

Newsletter

WINTER 2023

The Leon H. Charney School of Marine Sciences

GREETINGS FROM THE HEAD OF THE SCHOOL

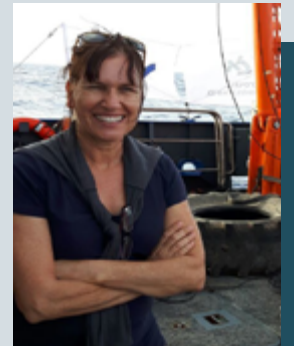
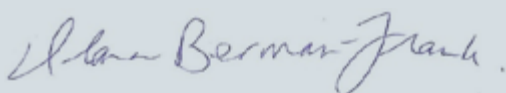
March 2022 marked a stepping stone with our new academic independence. This means opportunities for growth and development, and also more integration and collaborations throughout the University of Haifa on issues regarding the maritime domain and the sustainability of our marine resources. Our students are our lifeline and the next generation of experts of the marine realm. To this end, we are striving hard to procure more scholarships and to keep our programs up to date with new topics, techniques, and tools that will attract and facilitate the training of excellent students. We are also continuing to expand and promote collaborations both nationally and internationally. I am very excited to have recently returned from the UN's annual climate conference COP27 in Sharm El Sheikh, where we had representative scientists such as Prof. Gil Rilov from the Department of Marine Biology presenting his research and leading discussion sessions on the Mediterranean. I am especially proud to have also used this occasion of global attention to climate change issues to have signed a first-of-its-kind MOU with two universities from the United Arab Emirates (United Arab Emirates University and Khalifa University) and with our partners in the Helmholtz International Centre (EMS-FORE), the Germany-based GEOMAR Helmholtz Centre for Ocean Research Kiel.

The Trilateral collaboration will extend the existing partnership between GEOMAR and Haifa on the project EMS FORE (www.emsfore.eu). This UN Decade of the Ocean project focuses on the impacts of climate and pollution pressures in the Eastern Mediterranean Sea. The inclusion of the UAE institutes in the EMS FORE work in the Eastern Mediterranean and our extension into the Arabian Gulf will facilitate our understanding of these marine systems.

Moreover, I believe that our plans to combat climate change impacts via partnerships from the Mediterranean and the Arabian Gulf are especially crucial in geographical regions of cultural/political/religious conflicts where joint work on sustainable use of marine systems will benefit all populations and can help to build bridges, establishing trust and partnerships for a better future.

As a finale – I was extremely proud to represent the Charney School of Marine Sciences at the University of Haifa's recent events in NYC, highlighted by the conferment ceremony at NYU of Prof. John Sexton from NYU and former President of the USA – William Jefferson Clinton. Walking in the academic procession with the bagpipers from NYU, being on stage with the delegation from the University of Haifa, watching the big screen showcasing some of the School's research and faculty, and participating in the award ceremony were exciting and emotional moments.

Sincerely,





After signing the MOU between Khalifa University, UAE University, GEOMAR, and the U. of Haifa: from Left to right - Gaba Abdulla Mohammad Al Aslai, Senior Executive, International Relations (UAE Ministry of Climate Change and Environment); Philippe Maupai (Head of Science and Protocol. German Embassy in Cairo); Dr. Fahad Almaskari (Office of Executive Vice President – Khalifa University);

German Ambassador Frank Hartmann; Prof. Ghaleb Alhadrami Albreiki (Acting Vice Chancellor UAE Univ); Prof. Mouna Maroun (Vice President and Dean of Research, University of Haifa); Prof. Ilana Berman-Frank (Head, Leon H. Charney School of Marine Science University of Haifa); Ms. Hila Elroy (Chief Relations Officer, Univ. of Haifa); Ms. Sharon Liper (Administrative Director, Leon H. Charney School of Marine Science University of Haifa)



The conferment ceremony at NYU for John Sexton and Bill Clinton. The delegation from the University of Haifa and a personal greeting to Clinton.



Fitting in with the sustainable development goals (SDGs) at the UN Climate Change Conference in Sharm-El-Sheik. Vice President and Dean of Research Mouna Maroun, Prof. Gil Rilov – Dept. of Marine Biology, Sharon Liper – Director of Administration, and myself

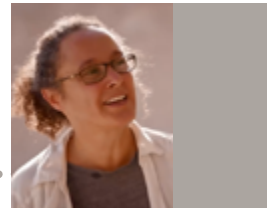


NEWS FROM DEPARTMENT HEADS

Dr. Moses Strauss Department of Marine Geosciences

Dr. Revital Bookman

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We started a new academic year with 10 new MSc and PhD students and 2 postdocs. We welcome them all, and celebrate their choice to join our department!

Over the summer, we did not rest while our many research activities continued. The annual educational cruise sailed to sea with a group of enthusiastic students inspired by research questions on oceanographic processes shaping the shelf and deep seabed of the southeastern Mediterranean. The group, led by Dr. Mor Kanari, had the opportunity to practice sediment cores collection and geophysical methodologies.



Participants of the summer 2022 Educational cruise to the Mediterranean

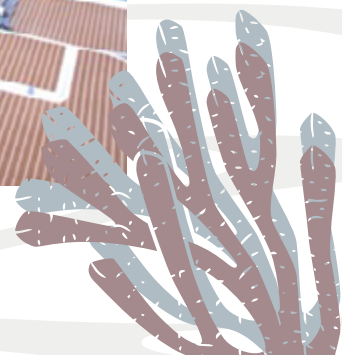
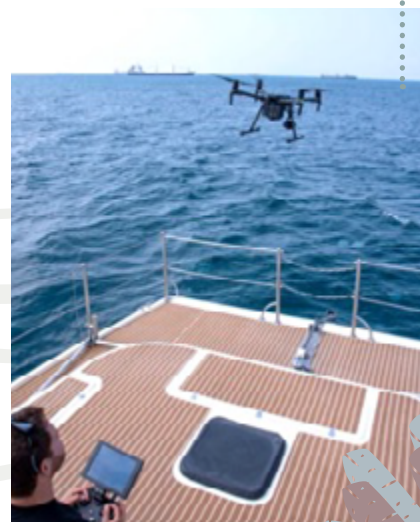


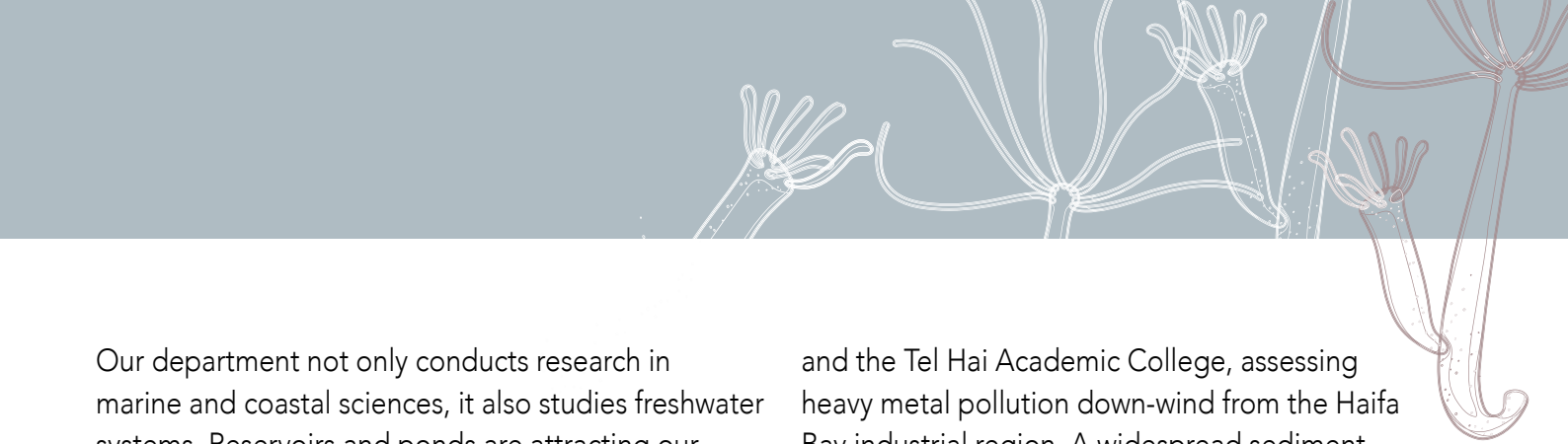
Working on board the R/V Bat Galim during the Educational cruise

Dr. Yoav Lehahn and Dr. Gur Mizrahi presented our first Drone Certification Course this August. In the course, the students were acquainted with the world of unmanned aerial systems (drones) and their operation and gained the theoretical knowledge and the practical experience required for professional operation, focusing on their implementation in scientific and environmental research.



Lena, Marina, Liad and Dr. Gur Mizrahi taking a picture using the drone camera. Drone used for Dr. Lehahn's research on quantifying motions and spatial characteristics of the jellyfish *Rhopilema nomadica* along the Israeli coast of the Eastern Mediterranean.





Our department not only conducts research in marine and coastal sciences, it also studies freshwater systems. Reservoirs and ponds are attracting our curiosity. New seed money has funded a project for a collaboration between the University of Haifa

and the Tel Hai Academic College, assessing heavy metal pollution down-wind from the Haifa Bay industrial region. A widespread sediment collection campaign will be analyzed for pollution by Ekaterina Fishman, a new MSc. student in the department.



Ekaterina, Dr. Zohar, and Dr. Bookman sampling the beautiful natural Zaqum Pond at the Southern Jordan Valley.



New publications by our researchers and students have been presented in the international arena including an editorial in *Frontiers in Earth Sciences* by Dr. Regina Katzman on the lifetime of methane bubbles through sediment and water column. Dr. Michael Lazar headed a paper in *Quaternary Research* on the changing coastal environments and human interaction in the earliest Pottery Neolithic settlements at the Carmel Coast.

Dr. Lazar's students exploring the costal subsurface, looking for the connection between environmental change and human settlement patterns

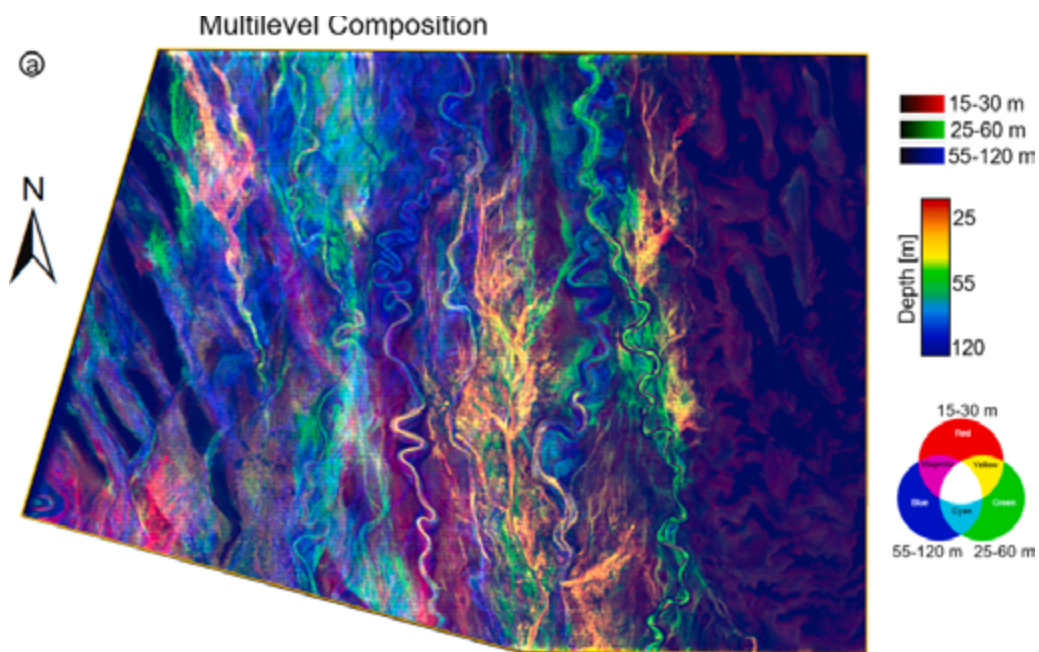


And an international group led by Prof. Yizhaq Makovsky published a colorful paper in Marine and Petroleum Geology on characterization of features, based on their spatiotemporal distribution in 3D seismic data.

The multilevel composition visualizes and resolves the complexities of buried clastic deep-water

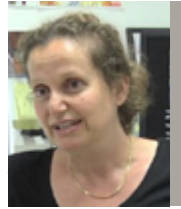
depositional elements in the eastern Nile fan as presented by Muhedeen Lawal, a PhD student in the Applied Marine Exploration Laboratory headed by Prof. Makovsky.

Lastly, the Department wishes for all to continue doing excellent science with our students and with our Israeli and international colleagues.



The Department of Marine Biology

Prof. Smadar Ben Tabou de Leon

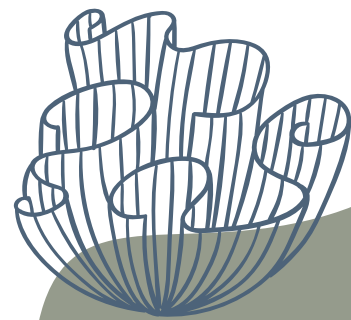


I am excited to write in this newsletter as the new head of the Marine Biology Department. I would like to thank the former head, Tamar Lotan, for all the great things she did for the department and the students in the past five years: The wonderful annual retreats, the consolidation of our curriculum, the way you made sure that the students graduated on time – Tami, you really pushed us forward! I am also thrilled to welcome our new faculty member, Dr. Igal Berenshtein, who adds to our Department the important aspect of modeling motion in the ocean – from larval movement to oil spill progression.

I would like to congratulate Dr. Tal Luzzatto Kanaan for winning the Dusty and Ettie Miller Fellowship for Outstanding Young Scholars for 2022, and Federica Scucchia, PhD candidate at the lab of Prof. Tali Mass, for receiving the Oren Berko scholarship for excellency at the IUI. I was very fortunate to be on the team that won the PBC (VATAT) grant for equipment that will enable the establishment of the Facility for Super-Resolution Microscopy of Distinct Cell Populations, that I hope many of us will use.

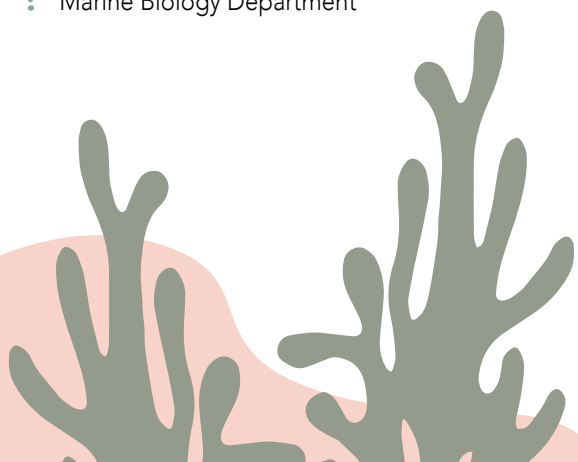


Federica Scucchia from the lab of Prof. Tali Mass receives the Berko Scholarship for Excellency at the Award Ceremony at IUI



The annual retreat of the Marine Biology Department

The Department had been very productive this year with the publication of more than 40 papers on diverse topics, from marine bacteria metagenomics, through coral and sea urchin biomineralization, to the physiological adjustments of sharks to ocean acidification. I would like to specifically congratulate Prof. Daniel Sher and Dr. Luzzatto Kanaan for the publication of their paper "Single-cell measurements and modelling reveal substantial organic carbon acquisition by *Prochlorococcus*" in *Nature Microbiology*. I wish that all our members and students will continue to do a great job and will have a successful and productive new academic year!



The Hatter Department of Marine Technologies

Prof. Morel Groper



The Hatter Department of Marine Technologies resumed its experimental work and seagoing activities following the easing of the COVID restrictions.

During 2022, the Underwater Acoustic and Navigation Laboratory (ANL) headed by Prof. Roee Diamant has been active in the fields of monitoring marine animals and secure underwater acoustic communication. This year, ANL research performed over 20 sea-going experiments in Israel, Portugal, Croatia, Dominica, and Ecuador. The laboratory's main achievements included a design and implementation of a full scale system for the detection and localization of sperm whale signals that works and runs off the island of Dominica; the design and verification of a long range underwater acoustic communication scheme that carried much attention in the NATO conference for underwater technologies; a systematic proof that coastal dolphins are impacted by vessel noises, which sets the basis for the monitoring of noise pollution and which was presented to the IMO; a design of a cyber security protocol for key exchange for underwater acoustic communication that was adopted into a NATO standard; and leading an underwater acoustic localization challenge as part of a major underwater robotic conference.

In the SUBSEA laboratory, headed by Prof. Morel Groper, the work on the development of new technologies for autonomous underwater vehicles resumed in full scale and more than five sea trials were performed, both in the Mediterranean and the Red Sea (Fig. 1).

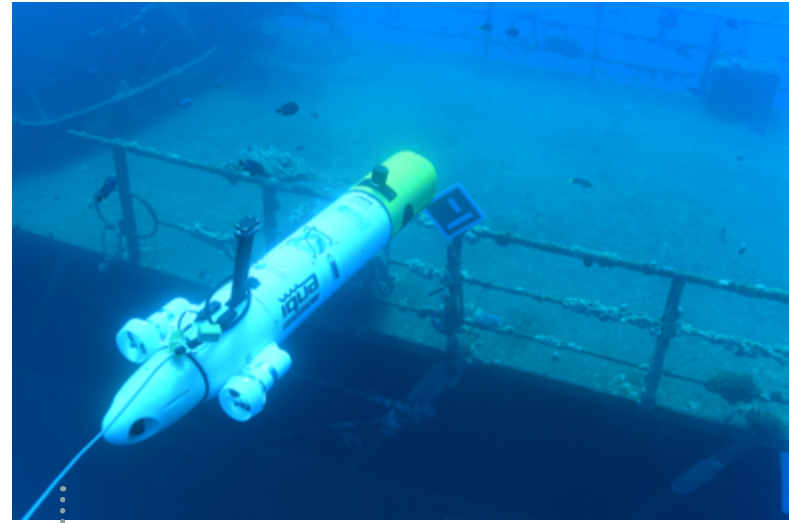


Fig 1. ALICE AUV at sea trials in the Red Sea

The results are very encouraging and much effort is being put into a significant demonstration to the Israel Ministry of Science and Technology and the US Navy, scheduled for February 2023. Allaka Himabindu completed her PhD in the lab and returned to India. During her PhD studies, Dr. Himabindu was the main author of four full journal papers, which were published in excellent journals. Allaka was then recruited by the Indian L&T conglomerate company where she will continue her research and development work on autonomous surface crafts. As a part of the Hatter Department of Marine Technologies, the Laboratory for Computational Optics and Light in the Ocean Realm (COLOR Lab) was established in February 2022 under the direction of Dr. Derya Akkaynak. The COLOR Lab is located at the Interuniversity Institute of Marine Sciences in Eilat and will primarily study computational and biological vision underwater, with the main goal of developing technologies to investigate the structure, function, and mechanism of colors on the benthic ocean. As of November 2022, the COLOR Lab has 2 research interns (from Turkey and US), 2 MSc students (from Germany and Israel), 2 postdocs (from Iceland and Russia), and two students jointly advised from the Technion and BGU (Fig. 2).



Fig. 2: COLOR Lab. Crew

In the VISEAON laboratory headed by Prof. Tali Treibitz, Naama Pearl presented her MSc thesis in which she developed a novel algorithm for burst denoising underwater high motion and strong noise (Fig. 3). The paper was published in the IEEE conference for Computer Vision and Pattern Recognition (CVPR) 2022. This is the main conference in computer vision, with only 22% acceptance, and is rated #4 in overall publications (in all fields) by Google Scholar, which ranks Science at #3. For the Applied Marine Exploration Laboratory (AMEL), headed by Prof. Itzik Makovsky, the period was extremely productive. The AMEL published 12 papers in reviewed international journals, out of which eight carry the Hatter Department affiliation. Two of these papers are led or co-authored by Hatter-funded students. In November 2021, Prof. Itzik Makovsky was the co-chief scientist of a second ROV cruise to our newly discovered deep-sea habitation hotspot in Palmahim Disturbance. This time the ROV was utilized for a pervasive set of sampling, measurements, and operations that are now the basis for analysis and collaboration in 10 different scientific institutes in Israel and abroad (first paper already out.) Moreover, Israel's prime TV team was hosted onboard the research ship,

leading to extensive public exposure of our activities and their societal contribution. Moreover, these findings prompted the international Blue Mission organization, led by Dr. Silvia Earle, to declare Palmahim Disturbance as a global Point of Hope. In September 2022, following our work and its echoes, the Palmahim Disturbance area has been declared as a marine protected area (MPA), the largest by far in Israel and the first established in the Exclusive Economic Zone outside territorial waters. The Autonomous Navigation and Sensor Fusion laboratory (ANSFL), directed by Dr. Itzik Klein, continued to develop, and currently comprises a team of 26, including 10 PhD students and 12 master's students. ANSFL research focuses on artificial intelligence based, inertial sensing in a wide range of applications including autonomous underwater vehicle navigation. Recently, data-driven approaches applied in various fields show state-of-the-art performances, compared to model-based methods. In May, the lab held a lab exposure event, highlighting ANSFL's research through lectures, posters, and live demonstrations for an audience of 50 people from academia and industry.

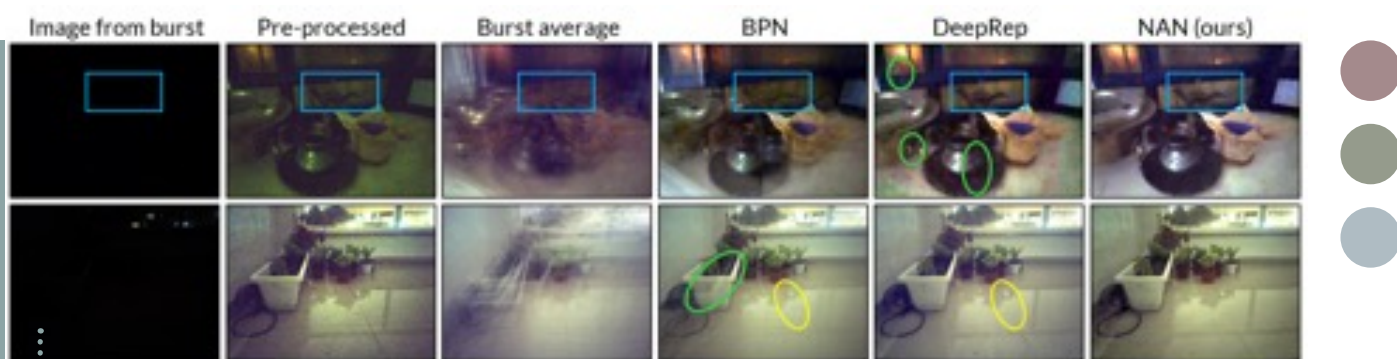


Figure 3. Results of the MSc thesis of Naama Pearl. Burst denoising in challenging real-world low-light scenes. The dark burst images, scaled before processing, contain high levels of noise and significant camera motion that can be seen in their averages. The results of both BPN and DeepRep are generally blurrier and lack detail compared to those of NAN, the proposed method. Blue rectangles mark a clear example for comparison. Green and yellow ellipses show artifacts and missing detail correspondingly in competitor results.



WELCOME NEW FACULTY

Dr. Igal Berenshtein

Head of the Marine Ecology and Ocean Health Lab
The Department of Marine Biology

Dr. Berenshtein is a quantitative marine ecologist and a bio-physical oceanographer, studying complex interactions in the ocean. He addresses fundamental scientific and environmental questions concerning the marine environment by combining oceanography, data-science, numerical modeling, and sensory ecology. Dr. Berenshtein completed his first post-doctoral position at the Rosenstiel School of Marine, Atmospheric, and Earth Science, at the University of Miami. During this time, Dr. Berenshtein led innovative research, which revealed that the Gulf of Mexico's (GoM) Deepwater Horizon (DWH) oil spill was substantially larger than previously estimated and consisted of vast toxic regions that were previously not considered to be contaminated. During his second post-doctoral position at the Cooperative Institute for Marine & Atmospheric

Studies (CIMAS), at the University of Miami, Dr. Berenshtein led the development and calibration of an ecosystem model of the GoM, examining the effects of forage fish harvest on their predators. In his research, he focuses on the contribution of early life stages of fish to large scale ecological processes, as these stages often drive population dynamics, while at the same time representing one of the greatest knowledge gaps in marine ecology.



MEET OUR STUDENTS

Welcoming our new Bloom Scholarship fellow John Kingsley,
PhD candidate, Department of Marine Geosciences

My name is John Kingsley, and I am delighted to be a recipient of the prestigious Bloom Scholarship fellowship for my PhD research, mentored by Dr Nicolas Waldmann, at the Department of Marine Geosciences. The Bloom Scholarship provides funding for sustainable research in the era of climate change and environmental uncertainty. My PhD research is titled "Reconstructing paleoenvironment of the Levantine corridor during the Pliocene, using the lacustrine record of the Erkel-Ahmar Formation, exposed in the Jordan Valley." My aim is to refine the chronology of the sites through the amalgamation of a series of techniques (e.g., astronomical tuning), to obtain proxies of environmental conditions in all the investigated sites. I will accomplish this through high resolution decoupling of climate from non-climate controlled sedimentary processes, to reconstruct millennial-

scale precipitation indexes for the Pliocene records in the investigated sites through multiproxy integration in an interdisciplinary fashion, and to synthesize the retrieved datasets into comprehensive paleoclimate models. In addition, my proposed research will amalgamate continuous core sequences from Erkel Ahmar (EEA) with a high-resolution outcrop study to recreate



paleoenvironmental conditions in the Levantine Corridor during the Late Pliocene. The site, which has been a cosmogenic isotope - dated to ~3.5-4.5 Ma, offers a unique chance to investigate optimal climatic windows of increasing humidity in the region during a period of increased CO₂ in the atmosphere and is an analogue to the Holocene climate warming.



Parth Shah is a final year PhD student under the supervision of Dr. Nicolas Waldmann at the Dr. Moses Strauss Department of Marine Geosciences. His

research focuses mainly on sedimentary records as indicators for environmental and climate changes with special focus on understanding monsoon variability over different timescales. He recently published an article from his PhD work in the journal

of *Frontiers in Earth Sciences* titled "Reconstructing 1200 years of Hydroclimate Variability in the Southern Margins of the Arabian Desert: Insights from a Paleo-Lake in Southern Yemen." Being the first of their kind, the investigations provide the first continuous lake record from Yemen in an attempt to show fluctuation in the precipitation/rainfall regime during the late Holocene. This study aids to evaluate the different solutions being proposed and to help define a long-term management strategy for water resources in a climatic sensitive zone like southern Arabia.



Picture description: Picture of one section of the core retrieved in Lake Gayal ba Wazir, southern Yemen.
Picture credits: LacCore



Adeola Ibukunoluwa Samuel is a PhD Student at the University of the Western Cape (UWC) in Cape Town (South Africa). He earned his BSc degree in Geology and Mineral Sciences at Crawford University (2014) with

internship experience in Biostratigraphy at the Earth Probe Nigeria Limited. After the NYSC compulsory programme, he attained a Masters degree (MSc) in Petroleum Geoscience at Heriot Watt University in Scotland (UK), where he gained experience in the use of TechLog, integrating CRS maps for well

evaluation, Crystalsleuth, and other field experience. He was also involved in a collaboration project on the Wessex Basin that won a Best Group Chevron Award. Ibukunoluwa is goal driven, loves nature, adventure, and enjoys music. His research interests are premised on sedimentology, geochemical characterization, paleo-environments, and petrophysics. In addition, Adeola also was one of the few scholars who were awarded the one-year PBC Sandwich International Scholarship. During this coming academic year, he will be working and gaining laboratory experience at the Department of Marine Geoscience's Petrophysical and Basin Analysis laboratory (PetroLab) mentored by Dr Nicolas Waldmann.

CONGRATULATIONS

Congratulations to our faculty for newly funded grants:

Principal investigator	Project name
L. Steindler	SAR11 as a model system to understand potential effects of phosphonate cycling on methane emissions IN FUTURE WARMER OCEANS
S. Ben-Tabou de-Leon	Facility for Super-Resolution Microscopy of Organisms and Distinct Cell Populations
B. Goodman Tchernov	Sedimentological Indicators in Deposits
R. Diamant	<ul style="list-style-type: none">- Design of Acoustic Tag for Sea Turtles- Swarm of Floaters for Distributed Acoustic Monitoring of Fish Population for Sustainable Fishery- Internet of Underwater Things
D. Akkaynak	<ul style="list-style-type: none">- Colorblind camouflage: A new look at an old problem- Real colors, real-time: Building the Sea-thru camera- Operational sensing life technologies for marine ecosystems- Automatic Fish detection and identification with generative perception- Mapping chromatic diversity to primary productivity: a new, imaging-based approach to identify carbon sinks in the oceans- Equipment for the Computational Optics and Light in the Ocean Realm Lab
T. mass, Z. Zemah-Shamir	Impact of climate change on ecosystem services in the Gulf of Eilat -Economic environmental assessment
D. Tchernov, E. Bigal	Distribution and habitat-use of Atlantic bluefin tuna in the Mediterranean marine space of Israel
D. Tchernov, M. Shpigel	Demonstration of innovative functional food production systems based on a sustainable value chmarine and freshwater raw materials for conscientious European consumers
I. Klein	<ul style="list-style-type: none">- AI based magnetic fingerprinting and anomaly detection- Hybrid learning approaches for quadrotor inertial navigation and sensor fusion
A. Scheinin	Deep Water Marine Mammals Survey in the Israeli EEZ
L. Livne	Acoustic receiver deployment and came and release training
R. Diamant, D. Morick A. Scheinin, L. Livne	Exploring fish responses to underwater sound from seismic surveys Where do they come from, where do they go? Tracking sandbar shark movements and habitat use in the Mediterranean Sea

Dusty and Ettie Miller Fellowship 2022 Award goes to Dr. Tal Luzzatto-Knaan

In a festive ceremony, The Dusty and Ettie Miller Fellowship was recently awarded to Dr. Tal Luzzatto-Knaan (Department of Marine Biology), for her cutting-edge research in metabolomics. Luzzatto-Knaan's Lab explores the communication "chemistry" in algae and bacterial interactions, as well as the functional role of these molecules. She hopes that exploring the regulation, diversity, and distribution of natural products in algae microbes will lead to marine based medicinal applications. In addition to her academic activities, Dr. Luzzatto-Knaan heads the emerging Interdisciplinary Center for Metabolomics and Natural Products at the University, and is a

member of the "Homeward Bound" Women in STEM Leadership initiative.



*The Dusty and Ettie Miller Fellowship Award has been awarded annually since 1991 by the Miller family from the UK to outstanding researchers at the University of Haifa.

Congratulations on faculty promotions and hires

Nicolas Waldmann - Associate Professor

Congratulations to our student

Tom Reich for receiving a step fellowship

The STEP programs' main mission is to use the scientific platform to bridge relationships between Palestinians and Israelis. They fund graduate degrees of pairs from both worlds that collaborate in an academic environment to demonstrate how these partnerships can prosper and foster enduring relationships of respect, trust and professionalism. So as STEP Fellows, my partner, Hala Abu Ali a student of Ben-Gurion University and myself from University of Haifa, are encouraged to collaborate on a few levels. We are both PhD students that work in the same lab in the Israel Oceanographic and Limnological Research institute. We come from different academic backgrounds that can complement each other. Hala is a chemical engineer and I am a biological oceanographer and both our projects demand chemical and biological analysis. This is where we help each other on a professional level. Through our common work and STEP's guidance we have built a friendship that allows us to address issues beyond academic research that concern our unique political landscape. We meet on



a regular basis to talk and work, help one another and give any support we can give. This ongoing interaction has given me both a much needed help with my research, has deepened my perspective on the Palestinian/Israeli situation and has given me a friend that I might not have now had if not for STEP.



Hala Abu Ali (Ben-Gurion University) and Tom Reich (University of Haifa) as STEP partners

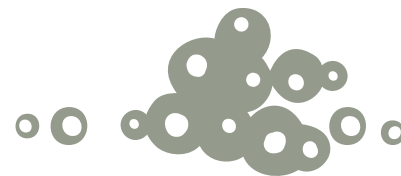
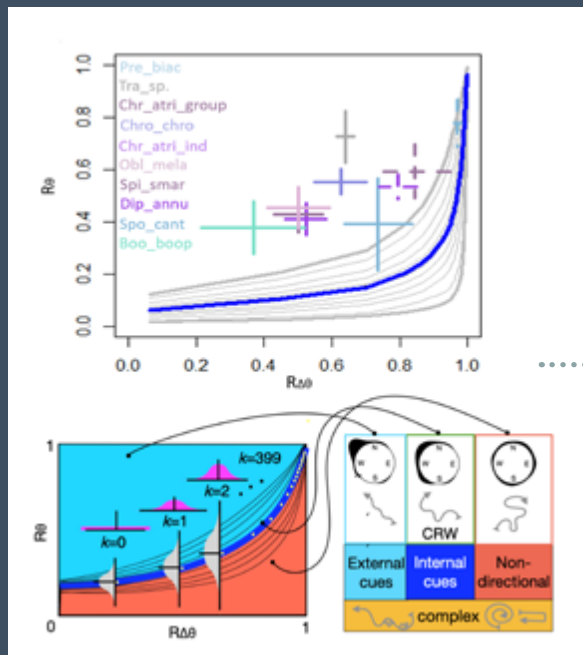
RESEARCH HIGHLIGHTS

Evidence for a consistent use of external cues by marine fish larvae for orientation

The Marine Ecology and Ocean Health Lab, Dr. Igal Berenshtein

In this paper, we examine the fundamental question of whether larval fish use external cues for orientation. We utilize a vast dataset of more than 800 larvae of 21 species, synthesized from data of eight previously published studies. We find strong

supportive evidence for a consistent use of external cues for orientation by fish larvae in the pelagic environment. These findings substantially increase our understanding with respect to the fundamental mechanism by which larval fish find their way in the pelagic environment. This finding emphasizes the need to better understand the environmental cues available for larval fish, and how natural and anthropogenic stressors may affect these cues and alter larval dispersal patterns.



Caption: CRW-vm - A quantitative method to examine if larval fish use external cues for orientation. Y-axis and X-axis represent the precision of orientation of the swimming directions, and the turning angles, respectively. Contours represent quantiles expected under a strict use of internal cues, and blue curve represents the mean of that distribution. Crosses of different colors represent mean \pm 95 Confidence Interval of species-specific larvae. In other words, if larvae were using only internal cues, the observed patterns would have been distributed equally above and below the blue curve; the fact that all crosses are above the curve supports the hypothesis that larval fish use external cues for orientation.



Photo by Kahi Kai of the sea bream *Oblada melanura* (Family: Sparidae) post-flexion larval stage from the Mediterranean, looking at its reflection on the surface. Special thanks to Dr. Robin Faillettaz.

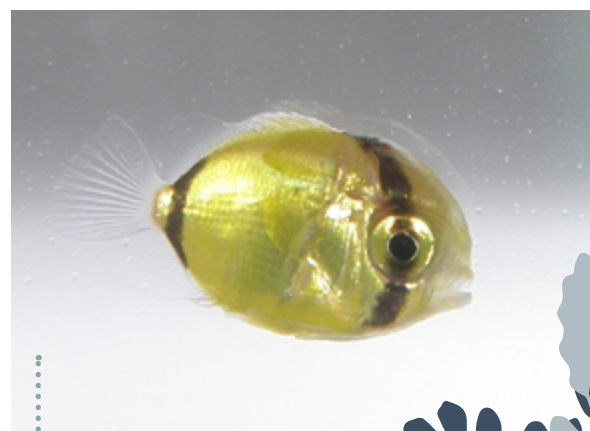
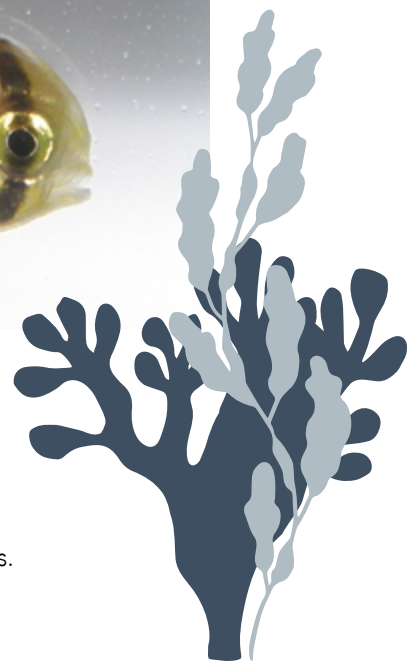


Photo by Colin Wen of the butterflyfish *Chaetodon plebius* (Family: Pomacentridae) post-larval from the Great Barrier Reef. Special thanks to Prof. Jeff Leis.



The Marine Microbiology Lab, Prof. Laura Steindler

Chiara Conti, PhD student at Steindler Lab

The sky clears up with shades of pink and orange as the sun rises from the calm waters of the bay. "Guten tag!" greets a cheerful voice at 5am at the beach lab. Germany? No, Italy! I am in a research field trip at the beautiful Elba Island (yes, where Napoleon got exiled), together with a group of microbiologists from the Max Planck Institute (Bremen, Germany). They are investigating methanogenesis in seagrasses and sediments, and I joined them to run experiments on marine sponges. In fact, our lab found that some sponge symbionts encode and express genes related to methane biosynthesis using, as substrates, organic compounds common in seawater: methylamines and methyl phosphonate. Now the question is: is the production exceeding oxidation or vice-versa? Considering that methane is a potent greenhouse gas, discovering the role of sponges in

the marine methane cycle is essential for a better assessment of their broad ecological impact. To answer these questions, I am incubating sponges with different isotope-labeled substrates required for aerobic methanogenesis. And here I am, at 5 in the morning, sampling seawater from the incubation chambers, with a calm marine landscape under the colour palette of the dawning sky out of the window.



Subsampling from the incubation chamber the water surrounding the sponge that will be analyzed to verify production/consumption of methane. Photographer: Sina Schorn



Dawn view of the bay at the field station (Fetovaia, isola d'Elba)



CONFERENCES/WORKSHOPS

The Blue Economy Workshop – An EU funded program (Switchmed)

Coordinated by Sharon Liper, Director of School Administration



This past September, the festive closing session of the first cohort of the "Switchmed" Blue Economy Entrepreneurship Workshop was held.

The Blue Entrepreneurship Program is the first of its kind in Israel, led by the University of Haifa Leon H. Charney School of Marine Sciences and Innovation Labs.

The Program is funded by the European Union and is run in collaboration with the Entrepreneurship Center at Tel Aviv University and the "Green Business" organization; it aims to develop ventures and innovations related to the sea

The Program included seven meetings where blue economy business models were developed to facilitate and encourage the establishment of blue growth projects and to promote a blue economy in the Mediterranean region.

Participants were given tools to create a triple profit line: business value, value to customers and reduced environmental damage.

The workshop was attended by 25 entrepreneurs from all over the country, including postgraduate students in the marine disciplines, relevant organizations, marine and technology enthusiasts, and other professionals.

The first cohort consisted of 9 women and 16 men from all over Israel, about 40% with master's degrees and 30% with third degrees.

In the final event, DEMO-DAY, about 15 different projects were presented to a panel of distinguished judges from the industry, and three winners were selected. In the next stage, a business consultant will guide one of the selected projects in developing a business plan.

The panel included: **Dr. Efrat Shafer**, former president of Philips Israel, **Ms. Michal Handel-Sofa**, head of value creation at the DOCK, **Lior Hanuka**, CEO of Hi Center Ventures, **Mr. Yoram Avidan**, CTO-Citi Innovation Lab & Citi Ventures, and **Dr. Shay Einbinder**, entrepreneur and director of the Morris Kahn Marine Research Station at the Leon H. Charney School of Marine Sciences.

This wonderful workshop encourages and fosters blue economy innovation both regionally and nationally and its success has already spurred a second workshop planned for the coming spring.



SAVE THE DATE:

10th Haifa Conference on Marine Sciences: SeaAI: Artificial Intelligence and Sea

The 10th edition of the Haifa Conference on Marine Sciences will take place (in-person) on June 20th 2023 with the theme: SeaAI: Artificial Intelligence and Sea. SeaAI is intended to provide a forum for research scientists, engineers, and practitioners throughout the world to present their research findings, ideas, and applications in the areas of Artificial Intelligence

and Sea. SeaAI will include keynote speeches and invited presentations by renowned scientists and engineers. SeaAI exhibit area will provide companies and other organizations with an opportunity to display and promote products, services, equipment, books, journals, publications, and/or other items to attendees from around the world.

SeaAI Artificial Intelligence and Sea

June 20, 2023
University of Haifa, Israel



CALL FOR PAPERS

Organizing Committee

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Israel

Anna Zamansky
University of Haifa, Haifa, Israel

Dan Tchernov
University of Haifa, Haifa, Israel

Important Dates

February 10, 2023
Special Sessions Proposals
Deadline

March 10, 2023
Abstract Submission Deadline

April 10, 2023
Notification of Abstract
Acceptance

May 20, 2023
Submission of Final Abstracts

The 10th edition of the Haifa conference on marine sciences will take place (in-person) on 20th of June 2023 with the theme of: **SeaAI: Artificial Intelligence and Sea**. SeaAI is intended to provide a forum for research scientists, engineers, and practitioners throughout the world to present their research findings, ideas, and applications in the areas of Artificial Intelligence and Sea.

SeaAI will include keynote speeches and invited presentations by renowned scientists and engineers.

Conference topics include:

- Artificial Intelligence in Ocean Science and Technology
- Emerging Sensor Technologies for Sea Applications
- Sensor Data Processing and AI
- Intelligent Robotic Systems
- Robot sensors, vision and perception
- Marine sensing and robotics
- Marine Biology and AI
- Underwater acoustics and sonar with AI
- Marine environment, oceanography, and meteorology
- Blue economy and AI
- Applied Data Science and Engineering
- Deep Learning
- Reinforcement Learning
- Transfer Learning
- Computer Vision
- Graph Mining
- Big Data Analysis
- Statistical Learning
- Data Visualization
- Education, Sea, and Data Science
- Data Integration

Exhibition Opportunities

SeaAI exhibit area will provide companies and other organizations with an opportunity to display and promote products, services, equipment, books, journals, publications, and/or other items to attendees from around the world.

•For further information contact: SeaAI@univ.haifa.ac.il

GENERAL INQUIRY

✉ marine-info@univ.haifa.ac.il



Please visit: marsci.haifa.ac.il/en/seaai-conference

FROM THE MEDIA

Link to the full media coverage of CSMS activities:

[**marsci.haifa.ac.il/en/school/news/**](https://marsci.haifa.ac.il/en/school/news/)



Selected articles:



Israel's Dead Sea filled with microplastics, garbage - study 6.12.22

Huge amounts of plastic waste have been discovered at the mouth of the Kidron Stream that abuts the Dead Sea's waterline, according to researchers from the Charney School of Marine Sciences who studied impurities in the salty lake. The research takes place as part of a course that uses advanced technologies, including drones, which is taught by Mizrahi, Dr. Yoav Lehan, and Dr. Anna Brock. Its purpose is to locate plastic pollution and examine its impact on the annual drop in the level of the Dead Sea.



What would you say to a whale? 5.5.22

The Wired magazine published an article on project CETI, an ambitious project aimed at decoding the language of sperm whales. CETI is managed by Prof. Dan Tchernov (Marine Biology Dep.), and includes the building of three large acoustic moorings by the Underwater Acoustic and Navigation Laboratory, headed by Prof. Roee Diamant (Marine Technology Dep.) The data from the moorings is analyzed in real-time to detect and localize the whales by their sounds.



Deep-sea wonderland in Israel is declared a Hope Spot 25.7.22

Dr. Yizhaq Makovsky of the Dr. Moses Strauss Department of Marine Geosciences led a series of international studies over the last decade that found the Palmahim Slide, a biodiversity hotspot off the coast of Tel Aviv. In July, the Palmahim Slide (also called a Disturbance) became the first Israeli Hope Spot designated by Mission Blue, oceanographer Sylvia Earle's organization dedicated to exploring and protecting significant marine areas.



MARINE GEOSCIENCES: Mapping sea change 1.7.22

Dr. Beverley Goodman-Tchernov's research (Dr. Moses Strauss Department of Marine Geosciences) was recently featured in a Science article highlighting researchers at Israeli universities making world-wide impact. Goodman-Tchernov's work applies earth sciences techniques and archaeological information to reconstruct past coastal configurations, events, and environmental change. analysis methods, we hope to gain a better understanding of what happened to the area after the explosion." The study was published in the Proceedings of the National Academy of Sciences (PNAS)