



Careers with Marine Mammals



| FIELD | ROLE TYPES | EXAMPLE ACTIVITIES | KEY SKILLS AND EXPERIENCE |
|---|---|---|--|
| Industry (E.g. Oil & Gas, Renewables, Marine & Coastal Construction etc.) | Marine Mammal/Protected Species Observer (MMO/PSO) | <ul style="list-style-type: none"> • Visually survey for marine megafauna during industry operations • Understand and follow international, national and local regulations, and provide advice to crew to ensure compliance • Support onboard operations (and vessel-specific operations) • Collate project data to develop and deliver a concise final report • Collect and collate photographs of visual sightings • Develop and deliver daily and weekly compliance and monitoring reports | <ul style="list-style-type: none"> • Experience of conducting marine mammal surveys including familiarity with species ID and behaviours, and deployment/operation of specialist equipment • Adaptability and willingness to work offshore for prolonged periods and in a variety of environmental conditions • Experience on vessels or at sea • Appreciation and understanding of site operations • A good attitude to conducting shifts of concentrated effort • MMO certification • Capacity to make accurate estimates of range at sea • Data collection, analysis and report writing |
| | Marine Mammal Surveyor (MMS) | <ul style="list-style-type: none"> • Conduct baseline surveys and environmental impact assessment related projects • Survey marine mammals using distance sampling methods • In some cases, record observed marine litter or bird species | <ul style="list-style-type: none"> • Experience of conducting marine mammal surveys and familiarity with species ID and behaviours • Methodical thinking, understand the process and follow the protocol to ensure correct data acquisition • Ability to determine sea states and species presence • Adaptability and willingness to work offshore for prolonged periods and in a variety of environmental conditions • Experience on vessels or at sea • Data collection, analysis and report writing |
| | Environmental Advisor/Manager | <ul style="list-style-type: none"> • Supervise megafauna mitigation, survey teams and project environmental requirements during operations • Conduct or supervise assessments of sensitive receptors • Encourage project sustainability practices and green initiatives on site • Produce and deliver project reports and provide recommendations on mitigations to meet project-permitting requirements • Company representation to environmental regulators • Ensuring equipment readiness, operating equipment and maintain delicate equipment | <ul style="list-style-type: none"> • Leadership and project management • GIS software familiarisation (mapping) • Report writing & database handling • Ecological survey experience • Develop marine fauna mitigation and monitoring plans for operations • Experience on vessels or at sea and willingness to work offshore for prolonged periods in a variety of environmental conditions • Extensive knowledge of environmental regulations • Ability to present scientific facts in a manner that can be understood by non-technical people • Use of specialist equipment or technical skills (e.g. drone operation, programming) |
| | CMS Field Technologist (Camera Monitoring/Infra Red systems) | <ul style="list-style-type: none"> • Install and operate large mounted camera systems • Equipment and system maintenance • Automatic/ manual data recording and analysis • On-site condition monitoring • Calibration of monitoring equipment | <ul style="list-style-type: none"> • Good IT skills • Appreciation and understanding of site operations • Experience conducting marine mammal surveys and familiarity with species ID and behaviours • Methodical thinking, understand the process and follow the protocol to ensure correct data acquisition • Experience on vessels or at sea and willingness to work offshore for prolonged periods in a variety of environmental conditions |

| FIELD | ROLE TYPES | EXAMPLE ACTIVITIES | KEY SKILLS AND EXPERIENCE |
|---|---|---|--|
| Industry (E.g. Oil & Gas, Renewables, Marine & Coastal Construction etc.) | Passive Acoustic Monitoring Operator (PAM) | <ul style="list-style-type: none"> Acoustically survey for marine mammals using specialist software and hardware Understand and follow regional and/or international legislation and environmental regulations Be aware of onboard operations to ensure availability Provide post-processing and analysis as per project protocols Troubleshoot software and hardware issues | <ul style="list-style-type: none"> Basic understanding of marine acoustics, post-processing and analysis Familiarisation with marine mammal acoustic signatures Previous experience conducting marine mammal surveys Experience on vessels Additional experience in the deployment and operations of specialist equipment A good attitude to conducting concentrated monitoring effort, often for long days and several consecutive weeks Data collection, analysis and report writing |
| | Noise Monitoring Technician/ Acoustician | <ul style="list-style-type: none"> Provide technical assistance to the site-based team Equipment and system maintenance Automatic/ manual data recording and analysis On-site monitoring of conditions, including noise and vibration Calibration of monitoring equipment Troubleshoot software and hardware issues | <ul style="list-style-type: none"> Understanding of marine acoustics Familiarisation with marine mammal acoustic signatures Technical and engineering background Appreciation and understanding of site operations Experience on vessels or at sea and willingness to work in a variety of environmental conditions |
| Academia | Professor/ Lecturer | <ul style="list-style-type: none"> Teach lectures and workshops Author journal articles/conference presentations Lead field research Supervise students & research staff Grant-writing & funding applications | <ul style="list-style-type: none"> Strong academic grounding; doctoral-level qualification in relevant scientific or engineering disciplines Creativity and intuition in communication to a wide range of audiences |
| | Research Scientist | <ul style="list-style-type: none"> Conference presentations Fieldwork and data analysis Journal article writing Bids and funding applications Supervise research assistants Raise conservation awareness | <ul style="list-style-type: none"> Strong academic grounding; doctoral-level qualification in relevant scientific or engineering disciplines is usually required Good research skills including planning, intuitive problem solving and data analysis Experience with project finances to demonstrate the ability to work to budget and in particular write and secure grants Potential to present effectively in written and verbal means to a wide range of audiences Good IT skills and some knowledge of coding languages |
| Stranding & Animal Care | Wildlife/ Aquatic Veterinarian | <ul style="list-style-type: none"> Sedating mammals for procedures Performing exams and surgeries Provide intensive care for animals Communicating with rehabilitation facilities, technicians, officials and members of the public Teach lectures and workshops | <ul style="list-style-type: none"> Willingness to travel and work day and night Creativity and intuition in communication Tending to animals in the water while handling medical equipment Dealing with frightened, irritable and/or heavy animals Technical proficiency; ability to use medical equipment and databases Critical thinking; making though decisions about sick animals |
| | Pathologist | <ul style="list-style-type: none"> Prepare and perform necropsies on cadavers Handling, euthanasia and subsequent tissue preservation Manage cadaver receiving and disposal activities Maintain and utilise laboratory equipment Conduct routine safety inspections for workspace | <ul style="list-style-type: none"> Physical stamina (lifting of heavy cadavers) Willingness to work odd-hours Care required for safe use of dangerous equipment |

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|-------------------------|-----------------------------------|--|--|
| Stranding & Animal Care | Rescue, Rehabilitation & Release | <ul style="list-style-type: none"> • First responder on marine mammal strandings • Fieldwork and data analysis • Maintain vessels, vehicles and equipment • Create reports and presentations • Diet preparation and feeding • Assist veterinarian | <ul style="list-style-type: none"> • Physical and mental stamina (life-threatening situations) • Open water diving skills advantageous • Willingness to work responsibly and on-call • Detailed knowledge about natural history, life stages, diet, daily care and housing requirements for marine mammals • Understand and participate in the process and stages of wildlife rescue, rehab and release |
| | Veterinary Technician | <ul style="list-style-type: none"> • Monitor and document vital signs and activity • Perform dental procedures • Obtain and prepare samples for diagnostic testing • Perform digital x-rays • Assist veterinarians/restrain animals • Prepare animals for surgery/administer anaesthesia | <ul style="list-style-type: none"> • Keep track of lab specimens and medications for multiple animals • Stamina; standing most of the day, restraining animals • Compassion while working with sick, injured or dying animals |
| | Marine Mammal Trainer | <ul style="list-style-type: none"> • Train mammals • Address public during educational programs • Nutrition planning and food preparation • Record health and behaviour • Assist veterinarian | <ul style="list-style-type: none"> • Patience while using positive reinforcement techniques • Physical fitness for heavy lifting of animals and/or equipment • Detailed understanding of specific needs of mammals • Commitment and strength to be available whenever needed and in every weather condition |
| Eco-Tourism | Wildlife Guide | <ul style="list-style-type: none"> • Share knowledge with and educate passengers • Collect data on any observed marine mammals • In some cases, record observed marine litter or bird species • Maintain vessel, guide boat & equipment • Bridge watch, assist captain and crew • Provide instruction and assist guests with fishing | <ul style="list-style-type: none"> • Experience surveying for marine mammals and delivering lectures • Engage with guests and provide a positive experience • Possession of valid licences, certifications • Willingness to spend time onboard for several months • Physical fitness |
| | Expedition Scientist | <ul style="list-style-type: none"> • Fieldwork and data analysis • Raise conservation awareness • Paper writing • Share knowledge with and educate passengers • Maintain equipment | <ul style="list-style-type: none"> • Power to spend time onboard or in remote areas for several months • Physical fitness • Creativity and intuition in communication to a wide range of audiences • Detailed understanding of the special field • Willingness to be filmed and photographed |
| Consultancy | Environmental Consultant/ Adviser | <ul style="list-style-type: none"> • Give legal advice to clients in private industry • Support investigations with environmental lawyers • Conduct environmental assessments • Field surveys, data collection • Scientific reports | <ul style="list-style-type: none"> • Extensive knowledge of environmental regulations • Ability to present scientific facts in a manner that can be understood by non-technical people • Management of legislative issues for clients • Recognising and considering potential contaminant sources • On-going communication with clients, inspectors and regulators |

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Consultancy

Non-Governmental Organisation

- Implementation, monitoring and adaptation of environmental and sustainability campaigns
- Responding to national and international consultations
- Liaising with researchers and experts, and responding to national, international and other expert consultations
- Data analysis
- Bids and funding applications
- Presentations and outreach activities with the public, including recruiting and supporting volunteer-led projects

- Strong academic grounding
- Good research and project management skills
- Ability to present effectively by written and verbal means to a wide range of audiences

Reporting Scientist

- Analysis, interpretation and presentation of marine environmental data
- Communication and collaboration with stakeholders
- Mentoring, training, leadership

- Work accurately within tight timescales
- Ability to communicate complex sciences at public and technical levels
- Experience in programming is advantageous

Essential skills for marine mammal professionals

- Strong academic grounding including good data analysis skills
- Good communication skills to convey technical issues to specialist and non-specialist audiences in a variety of formats
- Teamwork and adaptability
- Willingness to work to tight timescales and in different environments
- Professionalism and strong interpersonal skills
- Project management skills, in particular good organisation and time management
- Strong focus on problem solving; thinking outside the box and having intrinsic motivation
- Good attention to detail to follow and enforce safety regulations
- Previous work experience
- Geographic Information Systems (GIS) for mapping data and habitat characterisation
- R programming for bioacoustic, data visualisation and analytical tasks
- Python for use of some bioacoustic tools
- Background in fundamentals of statistical analysis
- Comfort with computer use for various programs
- Excel, SQLite database experience



IMarEST ROLE MODELS

The IMarEST features career case studies of inspirational people working across a wide variety of professions in the marine sector. Read about the career experiences of these marine professionals to help you decide on your own career path.

Niru Dorian



Senior Environmental Advisor & Marine Mammal Biologist

Education:

- BSc(Hons) Marine Biology
- Environmental Clerk of Work
- Marine Mammal Observer and Marine Mammal Surveyor
- Passive Acoustic Monitoring Operator
- Advanced Marine Mammal Medic
- Marine Zooarchaeology
- Basic Offshore Survival at Sea (BOSIET)
- Standards of Training, Certification and Watchkeeping for Seafarers (STCW95)

Career progression:

- Senior Environmental Advisor (ADNOC)
- Environmental Advisor/Head of Department (Seabed Geosolutions)
- Central Commander (Sakhalin Energy SEIC)
- Environmental Advisor (Sakhalin Energy SEIC / Shell)
- Marine Mammal Biologist & Co-founding Director (Whalefish)
- Marine Environmental Consultant (MMO/PAM/EIA)

Key skills:

- Leadership and project management
- Report writing & database handling
- GIS mapping
- Auditing and quality control
- Ecological survey experience
- Client representation to Regulatory Environmental Agency
- Knowledge of terrestrial and marine biota, ecological systems, and inherent environmental risks

Role:

- I am responsible for the supervision, training, standardisation, and support of all environmental initiatives over multiple projects operating within sensitive protected marine and terrestrial areas.
- My job involves regular travel between field projects, including offshore, transition zone, and land surveys requiring stringent environmental management planning and permitting oversight.
- I manage the compliance and quality control of marine fauna monitoring & mitigation team on behalf of the client and produce protocols, waste reduction and sustainability initiatives in the field for crew adoption.

Drivers:

Working with marine mammals and other megafauna is genuinely a dream come true and to travel worldwide to work in remote environments and protected areas is a privilege. The world is currently starting to make a significant shift into carbon-neutral/negative industries, and the renewables sector is booming with development planned in many areas. I would say to newcomers to expect exciting prospects and opportunities ahead in environmental consulting fields.

Challenges:

There are many challenges to this career and working away from home for several months at a time and in harsh environments can take its toll. That said however we can accomplish significant positive changes in attitudes and sustainability practices on projects and within industries. Knowing that we have contributed to making an impact and helped inspire a change in behaviours on various levels makes it very rewarding.

Diana Antochiw



Marine Mammal Consultant (MMO/PSO/MMO Trainer)

Education:

- BSc Biology
- ScM Marine Biology with an emphasis in Marine Ecology
- Marine Mammal monitoring and stranding response training, MMO and PSO training

Career progression:

- Industry: several MMO/PSO consultancies, monitoring and mitigation programs design and implementation, PSO training
- MMO/PSO for the Lamont-Doherty Earth Observatory (Columbia University) during marine seismic research
- Marine environmental consultant
- Monitoring marine mammals onboard Mexican Navy Oceanography Research vessels as a civilian researcher
- Marine fauna stranding response and training.

Key skills:

- Marine fauna identification and monitoring
- Design and management of monitoring programs and marine surveys
- Understanding of marine mammal/ protected species behaviour
- Organisation
- Leadership
- Communication
- Conflict management
- Mentoring

Role:

- My current role involves conducting monitoring duties and training new PSOs; I am responsible for the correct implementation of marine mammal and protected species monitoring during geophysical projects
- Key tasks focus around conducting and coordinating monitoring tasks and reports, including ensuring quality control of data, and timely delivery
- I guide students into developing the skills they need to safely work as PSO and comply with environmental regulations

Drivers:

Working as an MMO/PSO is challenging in multiple ways. Our job is not very well understood and sometimes it is not very well appreciated, but it is necessary to help establish a balance between development and conservation. Hence the importance of performing in the best possible way. For that, interpersonal skills are useful, but most of all, we need to keep learning both new things and from mistakes.

Challenges:

The main challenges I face include staying objective when ensuring compliance while still helping the project to perform in the best possible way. Another challenge is communicating with the client when there is a conflict between the project goals and the mitigation procedures and doing it in such a way that helps them find the best solutions for both the project and the environment.

Pedro S. Baranda



Founder & Director of MMR4 (Marine Mammals Research, Rescue, Rehabilitation and Release)

Education:

- BSc in Marine Biology
- Multiple diplomas in marine animal medicine, marine animal response and rescue, field work and marine mammal management in captivity
- Master's in Diving
- 30 years of experience working in twelve different countries doing this job

Career progression:

- Different companies and universities, such as:
- Atlántida Dolphinarium in Mexico
- Underwater Explorers Society in the Bahamas
- University of Reykjavik on Iceland
- Zeehundenréche in the Netherlands
- Island Wildlife Natural Care Centre in Canada
- Seal Rescue Ireland
- Riverhead Foundation in the United States

Key skills:

- Sharp eye to detect what is wrong with the animal
- Knowing which methodology to follow, which medications to use, and which diets and toys individual animals need.
- Necessary to know human first aid techniques in case of an accident
- Taking the decision on when, where and how the animal is going to be released

Challenges:

One of the most important challenges is to find the funds. Animal rescue is expensive, from medications to food, registrations and fees, transportation, gas, electricity, staff and many other factors that need to be covered in order to keep the clinic afloat. Also the challenges can be people: patrons with good intentions can really hurt, damage or even kill the animals so education is strongly needed in this field. People with good intentions can inflict more damage than people that wouldn't do anything. A thrashing animal is a challenge, as are difficult access rescue sites such as an orphaned seal in a rockery smashed by rough seas with no access from land. Staffing and short-handiness is very hard sometimes and the long hours by the side of a very delicate animal, so tiredness is common. This indeed is a very challenging career but that is one of its multiple charms.

Role:

- I am a first responder for stranded, injured animals. In my role I take care of injuries, and managing diets of mammals which may include facilitating feeding for weak and injured animals.
- I am responsible for training other rescue, rehabilitation and release teams.
- Releasing mammals back to the nature.

Drivers:

Despite having thirty years of experience in the field, the work still feels brand new. I go where I am needed, any part of the world, in order to train any kind of team that would like to learn or improve their marine mammal rescue and rehabilitation protocols and techniques, from big whales to baby seals. This is a very challenging and demanding job when you may have to deal with incidents such as rescuing and caring for an orphaned baby seal that has no chances of life whatsoever without your intervention and you must be on hand at all times of day. However, as such animals start getting better in your care and being able to release it back into its natural environment and seeing a big, fat, proud animal going back to sea to take over life, well, it is indeed the best feeling in the world. The more we know about the world we belong to, the better we can protect it and working with the animals face to face under the sun or a blizzard, rolling in the mud or the snow, scorching sand or freezing snow, it doesn't make a difference to me because I love it.

Lorenzo Scala



Bioacoustician & Project Manager

Education:

- MSc Marine and Fisheries Science, University of Aberdeen
- BSc(Hons) Marine Biology, University of Stirling
- FOET with HUET and CBS
- STCW 95 personal survival techniques
- Offshore medical
- MMO/PSO/PAM training

Career progression:

- Project Manager (Seiche)
- Co-founder and Technical Director of Whalefish
- Environmental Consultant (MMO/PAM)

Key skills:

- Passive Acoustic Monitoring (PAM) technology
- Acoustic survey design
- Acoustic data analysis
- Project management
- Technical support
- Operational risk assessment

Role:

- In my current role I manage survey design, installation, integration of acoustic and visual detection systems for protected wildlife mitigation and monitoring. I am also responsible for advising on acoustic surveys for anthropogenic sound measurements and monitoring.
- My job primarily involves acoustic data analysis and report writing, and acting as a technical liaison to support field operations for marine sound surveys.
- I am also involved in developing and delivering mentoring schemes, support and training for environmental consultants.

Drivers:

Having an interest in technology coupled with passion for the marine environment, conservation and animal welfare brings together a combination of really challenging but very rewarding experiences which shape the relationship between industrial development and scientific study. Experiencing a changing landscape from the movement of fossil fuel to renewable energy opens up a whole host of opportunities for marine scientists.

Challenges:

Technology is continually developing, and so are client/customer requirements. Providing bespoke solutions to meet client needs, while ensuring survey techniques, data collection and analysis are all of a high standard that produces measured results. Often required to travel globally at short notice for unknown lengths of time so finding a good work/life balance is important.

Thea Taylor



Project Lead for the Sussex Dolphin Project (World Cetacean Alliance)

Education:

- Degree in Marine Biology
- Currently working on a Master's at University of Brighton

Career progression:

- Volunteering with organisations like the Hebridean Whale and Dolphin Trust, Marine Conservation Research International
- Sussex Dolphin Project

Key skills:

- Knowing how to work differently with each individual
- Being able to get the best out of the team
- Persistence and patience

Role:

- Creating a dynamic and productive work environment for staff and volunteers
- Ensuring that project targets are met
- Conducting finance and progress reports

Drivers:

The most important thing is experience. I volunteered for 5 years in a variety of fields before I landed my first paid role. To be honest I got into marine biology to study phytoplankton, so I had a bit of focus shift at university! Cetaceans immediately grabbed me from when I first went whale watching on a uni field trip in Portugal and I've never looked back! The thing I enjoyed most about working in an area where so few people actually know we have dolphins, is the sense of wonder and amazement they bring, and then the immediate shift in people's perceptions on our little patch of water. I would definitely recommend lots of volunteering to anyone getting into the field. Not only does it give you experience, it also allows you to get a good idea of what you are really good at. Also do as many extra courses as you can, go to webinars, get involved in focus groups and get your name out there!

Challenges:

Conservation can move either incredibly rapidly or at a snail's pace, there seems to be no middle ground. The other main challenge is to get scientists and organisations to work together. Some days it feels like herding cats! Funding and lack of awareness of the importance of local ecosystems is also a big challenge, but one we are tackling head on!

Daniella Bordon



Environment and Sustainability Manager

Education:

- BSc Biology
- Master's in Development Practices (MDP)
- International Diploma in Environmental Management
- Internal Auditor ISO 14001
- GRI Sustainability Reporting Process for Brazil
- IOSH Managing Safely
- Disney's Approach to Leadership Excellence
- Project Management Fundamentals
- NEBOSH Level 3 Certificate in Occupational Health and Safety

Career progression:

- Researcher / Whale and Dolphin watching guide (Wild Dolphin Foundation - Hawaii)
- Marine Mammal Observer and Environmental Advisor Consultant
- Environmental Coordinator/Supervisor - RXT (Seismic)
- QHSE Manager - Oceageo (Seismic)
- Environmental and Sustainability Manager - ION Geophysical
- Environmental and Sustainability Manager - BGP Offshore (Seismic)

Key skills:

- Good communication
- Problem solving abilities
- Ability to translate science into simple language
- Intrapreneurship
- Ability to "sell" environmental initiatives

Role:

- Manage environmental and sustainability aspects of seismic operations worldwide
- Oversee permit applications and coordinate elaboration of Environmental Impact Assessments
- Ensure compliance with country and client requirements
- Manage environmental personnel
- Prepare relevant project plans (environmental management plans e.g. waste management plans, flora and fauna management plans, etc.)
- Interface with clients for environmental and sustainability matters

Drivers:

The oil and gas industry has such a huge impact on the flora, fauna and climate and in most companies, lack qualified, passionate environmental management personnel.

Challenges:

- Engage non-environmental personnel in the cause.
- Sell environmental initiatives where legislation and client requirements are lacking
- Be seen as an annoyance by operations-driven personnel.
- Manage too many projects at once with few support personnel.

Els Vermeulen



Research manager – Mammal Research Institute Whale Unit, Department of Zoology and Entomology, University of Pretoria

Education:

- Post-Doctoral Research Fellow (x2)
- PhD Zoology
- Master of Science (Environmental Biology)
- Bachelor of Science
- Various offshore certificates such as a JNCC-approved MMO course, PAM qualification, PSO course, STCW 95 (Sea Survival Course), HUET, and offshore medical

Career progression:

- Lecturer, Department of Zoology and Entomology, University of Pretoria
- Research Manager, Mammal Research Institute Whale Unit, Department of Zoology and Entomology, University of Pretoria
- Invited member IUCN Cetacean Specialist Group
- Scientific Committee member, International Whaling Commission>
- IWC-SORP Theme 6 co-lead "The right sentinel for climate change"
- Coordinator SouSA Consortium
- Co-founding Director (Whalefish)
- Co-Director Sea Search Research and Conservation, Cape Town, South Africa

Key skills:

- Conservation management and policy
- Scientific research (expertise in population biology)
- Project management
- Cetacean fieldwork
- Environmental consulting

Role:

- Management of MRI Whale Unit at Department of Zoology, UP
- Scientific research (project development, sourcing of needed funds, project execution, data analyses, paper writing)
- Student supervision
- Fundraising
- Lecturing
- Networking

Drivers:

I am driven by a deep-rooted passion for marine mammals as well as research and management. Working towards a better understanding of these amazing creatures, and using that knowledge to contribute to better conservation management in a heavily anthropogenically-impacted world is what keeps me going.

Challenges:

Being in the academic world can lead to high levels of pressure (publish or perish!) and it is financially insecure, both for one's own income and for the sources of funding to run the different research projects.

Frances Robertson



Marine Program Coordinator for San Juan County in Washington State, USA

Education:

- B.Sc., Zoology (Marine and Fisheries Biology), University of Aberdeen, School of Biological Sciences, UK
- M.Res., Marine and Fisheries Science, University of Aberdeen, School of Biological Sciences, UK.
- PhD, University of British Columbia, Dept. Zoology, BC.
- JNCC and Gulf of Mexico Marine Mammal Observer training tickets
- BOSIET/HUET tickets

Career progression:

- Volunteering for a number of different sectors (non-profit, environmental consulting, academia, local government)
- Field assistant positions at remote field camps
- MMO in the offshore oil and gas industry
- Leading aerial crews
- Executive committees for international and regional groups (MMOA, CCV, SMMC)
- Co-created the Women in Marine Mammal Science Initiative

Key skills:

- Good communication
- (Report) writing skills
- Digital skills
- Code in R
- Project management
- Budgeting
- Networking
- Ability to achieve change

Role:

- Project management of predominantly nearshore restoration projects
- Sensitive marine habitat monitoring
- Marine infrastructure
- Community and regional outreach
- Education efforts

Drivers:

To work in the marine mammal science world you really need to have perseverance and flexibility. I would caution those keen to enter into the field not to take every internship and volunteer opportunity but to choose wisely based on what interests them and also how feasible it is to undertake unpaid positions - try to avoid these if at all possible as they do create a real barrier to many trying to get a foot hold. The field work component is the fun part but the reality is that marine mammal researchers spend maybe less than 10% of their time in the field. I have found that I really enjoy the public service aspect of my work and that it is something that I am good at - these are not necessarily skills that I gained while in graduate school. I don't do as much analytical work as I did during my PhD or post-doc but I am now able to lead projects and begin to identify and address impacts directly and I find this much more rewarding.

Challenges:

Working in the marine mammal world is extremely competitive. There are few jobs and many eager to fill them. This is in part why my path has taken me away from the marine mammal world a little in the sense that my position with San Juan County is more general. Because much of my work for the county is not directly marine mammal focused, I have had to learn about different systems and types of projects (e.g. nearshore restoration) on the fly. This has been a challenge but a welcome challenge as it is vital for me to broaden my areas of expertise. One of the areas that is most challenging is working to address the impacts posed by human behaviour to our collective efforts for marine conservation. This became really clear to me with our efforts to educate boaters as to their impacts on the Southern Residents and other marine mammal species. This is an area that I continue to grapple with - ecologists are rarely taught how to address, or account for such human led issues yet it is imperative that we do so.

Eric Archer



Program Lead, Marine Mammal Genetics, NOAA

Education:

- Ph.D, Marine Biology
- B.A., Biology

Career progression:

- Leader, Marine Mammal Genetics Program (MMGP), Southwest Fisheries Science Center, NOAA/NMFS
- Adjunct Professor, Scripps Institution of Oceanography, UCSD
- US Delegate, International Whaling Commission Scientific Committee
- Research Analyst, MMGP/SWFSC

Key skills:

- Programming
- Statistical analyses and simulations
- Teaching
- Project management

Role:

- Plan and administrate marine mammal genetic projects within the Marine Mammal and Turtle Division, SWFSC/NOAA
- Conduct research (plan projects, analyze data, edit and write papers)
- Collaborate with other researchers
- Supervise students and interns
- Outreach

Drivers:

Curiosity lights the spark, passion keeps the fire going. I feel extremely lucky to be in this field. I love the challenge of studying such dynamic and specialised animals as cetaceans. Because marine mammals are so difficult to study, the field will be in the hands of a new generation of quantitative researchers who can manipulate and analyse much larger and integrative data sets.

Challenges:

Balancing all the things that make me complete. Research can become all encompassing. Other people will take all the time you give them. I have to keep reminding myself that I'm more than just the job.

Heather Fowle



Marine Mammal Consultant (MMO/PSO/MMS)

Education:

- BSc(Hons) Applied Marine Biology
- RMarSci IMarEST
- BOSIET, FOET
- JNCC MMO
- BOEM PSO
- PAM

Career progression:

- MMOA
- Marinelife
- BDMLR
- Environment Agency

Key skills:

- Relevant scientific background
- Extensive experience with marine mammals
- Ability to correctly interpret license conditions/ EIA and MMP for mitigation protocol
- Ability to effectively spot marine fauna
- Understand the use of equipment and acoustic sensitivities of different species
- Be prepared to offer on the spot advice
- Thoroughly understand the equipment, deployment, PamGuard Software and troubleshooting of any issues (PAM Operator)

Role:

- I am responsible for providing advice on the correct methodology for mitigation on industrial projects. My current role includes interpretation of licence conditions, reporting all findings in an accurate and concise manner.
- I also need to explain mitigation to the team to be able to answer questions and ensure surveys and operations are properly managed.

Drivers:

I'm passionate about marine conservation, biodiversity, and marine mammals and if you are passionate about marine wildlife and want to make a difference then this is a good way to be involved. The role is very varied and I have been lucky to travel the world doing what I love from everything from baseline surveys, to ROV surveys to windfarm and seismic work.

Challenges:

You have to be ready to provide advice on the spot, so be prepared! Also you have to be away from home for long periods and you have to deal with uncertainty of work.

Ashleigh Kitchiner



Senior Marine Mammal Consultant at APEM

Education:

- MRes Marine Mammal Genetics, BSc (Hons) Biology,
- MMO (JNCC accredited), PSO (BSEE/BOEM accredited) and PAM course
- BOSIET with ca-EBS
- O&G medical

Career progression:

- Volunteering on several marine mammal research projects, working as a whale-watching guide
- Marine mammal consultancy and held roles as an MMO/PAM Operator and report writer
- Wildlife Officer in the Hebrides and a cruise Wildlife Guide
- Freelance as Lead MMO/PAM Operator

Key skills:

- Marine mammal survey experience
- Understanding of relevant policy/legislation for marine mammals
- Understanding the process of impact assessment and other documents, including EIA, HRA, SEA, PEIR, SIP, AA, and NIS
- Understanding and interpreting underwater noise assessment/modelling
- Understanding developments in the marine environment and how these fit in with marine planning

Role:

- Assessments, mitigation plans, survey design and managing field staff
- Data analysis and modelling of population data
- Data interpretation and reporting
- Project management and client liaison, including site visits as required
- Input into aspects of tender preparation, including costing and writing of technical sections
- Mentoring, support and guidance to more junior members of staff

Drivers:

Working in this industry is the best of both worlds. I can work safeguarding marine mammals from disturbance and injury, design surveys for effective data acquisition and create mitigation plans to ensure they are protected from human activities. I thoroughly enjoy the various projects that working with a consultancy can bring; I've worked on biosecurity assessments, identifying marine mammals from digital aerial survey footage, marine mammal assessments and much more.

Challenges:

The industry is growing and there is the potential for a lot of work therefore it can be overwhelming with the amount and variety of opportunities. It is best to get a broad array of experiences to discover what you resonate most with. If you are starting in the mitigation and monitoring field, it can be difficult for newly qualified MMO/PAM operators to obtain work. The best thing to do is always to network, as often experienced consultants are aware of work going on, and they may be able to recommend you for an upcoming project. Remember, you can be away from home for 6+ weeks at a time, working 12-hour days seven days a week. It can be challenging, but it was worth it for me to see those pilot whales in mirror calm waters. Also, through meeting new people comes differing cultures, opinions, and polarising views - do not take this to your heart. Be professional, avoid specific topics if necessary and if you feel unsafe, say STOP, speak to somebody onboard or get support or advice from organisations, like the Marine Mammal Observer Association and IMarEST.