

Research Workshop:
**A NEW MONITORING ERA
USING ENVIRONMENTAL DNA**

April 8 - 11, 2019

Open day: April 9

Hall 1, Building 19

AGENDA



Agenda

Organizing committee members:

Dr. Susana Carvalho

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Dr. Eva Aylagas Martinez

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Industrial and urban development is expected to rapidly increase along the Saudi Arabian Red Sea coastline. To ensure the protection of the marine environment it is vital to incorporate monitoring tools that enable a fast evaluation of community changes. DNA from a variety of sources (e.g., cells, mucus, gametes) belonging to a broad range of organisms can constitute environmental samples currently termed as environmental DNA (eDNA). eDNA can be rapidly screened for changes in biodiversity and community composition occurring as a response to alterations in environmental conditions. This approach can significantly decrease the time and costs associated with sample processing, enabling timely communication with stakeholders and governments to support adaptive environmental management, i.e. to apply corrective measures to minimize detrimental impacts on the marine environment.

Our workshop will address the recent advances in the application of eDNA-based marine monitoring under different anthropogenic stressors. This event aims to produce a set of recommendations for timely marine monitoring based on the frameworks applied in other parts of the world. Further, we aim to discuss what are the current drawbacks for a general application of eDNA-based monitoring programs and what advances are needed towards the implementation of such strategies.

This 4-day workshop will take place from April 8th - 11th. On April 9th the workshop will be open to the public in Hall 1 of Building 19 from 9 am to 5 pm.

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Science and Technology (KAUST)
www.kaust.edu.sa

Tentative Agenda (details)

Tuesday, 9 April - Research conference (open)

Hall 1, Building 19

09:00 - 09:10	Opening Notes Dr. Eva Aylagas, KAUST
09:10 - 09:50	From alpine lakes to open oceans: using metabarcoding to enhance aquatic biomonitoring and biodiversity assessments Dr. Xavier Pochon, The Cawthron Institute
09:50 - 10:10	Quadrilateral Scientific Collaboration: addressing challenges of high-throughput sequencing methods for marine biosecurity surveillance Dr. Anastasija Zaiko, The Cawthron Institute
10:10 - 10:30	Looking back into the past: eDNA as a tool to reconstruct past communities in tropical coastal ecosystems Dr. Nathan Geraldi, KAUST
10:30 - 10:50	The hydrocarbon degradation potential of the seawater microbiome in the Red Sea Prof. Daniele Daffonchio, KAUST
10:50 - 11:30	Coffee Break
11:30 - 11:50	Bringing environmental DNA-based tools into marine monitoring studies in Saudi Arabia Dr. Susana Carvalho, KAUST
11:50 - 12:10	Application of environmental DNA to benthic enrichment monitoring Dr. Nigel Keeley, Institute of Marine Research
12:10 - 12:30	Understanding and mitigating the emerging microbial-associated threats in our treated wastewaters Prof. Peiying Hong, KAUST



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12:30 - 14:00	Lunch
14:00 - 14:40	Paving the way to a new monitoring era within European waters Dr. Ángel Borja , AZTI
14:40 - 15:00	Using eDNA monitoring to inform decision-making in commercial and regulatory environments Dr. Kat Bruce , Nature Metrics
15:00 - 15:20	Current approaches to assess invasions by marine non-native species: constraints, opportunities, and unknowns Dr. Gregory Ruiz , Smithsonian Environmental Research Center
15:20 - 15:40	On-going challenges and barriers to implementation of eDNA for routine biomonitoring Dr. Nigel Keeley , Institute of Marine Research
15:40 - 16:15	Coffee Break
16:15 - 17:00	Wrap-up and discussion

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Workshop Participants

Dr. Xavier Pochon, The Cawthron Institute, New Zealand
Dr. Angel Borja, AZTI, Spain
Dr. Nigel Keeley, Institute of Marine Research, Norway
Dr. Anastasija Zaiko, The Cawthron Institute, New Zealand
Dr. Kat Bruce, Nature Metrics, UK
Dr. Gregory Ruiz, Smithsonian Environmental Research Center, US
Mr. Yasser Kattan, Saudi Aramco, KSA
Dr. Tyas Hikmawan, Saudi Aramco, KSA
Dr. Ahmed Al-Ansari, GAMEP, KSA
Dr. Talal Almeelbi, GAMEP, KSA
Dr. Ammar Saleem, GAMEP, KSA
Mr. Sultan Alamer, GAMEP, KSA
Mr. Shuaib M. Thaiparampil, NAQUA, KSA
Mr. Ismail Kalliyani, NAQUA, KSA
Prof. Peiyong Hong, KAUST, KSA
Prof. Daniele Daffonchio, KAUST, KSA
Dr. Nathan Gerald, KAUST, KSA
Prof. Burton J. Jones, KAUST, KSA
Prof. Carlos Duarte, KAUST, KSA
Prof. Michael Berumen, KAUST, KSA
Dr. Darren Coker, KAUST, KSA
Dr. Laura Gajdzik, KAUST, KSA
Dr. Eva Aylagas, KAUST, KSA
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