31 July 2018

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IN THIS BULLETIN

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

NEWS

Fishermen rescue and release dugong (India)

28 July 2018, The Hindu

Thanks to the 'Friends of Dugong,' a capacity building training programme launched by the Wildlife Institute of India (WII) and the Forest Department involving fishermen in coastal districts, country boat fishermen at Manalmelkudi area in Thanjavur district have rescued and released a dugong in the Palk Bay. The fishermen, who were engaged in fishing within five nautical miles in the sea, inadvertently caught a medium sized dugong while fishing on Thursday and before causing any discomfiture to the mammal, the fishermen, assisted by marine police and forest personnel released it back into the sea.

P.V.R. Prem Jothi, marine biologist, WII, said the fishermen were pulling the net when they realised that they have caught something big and alerted officials. The WII deputed its researchers and after a participatory effort, also involving Omcar foundation, a non-governmental organisation, the fishermen rescued the marine mammal and released it back into the sea within 30 minutes.

After pulling the mammal close to the shore, the fishermen cut the net on the upper portion, after which, the mammal swam back into the sea amid cheers by the fishermen and officials, he said. The 12 foot long adult dugong could weigh about 400 to 500 kg, he said. As dugongs would come up to the sea surface every six minutes for breathing, the fishermen kept the mammal in such a way that it could breath easily till it was released, Mr Prem said. Appreciating the 'good Samaritan' role, the WII has decided to award a compensation of Rs. 10,000 to the fishermen, he said.
more……..www.seagrasswatch.org/news_July2018archives.htm

Fort Myers Beach struck with seagrass, fish kill (FL, USA)

26 July 2018, Fort Myers Beach Observer

Signs of the ongoing water quality state of emergency are washing up on Fort Myers Beach's shores. The beach is inundated with seagrasses, dead fish and drift algae today. Seagrasses are dying and washing up on the beach - a sign of the imbalance of salinity in the estuary, said Rae Burns, Town of Fort Myers Beach environmental technician.

Seagrasses need a mix of salt water and fresh water to thrive; too much of either is detrimental. With the past 14 days of freshwater releases from Lake Okeechobee, that mix has been thrown out of balance. It's not just sea grasses - dead fish are here now, too. Red tide has been concentrated in northern Lee County for weeks, but the bloom has shown its consequences now on Fort Myers Beach. Dead fish have been washing up on shore on the beach, dead from *Karenia brevis*. *K. brevis* is the organism that makes up red tide; it produces a toxin that kills fish and can cause respiratory irritation to people and animals when it becomes airborne.

According to the semi-weekly report by the National Atmospheric and Oceanic Administration (NOAA), Lee County is experiencing moderate to high levels of red tide from north to south in both the Gulf and bay areas, with the exception of the bay area of south Lee County, which is not experiencing red tide.
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Related article
Red Tide is killing turtles in Southwest Florida. Is Tampa Bay next? (27 July 2018, Tampabay.com)
https://www.tampabay.com/news/environment/Red-Tide-is-killing-turtles-in-Southwest-Florida-Is-Tampa-Bay-next-_170389389
Dozens of sea turtles are turning up dead on Florida beaches (26 July 2018, Orlando Sentinel)
http://www.orlandosentinel.com/news/os-sea-turtles-dead-florida-beaches-20180726-story.html

A look at unseen meadows (Indonesia)

25 July 2018, Forests News, Center for International Forestry Research

Hidden underwater, seagrass meadows cover less than 0.2% of the ocean floor but are responsible for an estimated 10% or more of the 'blue' carbon sequestered by the ocean each year. Yet, these ecosystems are rapidly deteriorating. It is estimated 29% of all seagrass meadows have vanished. Scientists say this rate is equal to the loss of a football field's worth of seagrass every half hour. In consequence, seagrass's carbon stocks can be released in an instant. Warmer waters from climate change, or the drop of an anchor, can unearth carbon that's been stored for thousands of years.

At the recent Blue Carbon Summit in Jakarta, researchers examining seagrass in Indonesia shared findings on these under-researched ecosystems, and what needs to be done to ensure their longevity going forward. Protecting, managing and restoring seagrass meadows, begins with knowing the site-specificity of species and carbon storage. Off the south coast of the Indonesian island of Sulawesi, for instance, Rohani Ambo-Rappe, Faculty of Marine and Fisheries at Hasanuddin University, found that meadows with high exposure to waves stored more carbon in the above-ground biomass of its seagrass, while low-exposure zones saw more carbon stored in roots below the sediment surface. Meanwhile, in West and East Java, Dr. Devi Choesin from the Bandung Institute of Technology found that most carbon was stored below the sediment across the board, though with a great degree of variability.

The reasons for the decline of seagrass range from the usual suspects – water pollution, plastic waste, eutrophication, tourism development – to the less obvious, such as overgrazing of sea turtles, waves and water currents. But because of the extant lack of attention and scientific focus on these ecosystems, they have yet to be formally included in major global initiatives and platforms, such as REDD+ and the UNFCCC agenda. Within the agenda of Indonesia, the ambitious national goal to reduce greenhouse gas emissions 26% by 2020 could use the help of seagrass, speakers at the Summit said, rather than putting all of the pressure on land-based ecosystems. In the 'white papers' being developed by the Center for International Forestry Research (CIFOR) and partners to inform future Indonesian policy, seagrass is included in the first recommendation, highlighting its crucial role in keeping pace with sea level rise, an important step toward changing the tide for these ecosystems.
more……..www.seagrasswatch.org/news_July2018archives.htm

Green Sea Turtle Tagging Helps Researchers Understand the Endangered Species (Fiji)

23 July 2018, Fiji Sun Online

About 150 green sea turtles have been tagged and released into the ocean by The University of the South Pacific's School of Marine Science since 2015. This is part of an ongoing project that has enabled researchers to gauge and monitor the feeding, breeding and migration patterns of the species.

The School of Marine Science conducted a three-day workshop, which ended on Saturday, with the theme: Conservation of Sea Turtles within the Cultural Context of Oceania – Possibilities beyond Protection. Susanna Piovano, a senior lecturer at the school said: "This project aims to monitor the foraging grounds, feeding patterns and migratory paths of these turtles. The project was funded by the National Oceanic and Atmospheric Administration (NOAA) and led by director of Co-operative Sea Turtle Research Programme at Hawaii Preparatory Academy.

The turtle population in the country has undergone a lot of human impact to survive the changing environment, says Ilisapeci Narube, Project Officer of Mamanuca Environment Society (MES). Ms Narube was also devastated by the number of turtles that were caught and eaten by people. "Even though the moratorium is there people are still requesting permits and approval to harvest these turtles," she said. The destruction of the breeding grounds (nesting beaches), more development projects, littering cases, improper waste disposal were some of the major dangers affecting the turtle population in Fiji, she said.

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Australian governments concede Great Barrier Reef headed for 'collapse' (Australia)

20 July 2018, The Sydney Morning Herald

The world's climate change path means the Great Barrier Reef is headed for "collapse" according to a plan endorsed by state and federal governments that critics say turns a blind eye to Australia's inadequate effort to cut carbon emissions. The federal and Queensland governments on Friday released a "new and improved" Reef 2050 Plan to save the iconic natural wonder, which explicitly acknowledges climate change poses a deadly threat to the reef. The comments depart starkly from previous official efforts to downplay damage wrought on the reef for fear of denting the tourism industry.

Based on current climate projections, the outlook for coral reefs generally is "one of continuing decline over time, and in many regions, including the Great Barrier Reef, the collapse and loss of coral reef ecosystems", the plan says. It concedes that consecutive coral bleaching events and other stressors "have fundamentally changed the character of the reef", which is one of the most diverse ecosystems on the planet. The plan recognised that "holding the global temperature increase to 1.5°C or less is critical to ensure the survival of coral reefs".

Respected coral scientists have documented in peer-reviewed journals that most of the world's coral reefs will not survive unless the global temperature increase is limited to 1.5°C above pre-industrial levels. However WWF-Australia head of oceans Richard Leck said Australia's emissions reduction efforts were not even in line with limiting warming to 2°. He cited a 2017 report by the United Nations environment program that found Australia's greenhouse gas emissions were set to far exceed its pledge under the Paris accord. This agreement aims to limit global temperature rises this century to well below 2° and to pursue efforts to limit the increase to 1.5°. The Australian Marine Conservation Society's reef campaign director Imogen Zethoven said increased recognition of climate change as a threat to the reef must be followed by action.

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Submerged Caloosahatchee River gardens could help aquatic life bounce back (USA)

19 July 2018, The News-Press

Marine ecology experts teamed up with trained volunteers and private homeowners to plant plots of submerged aquatic vegetation. Their goal: Produce seeds that, when conditions are right, will help restore the river's seagrass meadows.

Too much salt or too little sunlight can kill the grasses. From 2006 to 2012, back-to-back years of winter drought made the salinity lethal to much of the grass in the river's upper estuary near Fort Myers. The good news: Seagrass restoration efforts have a fighting chance to succeed, despite the toxic blue-green algae that's oozed down the Caloosahatchee in recent weeks. However, the blue-green algae is a worrisome complication, said Jennifer Hecker, executive director of the Charlotte Harbor National Estuary Program. The algae fouling portions of the river doesn't poison plants. When combined with other sediments clouding the Caloosahatchee, it forms a blanket that can block light, even in shallow areas. That could curtail photosynthesis and plant growth.

The estuary program is a nonregulatory, public-private partnership working to protect estuaries and water resources in Lee, Charlotte, Sarasota, Manatee, Polk, Hardee and DeSoto counties. It obtained state and federal funding for the seagrass project, arranged for permits and enlisted and trained volunteers. On June 18, the estuary program's team planted five submerged gardens between the Caloosahatchee Bridge and Interstate 75. They planted tape grass

(*Vallisneria americana*) and widgeon grass (*Ruppia maritima*), two varieties with a long history in the river. Once a month, these plots will be monitored for salinity levels, other indicators of water quality and water temperature.
more……..www.seagrasswatch.org/news_July2018archives.htm

Related article
Charlotte County experts look to use seagrass as natural solution to algae problem (23 July 2018, Wink News)
https://www.winknews.com/2018/07/23/charlotte-county-experts-look-to-use-seagrass-as-natural-solution-to-alage-problem/

New non-profit aims to protect Jupiter Inlet (USA)

18 July 2018, WPTV.com

As people enjoyed boating, snorkeling and fishing on the Jupiter Inlet, Bob Shaw and several others are taking steps to protect the inlet through a newly-formed non-profit group called the Jupiter Inlet Foundation.

The group started forming toward the end of 2017. They've recently begun adding more members and starting initiatives. They have several hundred Facebook followers. Protecting endangered seagrass is the organization's current short-term goal. “We don’t want any anchoring on it or dragging your propeller along it," Shaw, who is now the director of the Jupiter Inlet Foundation said.

They're raising money for informational buoys that would tell boaters about the endangered seagrass beneath them that’s critical habitat for marine life. The foundation eventually wants to see more legal protections put in place for the inlet. They also plan to work to protect the habitat from overdevelopment.
more……..www.seagrasswatch.org/news_July2018archives.htm

Related article
Nonprofit aims to protect Jupiter Inlet's natural resources, history (25 July 2018, MyPalmBeachPost)
https://www.mypalmbeachpost.com/news/local/nonprofit-aims-protect-jupiter-inlet-natural-resources-history/vOleVax3MNRNJ6LrXyBfiP/

Great Barrier Reef slower to bounce back (Australia)

19 July 2018, SBS

Researchers are concerned about the Great Barrier Reef's powers of recovery from bleaching, poor water quality and disturbances. Scientists at the University of Queensland and the Australian Institute of Marine Science (AIMS) have found a decline in the ability of the reef to recover after bleaching, outbreaks of crown of thorns starfish or cyclones from 1992 to 2010.

Dr Juan Ortiz, lead author from AIMS and UQ's school of biological sciences, says that during this time, average coral recovery rates showed a six fold decline across the Great Barrier Reef. The frequency of acute disturbances is predicted to increase, making careful management the key. "This is the first time a decline in recovery rate of this magnitude has been identified in coral reefs," he said. "The decline is driven by a combination of the legacy effect of acute disturbances. The future of the Great Barrier Reef is threatened without further local management to reduce chronic disturbances and support recovery, and strong global action to limit the effect of climate change."

UQ Professor Peter Mumby, of the Centre of Excellence for Coral Reef Studies, said there was serious cause for concern but it was important to stress that not all reefs were failing. "Our results indicate that coral recovery is sensitive to water quality and is suppressed for several years following powerful cyclones," he said. "Some reefs could improve their recovery ability if the quality of the water entering the reef is actively improved."
more……..www.seagrasswatch.org/news_July2018archives.htm

Green sea turtle digging its own watery grave due to invasion of non-native seagrass

18 July 2018, Phys.Org

A seagrass species from the Red Sea is outcompeting the native seagrass species in the Caribbean, where the green sea turtle lives. These iconic turtles are seeing their grazing areas decline, because they have little interest in the foreign seagrass. Wageningen researchers and colleagues from other research institutions discovered how these large underwater grazers seem to dig their watery grave with their own eating behaviour. The Journal of Ecology for this week reports on the topic.

Since the opening of the Suez Canal in 1892, the seagrass *Halophila stipulacea*, once isolated in the Red Sea, began making its way into the Mediterranean. The exotic seagrass reached the eastern Caribbean by ship in 2002, where it turned out to be dominant over the original seagrass, the native *Thalassia testudinum*. For millions of years, the green sea turtle *Chelonia mydas* has been gracefully grazing in the fields of the native seagrass species. However, this began to change in 2002. In 2010, the new seagrass found its way to Lac Bay on the island of Bonaire, in the Dutch Caribbean, where a research team conducts field observations, experiments, and gathers satellite images of grazing areas from the last 40 years. In time lapse satellite images, they are able to see the underwater terrain on which the sea turtles graze increase by 72 per cent (up to 65 hectares). The sharp boundary between grazed and ungrazed seagrass fields is shifting to native seagrass species in shallower. The research team also

outfitted the green sea turtles with GPS trackers, and confirmed the turtles are largely dedicated to the newly grazed areas. The turtles food preference experiments and laboratory measurements indicated that the exotic seagrass is 2.5 times less nutritious for the sea turtle.

However, what was even more problematic for the researchers is that they observed the exotic seagrass spreading more quickly in grazed areas in comparison to ungrazed areas. Ultimately, in the six years between 2011 and 2017, *H. stipulacea* underwent an expansion of six to twenty per cent of the permanent monitoring locations. During the same period, coverage with the native seagrass *Thalassia testudinum* dropped by 33 per cent. This showed how large herbivores play a significant but previously unrecognised role in the expansion of exotic plant species in aquatic ecosystems. According to the researchers, water purification and removing factors that generate murky water in seagrass fields will help the vitality of the old seagrass fields. For the dry Caribbean islands, this would partially be addressed by counteracting overgrazing by goats on the islands, as they eat everything until the ground is bare which encourages erosion.
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Virginia's Efforts To Restore Seaside Grasses May Be A Worldwide Model (USA)
13 July 2018, WVTF

Along the Atlantic, near the very tip of the DelMarVa Peninsula, scientists and conservationists have been working for a decade to restore one underwater seagrass that succumbed to disease and the hurricane of 1933. On the Atlantic coast of Virginia's Eastern Shore there are tiny coastal bays between the barrier islands where there used to be thousands of acres of lush underwater meadows of eel grass.

Scientists thought they were extinct. Then in 1999 came a discovery. "For the first time in almost 70 years, someone found a small patch of eel grass just east of here behind the north end of Wreck Island," says Bo Lusk, a scientist with the Nature Conservancy who grew up on the Eastern Shore. Lusk has been working with the Virginia Institute of Marine Science to resurrect eel grass. So far they've planted some 500 acres which has spread to 7,000.

Each spring a team of volunteers snorkel down to harvest flowering grass shoots that contain seeds. Those are put into giant tanks and tended until the seeds are ready to harvest. In the fall they will be spread to other areas. Director Cora Johnston says the replanting effort is paying off to the point that grasses are healthy enough to recover from small die-offs. But a changing climate is bringing stronger storms and bigger heat waves. "If those events start happening more and more frequently, which we expect that they often will, then as those become closer together, there's a potential for that to create conditions that would be insurmountable for the seagrass," Johnston warns.

As the Trump administration considers allowing off-shore oil drilling in Virginia waters, a potential oil spill could prove disastrous for DelMarVa's seaside. "One of the really important reasons for keeping this area protected is that it is one of our last sentinel sites that allows us to see how these dynamics play out naturally," Johnston says. "But then to be able to translate that knowledge to understanding what's happening on other coastlines and how we can make coastlines more resilient in general as climate changes and as sea-level changes."
Scientists also point out that water quality is key to restorations efforts, in the Atlantic and on the Chesapeake Bay side of Virginia's Eastern Shore.
more……..www.seagrasswatch.org/news_July2018archives.htm

Beautiful science (Singapore)
05 July 2018, The Straits Times

Although seagrass covers less than 0.2 per cent of the world's oceans, these meadows of marine flowering plants - such as the one at Pulau Hantu - provide nursing and foraging grounds for invertebrates and fish that support fisheries around the world.

By providing juvenile fish with abundant food and shelter, the meadows ensure that the creatures can later migrate into deeper habitats, where they are fished by both industrial and small-scale fisheries. However, scientists say seagrass habitats are experiencing a rapid decline, with an estimated 7 per cent loss of global seagrass meadows each year.

Dr Richard Unsworth, research officer at the Seagrass Ecosystem Group of Britain's Swansea University and the author of the study, said: "There is a global rapid decline of seagrass, and when seagrass is lost, there is strong evidence globally that fisheries and their stocks often become compromised with profound negative economic consequences." He added: "To make a change, awareness of seagrass' role in global fisheries production must pervade the policy sphere. We urge that seagrass requires targeted management to maintain and maximise its role in global fisheries production."
more……..www.seagrasswatch.org/news_July2018archives.htm

Marine plant damage costly for Sunshine Coast company (Australia)

04 July 2018, My Sunshine Coast (press release)

A Sunshine Coast company which damaged protected marine plants of cultural significance to the local Indigenous community has been convicted and fined more than $29,000 in the Maroochydore Magistrates Court. Minister for Agricultural Industry Development and Fisheries Mark Furner said the detection of the offences and the fines imposed sent a clear message that the wilful damage of marine plants and the rights of traditional owners would not be tolerated.

Queensland Boating and Fisheries Patrol (QBFP) District Officer Russell Overton said the penalty highlighted the high level of protection placed on marine plants and the serious effect of wilful damage on the rights of traditional owners. “The Kabi Kabi, who are recognised as native title holders, use the Maroochy River and its flood plains for traditional purposes, including collecting food, fibre resources for making implements, bags and nets, finding traditional medicines and a gathering place,” Mr Overton said.

In a statement to the court, the Kabi Kabi First Nation people said the changed landscape from the destruction and damage to the marine plants had caused harm to the Maroochy River dreamtime story. QBFP has appointed Cultural Liaison officers to help develop a better understanding of the values Aboriginal and Torres Strat Islanders place on fisheries resources. This better understanding will assist in ensuring these values are protected under the Fisheries Act 1994.

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Boaters warned to stay off protected seagrass beds along Florida's coast (FL, USA)

03 July 2018, ABC Action News

Seagrass might not seem like a big deal to most people but biologists say that it drives Florida’s economy. "It's a critical base food chain that provides food for all the animals here along the coast," said Keith Kolasa, director of Hernando County Waterways. That’s why seagrass is protected. It’s what manatees and turtles live on, and what fish live in.

But boats can destroy it. Many grass bed areas have “scarring” where boats have dropped their anchors or grounded and ripped away the grass. "It won’t grow back at all or it’ll take 10 to 12 years for the grass beds to fill back in," said Kolasa.

The Nature Coast has the second largest seagrass beds in the nation and they want to keep it that way. That’s why Hernando County is placing buoys around areas of heavy boat traffic, to keep boaters off the grass, because without it Florida would not be thriving. Kolasa says boaters who go into protected seagrass areas could face fines.

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Dispersion of seagrasses via vegetative fragments (Singapore)

02 July 2018, Phys.Org

NUS marine biologists have developed a model describing the dispersal of seagrass via vegetative fragments for the ecological engineering of coastlines. A research team led by Prof Peter Todd from the Department of Biological Sciences, NUS, partnered with scientists from DHI Singapore and the Royal Netherlands Institute for Sea Research to develop a conceptual model for seagrass dispersal via vegetative fragments which involves several distinct fundamental steps. Researchers are able to piece them together in a model to predict where seagrasses are able to disperse and take root.

The research team found that both settlement and establishment rates increased with fragment age before these rates decrease due to decay. This suggests there may be a window of opportunity during which settlement and establishment are optimal, i.e. when the fragment has enough time to float away from the parent meadow, but not too long that it decays, loses viability and is no longer able to establish. Different species were also found to have different settlement and establishment rates. Out of the four seagrass species tested, the species *Halophila ovalis* was found to settle and establish quicker and more successfully than others. While the mechanisms that enable it to settle and establish more quickly are not apparent, this trait could contribute to its success as a pioneering species, especially in areas of newly accumulated sediment.

Prof Todd said, "The findings help determine the dispersal potential of different seagrass species and the kind of conditions needed for successful dispersal. This research represents significant progress in our understanding of how seagrasses can disperse without sexual propagules and has important implications for their conservation and management."

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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 48,423 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

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