues in Mexico, brought four pieces of data together. Photographs and both types of DNA samples confirmed this animal is Ginkgo-toothed beaked whale (*Mesoplodon ginkgodens*). Until our

expedition, this animal has never been identified alive in the wild. Now, instantly, we know a lot more about it. Ginkgo-toothed beaked whale occurs everywhere that the call BW43 has been recorded. And with this chink in the armor of the unknown, we will be better able to learn about this animal and to protect it. Special thanks to MMI's Gray Whale License Plate program for critical funds to support this project. Research was conducted under the authorization of the Mexican government. Pls: **Lisa Ballance**, lisa.ballance@oregonstate.edu, Gustavo Cardenas, and Elizabeth Henderson.



Above: Adult male Ginkgo-toothed beaked whale (photo by Craig Hayslip)

Left: A biopsy sample from our mystery Mesoplodon (photo by Todd Pusser).

Stranding Summary

Strandings recorded by **Jim Rice** and **Katrina Noujaim** (Oregon Marine Mammal Stranding Network), July 17–August 20, 2024:

Common Name	Strandings	Live Entanglements	Sent to Rehab	Necropsies	Euthanized	Calls Received
California sea lion	8	2	0	0	0	27
gray whale	2	0	0	0	0	3
Guadalupe fur seal	2	0	0	1	0	2
harbor porpoise	5	0	0	0	0	6
harbor seal	23	0	0	3	0	30
humpback whale	0	1	0	0	0	1
northern elephant seal	9	0	0	0	0	14
rough-toothed dolphin	0	0	0	1	0	0
Steller sea lion	9	0	0	0	0	10
unidentified cetacean	2	1	0	0	0	4
unidentified pinniped	7	0	0	0	0	13
Total	67	4	0	5	0	110

View an interactive map showing locations and details of strandings over the last six months at <https://beav.es/qR6>.

Affiliate Faculty Update

Rachael Orben — I love seabirds! I am the PI of the [Seabird Oceanography Lab](#), a faculty member in the Department of Fisheries, Wildlife, and Conservation Sciences, and an Affiliate Faculty in MMI. In many places, seabirds and pinnipeds share breeding islands and face similar challenges, thus I often find myself switching among thinking about fur seals, sea lions, and albatrosses.

Reviewing the year in reverse, in June we published a paper (highlighted in this issue) looking at the connectivity between the South American mainland and the Falkland Islands in the context of the spread of highly pathogenic avian influenza. This infectious disease has been detrimental to both seabird and pinniped populations, and we are bracing for continued spread in the southern hemisphere as the austral summer approaches. If you want a quick overview of the paper, check out the [blog post](#) by the lead author Javed Riaz.

On another note, over the last few years I have been collaborating with MMI on the [MOSAIC project](#), and we wrapped up our last cetacean and seabird survey in April.

It has been wonderful to collaborate on this project, and I am looking forward to the next steps in the analytical process. As part of this project in February, I was a co-author on a paper led by Will Kennerley that features a flying mammal ([Hoary Bat](#)) that is not typically associated with the ocean.

This year has also marked the culmination of data collection for our tracking study of black-footed and Laysan albatrosses from Midway atoll in the Papahānaumokuākea Marine National Monument. This project, on which **Leigh Torres** is a collaborator, is combining specialized biologging tags that detect radar transmissions from boats with vessel tracking data to better understand fine-scale movement of albatrosses when they are near vessels across the North Pacific. While our fieldwork is complete, the best is yet to come within the rich dataset we compiled over the last couple of years.



Photo on previous page: Rachael Orben glances up while recovering a GPS tracking tag from a black-browed albatross in the Falkland Islands.

PUBLISHED MANUSCRIPTS

Allen, A. N., Harvey, M., Harrell, L., Wood, M., **Szesciorka, A. R.**, McCullough, J. L., & Oleson, E. M. (2024). Bryde's whales produce Biotwang calls, which occur seasonally in long-term acoustic recordings from the central and western North Pacific. *Frontiers in Marine Science*, 11, doi.org/10.3389/fmars.2024.1394695

Abstract: In 2014, a novel call was discovered in autonomous acoustic recordings from the Mariana Archipelago and designated a “Biotwang”. It was assumed to be produced by a baleen whale, but without visual verification it was impossible to assign a species. Using a combination of visual and acoustic survey data collected in the Mariana Archipelago, we determined that Biotwangs are produced by Bryde’s whales. Bryde’s whales occur worldwide in tropical and warm temperate waters, but their population structure and movements are not well understood. Genetic and morphological data recognize two populations in the western North Pacific (WNP), separate from those elsewhere in the Pacific. We used a combination of manual and machine learning annotation methods to detect Biotwangs in our extensive historical passive acoustic monitoring datasets collected across the central and western North Pacific. We identified a

consistent seasonal presence of Biotwangs in the Mariana Archipelago and to the east at Wake Island, with occasional occurrence as far away as the Northwestern Hawaiian Islands and near the equator (Howland Island). The seasonal occurrence of Biotwangs is consistent with Bryde's whales migrating between low and mid-latitudes, with a small peak in calling between February and April and a larger peak between August and November as the whales travel past the recording sites. Our results provide evidence for a pelagic WNP population of Bryde's whales with broad distribution, but with seasonal and inter-annual variation in occurrence that imply a complex range most likely linked to changing oceanographic conditions in this region.

Alvarez Abarzua, S., Buchan S. J., & **Stafford, K. M.** (2024). Seasonal acoustic presence of sei whales off the Juan Fernandez Archipelago, Chile. *Endangered Species Research*.

<https://doi.org/10.3354/esr01354>

Abstract: This study examined the occurrence of sei whale upsweep and downsweep vocalisations in 3 yrs of acoustic data (2015–2017) from the Juan Fernandez Archipelago, Chile, to determine the seasonal presence of this species in this area. Acoustic data were obtained from a hydroacoustic station (HA03) maintained by the Comprehensive Test-Ban-Treaty Organization and analysed for target signals using automatic detectors in Raven Pro 2.0. Monthly upsweep call rates (ranging 0–1.2 calls h⁻¹) displayed a fairly consistent seasonal pattern with none or very few detections from the austral summer to early winter, and overall more detections in late winter and spring, peaking in September. Monthly downsweep call rates (ranging 0–0.69 calls h⁻¹) were higher in winter and spring. We discuss the implications of these results for understanding seasonal migration routes. Upsweeps had a duration of (mean ± SD) 1.5 ± 0.3 s with a peak frequency of (mean ± SD) 62.0 ± 8.3 Hz (n = 100) and downsweeps had a duration of 1.3 ± 0.1 s with a peak frequency of 56.3 ± 10.9 Hz (n = 100). Inter-note intervals (INIs) for upsweeps had modes at 7 s and 14 s; the dominant INIs mode for downsweeps was 4 s. This is the first multi-year passive acoustic monitoring study of sei whales in the southeast Pacific and provides novel information on the distribution of a poorly-studied Endangered species in the southern hemisphere.

Bird, C. N., Pirotta, E., New, L., **Bierlich, K. C.,** Hildebrand, L., **Fernandez Ajó, A.,** & **Torres, L. G.** (2024). Bubble blasts! An adaptation for buoyancy regulation in shallow foraging gray whales. *Ecology and Evolution*, 14(8), e70093. <https://doi.org/10.1002/ece3.70093>

Abstract: Foraging efficiency is key to animal fitness. Consequently, animals evolved a variety of kinematic, morphological, physiological, and behavioral adaptations for efficient locomotion to reduce energy expenditure while moving to find, capture, and consume prey. Often suited to specific habitat and prey types, these adaptations correspond to the terrain or substrate the animal moves through. In aquatic systems, adaptations focus on overcoming drag, buoyancy, and hydrostatic forces. Buoyancy both benefits and hinders diving animals; in particular, shallow divers constantly contend with the costs of overcoming buoyancy to dive and maintain position. Pacific Coast Feeding Group (PCFG) gray whales forage in shallow habitats where they work against buoyancy to dive and feed using various foraging tactics. Bubble blasts (underwater exhalations) have been observed during several foraging tactics performed by PCFG whales. As exhalations aid buoyancy regulation in other diving animals, we hypothesize that bubble blasts are performed by longer, more buoyant whales in shallower water and that bubble blasts increase dive duration while accounting for size and tactic. We test our hypotheses using Bayesian linear mixed effects models and a 7-year dataset of drone footage containing concurrent individual morphological and behavioral data. We find that while headstanding – a stationary, head-down tactic – bubble blasts are performed by longer, more buoyant whales and extend the dive duration, whereas whales using forward-swimming tactics are less likely to bubble blast. Our results suggest that PCFG gray whales may use bubble blasts as a behavioral adaptation to mitigate the cost of energetically expensive tactics in their shallow habitat foraging niche.

Rayner, J. G., **Eichenberger, F.**, Bainbridge, J. V. A., Zhang, S., Zhang, X., Yusuf, L. H., Balenger, S., Gaggiotti, O. E., & Bailey, N. W. (2024). Competing adaptations maintain nonadaptive variation in a wild cricket population. *Proceedings of the National Academy of Sciences*, 121(32), doi.org/10.1073/PNAS.2317879121

Abstract: How emerging adaptive variants interact is an important factor in the evolution of wild populations, but the opportunity to empirically study this interaction is rare. We recently documented the emergence of an adaptive phenotype “curly-wing” in Hawaiian populations of field crickets (*Teleogryllus oceanicus*). Curly-wing inhibits males’ ability to sing, protecting them from eavesdropping parasitoid flies (*Ormia ochracea*). Surprisingly, curly-wing co-occurs with similarly protective silent “flatwing” phenotypes in multiple populations, in which neither phenotype has spread to fixation. These two phenotypes are frequently coexpressed, but since either sufficiently reduces song amplitude to evade the fly, their coexpression confers no additional fitness benefit. Numerous “off-target” phenotypic changes are known to accompany flatwing, and we find that curly-wing, too, negatively impacts male courtship ability and affects mass and survival of females under lab conditions. We show through crosses and genomic and mRNA sequencing that curly-wing expression is associated with variation on a single autosome. In parallel analyses of flatwing, our results reinforce previous findings of X-linked single-locus inheritance. By combining insights into the genetic architecture of these alternative phenotypes with simulations and field observations, we show that the co-occurrence of these two adaptations impedes either from fixing, despite extreme fitness benefits, due to fitness epistasis. This co-occurrence of similar adaptive forms in the same populations might be more common than is generally considered and could be an important force inhibiting adaptive evolution in wild populations of sexually reproducing organisms.

Riaz, J., **Orben, R. A.**, Gamble, A., Catry, P., Granadeiro, J. P., Campioni, L., Tierney, M., & Baylis, A. M. M. (2024). Coastal connectivity of marine predators over the Patagonian Shelf during the highly pathogenic avian influenza outbreak. *Ecography*, e07415. <https://doi.org/10.1111/ecog.07415>

Abstract: Animal movement and population connectivity are key areas of uncertainty in efforts to understand and predict the spread of infectious disease. The emergence of highly pathogenic avian influenza (HPAI) in South America poses a significant threat to globally significant populations of colonial breeding marine predators in the South Atlantic. Yet, there is a poor understanding of which species or migratory pathways may facilitate disease spread. Compiling one of the largest available animal tracking datasets in the South Atlantic, we examine connectivity and inter-population mixing for colonial breeding marine predators tagged at the Falkland Islands. We reveal extensive connectivity for three regionally dominant and gregarious species over the Patagonian Shelf. Black-browed albatrosses (BBA), South American fur seals (SAFS) and Magellanic penguins (MAG) used coastal waters along the Atlantic coast of South America (Argentina and Uruguay). These behaviours were recorded at or in close proximity to breeding colonies and haul-out areas with dense aggregations of marine predators. Transit times to and from the Falkland Islands to the continental coast ranged from 0.2–70 days, with 84% of animals making this transit within 4 days - a conservative estimate for HPAI infectious period. Our findings demonstrate BBA, SAFS and MAG connectivity between the Falkland Islands and mainland South America over an expansive spatial network and numerous pathways, which has implications for infectious disease persistence, transmission and spread. This information is vital in supporting HPAI disease surveillance, risk assessment and marine management efforts across the region.

MMI IN THE NEWS

President Biden Announces Key Nominees: President Joe Biden has announced his intent to nominate **Lisa T. Ballance** as the next Chair of the Marine Mammal Commission.

MEETINGS AND WORKSHOPS

"Drone data reveals how behavior, buoyancy, and size influence Pacific Coast Feeding Group (PCFG) gray whale energetics," Carmen Ford Phillips Auditorium, Gladys Valley Marine Studies Building, Hatfield Marine Science Center, August 12: Doctoral defense of **Clara Bird**, advised by **Leigh Torres**.

"Navigating Shared Waters: Human Influence on Marine Predator Social Cohesion," Guin Library Seminar Room, Hatfield Marine Science Center, August 22: Master's defense of **Kyra Bankhead**, advised by **Mauricio Cantor**.

"Ecology is skin-deep: Combining stable isotopes and satellite tagging to unravel the movements, trophic dynamics, and population structure of North Pacific humpback whales," Guin Library Seminar Room, Hatfield Marine Science Center, September 13, 2 pm PDT: Master's defense of **Liam Brennan**, co-advised by **Daniel Palacios** and **Lisa Ballance**.

OUTREACH AND ENGAGEMENT

"A Mystery Whale Discovered in the Ocean off Oregon," Portland OR, August 3: **Lisa Ballance** presented to a group of about 75 enthusiastic and engaged residents of Terwilliger Plaza. Photo at right courtesy of Doug Brusa.



Environmental Leadership for Youth (ELY) Camp, Yaquina Bay, August 13: MMI hosted a group of 24 indigenous high school students on a 2-hour cruise around Yaquina Bay aboard the *R/V Pacific Storm*. **Clarissa Teixeira, Emma Pearson, Shanta Shamsunnahar, and João Valle-Pereira** taught the students about marine mammal research methodologies, including visual surveys, photo-ID, passive acoustic monitoring, and behavioral observation and photogrammetry using drones, as well as life aboard a research vessel.



Left: ELY camp students gather on the back deck before departure. Above right: MMI science mentors Shanta Shamsunnahar, Clarissa Teixeira, João Valle-Pereira, and Emma Pearson.

AWARDS AND RECOGNITION

On July 23, President Joe Biden [announced his intent](#) to nominate Marine Mammal Institute Director **Lisa T. Ballance** to be Chair of the Marine Mammal Commission. The [Marine Mammal Commission](#) is an independent federal agency established as part of the Marine Mammal Protection Act of 1972. Its mission is to provide science-based oversight of domestic and international policies and actions of federal agencies addressing human impacts on marine mammals and their ecosystems. For more on the nomination, please visit the [OSU announcement](#).



Huge congratulations to the newest Dr. in MMI: **Clara Bird**! On August 12, Clara (pictured at left with her mentor **Leigh Torres**) successfully defended her doctoral dissertation entitled, "Drone Data Reveals How Behavior, Buoyancy, and Size Influence PCFG Gray Whale Energetics," Clara analyzed seven years of drone overflight data on PCFG gray whales off the Oregon coast (watching over 360 hours of video) to make some impressive and interesting discoveries about their behavior, including that individuals shift their preferred foraging tactics as they age or grow and that they use a "bubble blast" technique to reduce

the energetic costs of buoyancy while feeding. Congrats Dr. Bird! Clara's PhD committee is composed of Leigh Torres (primary advisor), **Maurico Cantor**, Jamie Cornelius, Tiffany Garcia, and Sarah Emerson.

On August 22, Kyra Bankhead successfully defended her Wildlife Science master's thesis, "Navigating Shared Waters: Human Influence on Marine Predator Social Cohesion." Kyra has been mentored by Professor Mauricio Cantor in his Lab for Animal Behavioral Interaction Research in the Ocean at the Marine Mammal Institute (both pictured at right). Congratulations, Kyra!

Clara Bird was awarded an MMI Graduate Student award to support the publication costs for her publication, "Bubble blasts! An adaptation for buoyancy regulation in shallow foraging gray whales".



João Valle-Pereira was awarded an MMI Graduate Student award to support his Ph.D. project and purchase computer resources to carry out theoretical and empirical research on bottlenose dolphins foraging behavior.

Taylor Hersh was awarded a Professional Development Award by the OSU Postdoctoral Association to support her attendance at the [Biennial Conference on the Biology of Marine Mammals](#) in Perth, Australia, in November 2024.

The People Behind MMI Science

Hannah Myers — I am a postdoctoral researcher working with **Josh Stewart** and **Kate Stafford**. I earned my PhD in marine biology at the University of Alaska Fairbanks before coming to the Marine Mammal Institute. I am an ecologist and bioacoustician with a focus on applied research to inform conservation and management policy. I work on fundamental ecological questions as well as pressing conservation problems, especially fishing gear entanglements of marine mammals. I am particularly

interested in top predators and using flexible models and machine learning to uncover patterns in big data. Previously, I have studied marine mammal management policy from an economic perspective.

As a postdoc at OSU, my research focuses on the year-round distribution and residency patterns of endangered Southern Resident killer whales and overlap with Chinook salmon prey resources and human activity. I am also leading a project to reduce killer whale bycatch in the Bering Sea. When I'm not working, I love to be outside with my dogs skiing, biking, running, and hiking. In January, I will be starting a new position as an Assistant Professor at the University of Alaska Fairbanks, where I look forward to continuing to collaborate with my mentors and colleagues at the Marine Mammal Institute. (Photo of Hannah on previous page taken by Seth Adams.)



TEACHING CONTRIBUTIONS

The inaugural Introduction to Marine Bioacoustics course taught by **Kate Stafford** ran from July 22 to August 14. Highlights included guest lectures by **Hannah Myers**, **Taylor Hersh**, and **Samara Haver**. As part of the course, students built and tested their own hydrophones, toured the R/V *Atlantis*, and learned all about [ROV Jason](#).

Below: The students encase their hydrophones in epoxy.



*Right:
The students
test the
hydrophones
— they work!*



The first edition of the Human Dimensions of Marine Mammal Conservation (FW 568) started August 19. This new course, taught by visiting scholar Tara Whitty and **Mauricio Cantor**, will run three intensive weeks during Session 5 of Summer 2024. This is a theoretical course focused on approaches for more ethical, equitable, and effective conservation of marine mammals. It covers key concepts related to the social, political, economic, and cultural dimensions of conservation and lessons learned from real-world cases worldwide.

VISITING STUDENTS AND SCHOLARS



Tara Whitty (pictured at left) is an educator and consultant based in San Diego and is visiting MMI for three weeks to teach the graduate course Human Dimensions of Marine Mammal Conservation and to collaborate with **Lisa Ballance**, **Mauricio Cantor**, and MMI at large. Tara specializes in enhancing the design, implementation, and evaluation of coastal biodiversity conservation projects with a focus on inclusive and ethical practices. She combines extensive field experience, rigorous interdisciplinary research skills, and a Systems Thinking approach to deliver thoughtful, responsive solutions.



Rodrigo Tardin is a professor from the Federal University of Rio de Janeiro, Brazil, visiting MMI from August to November. Rodrigo is an Assistant Professor in the Department of Ecology, and his research lab focuses on the influence of climatic, oceanographic, and anthropogenic factors on the spatial and behavioral ecology of top marine predators, with a particular emphasis on aquatic mammals. He is a fellow supported by the Brazilian Ministry of Education and will collaborate with **Mauricio Cantor** and his lab on an ongoing research project examining the effect of climate change on the distribution of dolphins endemic to the western South Atlantic. This visit will help Rodrigo quickstart a new research line in his lab, on the social ecology of Guiana dolphins.



Diego Barneche visited MMI during the first week of August to collaborate with **Mauricio Cantor** and his lab on statistical modeling. Diego is a quantitative marine ecologist who works as an ecological statistician at the Australian Institute of Marine Science in Perth to integrate statistical, mathematical, and computational approaches to advance our understanding of evolutionary ecology. His research includes reef fish biogeography, coral reef structure, energy cycling, and using Bayesian statistics in collaboration with Indigenous communities.

PACIFIC STORM DISPATCHES

[CIMERS](#) Seeps 2, Methane Seeps Study, central Oregon coast, July 23–31: Jeff Beeson led a team of scientists from the University of Washington's Applied Physics Lab and Virginia Tech on a multi-day research cruise to study methane seeps. The team used multibeam mapping, CTD sampling, and Autonomous Underwater Vehicles to image the seafloor and water column to verify the existence or persistence of methane seeps off Yachats and Newport. PI: Jeff Beeson (beesonj@oregonstate.edu)

[Marine Offshore Species Assessments to Inform Clean Energy](#) (MOSAIC), central Oregon coast, August 5–7: Lauren Roche (NOAA Pacific Marine Environmental Lab) led a team of MMI graduate students on a research cruise to recover a bottom-mounted hydrophone off Coos Bay as part of the MOSAIC project. PI **Lisa T. Ballance**, lisa.ballance@oregonstate.edu.

Environmental Leadership for Youth Camp, Yaquina Bay, August 13: MMI hosted a group of high school students on a 2-hour cruise around Yaquina Bay to introduce the students to ocean-based research methods. PI Guillermo Giannico, giannico@oregonstate.edu.

OTHER OF NOTE

The [TOPAZ/JASPER](#) project marked the 10th consecutive year of this impactful project, which runs for 6 weeks each summer in Port Orford, Oregon, and integrates scientific research on gray whale foraging ecology with immersive STEM experiences for a small team of graduate, undergraduate and highschool students. To celebrate this significant milestone, PI **Leigh Torres** hosted a “Decadal Party” at the OSU Port Orford Field Station on July 19. Previous MMI project leaders (**Florence Sullivan, Lisa Hildebrand, Allison Dawn**) and 18 interns traveled from far and wide (Maine, Hawaii, British Columbia, California, Oregon, Nevada) to celebrate with each other and reconnect. We recognized the scientific impact of the project (3 master’s theses, 5 scientific publications) and the personal and career impacts, and we shared many memories. It was an incredible experience to see where everyone is now (all in STEM, many in the marine mammal field) and hear about the importance and impact of TOPAZ/JASPER experience on their lives. We are grateful to all the partners, supporters, and funders of this project over the years. Here’s to another 10 years!



***Pictured left and below:
TOPAZ/JASPER team members
since 2015 gathered at the OSU
Port Orford Field Station to
celebrate a decade of impact,
memories, and community.***



ONGOING OSU MEETINGS

MMI Principal Investigators Meeting, monthly (**Lisa T. Ballance, Scott Baker, Mauricio Cantor, Jim Rice, Kate Stafford, Josh Stewart, Leigh Torres**)

MMI Administrative Meeting, semimonthly (**Lisa T. Ballance, Dee Kennedy, Barb Lagerquist, Minda Stiles**)

Department of Fisheries, Wildlife, and Conservation Sciences Faculty Meeting, monthly (**Scott Baker, Lisa T. Ballance, Mauricio Cantor, Kate Stafford, Josh Stewart, Leigh Torres**)

HMSC’s Safety Awareness Forum Meeting, monthly (**Barb Lagerquist, Debbie Steel**)

College of Agricultural Sciences Administrators Meeting, monthly (**Lisa T. Ballance**)

Department of Fisheries, Wildlife, and Conservation Sciences Graduate Committee, monthly (**Leigh Torres**)

HMSC Admin Group Meeting, bimonthly (Minda Stiles)

MMI Leadership Meeting, quarterly (Lisa T. Ballance, Scott Baker, Mauricio Cantor, Dee Kennedy, Barb Lagerquist, Jim Rice, Kate Stafford, Josh Stewart, Minda Stiles, Leigh Torres)

HARBOR Small Boat Program, quarterly (Barb Lagerquist)

College of Agricultural Sciences Administrative Managers Group, quarterly (Minda Stiles)

Branch Experiment Stations, MMI, and Agricultural and Marine Sciences Business Center Collaboration Meeting, three times per year (Dee Kennedy)

College of Agricultural Sciences Safety Advisory Committee, quarterly (Barb Lagerquist)

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