

# **MANIFESTO**



**For bathing and recreational water  
quality in Europe**

**#HealthyWaters**

**Surfrider Foundation Europe** is a European not-for-profit organisation dedicated to the protection and enhancement of Europe's lakes, rivers, ocean, waves and coastlines. It was created in Europe (Biarritz) by a group of surfers who wanted to preserve their playground. Grass-roots activism to protect our ocean and coasts is at the core of the organisation which currently has over 13,000 members and is active across 12 countries through its volunteer-run branches. For 30 years, Surfrider Foundation Europe has been taking action as a recognized authority in 3 areas of expertise: marine litter, water quality and health, coastal management and climate change. Visit our website:

[www.surfrider.eu](http://www.surfrider.eu)



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**Authors:** Sarah Hatimi, Gaëlle Haut and Marc Valmassoni  
(Surfrider Foundation Europe)

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# Glossary of acronyms and abbreviations

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<b>EC</b>	European Commission
<b>EEA</b>	European Environment Agency
<b>EEZ</b>	Exclusive Economic Zone
<b>EU</b>	European Union
<b>HAB</b>	Harmful Algal Bloom
<b>MSFD</b>	Marine Strategy Framework Directive
<b>SDG</b>	Sustainable Development Goals
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation
<b>WFD</b>	Water Framework Directive
<b>WHO</b>	World Health Organisation





**BACKGROUND**

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A faint, black outline map of Europe serves as a background for the text. It shows the coastlines of all European countries, including the British Isles, Scandinavia, and the Mediterranean region.

# An incredible source of wealth

The European Union has the largest maritime territory in the world

**The European Union has the largest maritime territory in the world with 70,000 km of coastline and 111,000**

surface waters including coastal waters, rivers and lakes . These waters are treasured by millions of European citizens who occasionally or regularly engage in sporting or recreational water activities such as swimming and water sports.

<sup>1</sup> Wise Sow database.

<sup>2</sup> Eurostat, 2011. In 2011, 206 million people, or 41 % of the EU population, lived in Europe's coastal regions.

## An incredible resource appreciated by millions of europeans



**40%** of the **European population** live in coastal regions and enjoy the coastline and coastal waters on a daily basis. Alongside major conurbations and coastal regions, the areas around rivers and other watercourses are the third most populated area in Europe. These wonderful areas, offering leisure opportunities as well as improving the quality of life and well-being, appeal to Europeans, but not only.

Every year, **millions of European and non-European tourists** come to Europe's coastlines or to the shores of lakes and rivers for swimming, water sports, recreation and relaxation. Europe's coastline is the **main holiday destination** for 63% of European tourists<sup>3</sup>. People like to spend their weekends on a beach nearby, or go to the seaside on holiday, because they appreciate the incredible beauty, biodiversity and the countless **activities** that can be enjoyed there.

<sup>3</sup> Facts and figures on the European on holiday: 1997-98', Eurobarometer 48, Brussels, 1998.

## A source of leisure and well-being

**L'utilisation récréative des étangs, des rivières, des lacs, des mers et de l'océan est extrêmement populaire en Europe :**

**People very often use ponds, rivers, lakes, seas and oceans for recreational activities** such as swimming, surfing, diving, kayaking, snorkelling, paddling and many other water sports and activities. A number of «new sports» are emerging and booming, such as paddling, which can be practiced in all water environments and is accessible to most. 48 million people in Europe are believed to be involved in water sports<sup>4</sup>. As far as bathing is concerned, 22,295<sup>5</sup> coastal, river and lake areas have been identified in the European Union in 2019 as part of the surveillance Member States carry out. **500,000 new people** are taking up surfing every year worldwide, demonstrating the attractiveness of water sports in connection with nature for citizens and Europeans alike. Several factors and a series of benefits explain why non-motorised water sports such as swimming and surfing are so popular. Indeed, these activities allow people to feel **reconnected to and immersed in nature**. They are accessible to both experts and beginners, both geographically and financially for some of them as they require little equipment or infrastructure beyond water and the natural environment<sup>6</sup>.



<sup>4</sup> Facts and Figures, European Boating Industry: <https://www.europeanboatingindustry.eu/facts-and-figures>.

<sup>5</sup> European Bathing Water Quality Report 2019, European Environment Agency (EEA), June 2020:

<https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/state-of-bathing-water/european-bathing-water-quality-in-2019>.

<sup>6</sup> European project, Get Wet: [www.beactive-getwet.eu/](http://www.beactive-getwet.eu/)

European waters are an incredible source of **therapeutic benefits** and **well-being**. Indeed oceans, lakes and rivers have beneficial effects on health<sup>7</sup> considering that aquatic environments contribute to increasing physical activity and improve **mental well-being**. Many associations use water sports to achieve this on a daily basis. Furthermore, it has been shown that **the more the aquatic environment is preserved, the greater the benefits for human beings**, underlining the need to guarantee the quality of coastal waters. Water activities, as the outdoor sports activities par excellence, are a source of **benefits for society**<sup>8</sup> in terms of education and lifelong learning. As such, they also contribute to active citizenship, as well as reducing crime and anti- social behaviour.

**Water** in general and more specifically recreational water is of major interest and an **incredible cultural richness**. It is therefore subject to attention from institutions such as UNESCO or the European Union to preserve its cultural value and heritage<sup>9</sup> and also its attractiveness for tourism. Water is also at the heart of the **sustainable development goals** (SDGs), and more specifically two of them concerning the protection of underwater life and access for all to sustainably managed water supply and sanitation services.

<sup>7</sup> Fostering human health through ocean sustainability in the 21st century, Lora E. Fleming and alli, People and Nature, Volume 1, Issue 3, 2019: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1002/pan3.10038>.

<sup>8</sup> Examples of benefits listed by participants in water sports: <https://outdoorsportsbenefits.eu/wp-content/uploads/2020/03/CSIG-6-Nautical-in-Schools.pdf>. Example of an association working for social inclusion through surfing in Portugal: Surf Social Wave: <https://www.facebook.com/surfsocialwave/>.

<sup>9</sup> Development of nautical routes in Europe, accessible in particular via diving or the UNESCO «underwater world heritage» initiative. Example of the WAOH route, which aims to develop the first European sustainable diving route along 5000 km of Atlantic coast, from the south of Portugal and Spain to the north of Ireland and the United Kingdom. More info at: <https://ec.europa.eu/easme/en/wildsea-atlantic-ocean-heritage-route-dive-adventure>



## A natural resource of exceptional value

Seas, lakes and rivers in Europe are incredible ecosystems, home to an **exceptional and precious biodiversity**, they are also **fragile** and **vulnerable**. For instance, from the coast to deep sea waters 36,000 to **50,000 species**<sup>10</sup> live in **1,000 different habitat types** - from the coral reefs of the dark and cold depths of the Atlantic Ocean to the seagrass meadows of the warm and clear Mediterranean Sea. Species vary from one European sea to another and account for more than **half of all invertebrates** (jellyfish, sea anemones, corals, lobsters, crabs, shrimps, starfish, sea urchins, crustaceans, sponges, squid, octopus, etc.), more than 650 different species of **fish**, 5 of the 7 species of **sea turtles** on our planet, more than 180 species of **seabirds** and marine **mammals**.

More than 42% of the world's known cetacean species, i.e. 36 species of whales, dolphins and porpoises, can be observed in European waters: some live there, others pass through. Of all the seas, the Mediterranean is home to the greatest biodiversity.



In addition to the 50,000 species living in European seas, there are **20,000** other **living organisms** in Europe's rivers and lakes such as fish, invertebrates and aquatic plants. According to scientists, although fresh waters cover only 1% of the world's surface, 10% of the world's animals and 35% of vertebrates<sup>11</sup> live in them, a striking figure that demonstrates their incredible diversity.

<sup>10</sup> Costello, M. J. and Wilson, S. P., 2011, 'Predicting the number of known and unknown species in European seas using rates of description: Predicting species diversity', Global Ecology and Biogeography 20(2), pp. 319–330.

<sup>11</sup> Biofresh project ([project.freshwaterbiodiversity.eu](http://project.freshwaterbiodiversity.eu)) & FIP (Fresh Information Platform :: [www.freshwaterplatform.eu](http://www.freshwaterplatform.eu)).

## A job creating economic resource which many regions and europeans depend on for their survival

Europe is economically very dependent on its waters as a source for leisure activities. Maritime and coastal tourism is the most important maritime economic activity, employing 3.2 million people and generating more than €183 billions of gross added value in the EU<sup>12</sup>. It accounts for a third of all tourism activities in the EU - the world's leading tourist destination - and provides 51% of tourist accommodation in Europe<sup>13</sup>. In some parts of Europe, most notably islands, it is not only an additional source of income for coastal communities but **dominates the local economy**. In such areas some communities depend a lot on the practice of leisure and water sports<sup>14</sup>. **A healthy environment is essential to develop these forms of sustainable 'blue' tourism**, for which there is increasing demand.

In the context of the climate crisis and the loss of biodiversity, more and more citizens wish to reduce the impact of their leisure and holidays on the environment. In turn, the Covid 19 crisis is an invitation to rethink our ways of travelling and going on holiday - for those who are lucky enough to do so. The quality of the environment and its preserved nature are going to be increasingly determining factors in the choice of destination for citizens. Non-motorised water sports tourism is thus identified as a sector with **high potential**<sup>15</sup>, be it diving, surfing or walking along the seafront. Its development is by nature intimately **linked and dependent on healthy and preserved aquatic environments**. For instance, 10 million people throughout the world are believed to visit renowned surfing destinations each year and this number is on the rise<sup>16</sup>.

<sup>12</sup> Assessment of the Impact of Business Development Improvements around Nautical Tourism, ICF, November 2016, p6: <https://op.europa.eu/en/publication-detail/-/publication/473c0b82-18f9-11e7-808e-01aa75ed71a1>.

<sup>13</sup> Study in support of policy measures for maritime and coastal tourism at EU level, ECORYS, 2013: [https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/docs/body/study-maritime-and-coastal-tourism\\_en.pdf](https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/docs/body/study-maritime-and-coastal-tourism_en.pdf).

<sup>14</sup> A Spanish example: the city of Mundaka (Espagne) in C. Nelsen and alli, 2008, Proceedings of the Coastal Society: 21st International conference.

<sup>15</sup> Study in support of policy measures for maritime and coastal tourism at EU level, 2013, p 71. One example cited in the report concerns diving. According to the report, 800 000 European divers make an average 10-night trip each year, spending more than 1.4 billion euros a year. In many destinations, diving has made it possible to extend the tourist season, as in the Medes Islands (Spain).

<sup>16</sup> Ibid, p72.





**A resource severely impacted  
by pollution**

## Water quality threatened by multiple pollutions

The quality of European waters is threatened by pollution from land and sea-based human activities: **urban and agricultural runoff**, discharges from **industrial activities, maritime transport** and **offshore exploitation of resources**. Runoff on impermeable soils, wastewater discharges and overflows (treated or not) as well as industrial discharges and malfunctions contribute to worsening the quality of aquatic environments. On land, this pollution is carried by water or wind and converges towards rivers and streams before ending up in the ocean.

Growingly **urban** and **artificial** coastlines also contribute to altering and polluting the natural water cycle and reducing its resilience. In a preserved natural environment, rainwater is partly absorbed and filtered by the soil and plants before naturally recharging groundwater. In cities and peri-urban areas, this natural filter no longer works due to the permeability of surfaces, which leads to significant leaching of soil while loading run-off water with pollutants flows to the ocean. This pollution affects the amount of clean available water and contributes to water stress in Europe.

At the same time, **water is used in abundance** in the private, industrial and domestic sectors. It is mixed with our consumer products waste and «toxic» substances. Most of this «polluted» water is collected and **treated by treatment plants** before being discharged into the environment. Current treatment techniques and methods do not make it possible to treat and purify all the substances produced and discharged by humans. Depending on the absorption and resilience capacities of the environment, the latter can be more or less durably impacted by pollutants, hence the crucial importance of controls (sanitary and environmental) in order to optimise the management and use of this limited and vulnerable resource.



Pollution can take different forms (solid or liquid), visible or invisible, which makes its treatment particularly complex. It also has various origins. Generally, **bacteriological pollution** (the presence in water of pathogenic microorganisms such as bacteria, viruses or parasites) comes from **urban waste, wastewater** and **run-off water**. However, **yachting** or cruise-type **tourism** can generate this type of pollution.

**Chemical pollution** can occur in different ways and be present in the soil, air or aquatic environments. At present there are more than **100,000** listed **chemical substances**, the vast majority of which are synthetic molecules. **Heavy metals, hydrocarbons, drug residues, pesticides or fertilisers** are all chemical pollutants that end up in rivers and the ocean. Only **38%** of surface waters (rivers, lakes and transitional and coastal waters) are classified as being in good **chemical status** in Europe.

**Nutrient pollution**, primarily **nitrates** and **phosphates**, is caused by the use of pesticides in agriculture and consumer products such as detergents used by households. These nutrients also come from activities at sea resulting from discharges from ships and from aquaculture. The use of nitrate-causing nitrogen in fertilisers is massive. Most waters considered to be polluted by high nitrate levels are located close to either densely populated areas or catchment areas downstream of agriculture<sup>17</sup>. Eutrophication caused by this excess nutrient input is considered a large-scale problem in the Baltic Sea, the Black Sea, in parts of the North-East Atlantic and Mediterranean Sea, thus in almost all European seas.

<sup>17</sup> Report on nutrient enrichment and eutrophication in Europe's seas, AEE, 2019: [https://www.eea.europa.eu/publications/nutrient-enrichment-and-eutrophication-in-at\\_download/file](https://www.eea.europa.eu/publications/nutrient-enrichment-and-eutrophication-in-at_download/file).



As a direct effect of climate change, which warms coastal waters and rivers, **algae bloom** is more and more frequent, especially in the summer period. The phenomenon is also exacerbated by the input of excess nutrients into European waters. At sea, algae bloom is often the result of toxic algae proliferation, whereas in fresh water it often comes from cyanobacteria bloom.

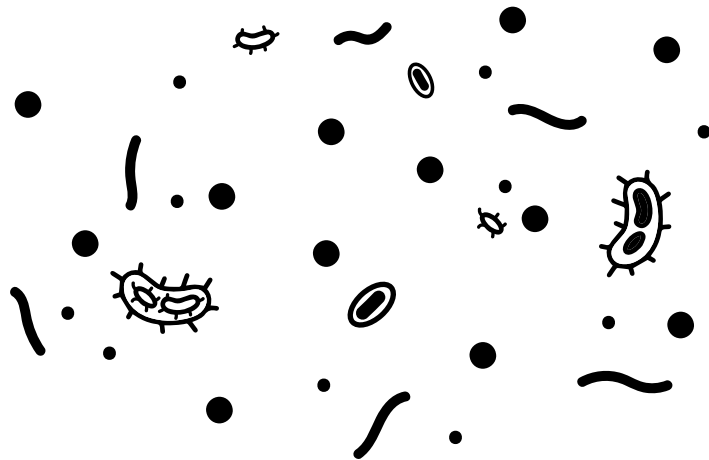
Finally, another type of pollution affecting bathing waters is **waste**. it can be found on the coast, on the water surface in great quantity<sup>18</sup>, in the water column and on the sea floor, either in macro or micro form which is easily ingested. Waste leads to a reduction in water quality. The vast majority of waste microparticles are made of plastic and can be counted in millions of tons in the marine environment.

<sup>18</sup> Van der Meulen, M.D., DeVriese, L., Lee, J., Maes, T., Van Dalfsen, J.A., Huvet, A., Soudant, P., Robbens, J., Vethaak, A.D., 2014, 'Socio-economic impact of microplastics in the 2 Seas, Channel and France Manche Region: an initial risk assessment', MICRO Interreg project Iva, p 27: [https://www.ilvo.vlaanderen.be/Portals/74/Documents/Socioecono-mic\\_impact\\_microplastics\\_2Seas\\_and\\_FranceMancheRegion.pdf](https://www.ilvo.vlaanderen.be/Portals/74/Documents/Socioecono-mic_impact_microplastics_2Seas_and_FranceMancheRegion.pdf)



## Is bad water quality a threat to our health?

The pollution of European waters weighs very heavily on the European economy and on biodiversity and habitats. Our society also pays a heavy price with regards to **health**. Pollution has a severe impact on the environment and therefore an indirect effect on the health of the population. The effect on health can be direct due to exposure through bathing or recreational and sporting activities in or in contact with water<sup>19</sup>. Among the illnesses that can occur following swimming or water sports activities are nausea, vomiting, diarrhoea, stomach aches, fever, respiratory infections, hepatitis, ear, eye, nose and throat infections, as well as salmonellosis, cholera and fatal diseases in highly polluted water. These ailments demonstrate the importance to not neglect the protection of everyone's health, even during leisure activities, which at first may seem harmless.



The effects of **bacteriological pollution** are the most documented for by the scientific community. Their **impact on human health is proven**, hence their monitoring on a European scale through the European Bathing Water Directive. In the presence of proven bacteriological pollution, «aquatic» users are very widely exposed if no preventive measures are taken. By simple contact, ingestion or inhalation of water (sea or fresh water), this pollution can cause gastric disorders, ENT problems, skin infections but also lead to more serious pathologies. The bacteria monitored under the Directive were chosen because they are indicators of the overall load of pathogenic organisms in bathing water.

<sup>19</sup> DeFlorio-Barker, S., Wing, C., Jones, R.M. et al. , 2018, 'Estimate of incidence and cost of recreational waterborne illness on United States surface waters', Environ Health 17, 3: <https://doi.org/10.1186/s12940-017-0347-9>.

The **consequences of chemical pollution** on health remain more complex to apprehend and evaluate, but scientists agree on a significant potential risk. In recent years, numerous studies and articles have shown a growing interest in emerging pollution in the aquatic environment. Antibiotic resistance, mainly due to the misuse of medicines is today one of the most serious threats to global health<sup>20</sup>. As a result, bacteria present in the environment, in humans or in animals become resistant to antibiotics causing infections that are more difficult to treat. As a consequence of our consumption patterns, domestic, agricultural and hospital waste containing medical and pharmaceutical pollution all end up in the ocean.

Concerning nutrient pollution, the impact on young children of **nitrates** in drinking water is well established. They affect growth and normal brain development. A similar impact of these substances in bathing and recreational water still remains to be tested. The precautionary principle calls for the exposure of populations to be studied. In any case, there seems to be an “indirect” impact of nitrates on recreational and bathing water. Nitrates cause water eutrophication generally resulting in the production of toxins by microalgae which can be harmful to bathers but also to filter-feeding organisms (oysters, mussels, clams, etc.).



<sup>20</sup> World Health Organisation (OMS en français), Antibiotic resistance: Multi-country public awareness survey, 2015: [https://apps.who.int/iris/bitstream/handle/10665/194460/9789241509817\\_eng.pdf?jsessionid=939EC8204FB35F718B14157F14307D7A?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/194460/9789241509817_eng.pdf?jsessionid=939EC8204FB35F718B14157F14307D7A?sequence=1)



In both fresh and marine water, **algae bloom** can have harmful effects on marine biodiversity and human health (smothering of the seabed, production of toxins, etc.), potentially contaminating swimmers and all other users of the sea and coastline. The types of toxic algae that proliferate vary from one region to another. In the Mediterranean, *Ostreopsis ovata*, a palytoxin-producing microalga has been observed since the 2000s (2001 in the Balearic Sea, 2003 in the Aegean Sea, 2005 in the Ligurian Sea and 2006 in the Adriatic). Although the original appearance of *Ostreopsis ovata* in the Mediterranean is not clearly established, it could be linked to favourable climatic conditions. Since first appearing, *Ostreopsis ovata* has continuously spread. Its effects on biodiversity are diverse such as toxic bioaccumulation in the flesh of fish and molluscs (sometimes lethal), environment saturation and oxygen deficit. *Ostreopsis ovata* also causes skin irritations, infections (conjunctivitis, rhinopharyngitis, fevers, etc.) and respiratory problems to humans<sup>21</sup>. Monitoring algae bloom and its impacts is already applied in France<sup>22</sup>. Health authorities have indeed determined thresholds regarding the presence of cells in the water. Far from being «pollution» strictly speaking, these threats to human health and biodiversity are however increasingly present in the European coastal and marine landscape.

<sup>21</sup> Bibliographic synthesis - State of knowledge on the microalga *Ostreopsis ovata*, Surfrider Foundation Europe, October 2018.

<sup>22</sup> Memorandum DGS/EA3/EA4 No. 2010-238 on health and environmental monitoring and health risk management arrangements for the 2010 bathing season, related to the presence of the toxic microalgae *Ostreopsis* spp. in Mediterranean bathing waters and the contamination by its toxins of seafood products from recreational fishing, June 2010: [https://solidarites-sante.gouv.fr/fichiers/bo/2010/10-08/ste\\_20100008\\_0100\\_0161.pdf](https://solidarites-sante.gouv.fr/fichiers/bo/2010/10-08/ste_20100008_0100_0161.pdf).

The potential **health impacts linked** to the presence of **waste** are as significant<sup>23</sup> due to the ingestion of particles but also the release into the water of a series of toxic components. These toxic components are dangerous if ingested and because they attract pathogenic elements which can be transmitted to bathers. health risks linked to microplastics could be even worse in bathing water, as they disintegrate faster in this type of environment, resulting in a higher bacterial concentration and increased release of chemicals<sup>24</sup>. The interaction of plastic particles with human tissues and cells is still little known of but animal studies show that plastic particles can cause lung and intestinal damage, and that particularly fine particles can pass through cell membranes, tissues or human placenta<sup>25</sup>.

Microplastics also carry toxic additives that are harmful to humans. Once in the marine environment, plastics release additives they are made of such as bisphenol A<sup>26</sup>, an endocrine disruptor. Finally, plastic debris, both large and small, can be used as substrate for pathogenic micro-organisms and parasites. These would then end up in large quantities on bathers' skin, presenting a well-known health risk<sup>27</sup>. For example, plastic debris off the Belgian coast has been found to contain *Escherichia coli* - a pathogenic bacteria currently controlled under the Bathing Water Directive, and other harmful bacteria. A study on the subject has unequivocally concluded that microplastics pose a risk to the quality of bathing water.

<sup>23</sup> Vethaak and Leslie, 2016, 'Plastic debris » is a human health issue', Environ. Sci. Technol. 2016, 50, 13, 6825–6826: <https://pubs.acs.org/doi/full/10.1021/acs.est.6b02569>.

<sup>24</sup> Ibid, p 27.

<sup>25</sup> Wick, P., Malek, A., Manser, P., Meili, D., Maeder-Althaus, X., Diener, L., Diener, P.A., Zisch, A., Krug, H.F., von Mandach, U., 2010, 'Barrier capacity of human placenta for nano-sized materials. Environmental health perspectives', 118, 432-436.

<sup>26</sup> American Chemical Society, March 2010, 'Hard plastics decompose in oceans, releasing endocrine disruptor BPA', ScienceDaily: [www.sciencedaily.com/releases/2010/03/100323184607.htm](http://www.sciencedaily.com/releases/2010/03/100323184607.htm).

<sup>27</sup> "Swimming in the sea completely changes the microbes on your skin", New Scientist, Juin 2019: <https://www.newscientist.com/article/2207868-swimming-in-the-sea-completely-changes-the-microbes-on-your-skin/#ixzz6VIGv9shf>

## Water sports enthusiasts, a highly exposed population

With over 70,000 km of coastline, 37,000 km of waterways and a myriad of lakes and water sports areas, Europe offers an ideal environment for water sports. **More than 48 million Europeans regularly take part in water-based recreational activities<sup>28</sup>.** Whether surfing, diving or snorkelling, kayaking, rowing, triathlon, open water swimming or windsurfing, the appeal of water sports is growing across Europe. Although it is difficult to consolidate the exact number, **Surfrider Europe has been able to identify more than 450 national players involved** in water sports and nautical activities (sports federations, confederations and public bodies) as well as **1,250 regional and local players** (generally regional sports clubs or committees) **in 35 European countries<sup>29</sup>.**



<sup>28</sup> International Council Of Marine Industry Associations (ICOMIA), 'Recreational Boating Industry Statistics Book Edition 2', 2018.

<sup>29</sup> EU28 + Albania/Norway/Iceland/Switzerland and the Principalities of Monaco, Liechtenstein and Andorra.





**There are three pathways of exposure to pollution:**

ingestion, breathing and skin contact. People who practise nautical activities, even more so than swimmers, combine these three pathways of exposure and are generally in contact with the environment for a longer period of time because they visit European waters throughout the year and on a frequent and repeated basis. They are thus more exposed from a health point of view to the risks of water pollution and contamination.

According to several studies, the quantity of water ingested by a swimmer during a swimming session is estimated between 100 and 200 mL, and most probably more for a nautical activity practitioner (bodyboarder or surfer) whose sessions are longer and with much more frequent immersion (of the head).

Surfrider Europe carried out a survey among its community and network during the summer of 2020. According to the 1,803 respondents, the average time spent on the water is more than 30 hours per year for someone who practises nautical activities (surf/bodyboarding) and 9 hours for a swimmer. When asked whether they have ever contracted one or more illnesses as a result of practising their sports or swimming, 38% (2 people out of 5) indicated that they have already suffered health impacts. Of the 682 people affected, 35% say they have had a skin problem, 48% an otitis, 14% conjunctivitis and 32% gastro-enteritis. Cross-referencing the data also reveals significant differences according to geographical area, type of activity and age group of respondents.



## Protecting and preserving the quality of european waters is at the heart of europe's concerns

Water is essential to mankind in many ways. It is therefore not surprising that the protection of the environment, and more particularly of aquatic environments (marine, coastal, lake and river) is **at the heart of Europe's concerns**. For a majority of Europeans (53%), **protecting the environment is very important**<sup>30</sup>. When asked which four environment-related issues they consider to be the **most important out** of a list of ten, **2 Europeans out of 5** identify **marine pollution and pollution of European lakes and rivers** as the most important issues. At the same time, almost one in two Europeans cites waste pollution as a major issue<sup>31</sup> and more than one in two Portuguese and one in two Swedes cite pollution of lakes and rivers.

This is a subject of **growing concern**, since the issue is registering the strongest increase compared to previous surveys. 78% of Europeans consider that environmental problems have an impact on their daily life and health. In several European countries, this figure is over 90%. Around three-quarters<sup>32</sup> (73%) of EU citizens surveyed think the **EU should propose additional measures to tackle water-related problems**,

with no fewer than eight out of ten Europeans (84%) believing **chemical pollution is a threat to the aquatic environment**. These results are equivalent for all European countries taken individually. Since 2009, chemical pollution is seen as a steadily increasing threat in almost all European countries. In each of the European countries, it is the most frequently mentioned threat to the aquatic environment.

This concern is particularly present and shared by those practising recreational water sports. The 2019<sup>33</sup> Surfrider Europe survey revealed that **93% of 1,000 respondents would like to see chemical parameters included** in the monitoring of bathing water and recreational practices. **4 out of 5 also supported the inclusion of waste pollution and algae bloom** as criteria for assessing and classifying sites.

<sup>30</sup> Special Eurobarometer 501 Attitudes of Europeans towards the environment, March 2020: <https://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/ResultDoc/download/DocumentKy/89801>.

<sup>31</sup> Ibid.

<sup>32</sup> Flash Eurobarometer 344 – Attitudes of Europeans towards water: <https://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/ResultDoc/download/DocumentKy/59607>

<sup>33</sup> See annex «Surfrider Foundation Europe's bathing and recreational water quality survey, summer 2020».

A long-exposure photograph of a waterfall, showing the water as a series of white, flowing streaks against a backdrop of dark, brownish rocks. The motion blur gives a sense of continuous movement. A thick, black, hand-drawn style brushstroke underline is positioned below the text.

**A resource worth preserving**

## A European Directive bearing progress

The quality of Europe's bathing water has **improved** significantly over the last 60 years. A **first Bathing Water Directive** was adopted<sup>34</sup> in **1976** which required EU Member States to monitor and manage identified bathing water. It is mainly the work undertaken within the framework of the **revised version**<sup>35</sup> **adopted in 2006** that has enabled the context to evolve by providing greater incentives for States, local authorities and operators to work towards better bathing water quality. Thus, a series of measures have been introduced such as the obligation to carry out beach/bathing profiles, new methods to calculate classifications, monitoring based on counting faecal parameters (enterococci and Escherichia coli) in the environment according to indicator thresholds.

This Directive is part of a **broader body of water legislation** at European level, including two Framework Directives which play a major role in the protection of fresh and marine waters. These are the **Water Framework Directive** (WFD) 2000/60/EC and the **Marine Strategy Framework Directive** 2008/56/EC (MSFD). The latter is complementary to the WFD, which covers the first 12 nautical miles of territorial waters, while the MSFD extends to the 200 nautical miles of the Exclusive Economic Zone (EEZ). The scopes of these two major Directives overlap, since they have a common scope of application located in coastal waters. Concerning water quality parameters monitored in coastal waters, both Directives go further than the Bathing Water Directive. Indeed, alongside bacteriological parameters, many chemical parameters and other criteria such as waste are taken into account. The protection of health and the environment are among the objectives of both the Bathing Water Directive and the MSFD. The Water Framework Directive remains focused on the protection of water resources.

<sup>34</sup> Directive 76/160/EEC of the Council of the European Communities of 8 December 1975 concerning the quality of bathing water.

<sup>35</sup> Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC.



Firstly, as a general objective the WFD sets the achievement, by 2027 at the latest, of **good ecological and chemical status of groundwater and surface water**, the latter including coastal and transitional waters (Article 1). The assessment of the chemical status of surface water is based on the analysis of the concentrations of 45 priority substances listed in Appendix X of the WFD (which has been supplemented by Directive 2013/39/EU). These substances are classified in 4 main categories: pesticides, heavy metals, industrial pollutants and «other pollutants». The assessment method imposed by the WFD is very strict insofar as water will be considered in poor condition if a parameter does not comply with environmental quality standards through threshold values<sup>36</sup>.

Secondly, the MSFD sets a framework and objectives for the **prevention, protection and preservation of the marine environment** in order to achieve «good environmental status» by 2020. Of the eleven qualitative descriptors of good environmental status, descriptor 8 («concentration of contaminants are at levels not giving rise to pollution effects») requires assessments of the levels of chemical contaminants and their biological effects. According to descriptor 8 on chemical contaminants, a good environmental status of the marine environment is defined by four criteria: environmental concentration, ecosystem effects, duration and spatial extent of acute pollution events and adverse effects of acute pollution on organisms<sup>37</sup>. Other descriptors relating to eutrophication (descriptor 5) or the presence of waste in the environment (descriptor 10) are also included in the Directive.

Directive 91/271/EEC - is another important Directive as it concerns **urban wastewater, which is** the source of a large part of the pollution that impacts aquatic environments, including recreational water. The European Commission is currently strongly considering revising this Directive, which dates back to 1991. Directive 91/271/EEC lays down EU-wide rules for the collection, treatment and discharge of urban wastewater. The Directive also applies to wastewater from certain industrial sectors. It imposes and defines criteria for the collection and treatment of wastewater for agglomerations with more than 2000 inhabitants, with differences depending on whether the discharge area is defined as sensitive or not. The Directive also regulates industrial wastewater from certain sectors discharged into urban collecting systems and the disposal and reuse of sewage sludge. In the space of 30 years, coastal areas have undergone major changes with populations doubling on some European coasts, but sewerage and rainwater networks remain obsolete and often «undersized».

<sup>36</sup> Methodology note -Indicator: chemical status of surface water: micropollutants- Theme: Water and aquatic environment, Brussels environment, July 2008: [https://environnement.brussels/sites/default/files/user\\_files/fmet\\_qualitechimiquesurface\\_fr.pdf](https://environnement.brussels/sites/default/files/user_files/fmet_qualitechimiquesurface_fr.pdf).

<sup>37</sup> Evaluation of descriptor 8 «Contaminants in the environment» in Metropolitan France, scientific report for the 2018 MSFD evaluation, 2018: <https://archimer.ifremer.fr/doc/00461/57294/>.



Directive 91/676/EEC on the protection of water against **pollution caused by nitrates** from agricultural sources completes the body of water legislation. Other EU legislative instruments also have an impact on the degree of pollution of the marine environment, such as legislation on waste or the protection of habitats and birds.

Europe has a solid water legislation. However, the implementation of the two main Framework Directives at a national level is still an issue. Also, most sectoral Directives - especially the Bathing Water Directive - and their obligations need to be revised and improved.



## Shortcomings undermine the impact of the Directive

The Bathing Water Directive has many shortcomings that need to be remedied in order to ensure better water quality and management for its users and all European citizens.

### . Monitoring limited to bathing water only

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En 2020, seule une partie des eaux de baignade – celles désignées comme telles par les autorités nationales - sont soumises à la surveillance de la qualité de l'eau. La Directive actuelle ne s'applique en effet qu'aux eaux de baignade, définies comme « toute partie des eaux de surface dans laquelle l'autorité compétente s'attend à ce qu'un grand nombre de personnes se baignent et dans laquelle elle n'a pas interdit ou déconseillé la baignade de façon permanente »<sup>38</sup>.

### . Controlling is restricted to the summer season

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La qualité des eaux de baignade désignées comme telles par les autorités nationales des Etats membres n'est contrôlée que durant la saison balnéaire, période de haute fréquentation pour la baignade. Elle correspond pour la plupart des pays européens à la haute saison touristique estivale où les eaux européennes connaissent une fréquentation accrue du fait des températures de l'eau et de l'air plus élevées mais également aux vacances scolaires des européens.

### . Partial monitoring of pollution

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**Bacteriological contamination of faecal origin** is assessed using two bacteriological indicators, the concentration of which provides a representation of the risk of the presence of other, potentially pathogenic micro-organisms. However, these indicators present a number of concerns, as they do not enable the detection of all types of pollution with health implications. This is all the more worrying in the current context of the COVID 19 crisis, in which health is a growing source of concern for citizens.

**Algae and marine litter** are only monitored visually, without any monitoring frequency being imposed and without their presence being taken into account in the assessment and classification of bathing water. No reduction target is set, nor threshold assigned for each classification level.

**Algae and cyanobacteria** are to be surveyed by Member States, under articles 8 and 9 of the Directive to determine whether their presence is acceptable and to identify health risks. They must also be included in beach profile studies.

<sup>38</sup> Article 1 (3), Directive 2006/7/CE.

**Waste** is unfortunately limited to its visible version - macro-waste that can be visually identified - although most of the pollution is not on the surface and even less in a macro form. In fact, microplastics represent the highest potential health risk.

Finally, the Directive does not address the issue of **chemical pollutants**, which have a severe impact on water quality.

#### • **Insufficient corrective measures at source**

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In the situation of bathing water of «insufficient» quality, authorities must adopt a series of management measures, the first of which is imposing bathing bans and closing access to sites. Taking adequate measures to avoid, reduce or eliminate sources of pollution is another of the listed responses to poor water quality. Regrettably it is only the last on the list of measures and without any performance obligation. Furthermore, measures to stop pollution at source are not a requirement when establishing bathing profiles.

Also, according to the Directive if bathing water are of «insufficient» quality for five consecutive years, a permanent bathing prohibition or recommendation advising against bathing must be introduced. The Directive even allows Member States to introduce a permanent bathing prohibition or recommendation against bathing before the end of the five-year period if achieving 'sufficient' quality is considered impossible or unreasonably expensive.

#### • **Public information about water quality is incomplete and poorly or not at all relayed**

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During the bathing season, Member States are required to provide people with a list of actively stated information. The information must be available at an easily accessible location in the immediate vicinity of each bathing site. Member States are also required to use appropriate means of communication and technology including the Internet, in several languages if necessary. Yet, some Member States do not comply with these requirements or do not apply them properly. According to a 2019 Surfrider Foundation Europe survey, 75% of the 980 participants said they were «moderately» or «not at all» informed about the water quality in which they usually spend their time. 84% responded that they would like to have more access to information on site, directly through explanatory signs. Around 60% said they would also like information to be available on the Internet via a computer or smartphone, which is often not the case. And when available online, the information is not always clear or adapted to a digital format.

### • **Public involvement is rarely solicited and not encouraged**

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According to the Directive, Member States must also encourage people to get involved in helping implement the Directive. Member states must also ensure that people are given the right information about how to participate, make suggestions, remarks or complaints. This applies particularly to establishing, revising and updating lists of bathing water. The competent authorities are called upon to give due consideration to any information obtained. In reality, citizens are not informed about this possibility and their participation is not facilitated. The Directive lacks ambition by calling on citizens to contribute only to the list of bathing sites. People should explicitly be given the possibility to participate in other more challenging aspects of the Directive and for which the involvement of citizens would significantly add value, such as identifying pollution as well as its resolution at source.

### • **Lack of consistency with other Water and Marine Directives**

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While the three Directive – the Bathing Water Directive, the WFD and the MSFD- have a common scope of application concerning coastal waters, their content lacks articulation. Indeed, the Directives do not recommend analysing the same parameters to ensure good water quality. The Bathing Water Directive, which aims to preserve, protect and improve the quality of the environment as well as to protect human health, deals only with the bacteriological quality of the water via two types of bacteria when the WFD and the MSFD go further and also address chemical parameters. If the three Directives were aligned, characterising the state of coastal waters could be simplified using a single assessment system. This inconsistent situation leads people and sea users in certain situations to wonder why bathing water can be classified as excellent from a bacteriological point of view (under the Bathing Water Directive) and bad from a chemical point of view (under the WFD). Aligning the three Directives would also improve the protection of users' health as it would increase monitoring of bathing water quality to a more thorough and complete level of controls as imposed by the WFD and the MSFD. With regards to achieving good ecological status of water, the two Directives are similar in their approach to that of the Bathing Water Directive regarding public health. In this sense, Article 2 of the WFD clearly illustrates the similarities between the objectives of the three Directives. In point 35, environmental quality standards are defined as: «the concentration of a pollutant or group of pollutants in water, sediment or biota which must not be exceeded in order to protect human health and the environment». The need to achieve good water quality in coastal waters in order to effectively protect both the environment and human health would therefore justify aligning the rules of the three Directives.



## 2020: time for a revision

**It is essential to amend European standards and to improve the connections between all water- related legislation in order to ensure the quality of water at all levels along the entire European coastline**

When publishing its 2020 annual report<sup>39</sup> on bathing water quality for 2019, the European Commission announced that a European consultation would be launched to consider the need for a revision. Such a review is included in the current Directive and should be conducted in 2020 based on the Directive's assessment report, written comments from Member States, an Extended Impact Assessment and experience gained in implementing the Directive. The text specifies that particular attention should be paid to parameters related to bathing water quality.

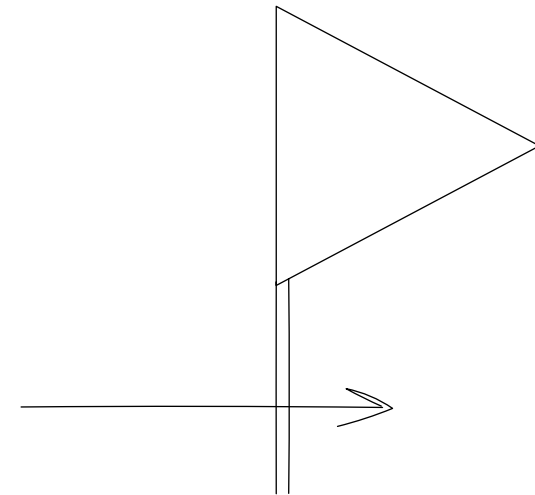
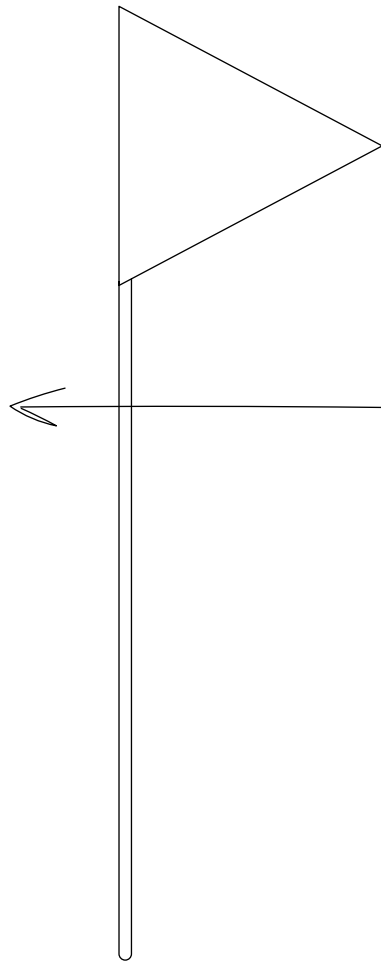


<sup>39</sup> Briefing- European bathing water quality in 2019, EEA, June 2020: <https://www.eea.europa.eu/fr/themes/water/environnement-aquatique-et-marin/assessments-thematiques/qualite-des-eaux-de-baignade/qualite-des-eaux-de-baignade>.

# MANIFESTO



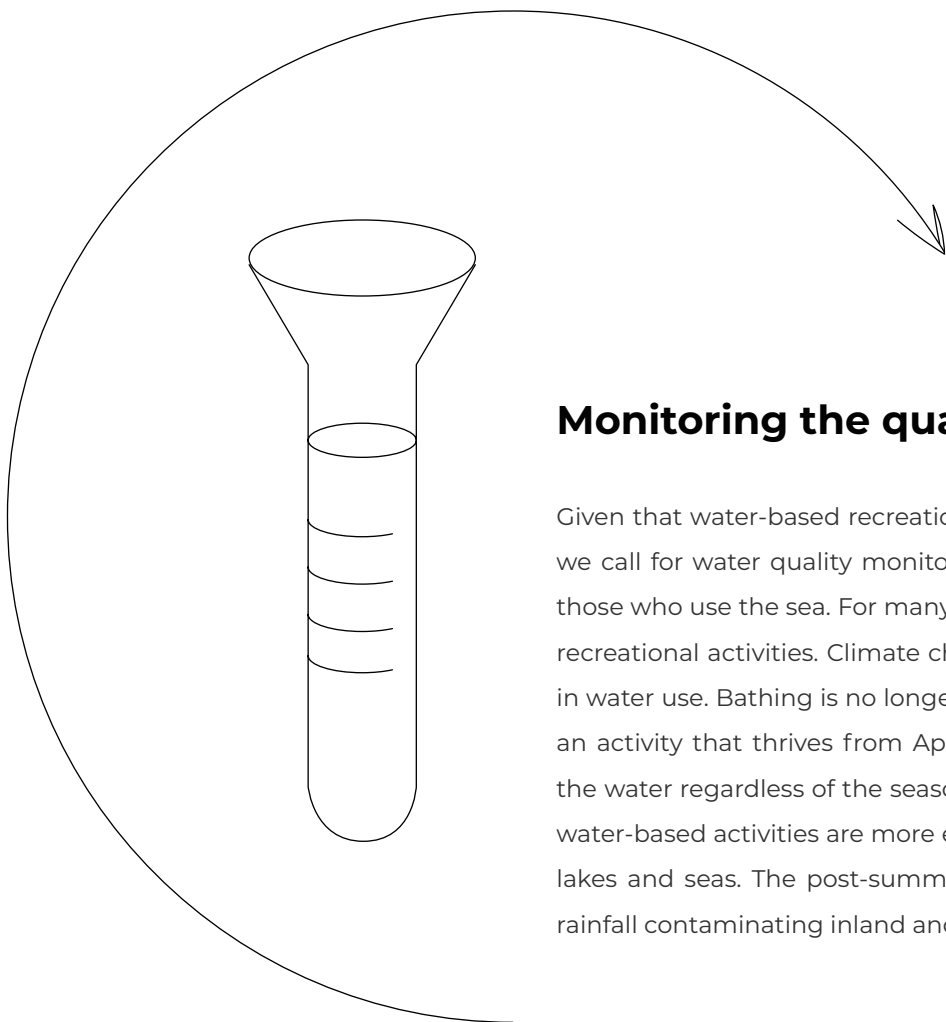
**Let us pursue our efforts to continuously improve this Directive in order to make it the pride of the European Union and its citizens, ensuring that everyone may enjoy recreational or sporting activities in water of excellent quality throughout the year.**



## **Extension of water quality control to leisure and water sports areas**

There are many reasons for extending health control to recreational and water sports areas. Recreational and aquatic leisure activities are very popular in Europe and go beyond simple swimming. Water sports enthusiasts are more exposed to health risks because they very often practice outside the bathing areas as defined in the regulations and their practice times are longer. Moreover, there is no physical boundary between «bathing water» and «recreational water». Water pollution is diffuse and affects water regardless of the use made of it. In this respect, we call for the scope of the Directive to be extended to include areas for recreation and water sports – as defined by stakeholders and public authorities together - so that these may benefit from health monitoring in the same way as bathing water, thus ensuring recreational use without any health risk.





## Monitoring the quality of water throughout the year

Given that water-based recreational activities, including swimming, can be enjoyed all year round, we call for water quality monitoring to be carried out throughout the year in order to protect all those who use the sea. For many years now, practices have been evolving and so have bathing and recreational activities. Climate change, holidays spread out over the year, etc. have led to changes in water use. Bathing is no longer a summer activity lasting two months of the year. It has become an activity that thrives from April to October in many Member States. Since they spend time in the water regardless of the season, and for certain activities, especially in winter, people practicing water-based activities are more exposed to health risks<sup>40</sup> and more vulnerable to pollution of rivers, lakes and seas. The post-summer and winter periods are indeed often accompanied by intense rainfall contaminating inland and offshore water.

<sup>40</sup> Leonard, A., 2018, Is it safe to go back into the water? A systematic review and meta-analysis of the risk of acquiring infections from recreational exposure to seawater. *International Journal of Epidemiology*. 47. 10.1093/ije/dyx281.

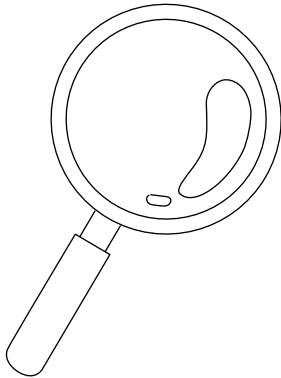


## Adding new parameters to be monitored

The quality of bathing water cannot be considered excellent or not based only on the assessment of two bacteriological criteria indicating possible faecal pollution, a two-month monitoring period and a minimum of four samples.



Despite being one of the descriptors used to assess the good ecological status of marine waters in the MSFD, **waste** is only subject to vigilance and management measures in the Bathing Water Directive. However, given the extent of waste pollution, particularly plastic, and its major potential risks to human health, it is unacceptable to consider water as being of good or excellent quality when it may be invaded by waste of any size. Therefore, we ask that waste be adequately taken into account in the revision of the Directive and that it be an assessment parameter characterising and impacting the classification of sites. Waste monitoring at recreational and bathing sites should be imposed and waste reduction targets for beaches should be set. Citizen science programmes should be tested as part of scientific assessment and monitoring. Finally, informing the people about these issues should be no longer optional but mandatory.



**Algae bloom and cyanobacteria** are currently being kept under surveillance only. They are however included in beach profile studies as provided for in the Directive. In its latest recommendations<sup>41</sup>, WHO distinguishes between algae bloom and cyanobacteria. Accordingly, its recommendations for the former are to maintain the existing system (surveillance and inclusion in profiles) whereas the latter requires a new classification system for areas identified as being at risk as well as increased public information. These two issues - cyanobacteria and algae bloom - must be equally assessed, considered and integrated into the revised Directive. Algae and cyanobacteria have an impact on human health and present a non-negligible risk both at sea and in fresh water. For each level of classification, reduction targets must be set. Therefore, in all Member States, the areas exposed and/or vulnerable to cyanobacteria or toxic algae bloom should be identified and part of the profiles of these areas dedicated to the implementation of management measures to fight them. At the very least, information regarding the health of bathers and water sports enthusiasts should be provided in the most affected areas. At best, new management, monitoring and classification methodologies should be integrated into the revised Directive to take into account these pre-existing but currently underestimated parameters which are therefore not supported by the necessary information, monitoring and management obligations.

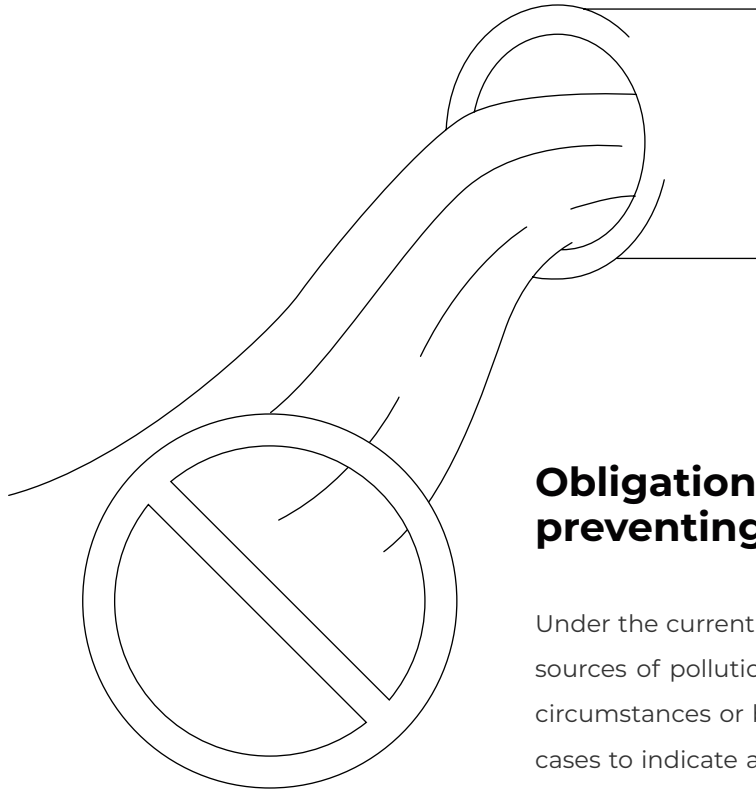
<sup>41</sup> WHO recommendations on scientific, analytical and epidemiological developments relevant to the parameters for bathing water quality in the bathing water Directive (2006/7/EC), 2018: <https://circabc.europa.eu/d/d/workspace/spacesstore/9e89152c-7cfe-4391-9bcf-c173519e8181/who%20recommendations%20on%20ec%20bwd.pdf>





**Chemical pollution of surface water** - rivers, lakes and transitional and coastal waters is a reality since only 38% of them have a good chemical status. It is therefore hard to claim that bathing water quality is excellent when all the environmental reports are sounding the alarm on the «chemical» aspect of water in Europe. The efforts undertaken for many years by Member States to improve the quality of bathing water cannot simply be considered in terms of bacteriological pollution. It is necessary to develop the current knowledge concerning exposure levels of sea users and the risks involved. Europeans share the concern about chemical pollution and the associated risks, as shown by the figures mentioned above. Therefore, and in line with the precautionary principle a watch list must be set up. This list must include high-priority chemical parameters recognised as dangerous to the current list of monitoring parameters. Targeted public health research programmes must be developed and implemented by conducting specific epidemiological studies which assess the levels of exposure and associated risks by «sea-users». Public information about chemical pollution must be made compulsory for the sake of transparency and communication.

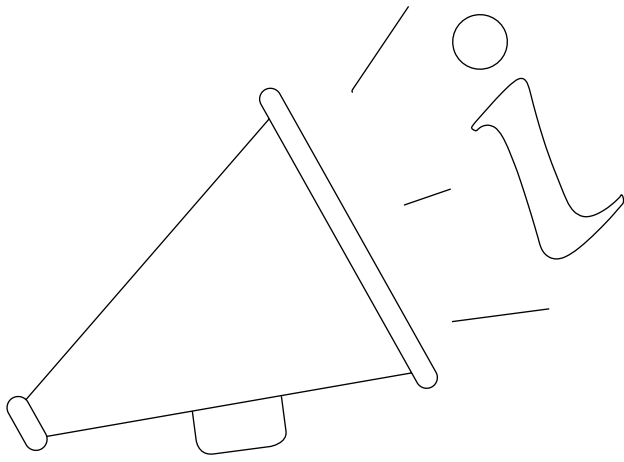
All these new parameters, along with frequency, monitoring methods and information, must be clearly established in legislation. Such measures would thus enable European citizens to choose their bathing or aquatic recreational sites in an informed and aligned manner.



## **Obligations regarding identifying, assessing and preventing pollution**

Under the current Directive, there is no obligation for Member States to avoid, reduce or eliminate sources of pollution. Instead, as preferred response in the event of pollution, in both exceptional circumstances or bathing water of insufficient quality, the Directive suggests banning or in some cases to indicate against bathing. The revised Directive must therefore impose on Member States to put a strict end to pollution, regardless of the classification of water, and without the option of banning bathing or recreational water use. The profiles of bathing and recreational water must specify the measures to stop water pollution at source. While banning measures serve to protect people, they do not address the source of pollution and are therefore not a sustainable solution. This is particularly the case for recreational areas where many citizens practice sport and do not wish to be denied access to these areas necessary for their health and equilibrium. Sadly, the Directive allows operators to abandon projects leading to a significant improvement in water quality under an economic pretext. Also, Member States must identify areas requiring special attention which will be submitted to public consultation.

<sup>42</sup> Already the case in Croatia, Portugal, Slovenia and Romania.



## **Standardised, more accessible and better relayed public information on water quality**

General information about the site as well as environmental quality, biodiversity, monitoring, testing results, pollution sources, health risks, etc., must be displayed at the entrance to bathing and aquatic leisure sites. Public information needs to provide different reading levels with playful and simplified communication (e.g. using colour coding) for a wide audience and the opportunity to acquire knowledge for a well-informed public. It must also be made available through new technologies. Also, public information on site and online must use common standards to EU states such as symbols and colours to simplify the information. Translation of essential information into several languages must be encouraged<sup>42</sup>. The ultimate aim is to make it easier for all Europeans to access online information on bathing water quality throughout the EU. Authorities must therefore provide a contact point for citizens to obtain more detailed information in the event of pollution, especially when a ban is imposed. A European information campaign on water quality must be launched to raise public awareness of the environmental and health issues involved in preserving and monitoring water quality.



## **Strengthening and encouraging public participation**

Finally, the opportunities for public participation are to be strongly encouraged as they are currently hardly known and under-exploited.

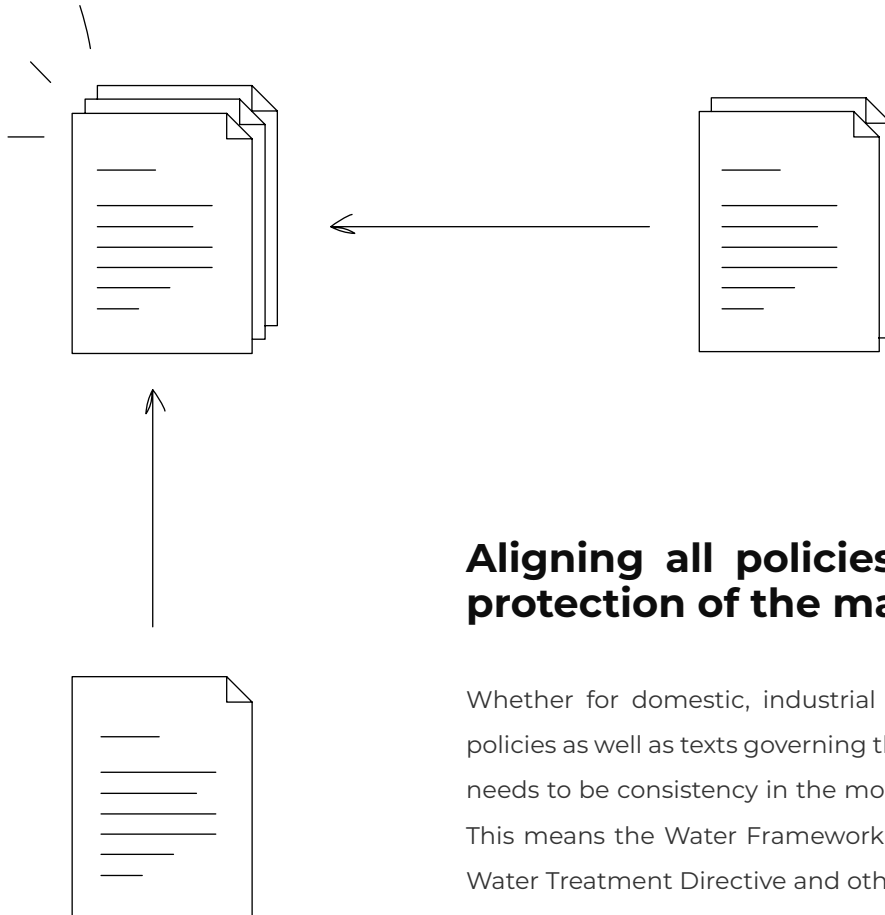
Member States must step up their communication on public participation. Citizens should be consulted at least once a year about compiling and updating lists of bathing (and recreational) sites. We recommend that Member States make a greater effort to consult representatives of water sports and the community of bathers and water sports enthusiasts in Europe on a regular basis and through various media - consultations, online platforms, surveys, forums, etc. -. States must ensure that existing links and networks among the sports community be strengthened and establish links with the health community, where these are non-existent. Health and environmental issues related to the safeguarding of water quality must be emphasised in the training of sports stakeholders.



Public participation must be extended to new areas covered by the Directive and, primarily, identifying pollution and finding solutions, especially the pollution management plan put in place by authorities. This participation must be systematically promoted both on site and online via a system such as a contact box or form allowing people to report pollution they have observed, to express their views on the management plans planned to deal with pollution and to report diseases with suspicions of direct links with bathing or recreational activities<sup>43</sup>. Public involvement and participation are essential for the protection of bathing and recreational water. Not only will regulatory measures fail without their support, citizens are also calling for a greater role in detecting pollution. This is particularly true for those who practise nautical activities. They are more exposed and sensitive to the quality of the environment, and being on the front line often «fall ill» even before the results of the sample are known - as a reminder, gastroenteritis can occur a few hours after a swim or water sports, whereas the official results are only known between 48 and 72 hours after the sample is taken.

It is therefore necessary for Member States to support research projects on public exposure to water pollution as well as citizen science projects. This will improve the understanding of exposure to water pollution of swimmers and water sports enthusiasts and help identify the health impacts of any kind of pollution. Finally, citizen science must be promoted to enable many people to take part in monitoring the water quality of their sites and provide more information both on the pollution affecting them and on their exposure as swimmers or water sports enthusiasts.

<sup>43</sup> Example of a practice set up in the Netherlands to report pollution or infections following a recreational water activity: <https://lci.rivm.nl/draaiboeken/waterrecreatie-en-infectieziekten>.



## **Aligning all policies with an impact on water and the protection of the marine environment**

Whether for domestic, industrial or recreational use, all sector-specific and non-sector-specific policies as well as texts governing the management of marine or fresh water must be aligned. There needs to be consistency in the monitoring processes, testing methods and monitored parameters. This means the Water Framework Directive, the Marine Strategy Framework Directive, the Waste Water Treatment Directive and other EU policies must be aligned in order to improve the quality of water.



A large, powerful blue wave is crashing over a rocky shore. The water is a deep, vibrant blue, and the wave's crest is white with foam. The background shows a clear, light blue sky. The overall scene is dynamic and energetic.

# Legislation





Bathing Water Directive: Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC of the Council of the European Communities of 8 December 1975 concerning the quality of bathing water.

Birds Directive: Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

Habitats Directive: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Nitrates Directive: Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources

Priority Substances Directive: Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy.

MSFD also called Marine Directive or Marine Strategy Framework Directive: Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy.

Urban Waste Water Treatment Directive: Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment.

Waste Directives : Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives and related Directives: European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste, Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste and Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment.

WFD: Water Framework Directive: Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

## **ANNEXES**



