



# SOLSTICE NEWS

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## Building research capacity to address challenges of food security in Western Indian Ocean countries

SOLSTICE is a four-year collaborative project funded by the UK Global Challenges Research Fund. Launched on 1<sup>st</sup> October 2017, it brings together recent advances in marine technologies, local knowledge and international research expertise to address challenges facing the Western Indian Ocean region in a cost-effective way. Using state-of-the-art technology such as satellite observations, marine robotics and high-resolution ocean models, SOLSTICE will conduct collaborative environmental and socio-economic research to deliver decision-support for sustainable management of marine living resources. Through hands-on training and mutual exchange of expertise and research skills, SOLSTICE will increase the capacity of UK and WIO marine science to deliver research that can contribute to improved food security for marine-dependent coastal populations.



## SOLSTICE selects three case studies to demonstrate Ecosystem Approach to Fisheries

Key to SOLSTICE is an approach that sees human-natural systems as a whole, integrated entity. Sustainable management requires reliable environmental and socio-economic information and data to assist local communities, regional management entities, and policy makers make informed and educated decisions on how to better use, protect and manage marine resources. Building on existing regional initiatives SOLSTICE will demonstrate its approach through three case studies, which were identified by local partners as research priorities during engagement meetings



### Case study: Pemba Channel small pelagic fishery under climate threat

The small pelagic fishery is important for local communities in Zanzibar and mainland Tanzania as a source of food security, nutrition and livelihood support. This diverse group includes mackerel, sardines and anchovies – found in schools over the continental shelf, in bays and deep lagoons with nutrient rich waters.

They are more abundant during the southeast monsoon,

when stronger winds drive upwelling that brings nutrient rich water to the surface. Despite its importance for coastal economies, there is a lack of data and information about the fishery, which hampers effective management. Using robotics, modelling, remote sensing, field observations and socio-economic studies, SOLSTICE will identify key environmental and anthropogenic drivers controlling the abundance of the main species and address climatic pressures on this fishery.

### **Case study: Emerging fishery of the North Kenya Bank, an opportunity for coastal populations**

The North Kenya Bank fishery is expected to spur economic growth for local communities. If well managed, it could help achieve national development goals, including poverty alleviation and wealth creation. Sustainability requires informed management interventions, but there is scant information on the ecological status and drivers of the fishery. Using modelling, remote sensing, field observations and socio-economic studies, SOLSTICE will explore processes related to productivity and resilience of the ecosystems supporting the fishery, identify the main drivers of variability and change, and advise the fishery and government on how to optimise use of this important resource.



### **Case study: Environmental drivers and socio-economic consequences of the South African Chokka squid fishery collapsing**

The collapse of the Chokka squid fishery in 2013 had a devastating effect on the Eastern Cape, one of the poorest provinces in South Africa. The reasons for the collapse are unknown, although local fishermen believe it happened as a result of environmental change. SOLSTICE will address key environmental and anthropogenic factors controlling the ecosystem dynamics of the Agulhas Bank. The results will help explain why the fishery collapsed, and inform the fishery and government as to whether the current recovery is stable, or whether similar collapses are likely in the future.

Funded by the [Global Challenges Research Fund \(GCRF\)](#), [Research Council UK \(RCUK\)](#) and the [Natural Environmental Research Council \(NERC\)](#), the four-year [SOLSTICE-WIO](#) project is a collaboration between the following partners:

**UK:** National Oceanography Centre, Plymouth Marine Laboratory, Scottish Association for Marine Science, Heriot Watt University, and Imperative Space;

**South Africa:** Nelson Mandela University, Rhodes University, University of Cape Town, South African Environmental Observation Network, Bayworld Centre for Research and Education, South African Squid Management Industry Association;

**Tanzania:** Western Indian Ocean Marine Science Association, University of Dar es Salaam: Institute of Marine Sciences; Environment for Development (EfD) Initiative, Tanzania Fisheries Research Institute, WWF Tanzania;

**Kenya:** Kenya Marine and Fisheries Research Institute, Coastal Oceans Research and Development – Indian Ocean (CORDIO) East Africa;

**WIO:** University of Seychelles, University of Toliara, Mozambique National Institute of Fisheries Research.





On October 28th and 29th 2017, SOLSTICE-WIO project partners from the UK, South Africa, Kenya and Tanzania gathered in Dar es Salaam for a two-day Kick-Off meeting, to discuss and agree on collaboration to deliver project research plans, engage with local stakeholders, and schedule capability training.

**DAY 1** of the kick-off was dedicated to a field trip organised by project local partner Institute of Marine Science, (IMS). The aim was to introduce international project partners (especially UK researchers) to the socio-economic landscape of the Tanzanian Case Study, which is dedicated to the small pelagic fisheries of the Pemba Channel. The field trip included a visit to Msasani pelagic fish community landing & processing site, Ferry Fish Market, and Kunduchi local fishing village.



From top of page, clockwise: SOLSTICE-WIO project partners meet for All Regions Kick-Off meeting in Dar es Salaam, 28-29 Oct 2017; Kunduchi fishing village, where local entrepreneurs are waiting for fish landings to take to market; Msasani fishing village, Dr Narriman S. Jiddawi from IMS, (middle), leading community engagement between local fishing community and SOLSTICE researchers, featured here from left: Dr Christine Gommenginger (NOC), Kennedy Osuka (back) (CORDIO-EA), and Prof Russell Wynn (NOC)





**DAY 2** – was an intense all day meeting comprising presentations and discussions between project partners on the planned case study activities in each region, marine technologies and methodologies that will be used during scientific field work, engagement plans needed with local and regional stakeholder communities, and outline the schedule of implementation for science missions and capacity training.

Dr Popova, who is co-PI of the project and leading the UK contribution to SOLSTICE, said:

“The SOLSTICE All Regions kick-off meeting has thrown us straight into the depth of the socio-economic problems faced in the area. Our Western Indian Ocean partners have done a great job introducing us to the issues of sustainable living marine resources and to the problems that can be solved by improving our understanding of the marine environment.

We are all looking forward to an exciting and challenging project!”



**SOLSTICE started with a “Big Bang” in the Western Indian Ocean, putting together an exhibition and oral presentations which attracted a lot of attention at the regional WIOMSA 2017 Scientific Symposium.**

SOLSTICE-WIO also had a presence during the WIOMSA 2017 Scientific Symposium with an exhibition booth that project partners used as a hub to network with local and regional stakeholders, news outlets and others interested in collaborating on capacity development, training, and other SOLSTICE activities over the coming year. NOC’s Dr Katya Popova gave a presentation on ocean modelling, Prof Russ Wynn presented on



the capabilities and benefits of Marine Autonomous Systems as a more robust and cost effective way to observe the marine environment. Regional SOLSTICE partners, IMS, TAFIRI, CORDIO-EA and WWF Tanzania, also had exhibition stands and posters presenting their research.

*From top of page, clockwise: Round table discussions between SOLSTICE project partners with different themes to cover research work streams and management plans; SOLSTICE partners networking during WIOMSA 2017 Scientific Symposium in Dar es Salaam from 30<sup>th</sup> October to 2<sup>nd</sup> November 2017.*

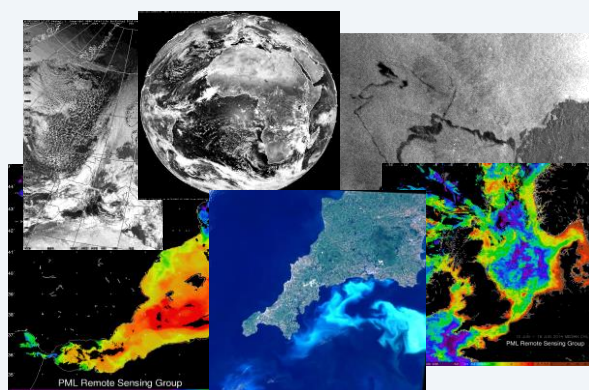
## WATCH THIS SPACE – Upcoming events, missions and training opportunities

### June / July 2018 : TANZANIA

- Regional and UK SOLSTICE project partners will send teams to Zanzibar for a few days to conduct a reconnaissance workshop that will help engineers and researchers understand the environmental elements of the Pemba Channel and socio-economic pressures of the region in order to more accurately plan the extensive scientific research and technology missions that are planned in 2019.
- In the months before local partners will be engaging with local communities and regional management agencies to showcase the work that will be conducted through the SOLSTICE project, invite them to advise and partake during the workshop and help support relationships between these varied, yet interdependent stakeholders.

### September 2018 : TANZANIA & SOUTH AFRICA

- The first Remote Sensing training course will be held at the Institute of Marine Sciences in Zanzibar. Registrations will open in early 2018, and advertised on the SOLSTICE website, [www.solstice-wio.org](http://www.solstice-wio.org)
- The first SOLSTICE-WIO South Africa field work meeting will be held for project partners leading and participating in the South Africa Case Study described above. Dates and venue will be disseminated closer to the time.



### February 2019 : South Africa Field Work on the way

SOLSTICE partners and their research & engineering teams will be conducting the South Africa case study. During this time early career scientists will have the opportunity to partake and be trained in research methodology and use of advanced marine technologies



### June/July 2019 : Pemba Channel Field Work on the way

During this time, the Pemba Channel case study will be in full swing, with a control room based in Zanzibar to coordinate simultaneous research and technology missions in Pemba Channel between Zanzibar, Pemba Island and Tanga, using small boats, benthic surveys, water column observations and sampling, as well as deployment of marine robotic systems.



From top of page, clockwise: remote sensing outputs, photo credit PML Remote Sensing Group, UK; Marine Autonomous System suite of surface wave glider and subsurface gliders, photo credit, National Marine Facilities, UK; Dr Stuart Painter, WP1 – Ecosystem Observations leader sampling for salinity, photo credit: LOCATE project; AUV Gavia as an example of easy deployment of MAS for benthic survey.



## Stay Connected with SOLSTICE-WIO

### Watch this space!!

SOLSTICE-WIO website is being updated and will go live in December 2017, and will continue to be populated with more information about the project, social media, training opportunities, and more from January to March 2018, please check-in with [www.solstice-wio.org](http://www.solstice-wio.org)

### Get in contact with us:

As the SOLSTICE-WIO project begins its scientific studies, community engagement activities, and training courses we want to hear from you about collaboration opportunities. Feel free to contact us through the SOLSTICE-WIO website or directly via our email: [solstice@noc.ac.uk](mailto:solstice@noc.ac.uk)

### The SOLSTICE Management Team



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### Thank You!

SOLSTICE Directors and Project Management Office with to say thank you to all the project partners across the WIO region and UK for a great launch of the project, in particular a big thank you to the Tanzanian partners IMS, WIOMSA and TAFIRI who hosted our international teams during the Kick-Off Meeting, organising the field trip and engagement with local communities, and the 2017 WIOMSA Scientific Symposium. We look forward to the collaboration and engagement in the upcoming months.

