

“Clean Seas” Ambassadors: Romania, Turkey, Greece , Malta, Spain

We, the Clean Seas Ambassadors of the PERSEUS EU Research Project, have studied the emerging environmental issues for the Mediterranean and Black Seas, proposed solutions and proposed recommendations to ensure our right to CLEAN SEAS.

The Issues

The following 5 threatening environmental issues for the Mediterranean and Black Seas have been examined:

1. Eutrophication
2. Non-Indigenous Species
3. Marine Litter
4. Fisheries
5. Jellyfish

Eutrophication has become a serious environmental problem worldwide mostly attributed to human developments. Especially for the Black Sea, the nutrient load discharged by rivers has been rapidly increasing with severe impacts on the marine environment i.e. algal blooms, hypoxia and occasional anoxia, and often followed by mass mortalities of fish and invertebrates.

Non-indigenous Species (NIS) are substantially increasing with alarming rates and even become invasive in their new environment, often causing environmental harm and risk to human health. The Lessepsian migration (through the Suez Canal) is the main source of NIS in the Mediterranean Sea, while ballast waters are the main source of NIS in the Black Sea. **Marine litter** poses not only an aesthetic problem, but is also extremely threatening to the marine life, the coastal and marine environment and public health. The effects of marine litter are under study by scientists and still remain unclear.

Unsustainable **Fisheries** are responsible for overfishing, which could push certain marine species to extinction, leading to the possibility that the Mediterranean & Black Seas may one day consist only of microbes, jellyfish and other invertebrates and threaten the livelihood of fishermen. **Jellyfish** can be found in all

marine habitats and if the habitat is affected by human activities they can proliferate even when fish do not survive. Therefore, the health of the ocean is crucial to maintain jellies in equilibrium with the ecosystem. The global warming, deeply connected to human causes,

The Solutions

It is clear that we need effective and strict regulations from the national governments and the European Union to tackle all of the above issues.

Eutrophication is a good example of a problem which effective legislation could possibly help to solve. A series of efficient measures can be implemented against eutrophication: reform agricultural practices; crop rotation to improve soil structure and fertility; create “buffer strips” near streams and rivers; restrict the use of artificial fertilisers and ensure manure provisions; encourage the use of natural fertilisers; and improve waste and water treatment.

Strict regulations and better control should also be implemented in respect to the introduction of **Non-indigenous Species (NIS)** through Suez Canal and treatment of ballast waters which have been identified as the main source of NIS for the Mediterranean and Black Seas.

In respect to **Marine Litter**, we first need to reduce the waste that is being produced. Active citizens can contribute a solution to the issue. Furthermore, Citizen-Science tools i.e. the Marine LitterWatch application, can be used for the citizen engagement. The introduction of reverse vending machines in coastal areas to reward the recyclers with free tickets (e.g for museums) can help to minimise litter. Lastly, the reduction of single-use every day plastic items is also considered as one of the major solutions to the problem.

As for **Fisheries**, the problem could be solved by putting a stop to irrational overfishing, including both legal and illegal fishing, such as the type of fishing which occurs in the high-seas, which do not fall under the jurisdiction of any country. There should also be a review of the targets and incidental catches of species identified as threatened. It should also be ensured that species are harvested at sustainable levels.

Finally, to maintain the abundance of **Jellyfish** on 'natural' levels we can try to improve the health of our seas, as low oxygen levels, eutrophication, and overfishing favour the presence and overabundance of jellyfish. We should also try to minimise the introduction (through ballast waters) and settlement of jellies (artificial substrates and habitat modification).

The recommendations

As Clean Seas Ambassadors, we hope to pass on a strong message about our future and we want to make our voices heard! We have carefully compiled a list of recommendations as we see appropriate and we hope that they can be enforced and applied by the policy-makers.

1. Eutrophication:

The **Restoration of Natural Wetlands** will bring multi-benefits in a long-term, as they are efficient in removing nutrients, provide a habitat for wildlife and also provide protection against floods.

Nutrients should be kept "on land", where they are needed, and shouldn't end-up in the water basins.

2. Non-indigenous Species (NIS):

Marine Protected Areas (MPAs) should be encouraged and promoted with their size and numbers increased.

Global Warming should be controlled as, among other environmental aspects, it is also blamed as the main factor for the NIS problem.

Citizen scientists can be involved in monitoring their presence in the seas.

3. Marine Litter:

Refuse to use more plastic bags or to buy products with fancy and unnecessary package

Reuse and do not throw away easily.

Reduce consumption -change consumer habits

Recycle as much as possible; the importance of recycling extends beyond environmental to political and ethical reasons.

Respect our nature, ourselves, and our precious blue planet.

4. Fisheries:

Sustainable small-scale fisheries should be preferred to large-scale industrial fishing. This way we will specifically target selected fish species which are not over-depleted and will minimize impact on other species (that might be in danger of extinction).

Appropriate and effective **monitoring and management** can rebuild fisheries. **Tools like simple population assessments and economic incentives** can make sustainable fisheries a reality for communities around the globe.

Governments must ensure that **harvest levels do not exceed any acceptable limits**, thereby ensuring the sustainability of the resource and the consistent supply of fish to our markets.

5. Jellyfish:

Overfishing should be regulated especially on species that predate on jellyfish (e.g. bluefin tuna and swordfish).

Reduce our global warming gas production by using alternative types of energy (hydroelectric, solar, wind)

Promote more studies and the gathering of more data of jellyfish abundance.

Develop new technologies

Promote Citizen Science

The Mediterranean and Black Seas have been blessed with very beautiful marine life, but it is true that our actions are affecting them and their ecosystem and this will be greatly detrimental to us.

*The combination of **Effective Policy Engagement** along with **Raising Citizens Awareness** will contribute to the solution of the issues and we call policy – makers and public to join forces **for healthy and clean seas in our future.***

The Clean Seas Ambassadors

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