

Sea Sense

immerse your senses



Up Close and Personal
**The Colourful World
of Nudibranchs**

Did you know...
**Waves -Energy
in Motion**

Sustainability
**Sea Urchins- The Spiky
Heroes of the Sea**

Photo credit: Edward Vella

ISSUE 2
MARCH 2026

Published by



Editorial - Welcome to Sea Sense #2!

Welcome

Welcome to another issue of Sea Sense, the e magazine published by NGO Baħar Wieħed. We thank you for the positive feedback received on the first issue of this publication. Its very encouraging to instigate your curiosity and appreciation in the sea around us.

But as with the environment around us, the marine world is going through rapid changes most of which are induced by our behaviour and our activities. Protecting the marine life is critical and by appreciating and its beauty and appreciating its importance we can do the necessary changes to help protect it as well

We are very happy to announce that Baħar Wieħed is now officially a fully fledged registered Voluntary Organisation . We encourage you to follow our social media to keep updated with upcoming events.

As always, we thank all who contributed to this issue, the people who make this possible through their articles, amazing photos and suggestions. We thank you !

On behalf of all at Baħar Wieħed Enjoy !

Baħar Wieħed Editorial Team

Contributors : Edward Sultana, Michelle Borg, Adrian Sultana, David Agius, Edward Vella, Victor Micallef.

email : baharwiehed@gmail.com

facebook.com/baharwiehed

www.baharwiehed.org.mt

Instagram: baharwiehed



Photo: Edward Sultana
Cover Photo : Edward Vella

Sea Urchins- The Spiky Heroes of the Sea

If you have ever gone swimming or snorkeling you may have noticed a small, round creature covered in long sharp spines, seemingly stationary in the rocks. This is a sea urchin. Today, seeing one feels special. But many adults remember a time when sea urchins were very common.

This change did not happen by accident. Over the years ,due to severe overfishing, they have become rare to find.



Photo: Edward Vella

Legal Protection

In July 2023, the government introduced a two-year moratorium on collecting wild sea urchins of the type *Paracentrotus lividus*— meaning it became illegal to pick them up, transport them, sell them, or remove them from the sea. This was done after a study commissioned by ERA found that sea urchin populations in local waters were at risk of extinction.

The moratorium was later extended until July 2027, because although numbers have started to recover in some places, sea urchins are still vulnerable and need more time to rebuild their populations.

Some Spiky facts

Sea urchins themselves are fascinating animals. They can live for many years — often more than ten, and sometimes much longer — but they grow slowly. They have many predators, including fish such as sea bream and wrasse, as well as octopus and some starfish. These predators help keep sea urchin numbers balanced. When predators disappear because of overfishing, the balance of the ecosystem is disturbed.

Sea urchins reproduce by releasing eggs and sperm into the water, usually in spring or early summer. This process depends on clean, healthy seas and enough adults being present at the same time. When sea urchin populations become too small, successful reproduction becomes much harder, and numbers can continue to fall year after year.



Photo: Edward Vella

Why are Sea Urchins important in the Marine eco System?

Sea urchins may look small and unimportant, and we might think they are a spiky unpleasant nuisance but they play a very big role in keeping the sea healthy. They are not just another animal living on the seabed. They are protectors of underwater forests.

Beneath the surface of the Mediterranean Sea are large meadows made of a special seagrass called *Posidonia oceanica*. These meadows are incredibly important. They give shelter to young fish, produce oxygen, protect beaches from erosion, and store large amounts of carbon, helping to slow down climate change. *Posidonia* grows very slowly, sometimes only a few centimetres each year. Some meadows are thousands of years old, and once they are damaged, they may take decades to recover — or may never return at all.

Living alongside these meadows are algae. Algae are simple plants that live in water. In small amounts, they are a normal and useful part of the marine environment. The problem begins when algae grow too quickly and in large quantities. Warmer water, pollution, and extra nutrients can cause algae to spread fast, covering rocks and plants like a thick blanket. When this happens, algae block sunlight and reduce oxygen in the water, slowly smothering Posidonia and making it harder for it to survive.

Sea urchins help prevent this from happening. Sea urchins feed mainly on algae. As they move slowly across the seabed, they scrape algae off rocks using a special mouth with hard, tooth-like structures. By constantly grazing, they stop algae from growing out of control and keep the seabed clean. This allows sunlight to reach the seagrass and gives Posidonia the space it needs to grow. Without sea urchins, algae can quickly take over, and slow-growing seagrass cannot compete.

Climate change is making this delicate balance even more fragile. Warmer seas stress Posidonia and slow its growth, while algae grow faster and spread more easily. Heatwaves and strong storms can damage weakened meadows, leaving empty areas where algae quickly take over. When sea urchins are missing, these damaged areas are often lost forever.

This is why sea urchins need protection. Sea urchins are easy to collect and cannot escape humans. Removing even a few may not seem important, but when many people do the same thing, entire areas can lose their sea urchins. This is why it is illegal in Malta to pick them up or remove them from the sea. The rule exists not to stop people from enjoying the sea, but to protect a fragile system that depends on balance



There is also a sad truth about sea urchins that is important to understand. In some places, sea urchins are killed so people can eat a very small part inside them. This means an entire living creature is destroyed for just a tiny amount of food. Because sea urchins grow slowly and take a long time to reproduce, their populations do not recover quickly. When they disappear, the sea loses one of its most important protectors.

Protecting sea urchins does not require special equipment or scientific knowledge. It starts with respect. By remembering how common they once were, by looking without touching, and by understanding why they matter, we can help protect the sea for the future.

Sea urchins may be small, slow, and spiky — but without them, the Mediterranean Sea would not be the same.

Sometimes, the quietest creatures are the ones doing the most important work.



Photos: Edward Vella

The Colourful World of Nudibranchs

Small, colourful – and quietly critical to our seas

Have you ever heard some divers or snorkellers excitedly describing something “tiny, colourful, and absolutely ridiculous looking,” chances are they met a nudibranch. These flamboyant sea slugs, often no bigger than a fingernail, are among the Mediterranean’s most photogenic residents, and Malta is quietly one of their best stages.



Photos: Edward Vella / Victor Micallef

But nudibranchs are more than underwater show stoppers. They are indicators of reef health, tied closely to their environment, and are increasingly important messengers in a changing Mediterranean. In Malta, where the sea defines culture, economy, and identity, these small creatures are quietly telling us how well, or how poorly, we are looking after our marine world. Bright colours are not decoration. Many nudibranchs advertise their toxicity, which they obtain directly from the organisms they feed on.



Small animals, big personalities

Nudibranchs are sea slugs that have evolved without shells, replacing armour with chemistry. Many species absorb toxins from sponges or hydroids and store them in their tissues. Their bold colours act as a warning: “Don’t eat me.”

Malta hosts a surprising diversity of these animals.

Divers regularly encounter species such as the Regal Doris (*Felimare picta*), the flame-tipped *Cratena peregrina*, purple *Flabellina* species, and the strikingly patterned *Peltodoris atromaculata*.

Each one is closely tied to a specific habitat and food source, which makes nudibranchs extremely sensitive to environmental change. Pressures on a fragile world - Malta's marine environment faces a familiar list of challenges. Anchors dropped on seagrass meadows tear up decades of slow growth in seconds. Coastal runoff and marine litter reduce water quality. Heavy use of popular dive sites increases accidental damage to fragile organisms.

Climate change adds another layer. Warmer waters are already allowing non-native species to enter the central Mediterranean, altering food webs and competition. Some nudibranchs may adapt. Others may not.



Why nudibranchs matter

Despite their size, nudibranchs play a real ecological role. They help regulate the growth of sponges and hydroids and are tightly woven into the food web. Because they are so specialised, they are often among the first species to disappear when water quality drops or habitats degrade.

For scientists and conservationists, nudibranchs act as early-warning systems. Fewer sightings can signal pollution, physical damage to the seabed, or shifts caused by rising sea temperatures.



Photos: Edward Vella / Victor Micallef

Protection on paper — and underwater

Malta has taken meaningful steps to protect its seas. Over one-third of its waters are designated Marine Protected Areas under EU Natura 2000 legislation. These zones safeguard reefs, caves, and Posidonia meadows, key habitats for nudibranchs and countless other species.

But protection works best when paired with awareness. Rules alone cannot prevent damage without responsible boating, careful diving, and public support for conservation measures.



One of the most hopeful developments is the rise of citizen science. Local initiatives such as NudiBANK invite divers to upload photographs and sightings of nudibranchs. Each image becomes a data point, helping researchers track species distribution, seasonal patterns, and long-term changes.

In a country with an active diving community, this approach turns curiosity into conservation. A good photo is no longer just a memory, it is evidence.



Photos: Edward Vella / Victor Micallef

Nudibranchs are easy to love. They are strange, beautiful, and entirely indifferent to human expectations. But they also remind us that healthy seas are built from small, fragile connections.

Protecting nudibranchs means protecting seagrass, reefs, water quality, and the balance of life beneath the surface. In Malta, the sea speaks through its smallest creatures, and nudibranchs remind us that care, at the smallest scale, makes the biggest difference.



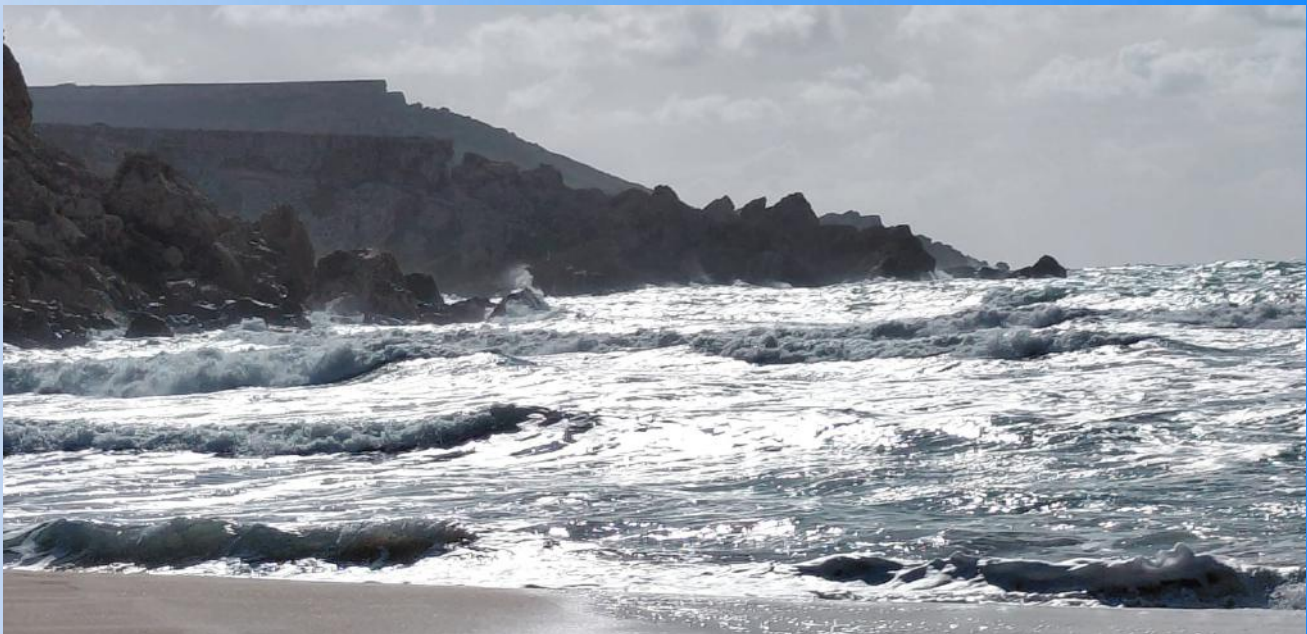
Did you know

- i. Nudibranchs are hermaphrodites - every individual can reproduce
- ii. Nudibranchs may live less than 1 year
- iii. Their presence often reflects the health of sponges, hydroids and sea grass meadows

Waves - Energy in motion

Most sea waves are formed by the wind blowing across the surface of the sea. You would notice that only small waves are formed in the summer months when there is no or little wind, making it easy for us to swim. But in stronger winds we have higher waves which can make it dangerous to go swimming but maybe better to go surfing.

When the wind blows across the surface of the sea, some of the energy of the wind is transferred to the water by means of friction, yes by friction! At first, this energy makes tiny ripples. If the wind keeps blowing these ripples will grow into larger and larger waves



What effects the size of waves?

There are three main factors affect how big waves become:

1. Wind speed – The stronger winds create bigger waves.
2. Wind duration – The longer time the wind blows, the more energy it gives to the water.
3. the distance the wind travels over open water called Fetch. The longer the fetch, the larger the waves can grow.

Interestingly, the water particles themselves do not travel in a straight direction with the wave. Instead, in waves the water particles move in small circular paths, passing the energy forward . That's why a floating object often moves up and down rather than moving towards the shore with the same speed of the wave!

What Happens When Waves Reach the Shore?

As waves move from deep water into shallow water near the coast, the sea floor begins to affect them - The rotating wave particles start to hit the shallower sea bed and this friction causes the wave to slow down. As the waves move slower, they also start to increase in height.

Did you ever notice that sea waves change direction when moving towards the coast and that in shallow water waves always seem to be parallel to the shore? That is because the part of the wave in shallow water slows down while the rest of the wave in deeper water continues move faster pace until the wave is moving at same speed in water of the same depth



What causes a wave to break ?

As the wave get closer to shore the bottom of the wave slows down because it rubs against the seabed, while the top continues moving faster. This causes the wave to grow taller and eventually break.

When a wave hits shore it transfers its energy to the shore, making that beautiful noise and shaping beaches, moving sand, and sometimes eroding cliffs.

Are waves all the same?

Not all waves are the same . As we discussed above, in certain days, ways look very organised moving in same direction and same speed. On other days they are moving in different directions in very random motion. Scientits have grouped waves under the following names

1. Wind Waves - These are the most common waves you see at the beach. They are created by the wind in the area. Usually the distance between one wave and another is short and move in different directions. On windy days, the sea often looks choppy because many small wind waves overlap.



2. Swell Waves - Swell waves are formed by strong winds very far away, often in storms so far away we don't feel them. They can travel thousands of kilometers without losing much energy. By the time they reach the shore, they are smooth, regular, and powerful. Perfect for surfing!

3. Tsunamis - are caused by underwater earthquakes, volcanic eruptions, or landslides. In deep water, tsunamis are hardly noticeable, but as they reach shallow coastal areas, they grow , and in certain cases they become extremely high and fast, becoming very destructive.



4. Tidal Waves (Tides) - Although often called waves, tides are actually caused by the gravitational pull of the Moon and the Sun on Earth. Tides cause the sea level to rise and fall over many hours, creating high tide and low tide. They are slow but powerful and affect marine life, harbors, and coastlines.

Are waves useful for us ?

1. They shape coastlines by moving sand and rocks.
2. They help mix ocean water, spreading heat and nutrients.
3. They are a source of renewable energy, as scientists explore ways to turn wave power into electricity.
4. They help oxygenate seawater, which is vital for fish and plants
5. They move sand and nutrients along the coast

Waves remind us that the sea is always moving, always alive, and always connected to the rest of our planet.

Curiosity

The University of Malta have instruments out at sea to measure the height and the speed of waves. This is very important for vessels travelling out at sea to ensure their safety. During the recent storm in January that hit Malta very badly, the largest wave recorded was 13 metres high , which is very high. A recent study by the University of Malta also estimates that the highest wave to reach Malta in the next 100 years will be approximately 15metres

Can you imagine a 15 metre wave ... how high do you think is 15 metres ?

Is this Plastic yours?

Did you notice how much plastic gets washed up on the beach by the waves? A large amount of small bits and pieces of plastic of all shapes and colour. But once, these small pieces of plastic were part of something much bigger like bottles, plastic cans, plastic cups etc that were not disposed of in a correct way and eventually ended in the sea. The sea and the sun breaks them down in small pieces. Plastic never vanishes, it just becomes smaller and smaller. Don't be the cause of littering our sea and beaches. Always dispose of the waste in a correct manner



Smoking at Sea

Cigarette butts are the, most common type of litter found on beaches worldwide. Not only are cigarettes harmful to our health, cigarette butts pollute our environment when discarded in streets, beaches and end up in our seas. For this purpose, Malta has taken the step to restrict smoking on two of the most popular beaches, in designated areas only within the beaches themselves. These beaches are Ramla tal-Mixquqa (Golden Bay) in Malta and Ramla l-Ħamra in Gozo — no smoking is allowed except in the designated smoking zones on the beach.



Events

- To Celebrate World Earth's Day, NGO Bahar Wiehed together with Raniero's Adventures will be organising a Community Clean . Watch out our social media for more information

Citizen Science

- Elasmobranch Sighting. A citizen science campaign conducted by Sharklab-Malta. Sharklab-Malta is a Malta-based NGO working to protect elasmobranchs in Mediterranean waters. Its main objectives are to raise awareness about sharks, skates and rays, increase research efforts, and contribute to conservation on all levels. Any sightings of elasmobranchs can be registered on the below link

<https://www.sharklab-malta.org/report-a-sighting>

- The Spot the Alien and Spot the Alien Fish . Citizen science campaigns from the Oceanography Malta Research Group, Department of Geosciences University of Malta. They aim to promote the submission of reports of Non-Indigenous Species (NIS) spotted within Maltese waters by citizen scientists. The Spot the Alien Fish campaign focuses only on non-indigenous fish species, while the Spot the Alien campaign focuses on all other non-indigenous species.

<https://campaigns.ocean.mt/index.php/about/>

