



# Seagrass-Watch e-Bulletin

Ateia Branca, Dili, Timor-Leste

**31 March 2019**

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## IN THIS BULLETIN

NEWS .....	1
Dead dugong found floating at Okinawa fishing port (Japan) .....	1
Western Pacific (WESTPAC) – Ocean Remote Sensing Project (ORSP) for Coastal Habitat Mapping Workshop (Malaysia) .....	2
Adelaide Expansion Project Wins Government Approval.....	2
Rise in marine heatwaves is harming ocean species.....	2
Celebrating the Achievements of the GEF Dugong and Seagrass Conservation Project .....	3
Abu Dhabi pupils join fight to save sea cow (Abu Dhabi) .....	3
Mums with babies among dugongs sighted in Trang sea (Thailand) .....	4
Just as the Chesapeake Bay recovers, its funding is stripped away (USA) .....	4
Study confirms and ranks nursery value of coastal habitats (VA, USA).....	4
Alarm raised as marine animals turn up dead on Sarangani shore (Philippines).....	5
Advocacy group urges gov't to enforce law in Manila Bay reclamation projects (Philippines) .....	5
Seagrass meadows support food security in Guimaras (Philippines) .....	5
Danish Startup Gets €5.5M to Produce Hard-to-Make Chemicals Through Fermentation .....	6
Merimbula's Back Lake turns brown – again (NSW, Australia).....	6
19th Annual Seagrass Awareness Celebration (FL, USA).....	7
CONFERENCES .....	7
OceanObs'19 (16-20 September 2019, Honolulu, Hawaii, USA).....	7
The 25th Biennial CERF Conference (Mobile, Alabama on 3–7 November, 2019) .....	7
SEAGRASS-WATCH on YouTube .....	8
Seagrass & other matters .....	8
World Seagrass Day .....	8
SeagrassSpotter.....	8
World Seagrass Association .....	8
World Seagrass Association on Twitter @Seagrass_WSA.....	8
Dugong & Seagrass Research Toolkit .....	8
FROM HQ.....	8
Past E-bulletins .....	8
Frequently Asked Questions .....	8
Magazine.....	8
Virtual Herbarium .....	8
Future sampling dates.....	8
Handy Seagrass Links .....	8

Please note: links to sources were active on date of publication. Some sources remove links periodically.

## NEWS

### **Dead dugong found floating at Okinawa fishing port (Japan)**

19 March 2019, *The Mainichi*

A dead dugong was found at a fishing port in Okinawa Prefecture on March 18, a local fisheries cooperative said. It is highly likely that the dugong is one of only three that have been confirmed to inhabit the waters around Okinawa's main island. The prefectural government's natural conservation division is examining the cause of its death.

The dugong, which measured about 3 meters long, was found floating near a breakwater at the fishing port of Unten in Nakijin in the southernmost prefecture, according to the local fisheries cooperative. At around 5 p.m., a fisherman alerted the cooperative, and members of the organization recovered the body.

In Japan, dugongs have been confirmed to inhabit only the waters off Okinawa and they mainly feed on seaweed (*sic*). An area off the Henoko district of Nago in the prefecture, where work to build a substitute facility for U.S. Marine Corps Air Station Futenma in the prefectural city of Ginowan is underway, is believed to be a feeding ground for dugongs. Prior to the base relocation work, the Defense Ministry's Okinawa Defense Bureau surveyed the habitat of dugongs using helicopters and reported its findings to a panel of experts. According to the bureau's report on Jan. 22, one of the three known dugongs inhabiting the waters around Okinawa's main island was located near Kouri Island near the fishing port on Jan. 8, 2019. Another has not been seen since July 2015 and the other has not been spotted since September last year.

[more.....http://seagrasswatch.org/news\\_Mar2019archives.htm](http://seagrasswatch.org/news_Mar2019archives.htm)

*Related article*

*Endangered dugong found dead in Okinawa, cause unknown (20 March 2019, Asahi Shimbun)*

<http://www.asahi.com/ajw/articles/AJ201903200043.html>

## **Western Pacific (WESTPAC) – Ocean Remote Sensing Project (ORSP) for Coastal Habitat Mapping Workshop (Malaysia)**

19 March 2019, UTM NewsHub (press release)

The Geoscience and Digital Earth Centre (INSTeG), Research Institute for Sustainability and Environment (RISE), Universiti Teknologi Malaysia (UTM) in collaboration with IOC Sub-Commission for the Western Pacific (WESTPAC) had organized the WESTPAC-ORSP for Coastal Habitat Mapping Workshop. The workshop was held at the Faculty of Built Environment and Survey, Universiti Teknologi Malaysia, Johor Bahru from February 25th to 27th, 2019. The theme of the workshop was “Meeting for Developing a New Strategy of Coastal Habitat Mapping in the Western Pacific” and it was open to all steering committee members. Leading scientists in the discipline from various universities and institutes of Japan, Thailand, Indonesia, Vietnam and Malaysia were invited.

This international event was aimed at providing the opportunity for researchers to conserve coastal habitats by using remote sensing in order to map the spatiotemporal distribution of coastal habitats, with an initial focus on seagrass beds. The participants discussed the prospect of ORSP for coastal habitat mapping. They also planned to establish relationships within the scientific community for more collaborative efforts to enhance the work of coastal mapping in the near future. The participants presented various significant topics related to sea-grass changes. The review of progress and consolidated outcome from previous UNESCO/JFIT funded activities became the limelight of this workshop.

[more.....http://seagrasswatch.org/news\\_Mar2019archives.htm](http://seagrasswatch.org/news_Mar2019archives.htm)

## **Adelaide Expansion Project Wins Government Approval**

14 Mar 2019, Port Technology International

Flinders Ports has announced that a project to widen Port Adelaide's Outer Harbour shipping channel and swing basin can now commence with the approval of Australia's Environment Protection Authority (EPA). In addition to a dredging licence, the Department for Environment and Water (DEW) has approved a Native Vegetation Clearance permit that will enable the operator to clear seagrass and other natural materials as part of the expansion.

Stewart Lammin, CEO of Flinders Ports, has emphasized the company's commitment to minimizing the environmental impact of the channel widening programme, an initiative which is expected to underpin Port Adelaide's annual US\$9.9 billion contribution to the economy.

Flinders Ports have been Working with representatives of the EPA, Primary Industries and Regions SA (PIRSA) and the South Australian Research and Development Institute (SARDI), to identify any risks and establish strategies and protocols for addressing them. Central to that is the use of state-of-the-art equipment to minimise turbidity, loss of seagrass and any impact on fauna, adherence to an agreed seasonal window and the imposition of comprehensive risk management protocols. According to a statement, Flinders Ports has contracted dredging firm Boskalis to undertake the widening project, which will begin in June 2019 and continue for three months.

[more.....http://seagrasswatch.org/news\\_Mar2019archives.htm](http://seagrasswatch.org/news_Mar2019archives.htm)

## **Rise in marine heatwaves is harming ocean species**

06 March 2018, TODAYonline

In the midst of a raging heatwave, most people think of the ocean as a nice place to cool down. But heatwaves can strike in the ocean as well as on land. New research, published this week in Nature Climate Change, makes abundantly clear the destructive force of marine heatwaves.

The authors compared the effects on ecosystems of eight marine heatwaves from around the world, including four El Niño events (1982-83, 1986-87, 1991-92, 1997-98), three extreme heat events in the Mediterranean Sea (1999, 2003, 2006) and one in Western Australia in 2011. They found that these events can significantly damage the health of corals, kelps and seagrasses. This is concerning, because these species form the foundation of many ecosystems, from the tropics to polar waters. Thousands of other species — not to mention a wealth of human activities — depend on them.

The authors identified southeastern Australia, South-east Asia, northwestern Africa, Europe and eastern Canada as the places where marine species are most at risk of extreme heat in the future. Marine heatwaves are defined as periods of five days or more during which ocean temperatures are unusually high, compared with the long-term average for any given place. Marine heatwaves have had negative impacts on virtually all these “ecosystem services”. For example, seagrass meadows in the Mediterranean Sea, which store significant amounts of carbon, are harmed by extreme temperatures recorded during marine heatwaves. In the summers of both 2003 and 2006, marine heatwaves led to widespread seagrass deaths.

All evidence suggests that marine heatwaves are linked to human mediated climate change and will continue to intensify with ongoing global warming. The impacts can only be minimised by combining rapid, meaningful reductions in greenhouse emissions with a more adaptable and pragmatic approach to the management of marine ecosystems. [more.....\[http://seagrasswatch.org/news\\\_Mar2019archives.htm\]\(http://seagrasswatch.org/news\_Mar2019archives.htm\)](http://seagrasswatch.org/news_Mar2019archives.htm)

### ***Celebrating the Achievements of the GEF Dugong and Seagrass Conservation Project***

*05 March 2017, Convention on the Conservation of Migratory Species of Wild Animals*

The closing workshop of the Dugong and Seagrass Conservation Project (DSCP) was held in Bali, Indonesia from 26 to 28 February 2019. The four-year project, Enhancing the Conservation Effectiveness of Seagrass Ecosystems Supporting Globally Significant Populations of Dugongs across the Indian and Pacific Ocean Basins, commenced in 2015 and covered 43 national projects across Indonesia, Madagascar, Malaysia, Mozambique, the Solomon Islands, Sri Lanka, Timor-Leste and Vanuatu. The CMS Dugong MOU Secretariat developed the DSCP between 2011 and 2014, drafting the proposal to United Nations Environment Programme and GEF, and working with project partners to secure funding for the identified projects. The project was executed by the Mohamed bin Zayed Species Conservation Fund, and its implementation was supported by UN Environment with scientific expertise provided by the Technical Group of the Dugong MOU.

The three-day closing workshop was attended by over 60 people, bringing together partners and advisors (including members from the Dugong Technical Group) to reflect on the achievements of the project. The first two days of the workshop focussed on looking back on what the project has achieved. Partners from each country gave presentations on their work under the themes of research, incentives, policy and education and awareness. Panel sessions followed many of the presentations, and valuable discussions ensued. During the panel dealing with research, partners were encouraged to keep using the skills and expertise they have developed under this project, and to use the knowledge collected to trigger conservation outcomes.

The final day of the workshop was spent looking forward and identifying national and regional priorities for Dugong and seagrass conservation into the future. Partners broke up into regional groups to consider what the key threats to Dugongs and seagrasses are presently, to reflect on what the drivers of these threats are and identify what actions they could take to address these. In closing the workshop partners were encouraged to continue their efforts towards Dugong and seagrass conservation, to collaborate with each other, and to share their knowledge with the broader community.

[more.....\[http://seagrasswatch.org/news\\\_Mar2019archives.htm\]\(http://seagrasswatch.org/news\_Mar2019archives.htm\)](http://seagrasswatch.org/news_Mar2019archives.htm)

### ***Abu Dhabi pupils join fight to save sea cow (Abu Dhabi)***

*04 March 2019, The National*

It has been described as one of the world’s ugliest mammals. But Abu Dhabi school pupils have taken the dugong, to their hearts in an effort to help protect the species. Students from Shaikh Khalifa Bin Zayed Bangladesh Islamia School and Shining Star International School have been campaigning to spread awareness of its plight.

The mammal is largely under threat due to a combination of excessive hunting, habitat loss and water pollution. The UAE has led conservation efforts to help protect the dugong. The species can grow to three metres long, weigh up to 500kg and eat some 40kg of seagrass a day. Historically, the mammals were hunted for their meat, oil, skin, bones and teeth. Today, however, they are more threatened by a loss of habitat due to industrial development and pollution. Despite having protected status, six dugongs were found dead on the Abu Dhabi coast in November last year, with experts blaming illegal fishing practices.

Around two dozen pupils from the schools held rally in Khalidiyah Mall, wearing dugong masks and giving out cloth bags in an attempt to reduce plastic use. Abu Dhabi is home to the world’s second largest population of dugongs, with around 3,000 living in the Marawah Marine Biosphere Reserve alone. Some 7,000 are thought to live in the

Arabian Gulf and Red Sea. Globally, they are found in seas around 40 countries in the Indian Ocean and western Pacific Ocean

[more.....http://seagrasswatch.org/news\\_Mar2019archives.htm](http://seagrasswatch.org/news_Mar2019archives.htm)

### **Mums with babies among dugongs sighted in Trang sea (Thailand)**

05 March 2018, *The Nation*

The sighting of more dugongs in the Andaman sea off the coast of southern province of Trang is a good sign that the population has increased, the director of Phuket Marine Biological Centre said on Tuesday. Dr Kongkiart Kittiwatanawong, said the centre was conducting a dugong sighting survey in the Andaman Sea around Koh Libong and Koh Muk from February 28 through to this Tuesday. The survey was carried out by a two-seater plane piloted by a foreign captain who took along a Thai official for the count.

Each sortie spotted some 60 to 150 dugongs, including repeated encounters of pairs of mothers with babies, he said. He said the sea mammals were easily seen as the water was clear. The head count is conducted annually to predict the survival trend of the rare species. He added that Trang has the biggest population of dugongs in the country and they live on sea grasses around Koh Libong and Koh Muk. The aerial survey has been going on for 12 years. Last year, more than 200 dugongs were sighted in the Trang habitat, Kongkiart said.

[more.....http://seagrasswatch.org/news\\_Mar2019archives.htm](http://seagrasswatch.org/news_Mar2019archives.htm)

### **Just as the Chesapeake Bay recovers, its funding is stripped away (USA)**

28 March 2019, *The Independent*

First Light, a boat belonging to the Chesapeake Bay Foundation, heads toward the US 50 bridge on the Severn River in Arnold. John Page Williams, a naturalist with the nonprofit Chesapeake Bay Foundation in Annapolis, Maryland, knows where the seagrass likes to grow – like back in the good old days before everything, it seemed, began to wither and die. Williams and others credit the ecosystem's steady and significant recovery to a complex web of federal, state and private restoration efforts coordinated by the Environmental Protection Agency's Chesapeake Bay Programme, a partnership among six states and the district that has existed since 1983.

President Donald Trump earlier this month released a federal budget proposal that would cut EPA funding for the programme by 90 per cent. It is the third time the president has proposed a dramatic slash in funding for the Chesapeake Bay as part of EPA budget cuts. Last year, he recommended a similar 90 per cent chop. In 2017, he suggested eliminating federal contributions to the Chesapeake restoration effort altogether. In both cases, congress rejected the president's proposals and restored funding to the programme. The programme received \$73m in federal funding for this fiscal year. The Trump administration's 2020 budget proposal would make that \$7.3m. A cut that drastic would have dire consequences for the bay and residents of the Washington area.

Scientists say the Chesapeake Bay ecosystem is the healthiest it has been in generations. Species thought to be long gone are making a comeback. Signs of natural resiliency have returned. That means the nation's largest estuary is better able to recover on its own from setbacks – like last year's record-setting rainfall, which offset the natural salinity of many of the region's waterways. But experts worry the Chesapeake Bay might not be able to weather a drastic budget cut on its own.

More than two-thirds of the \$73m the programme receives from the EPA goes towards supporting the efforts of state and local governments and other partners. The money is used for restoring and conserving healthy habitats, supporting sustainable fisheries and reigning in pollution and waste runoff, according to Chesapeake Promise, an effort to publicly track the programme's progress and finances. The remaining third goes towards in-house work by the Chesapeake Bay Programme, including the collection of data, scientific research, monitoring, modelling and reporting on the state of the ecosystem. Republican and Democratic lawmakers have signalled support for the programme and vowed to fight to maintain funding at or near current levels.

[Read more.....https://www.independent.co.uk/environment/chesapeake-bay-maryland-funding-united-states-government-environment-a8834966.html](https://www.independent.co.uk/environment/chesapeake-bay-maryland-funding-united-states-government-environment-a8834966.html)

### **Study confirms and ranks nursery value of coastal habitats (VA, USA)**

27 March 2019, *Phys.Org*, by David Malmquist, *Virginia Institute of Marine Science*

A comprehensive analysis of more than 11,000 previous coastal-habitat measurements suggests that mangroves and seagrasses provide the greatest value as "nurseries" for young fishes and invertebrates, providing key guidance for managers of threatened marine resources. Published today in *Conservation Letters*, the analysis began as a class project at William & Mary's Virginia Institute of Marine Science.

Lead author Jonathan Lefcheck, now a coordinating scientist with the Smithsonian's Tennenbaum Marine Observatories Network, says "Our results confirm the nursery function of a range of structured habitats, which supports their conservation, restoration, and management at a time when our coastal environments are increasingly impacted by human activities." Scientists have long considered these habitats better nursery grounds than flat

stretches of seafloor sand or mud because of their many elevated nooks and crannies; the team's analysis was designed to test this idea and determine the relative value of different structured habitats for juveniles of marine species.

Lefcheck and his co-authors say their findings substantiate the general nursery value of structured versus unstructured habitats. All the structured habitats they analyzed—with the exception of kelp and macroalgal "seaweed"—held significantly higher densities of juvenile fishes and invertebrates, and in some cases their resident juveniles exhibited enhanced growth and survival as well. Focusing on the relative value of specific structured habitats, they found the highest juvenile density in mangroves and seagrasses. There was little difference among the habitats in terms of juvenile growth or survival, except for coral reefs, which had slightly greater juvenile growth compared to seagrasses, mangroves, or macroalgae.

[Read more.....https://phys.org/news/2019-03-nursery-coastal-habitats.html](https://phys.org/news/2019-03-nursery-coastal-habitats.html)

### **Alarm raised as marine animals turn up dead on Sarangani shore (Philippines)**

28 March 2019, *Philippine Daily Inquirer*

At least three endangered marine animals had been found dead on the shores of Sarangani this month, prompting local officials and environmentalists to raise the alarm on the need to protect the province's waters. Dr. Roy Operario Mejorada, program manager of the Sarangani Environmental Conservation and Protection Center (ECPC), said that on March 23, residents of Glan town found a dead male "dugong" in Barangay Taluya.

Mejorada cited the help of residents in reporting stranding cases and sightings of endangered marine species to the ECPC. He said ECPC personnel did not perform necropsy because the 1.5-meter-long dugong was already decomposing when they arrived in the village on Saturday. Mejorada said dugong was a flagship species of the Protected Area Management Bureau-Sarangani Bay Protected Seascape. The center, he said, could not find any information on how the dugong died.

On March 16, a male pygmy sperm whale (*Kogia breviceps*) was found dead at Barangay Maribulan in Alabel town. On March 11, a male Olive Ridley turtle (*Lepidochelys olivacea*) was also found dead on the shores of Barangay Ladol, also in Alabel.

[Read more.....https://newsinfo.inquirer.net/1100603/alarm-raised-as-marine-animals-turn-up-dead-on-sarangani-shore](https://newsinfo.inquirer.net/1100603/alarm-raised-as-marine-animals-turn-up-dead-on-sarangani-shore)

### **Advocacy group urges gov't to enforce law in Manila Bay reclamation projects (Philippines)**

26 March 2019, *GMA News*

An environmental group on Tuesday urged the government to enforce the law in connection with applications for reclamation projects in Manila Bay. In a statement released during a summit of civil society and fisherfolk groups, Oceana Philippines said they are alarmed by the "apparent disregard" of laws in allowing reclamation projects "to pave our mangroves, seagrass beds, and other marine habitats." "Dumping and filling of critical marine support systems in Manila Bay are not only violating our laws; these deprive our artisanal fisherfolk of their living and sustenance as well," Oceana said.

The group said it questioned the Philippine Reclamation Authority and other government offices for processing the applications for the projects "despite possible violations of the Local Government Code, the Fisheries Code, and the Environmental Impact Statement System."

Gloria Estenzo Ramos, the vice president of Oceana Philippines, said the group dares the project proponents to prove they complied with requirements under the law. Oceana also said a new species of sardines has been discovered in Manila Bay and other parts of the country. The group warned that reclamation projects displace artisanal fisherfolk and deprive them of livelihood. "Destruction of our marine habitats is irreversible," Oceana said.

[more.....https://www.gmanetwork.com/news/news/nation/689256/advocacy-group-urges-gov-t-to-enforce-law-in-manila-bay-reclamation-projects/story/](https://www.gmanetwork.com/news/news/nation/689256/advocacy-group-urges-gov-t-to-enforce-law-in-manila-bay-reclamation-projects/story/)

*Related article*

*Moratorium on reclamations pressed (27 March 2019, Manila Bulletin)*  
<https://news.mb.com.ph/2019/03/27/moratorium-on-reclamations-pressed/>

### **Seagrass meadows support food security in Guimaras (Philippines)**

25 March 2019, by Mavic Conde, *Rappler*

Did you know that marine conservation efforts in the Philippines are mainly focused on coral reef habitats? Such myopic view of conservation led to the neglect of other equally important marine habitats such as seagrass beds, said Richard Unsworth, program leader of the Seagrass Project-Philippines.

In the Philippines, their importance for coastal communities is being underscored by an ongoing research in Nueva Valencia, Guimaras, conducted by Mary Rose Lopez from the Zoological Society of London (ZSL)-Philippines. Lopez leads the research for Seagrass Project-Philippines, a component of a bigger research program entitled

[www.seagrasswatch.org](http://www.seagrasswatch.org)

"Empowering Community Action for Seagrass Conservation in Southeast Asia: Seagrass Meadows Support Food Security." The research showed that more than 70% of the captured fishes in Nueva Valencia are seagrass-associated.

People from these fishing communities also prefer fishes and other seafoods as their source of protein. Based on household surveys, 8 out of the 10 fishes consumed by households are seagrass-associated, such as rabbitfishes (Siganids), goatfishes (Mullidae), emperor fishes (Lethrinidae), and dulis (Spratelloides sp.). Crustaceans, especially blue swimmer crabs, are also harvested in some barangays. Overall, 80% of the daily intake of household meals is composed of seagrass-associated fauna.

The same report showed that these habitats urgently need greater protection across the Philippines to prevent their decline. Among the things being done by ZSL-Philippines to preserve these meadows is to lobby for its inclusion in the coverage of Marine Protected Areas (MPAs) to be designated in each coastal communities. The project is being implemented in 3 sites across Southeast Asia: Indonesia, Cambodia, and Philippines. Unsworth of Swansea University and Dr Leanne Cullen-Unsworth of Cardiff University are the principal investigators/program leaders for the whole project.

[more.....https://www.rappler.com/nation/172465-seagrass-bed-lagonoy-gulf-global-warming](https://www.rappler.com/nation/172465-seagrass-bed-lagonoy-gulf-global-warming)

## **Danish Startup Gets €5.5M to Produce Hard-to-Make Chemicals Through Fermentation**

22 March 2019, Labiotech.eu (press release)

CysBio is developing a fermentation technology to produce valuable chemicals that were previously too difficult or expensive to make. Founded just at the beginning of this year, CysBio is now receiving its first funding. This seed investment comes from the Chinese chemical company Zhejiang NHU, which has also established a partnership to commercialize some of the unique compounds the Danish startup can make.

Using genetically engineered bacteria, the company can produce sulfated compounds that are challenging to make using traditional methods such as chemical engineering or extracting the compounds from nature. Bacterial fermentation also provides a more sustainable alternative for chemical production. The technology originated at the Technical University of Denmark, which has a stake in CysBio.

An application CysBio is working on is the creation of new compounds and materials with brand new properties. One of them is a chemical called zosteric acid that is naturally produced by seagrass. Seagrass contains this natural antifouling agent that makes sure nothing can adhere or grow on it, explained CEO Henrik Meyer. "It's a very interesting material but it is very expensive to extract it from seagrass or to produce it chemically. For 20 years people have made experiments and have been very excited by these antifouling effects, but the product hasn't been available... No one figured out a smart way of producing it before."

Through its partnership with Zhejiang NHU, CysBio will focus on optimizing the bacterial strains to produce these chemicals. NHU will then take care of scaling up and selling some of these compounds. Together, they expect to bring their first products to the market in 2020.

[more.....https://labiotech.eu/industrial/cysbio-fermentation-seed-funding/](https://labiotech.eu/industrial/cysbio-fermentation-seed-funding/)

## **Merimbula's Back Lake turns brown – again (NSW, Australia)**

22 March 2019, by Ian Campbell, About Regional

This week's heavy rain has again polluted the waters of Back Lake (Back Lagoon) in Merimbula with runoff from the Mirador housing estate on the slopes above. A spokesperson for Bega Valley Shire Council's planning and environment team says, "Council inspected the Mirador and Back Lake area on Monday, following heavy rain over the weekend, and identified that sediment had left the Stage 10 Mirador development site." Almost 90 mm had fallen on Merimbula by that point, a further 34 mm was recorded on Tuesday.

While unable to comment specifically on this matter, Bega based Marine and Freshwater Environmental Scientist, Nicholas Yee, of Elgin Associates says seagrass communities can be impacted. "While they are resilient and can cope with some sedimentation under natural conditions, any type of catchment disturbance has the potential to cause sediment runoff during significant rainfall, and if the scale of sediment runoff is large enough or sustained, it can bury seagrass beds which can flow on to impact the marine environment more broadly."

In early February, similar rain overran soil and water management controls within the subdivision. At that time, Council staff directed the contractor to repair the breaches and enhance the existing controls. That has failed or hasn't been done. "Council has issued the contractor with a Prevention Notice under the Protection of the Environment and Operations Act," Council's spokesperson says. "The order included a direction to immediately carry out works to address water runoff from the site and the stabilisation of disturbed areas. No fines have been issued at this stage, however, that option is one that could follow.

[more.....https://aboutregional.com.au/merimbulas-back-lake-turns-brown-again/](https://aboutregional.com.au/merimbulas-back-lake-turns-brown-again/)

## **19th Annual Seagrass Awareness Celebration (FL, USA)**

21 March 2019, Santa Rosa Press Gazette

Learn about seagrasses, the marine creatures that live among them and how to protect them at the 19th annual Seagrass Awareness Celebration March 30 at Shoreline Park South in Gulf Breeze.

Family-focused activities include live marine life in touch tanks, "eat a seagrass bed," seining, games, fishing, marine creatures, marine debris, arts and crafts including making shark tooth necklaces, boating and water safety, kayaking and food vendors. Attendees are encouraged to bring water, sunscreen, hat, water shoes and lawn chairs.

For more information, contact Chris Verlinde, UF/IFAS Santa Rosa County Sea Grant extension agent, email [chrismv@ufl.edu](mailto:chrismv@ufl.edu).

[more.....https://www.spressgazette.com/news/20190321/19th-annual-seagrass-awareness-celebration](https://www.spressgazette.com/news/20190321/19th-annual-seagrass-awareness-celebration)

## **CONFERENCES**

### **OceanObs'19 (16-20 September 2019, Honolulu, Hawaii, USA)**

**Theme: Connecting Science and Society**

The OceanObs'19 conference is a community-driven conference that brings people from all over the planet together to communicate the decadal progress of ocean observing networks and to chart innovative solutions to society's growing needs for ocean information in the coming decade.

As part of the decadal conference series, OceanObs'19 will galvanize the ocean observing community ranging from scientists to end users. OceanObs'19 seeks to improve response to scientific and societal needs of a fit-for-purpose integrated ocean observing system, for better understanding the environment of the Earth, monitoring climate, and informing adaptation strategies as well as the sustainable use of ocean resources. Overall, OceanObs'19 will strive to improve the governance of a global ocean observing system, including advocacy, funding, and alignment with best practices and to designate responsibility for product definition, including production and timely delivery at the appropriate scales (global, basin, regional, national) to serve user needs. The conference program will be built focusing on a single objective each day to provide adequate time to answer to the proposed questions.

#### **More information:**

To get important updates, visit: <http://www.oceanobs19.net/#main>

### **The 25th Biennial CERF Conference (Mobile, Alabama on 3–7 November, 2019)**

**Theme: "Responsive | Relevant | Ready"**

CERF2019 endeavors to connect science and society in the collective goals of preserving the coastal and estuarine habitats, resources, and heritage. Through the conference, attendees will discuss the nature of research agendas that are directed at finding and solving problems, and how to engage stakeholders in that process. CERF2019 goal is to balance a natural and social scientific agenda with the food, music, and art emblematic of the central Gulf of Mexico. In keeping with tradition, CERF2019 hopes to create a seriously fun and memorable 25th Biennial CERF Conference.

#### **Special session - Seagrasses: sentinel species in a changing world - a tribute to Dr. Susan Williams**

*Session co-chairs – Robert Orth and Ken Heck*

Seagrasses are key sentinel species whose sensitivity to changing water quality is well known to warn of deteriorating conditions in coastal waters. The past five decades have seen great progress in understanding the biology of seagrasses, the ecology of the world's seagrass meadows and in valuing the many services they provide. During this time there have been paradigm shifts in our understanding of many fundamental processes that underpin the ecology of seagrass meadows. Among them is a revised understanding of the phylogeny and evolutionary history of seagrass lineages, the smaller role played by the consumption of detritus in seagrass food webs, and the larger role of direct consumption of seagrasses in energy flux. Additional advances include convincing evidence that seagrasses can be pollinated by small invertebrates, that microbial-seagrass interactions in the sediments and in the water column are a vast area only beginning to be explored and that individual seagrass clones can cover vast areas and exist for millennia. Other recent advances include a revised understanding of the widely varying dispersal abilities of different seagrass species, as revealed by the much improved ability to genotype seagrass clones and the rapidly advancing knowledge, aided by much trial and error, of how to improve the success of seagrass restoration efforts. We have also seen important advances in valuing the services provided by seagrass meadows, such as their important role as nursery habitat for a variety of economically important finfish and shellfish. In addition, their previously less well known services, such as their functioning as vast reservoirs of blue carbon, is becoming increasingly elucidated, with the implication that the continuing global decline of seagrass meadows has profound implications for earth's climate.

Seagrasses face many emerging challenges associated with our changing climate, including the effects of the alteration of temperatures, pH and dissolved oxygen, as well as the immigration and assimilation of tropical species, whose predatory, competitive and pathological effects on the ecology of seagrasses and their associated biotas may be enormous but which remain unknown and unpredictable.

This session will highlight the most exciting, recent advances in seagrass research by those at the forefront of the field, and is dedicated to Dr. Susan Williams, who, throughout her career, played a leadership role in seagrass ecology and mentored some of its leading practitioners. It will be of interest to researchers and resource managers faced with the challenge of preserving, restoring and managing seagrass resources.

To submit an abstract to this session, visit <https://cerf.confex.com/cerf/2019/webprogrampreliminary/Session2039.html>

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## SEAGRASS-WATCH on YouTube

**Seagrass: Pastures of the sea** <http://www.youtube.com/watch?v=66Y5vgswj20> or <http://www.seagrasswatch.org/seagrass.html>

Presentation on what seagrasses are and why they are important (over 49,734 views to date)

## Seagrass & other matters

**World Seagrass Day** <http://wsa.seagrassonline.org/world-seagrass-day/>

A global campaign for World Seagrass Day: Raising public awareness on the importance of seagrass meadows is central to efforts in the protection and conservation of seagrass meadows worldwide. The international seagrass research and conservation community, together with the undersigned, call on the United Nations to declare a World Seagrass Day to recognize the importance of seagrass meadows to the health and well-being of the planet, as well as the people, communities, flora, and fauna that rely on them. Show your support by signing the petition.

**SeagrassSpotter** <https://seagrassspotter.org/>

SeagrassSpotter seeks to expand the number of people studying seagrass from a handful of scientists to hundreds and potentially thousands of 'citizen scientists.'. As part of efforts to build a sustainable monitoring network, and by leveraging the enthusiasm of everyone from fishers to SCUBA divers to people on vacations at the beach, we'll create a more comprehensive picture of seagrass meadows around the globe. This in turn will inspire new scientific research and practical conservation measures that can help protect ocean habitats. Working together with citizen scientists all over the world, we'll accomplish big things for seagrass and other vulnerable marine species, but only with your help.

**World Seagrass Association** <http://wsa.seagrassonline.org>

Keep up to date on what's happening with the around the world from the WSA. The World Seagrass Association is a global network of scientists and coastal managers committed to research, protection and management of the world's seagrasses. WSA members come from many countries and include leading scientists in marine and seagrass biology. The association supports training and information exchange and raises global awareness of seagrass science and environmental management issues.

**World Seagrass Association on Twitter** @Seagrass\_WSA

Everything seagrass related. World Seagrass Association official account. Follow to stay up-to-date with global seagrass info. Moderator: LM Nordlund

**Dugong & Seagrass Research Toolkit** <http://www.conservation.tools/>

Dugongs and seagrass are under threat from human activities. By using this Toolkit you should be able to gather information to:

- understand better the status of dugongs, seagrass and communities at your research site;
- understand threats to dugongs and seagrasses and help find solutions to those threats;
- understand the communities that value or may affect dugongs and seagrasses.

The toolkit will guide you to the techniques and tools most suitable to your team capacity, budget and timeline. By using the toolkit, you will also be helping to standardise data sets and methods across different countries and sites, allowing for better comparison of global dugong and seagrass conservation status. The Toolkit is designed for use by marine natural resource managers and decision-makers (government and non-government) and for dugong and seagrass researchers. The Toolkit will assist organisations to assess funding proposals by describing the scope of work, choice of techniques and tools, and budget.

## FROM HQ

**Past E-bulletins** <http://www.seagrasswatch.org/publications.htm#bulletin>

**Frequently Asked Questions** <http://www.seagrasswatch.org/faq.html>

**Magazine** <http://www.seagrasswatch.org/magazine.html>

**Virtual Herbarium** <http://www.seagrasswatch.org/herbarium.html>

**Future sampling dates** <http://www.seagrasswatch.org/sampling.html>

**Handy Seagrass Links** <http://www.seagrasswatch.org/links.html>

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Seagrass-Watch E- Bulletin is compiled by Len McKenzie & Rudi Yoshida.