**Academic report – Erudite scholar in residence of Dr. Lisa Levin**

Dr. Lisa. A. Levin, Director and Oliver chair, Centre for Marine Biology and Conservation, Scripps Institution of Oceanography, USA visited the Department of Marine Biology, Microbiology & Biochemistry, School of Marine Sciences, Cochin University of Science and Technology as erudite scholar during the period 24th to 31st March 2018. Dr. Levin has worked with a broad range of taxa, from microbes to fishes. She is the author or co-author of more than 235 scientific publications. Dr. Levin is currently an Associate Editor of Science Advances, and has served as editor and contributor of top indexed scientific journals in oceanography and earth sciences. Dr. Levin is a ‘Fellow of the Association’ of AAAS in Biological Sciences and Fellow of the American Geophysical Union. Dr.Levin is a member of several international scientific organisations like ChESS, CoMARGE, SCOR, SCOPE, NCEAS, and INDEEP. Within UCSD she has won the Chancellor’s Associates Faculty award for Excellence in Research and also presently the inaugural holder of the Elizabeth Hamman and Morgan Dene Oliver Chair in Marine Biodiversity and Conservation Science at Scripps Institution of Oceanography.The official inauguration of Erudite Scholar in residence programme was conducted on 26th March, 2018 at the main auditorium of the Central Institute of Fisheries Nautical and Engineering Training (CIFNET), Kochi. Dr. S. Bijoy Nandan, Professor and Head, Department of Marine Biology, Microbiology & Biochemistry welcomed the gathering and the programme was presided over by Prof. (Dr.) J. Letha , Vice Chancellor, Cochin University of Science and Technology. During the presidential address Vice Chancellor commented on the relevance of knowledge interchange through the schemes like erudite. Inaugural address was delivered by Shri C.N. Ramachandran Nair, Former justice, High Court of Kerala and Chairman, Kerala Dam Safety Authority. Erudite scholar Dr.Lisa A. Levin addressed the gathering and expressed deep sense of gratitude for inviting her for the same to the department. The ceremony was felicitated by Prof. (Dr). A.V.Raman, Emeritus Fellow UGC, Andhra University, Dr. N. Saravanan, Scientist, CMLRE, MoES, Govt. India, Kochi, Shri. A. K. Choudhury, Director, CIFNET, Kochi, Prof.(Dr). A.N. Balchand, Dean, School of Marine Sciences, CUSAT, Prof.(Dr). N. Chandramohanakumar, UGC Emeritus Fellow and Syndicate member, CUSAT. Faculties, research scholars and students from the school of Marine sciences, CUSAT, students from CIFNET and nearby research institutes such as National Institute of Oceanography (NIO) and colleges attended the programme. Nearly 200 people attended the programme. The inaugural section was followed by lecture series of which first was a public lecture on *Deep ocean industrialization and Biodiversity Challenges of the 21st Century.*During the lecture Dr. Lisa discussed on the status of marine biodiversity, scopes of deep ocean studies and its industrialization. The lecture included deep ocean life motion pictures and recent discoveries in deep ocean biodiversity studies. Second lecture in series was conducted on the same day afternoon by 2.00 pm at the CIFNET auditorium and was attended by faculties, research scholars and students from the school of Marine sciences, CUSAT, students from CIFNET, nearby research institutes and colleges. The lecture was on the topic *Ocean Deoxygenation - an unrecognized climate challenge* which discussed on oxygen minimum zones (OMZ) and its extend in the world oceans. The scholar described her experience in studying various oceanic environment on the aspects of oxygen minimum zones and its spreading. She also highlighted on the spreading of OMZ in the Arabian sea and its possible implications in marine environment. The lecture was followed by productive discussions from the audience and clarification of queries. Around 180 people attended the lecture. Third lecture was organized at School of Marine Science auditorium, CUSAT at 27th March, 2018 10.00 am. The lecture was on the topic *Methane Seep Ecology and Ocean roles.* During the lecture the speaker elaborated on the importance of understanding cold seeps and methane production. Elaborative and impressive pictures on the methods of studying cold seeps in the ocean bottom were put on display during the lecture. Chemosynthetic production patterns in the methane seeps were also discussed. Nearly 120 people including the faculties, research scholars and students from Department of Marine biology, Microbiology and Biochemistry and adjoining departments attended the lecture. Next lecture in the series was hosted in Kerala University of Fisheries and Ocean Studies (KUFOS) at 12.00pm on the same day on the topic *Effects of natural and human induced hypoxia on coastal benthos.*Around 100 attendees were present for the lecture including teachers and students from various schools of the university. The lecture discussed on the underlying causes of hypoxia such as enhanced nutrient input from natural causes (upwelling) or anthropogenic origin (eutrophication) and reduction of mixing by limited circulation or enhanced stratification. Dr. Lisa also highlighted on the responses of estuarine, enclosed sea, and open shelf benthos to hypoxic conditions. Following the forenoon sessions Dr. Lisa Levin visited Centre for Marine Living Resources and Ecology (CMLRE). Following a short discussion with Director and senior scientists of the institute, Dr. Lisa delivered a lecture on the topic *Oxygen minimum zones and fishery implications.* Around 70 researchers and in scientists attended the lecture which detailed on the various aspects ofexpanding hypoxic conditions on the fishery ecology.Lecture insighted on the OMZ expansions and its effects on the fish evolution and diversity. Decreased demersal fish diversity and habitat compressions were discussed in detail with effective interactions from the researchers of the institute.On the next day, 28th March 2018, Dr. Lisa visited Kerala University campus, Thiruvananthapuram and provided a public lecture on the topic *Deep Ocean Science Diplomacy: Science, Policy and the importance of Networks* at the Senate Hall, University of Kerala. The lecture was attended by nearly 70 participants including research scholars, students and teachers. Following the lecture Dr. Lisa along with Dr. S. Bijoy Nandan and research scholars visited the nearby intertidal areas and assessed the biological conditions of the beaches. With this the lecture series by the erudite scholar was completed and the next two days (29th and 30th March 2018) were devoted for field visits of the scholar along with research scholars and faculties of the department to the Vembanad wetlands which is one among the three Ramsar site in Kerala. During the visit various flora and fauna of Vembanad lake was surveyed at selected points. Collection of some benthic samples were also conducted and had some effective discussions on the various sampling strategies in coastal bays with their pros and cons with the research scholars and faculties led by Dr. S. Bijoy Nandan, Professor and Head, Department of Marine Biology, Microbiology and Biochemistry, CUSAT. After completing her visit in Cochin university of Science and Technology, Dr. Lisa went back on 31st March 2018 morning.

**LECTURES CONDUCTED:**

**Monday, March 26**

Venue: CIFNET Auditorium

***Public Lecture*** ***on*** ***Deep ocean industrialization and Biodiversity Challenges of the 21st Century***

Venue: School of Marine Sciences

Topic: ***Ocean Deoxygenation - an unrecognized climate challenge***

Open forum with faculties, researchers and students of Lake Side campus and visiting laboratories

**Tuesday, March 27**

Venue: School of Marine Sciences

Topic: ***Methane Seep Ecology and Ocean roles***

Venue: Lecture at Kerala University of Fisheries and Ocean Studies **(KUFOS)**

Topic: ***Effects of natural and human induced hypoxia on coastal benthos***

Venue: Visit to Centre for Marine Living Resources and Ecology **(CMLRE),** MoES

Topic: ***Oxygen minimum zones and fishery implications***

**Wednesday, March 28**

Visit to Kerala University, Thiruvananthapuram

Venue: Senate Hall, University of Kerala

***Public Lecture* on *Deep Ocean Science Diplomacy: Science, Policy and the importance of Networks***

**Thursday, March 29**

Field visit with Faculty/researchers of the Dept. of Marine Biology, Microbiology and Biochemistry to coastal wetland regions in connection with various research programmes

**Friday, March 30**

 Field research, sampling and visit to nearby Heritage sites

**BENEFITS**

* During the field research and sampling, Dr. David M. Checkley, Professor Emeritus, SIO, UCSD (Husband of Dr. Lisa. A. Levin) accompanied. His presence led to interaction with CMLRE and planned for a collaboration research work along with CUSAT in Marine studies with Scripps Institute of Oceanography, University of California.
* In continuation, Dr. David M. Checkley was also selected for the Chancellors Chair for 2018-19 in Cochin University of Science and Technology (CUSAT).
* One of the Senior Research Fellow of Prof (Dr.) S.Bijoy Nandan was able to apply for POGO-fellowship, Dr. Lisa. A. Levin as the host to the program.
* Further research and academic collaborations with Scripps Institute of Oceanography, University of California are in progress.