

EYAL BIGAL, PhD

MARINE ECOLOGIST

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EDUCATION

POSTDOCTORAL FELLOW

HOPKINS MARINE STATION, STANFORD UNIVERSITY / Mar 2024-Mar 2026

- Distribution and Habitat Use of Atlantic bluefin Tuna in the eastern Mediterranean Sea

PhD MARINE ECOLOGY / Oct 2016–Nov 2022

LEON H. CHARNEY SCHOOL OF MARINE SCIENCES, FACULTY OF NATURAL SCIENCES, UNIVERSITY OF HAIFA, ISRAEL

- Abundance and Health of Apex Predators in the Eastern Mediterranean Sea (advisors: Prof Dan Tchernov, Dr Aviad Scheinin)
- Specialised training:
 - Distance sampling data analysis workshop (2019), ACCOBAMS, Gondolfo, Italy
 - Advanced distance sampling workshop (2018), CREEM, University of St. Andrews, UK
 - Aerial observer, ACCOBANS Survey Initiative (ASI; 2018), Israel
 - Data collection training, ACCOBANS Survey Initiative (ASI; 2018), Cuers, France

MSc ENVIRONMENTAL AND INFRASTRUCTURE PLANNING / Sep 2015–Aug 2016

FACULTY OF SPATIAL SCIENCES, UNIVERSITY OF GRONINGEN, THE NETHERLANDS

- Sea-Use Planning as a Complex Adaptive System in Transition; the Case of Israel's Mediterranean Marine Space (Dean's award for best graduate research presentation; advisors: Dr Margo van den Bring, Dr Thomas Klenke)
- Coursework at the Royal Netherlands Institute of Sea Research (NIOZ)

MSc WATER AND COASTAL MANAGEMENT / Oct 2014–Aug 2016

FACULTY OF MATHEMATICS AND NATURAL SCIENCE, CARL VON OSSIETZKY UNIVERSITY OF OLDENBURG, GERMANY

- Coursework at the Institute of Chemistry and Biology of the Marine Environment (ICBM)

BSc MARINE BIOLOGY AND ENVIRONMENT (magna cum laude) / Nov 2008–Jun 2012

SCHOOL OF MARINE SCIENCES AND ENVIRONMENT, RUPPIN ACADEMIC CENTER, ISRAEL

- Thesis: The Neuro-Cerebral Pathway of Sleep Paralysis
- Final project: Experimental Evaluation of Physiological and Haematological Changes caused by Increased Activity in Captive Green Sea Turtles

ABOUT

I am a passionate marine conservation scientist, interested in the spatial ecology of megafauna populations and the development of fishery-independent methods to estimate their abundance. Further work is focused on health in apex marine predators as a bio-indicator for the state of the environment.

QUALIFICATIONS & SKILLS

- Software: RStudio, GIS, Distance, SPSS
- Certified Scientific Diver, American Academy of Underwater Sciences (AAUS)
- Extended Range 45 / Stress & Rescue Diver (600+ logged dives), SSI; Elite Diver, IANTD
- Licensed Commercial Offshore Skipper, Israel Ministry of Transportation
- Certified GMDSS Operator, Israel Ministry of Communication

WORK EXPERIENCE

CO-FOUNDER, SCIENTIFIC AND GENERAL BOARD MEMBER / May 2020–PRESENT

DELPHIS NGO FOR MARINE MAMMAL CONSERVATION, ISRAEL

- Represent the organisation at international conventions
- Develop and implement the organisation's strategic plan, mission, and objectives
- Oversee the organisation's financial management and resource allocation
- Respond to sick, injured, distressed, or dead marine megafauna

APEX PREDATOR LABORATORY MANAGER / Oct 2016–Jan 2023

MORRIS KAHN MARINE RESEARCH STATION, LEON H. CHARNEY SCHOOL OF MARINE SCIENCES, FACULTY OF NATURAL SCIENCES, UNIVERSITY OF HAIFA, ISRAEL

- Managed laboratory database, equipment, and budget
- Conceived and executed long-term ecological research (LTER) projects and field operations (e.g., shark and tuna tagging-programmes, shipboard and aerial surveys, research expeditions)
- Established necropsy laboratory and regional tissue bank for marine megafauna
- Wrote research proposals and scientific reports
- Supported MSc and PhD students in ongoing research
- Coordinated volunteer team
- Led media communication

SCIENTIFIC BOARD MEMBER / Oct 2021–Apr 2022

EUROPEAN CETACEAN SOCIETY (ECS) CONFERENCE 2022, ASHDOD, ISRAEL

- Developed the scientific programme themes
- Reviewed abstracts
- Chaired the session *New Techniques (II) in Marine Mammal Research*

SCIENTIFIC AND GENERAL BOARD MEMBER / Apr 2018–Dec 2020

ISEAEL MARINE MAMMAL RESEARCH AND ASSISTANCE CENTER (IMMRAC), ISRAEL

- Oversaw the organisation's financial management and resource allocation
- Responded to sick, injured, distressed, or dead marine megafauna

CAPTAIN AND NAVIGATOR / Sep 2013–Dec 2013

YACHT DELIVERY, CROSS-MEDITERRANEAN AND CROSS-ATLANTIC

- Enforced applicable regulations, including IMO, SOLAS, and GMDSS
- Planned routes and scheduled itineraries according to nautical charts and publications

SURVEY VESSEL OPERATOR / Aug 2012–Aug 2013

EDT MARINE CONSTRUCTION LTD., ISRAEL

- Conducted bathymetry surveys and seawater monitoring
- Captained a survey vessel and supervised crew

VOLUNTEER EXPERIENCE

SEAL CARETAKER / 2016

PIETERBUREN SEAL REHABILITATION AND RESEARCH CENTRE, THE NETHERLANDS

SEAL CARETAKER / 2015

NORDDEICH NATIONALPARKHAUSE SEEHUNDSTATION, GERMANY

SEA TURTLE CARETAKER / 2009–2011

SEA TURTLE RESCUE CENTRE, NATURE AND PARKS AUTHORITY, ISRAEL

MILITARY SERVICE

DEFENSIVE DIVER, STAFF SERGEANT / 2004–2007

NAVY, ISRAEL DEFENSE FORCES (IDF)

- Secured the Red Sea maritime arena
- Counter-terrorism operations (combat role)
- Maritime and underwater search and rescue
- Boat and dive Commander

LANGUAGE PROFICIENCY

- Hebrew – native
- English – fluent
- German – competent

SENIOR SKIPPER INSTRUCTOR / Aug 2010–Sep 2013

SEA-GAL YACHT CLUB LTD., ISRAEL

- Taught theoretical courses for coastal and offshore skipper certification in Israel
- Served as lead captain on mile-building flotillas in international and coastal water
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ECOLOGICAL RESEARCH COORDINATOR / Dec 2009–Jun 2012

NATURE AND PARKS AUTHORITY (EDUCAITON CENTRE), ISRAEL

- Directed science-oriented educational programmes
- Assisted national park rangers in field duties
- Guided tours at the Sea Turtle Rescue Centre

PUBLICATIONS

IN PRESS:

- **Bigal, E.**, Pagniello, C.M.L.S., Castleton, M.R., Schallert, R.J., Block, B.A. (2026). Migration patterns of Atlantic bluefin tuna occupying the eastern Mediterranean Sea. *Scientific Reports*, submitted.
- **Bigal, E.**, van Rijn, I., Livne, L., Zemah-Shamir, Sørensen, O. J. R., Z., Alexandri, Diamant, R., T., Morick, D., Scheinin, A., Tchernov, D. (2026). Shark aggregations in the eastern Mediterranean Sea reflect behavioural responses to climate stress. *Movement Ecology*, Submitted.
- Mikles, C.S., Pagniello, C.M.L.S., **Bigal, E.**, Moran, B.M., Rooker, J.R., Ortega, A., de la Gándara, F., Maxwell, H., Schallert, R.J., Castleton, M.R., Schumer, M., Stokesbury, M.J.W., and Block, B.A. (2025). Ecological and evolutionary insights into the diversification of Atlantic bluefin tuna. *Current Biology*, in press.
- Newman, E.S., Scheinin, A., Wosnick, N., Lemos, L.S., **Bigal, E.**, Itay, P., Saint'Pierre, T.D., Tchernov, D., Hauser-Davis, R.A., Morick, D. (2025). Sulfur, e-Waste Contaminants and Sharks. *PNAS*, submitted.

PUBLISHED:

- Scheinin, A., **Bigal, E.**, Cohen, E., Livne, L., Morick, D., Meron, D., Zemah-Shamir, Z., Tchernov, D., (2025). Marine Mammals of Israel. In: Hod HaYam – The Glory of the Sea: Strength and Transformation in the Aquatic System of Israel, Chapter 37, pp. 649-670. The Israeli Association of Aquatic Sciences. ISBN 978-965-597-380-8.
- Scheinin, A., Mevorach, Y., Roditi-Elasar, M., Zuriel, Y., Kobo, K., **Bigal, E.**, Galili, O., Morick, D., Kerem, D., Tchernov, D., (2025). Multi-year study of the shark aggregation at Hadera. In: Hod HaYam – The Glory of the Sea: Strength and Transformation in the Aquatic System of Israel, Chapter 34, pp. 593-608. The Israeli Association of Aquatic Sciences. ISBN 978-965-597-380-8
- Mevorach, Y., Galili, O., **Bigal, E.**, Goffman, O., Roditi-Elasar, M., Zuriel, Y., Kobo, K., Haitovich, Y., Hadar, N., Markovich, M., Scheinin, A. (2025). Bottlenose Dolphins (*Tursiops truncatus*) along the coast of Israel: Abundance and social structure. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 35(8), e70181.
- **Bigal, E.**, Livne, L., Zemah-Shamir, Z., Morick, D., Einbinder, S., Tchernov, D., Scheinin, A. (2025). Fatal shark incident in the eastern Mediterranean Sea highlights urgent need for enhanced management measures. *Ocean & Coastal Management*, 269, 107848.
- Sørensen, O. J. R., van Rijn, I., Einbinder, S., Nativ, H., Scheinin, A., Zemah-Shamir, Z., **Bigal, E.**, Livne, L., Tsemel, A., Bialik, O. M., Makovsky, Y. (2025). Bridging the gap in deep seafloor management: Ultra fine-scale ecological habitat characterization of large seascapes. *Remote Sensing in Ecology and Conservation*.
- Pickholtz, R., Shelter, O., Levy, L., **Bigal, E.**, Levy, Y. (2024). Physiological and haematological changes caused by increased activity in captive sea turtles: A pilot study on the green sea turtle (*Chelonia mydas*).
- **Bigal, E.**, Livne, L., Zemah-Shamir, Z., Levy, T., Shemesh, E., Tchernov, D., Scheinin, A. (2024). Shark shuffle: Segregated co-occurrence of multiple dusky and sandbar lineages at a human-altered habitat in the eastern Mediterranean Sea. *Scientific Reports*, 14, 19924.
- Azrieli, B., Cohen, E., Livne, L., Ramon, D., Tsemel, A., **Bigal, E.**, Shemesh, E., Zemah-Shamir, Z., Barash, A., Tchernov, D., Scheinin, A. (2024). Characterising a potential nearshore nursery ground for the blackchin guitarfish (*Glaucostegus cemiculus*) in Ma'agan Michael, Israel. *Frontiers in Marine Science*, 11, 1391752.
- Barash, A., Scheinin, A., **Bigal, E.**, Zemah-Shamir, Z., Martinez, S., Davidi, A., Fadida, Y., Pickholtz, R., Tchernov, D. (2023). Some like it hot: Investigating thermoregulatory behaviour of carcharhinid sharks in a natural environment with artificially elevated temperatures. *Fishes*, 8(9), 428.
- Starostinetsky-Malonek, T., Scheinin, A., Aroch, I., Davidovich, N., **Bigal, E.**, Livne, L., Hauser-Davis, R. A., Wosnick, N., Tchernov, D., Morick, D. (2023). First report on the serum chemistry and haematology of free-ranging dusky (*Carcharhinus obscurus*) and sandbar (*Carcharhinus plumbeus*) sharks in the eastern Mediterranean Sea. *Conservation Physiology*, 11(1), coad037.

- Morick, D., Davidovich, N., Zemah-Shamir, Z., Kroin, Y., **Bigal, E.**, Sierra, E., Segura-Göthlin, S., Wosnick, N., Hauser-Davis, R. A., Tchernov, D., Scheinin, A. (2023). First description of a Gammaherpesvirus in a common dolphin (*Delphinus delphis*) from the Eastern Mediterranean Sea. *Veterinary Research Communications*, 47(4), 2253–2258.
- Bregman, G., Lalzar, M., Livne, L., **Bigal, E.**, Zemah-Shamir, Z., Morick, D., Tchernov, D., Scheinin, A., Meron, D. (2023). Preliminary study of shark microbiota at a unique mix-species shark aggregation site in the Eastern Mediterranean Sea. *Frontiers in Microbiology*, 14, 1027804.
- Galili, O., Goffman, O., Roditi-Elasar, M., Mevorach, Y., **Bigal, E.**, Zuriel, Y., Haitovich, Y., Hadar, N., Markovich, M., Vardimon, D., Tchernov, D., Scheinin, A. (2023). Two decades of coastal dolphin population surveys in Israel, eastern Mediterranean. *Biology*, 12(2), 328.
- Barash, A., Scheinin, A., **Bigal, E.**, Zemah-Shamir, Z., Martinez, S., Tchernov, D. (2023). Depth partitioning and diel movement of two large carcharhinid sharks in extremely shallow waters. *Fishes*, 8(2), 85.
- Morick, D., Blum, S. E., Davidovich, N., Zemah-Shamir, Z., **Bigal, E.**, Peleg, I., Rokney, A., Nasie, I., Feldman, N., Flecker, M., Tchernov, D., Scheinin, A. (2023). *Photobacterium damsela* subspecies *damsela* pneumonia in a dead stranded bottlenose dolphin (*Tursiops truncatus*), eastern Mediterranean Sea. *Emerging Infectious Diseases*, 29(1), 179.
- **Bigal, E.**, Galili, O., van Rijn, I., Rosso, M., Cleguer, C., Hodgson, A., Scheinin, A., Tchernov, D. (2022). Reduction of species identification errors in surveys of marine wildlife abundance utilising unoccupied aerial vehicles (UAVs). *Remote Sensing*, 14(16), 4118.
- Zemah-Shamir, Z., Mourier, J., Ilany, A., **Bigal, E.**, Scheinin, A., Tchernov, D. (2022). Preliminary insights of a mixed-species shark aggregation: A case study of two carcharhinids from the Mediterranean Sea. *Environmental Biology of Fishes*, 105(5), 623–634.
- Paraschiv, M., Padrino, R., Casari, P., **Bigal, E.**, Scheinin, A., Tchernov, D., Fernández Anta, A. (2022). Classification of underwater fish images and videos via very small convolutional neural networks. *Journal of Marine Science and Engineering*, 10(6), 736.
- Morick, D., Davidovich, N., Zemah-Shamir, Z., **Bigal, E.**, Rokney, A., Ron, M., Blum, S. E., Soto, E., Heckman, T. I., Lau, S. C., Wosnick, N., Tchernov, D., Scheinin, A. (2022). First isolation and characterization of *Streptococcus agalactiae* from a stranded wild common dolphin (*Delphinus delphis*). *Frontiers in Marine Science*, 9, 824071.
- Morick, D., Davidovich, N., **Bigal, E.**, Rosenbluth, E., Bouznach, A., Rokney, A., Ron, M., Wosnick, N., Tchernov, D., Scheinin, A. (2020). Fatal infection in a wild sandbar shark (*Carcharhinus plumbeus*), caused by *Streptococcus agalactiae*, type Ia-ST7. *Animals*, 10(2), 284.
- Alexandri, T., Zemah-Shamir, Z., **Bigal, E.**, Scheinin, A., Tchernov, D., Diamant, R. (2019). Localization of acoustically tagged marine animals in under-ranked conditions. *IEEE Transactions on Mobile Computing*, 20(3), 1126–1137.
- Diamant, R., Kipnis, D., **Bigal, E.**, Scheinin, A., Tchernov, D., Pinchasi, A. (2019). An active acoustic track-before-detect approach for finding underwater mobile targets. *IEEE Journal of Selected Topics in Signal Processing*, 13(1), 104–119.
- Diamant, R., **Bigal, E.**, Pinchasi, A., Scheinin, A. (2018). Estimation of shark biomass through active acoustics. *Journal of the Acoustical Society of America*, 144(3), 1912.
- Levy, D., Belfer, Y., Osherov, E., **Bigal, E.**, Scheinin, A. P., Nativ, H., Tchernov, D., Treibitz, T. (2018). Automated analysis of marine video with limited data. *Proceedings of the IEEE CVPR Workshops*, 1385–1393.
- **Bigal, E.**, Morick, D., Scheinin, A. P., Salant, H., Berkowitz, A., King, R., Levy, Y., Melero, M., Sánchez-Vizcaíno, J., Goffman, O., Hadar, N., Roditi-Elasar, M., Tchernov, D. (2018). Detection of *Toxoplasma gondii* in three common bottlenose dolphins (*Tursiops truncatus*); A first description from the Eastern Mediterranean Sea. *Veterinary Parasitology*, 258, 74–78.

CONFERENCE COMMUNICATIONS

2023

- **Bigal, E.**, Scheinin, A.P., Tchernov, D. *Long-term ecological research of apex marine predators in the Eastern Mediterranean Sea*. Sixth Mediterranean Sea Conference: Effective Management of the Sea (oral).

2022

- **Bigal, E.**, van Rijn, I., Galili, O., Rosso, M., Cleguer, C., Hodgson, A., Scheinin, A.P., Tchernov, D. *Assessing the integration potential of unoccupied aerial vehicles (UAVs) with conventional cetacean surveys*. European Cetacean Society (oral).
- Galili, O., **Bigal, E.**, Cleguer, C., Hodgson, A., Scheinin, A.P., Tchernov, D. *Legislative feasibility of unoccupied aerial vehicle usage for environmental surveys in the ACCOBAMS region*. European Cetacean Society (oral).

2019

- **Bigal, E.** *Tagging at aggregation hotspots in the easternmost Mediterranean Sea.* International Union for the Conservation of Nature (IUCN) Expert Meeting on Sharks and Rays in the Mediterranean Sea (oral).
- **Bigal, E.,** Diamant, R., Tchernov, D., Morick, D., Scheinin, A.P. *Active acoustic sampling of highly migratory megafauna.* European Elasmobranch Association (oral).
- **Bigal, E.,** Morick, D., Davidovich, N., Wosnick, N., Zemach Shamir, Z., Tchernov, D., Scheinin, A.P. *Microbial infection in sharks as a bioindicator for the state of the environment in the eastern Mediterranean Sea.* European Elasmobranch Association (poster).
- Scheinin, A.P., **Bigal, E.,** Zemach Shamir, Z., Barash, A., Starostinetsky-Malonek, T., Morick, D., Tchernov, D. *Shark research hub for dusky sharks (*Carcharhinus obscurus*) and sandbar sharks (*Carcharhinus plumbeus*) in the easternmost Mediterranean Sea.* European Elasmobranch Association (oral).
- Starostinetsky-Malonek, T., Scheinin, A.P., Tchernov, D., **Bigal, E.,** Aroch, I., Morick, D. *Blood biochemistry and hematology of dusky sharks (*Carcharhinus obscurus*) and sandbar sharks (*Carcharhinus plumbeus*) in the eastern Mediterranean Sea.* European Elasmobranch Association (oral).
- Barash, A., **Bigal, E.,** Scheinin, A., Zemach Shamir, Z., Martines, S., Tchernov, D. *Habitat use of dusky and sandbar sharks at a warm water discharge of a coastal power plant.* 2nd Israeli Conference for Conservation Science (oral).

2018

- Morick, D., **Bigal, E.,** Scheinin, A.P., Salant, H., Berkowitz, A., Tchernov, D. *Toxoplasmosis in common bottlenose dolphins (*Tursiops truncatus*).* International Association for Aquatic Animal Medicine (oral).
- **Bigal, E.,** Morick, D., Scheinin, A.P., Salant, H., Berkowitz, A., King, R., Levy, Y., Melero, M., Sánchez-Vizcaíno, J.M., Goffman, O., Hadar, N., Roditi-Elasar, M., Tchernov, D. *Toxoplasmosis and herpesvirus in common bottlenose dolphins (*Tursiops truncatus*); a first report from the Eastern Mediterranean Sea.* European Cetacean Society (oral).
- Scheinin, A.P., Marco, S., Reiningger, D., **Bigal, E.,** Haitovich, Y. *Delphis – an open-source coastal cetacean survey app.* European Cetacean Society (oral).
- **Bigal, E.,** Barash, A., Scheinin, A.P., Tchernov, D. *Introduction of the shark tagging programme in Israel and preliminary results from the first two seasons.* European Elasmobranch Association (oral).

RESEARCH GRANTS

- **2024–2026** · Yad Hanadiv Foundation
Natural habitats of marine species — Lead author, primary researcher
- **2023–2026** · Israel Ministry of Energy
Distribution and habitat use of Atlantic Bluefin Tuna in the Mediterranean marine space of Israel — Lead author, primary researcher
- **2022** · Israel Nature and Parks Authority
Behavioural response of sharks to anthropogenic disturbances at a coastal aggregation area — Researcher
- **2020–2021** · Data Science Research Center (University of Haifa)
[Collection and automated annotation of marine megafauna footage obtained from unmanned aerial vehicles](#) — Lead author, primary researcher
- **2018–2021** · Israel Ministry of Defense
Classified project — Co-author, researcher
- **2018–2020** · ACCOBAMS
Feasibility study and experimentation on the use of drones for cetacean monitoring in the ACCOBAMS Agreement Area — Lead author, researcher
- **2017–2019** · European Union Horizon 2020
SYMBIOSIS – A holistic opto-acoustic system for monitoring marine biodiversity — Co-author, researcher
- **2017–2019** · Israel Ministry of Agriculture and Rural Development (Fishery & Mariculture Division)
Assessment of jellyfish swarm size and movement relative to fish farms — Lead author, researcher