

CleanAtlantic

Tackling Marine Litter in the Atlantic Area

Identification of litter accumulation sites and clean-up
techniques on the French coastline

Key findings of the online survey



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ACTION	7.4 BEST PRACTICES FOR BEACH MARINE LITTER CLEAN-UP AIMED AT LOCAL AUTHORITIES
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DISCLAIMER

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SUMMARY

As part of the Interreg project CleanAtlantic, Cedre launched in 2020 an online survey on macro-litter on the coastline of France. This survey has a two-fold objective: (i) to map and characterise the main litter accumulation areas along the French coastline and (ii) to review clean-up operations and good practices. The survey lasted one month and was circulated to over 400 French stakeholders potentially involved in beach clean-up, including public establishments, decentralised government services, local authorities and various other organisations such as non-governmental organisations or professional maritime associations.

This report presents the survey results, starting with the description of the respondents, mainly coastal municipalities (or group thereof) and non-governmental associations, their sectors of activity and roles in the beach clean-up activities. With only 105 usable responses, the survey obtained a limited number of responses. However, the responses show a relatively even spatial coverage of the coastline of mainland France and provides a good understanding of the local beach litter situation.

The report also details main stranded litter accumulation sites identified along the French coastline and different initiatives and measures, like “tidal bins” of protection equipment, implemented to reduce litter washing up on the shore. The survey identified a total of 207 key litter accumulation sites along the entire coastline. It is estimated that about half of these sites receive more than 10 m³/year and can be considered to be marine litter hotspots.

The identification of principal beach clean-up techniques is also an important part of the report, presenting the environmental considerations of the respondents and overall clean-up operations, resources involved and their cost. The main operators involved in the clean-ups are the municipalities (and groups thereof), which are responsible for beach cleanliness. Through this role, it is also the structures that contribute financially the most to the clean-up operations. They deploy various mechanical devices, like rates and beach cleaners, in contrast to the NGOs that only use manual collection of the beach litter items.

Finally, indications on the costs of the clean-up operations are given. These vary from site to site as many aspects are taken into account such as the nature of the site to be cleaned, ecological and economic considerations or the resources available.

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List of abbreviations

ADEME	Environment and Energy Management Agency (Agence De l'Environnement et de la Maîtrise de l'Energie)
ANEL	National association of coastal councillors (Association Nationale des Elus du Littoral)
ANETT	National association of touristic territories councillors (Association Nationale des Elus des Territoires Touristiques)
Cedre	Centre of Documentation, Research and Experimentation on accidental waters (Centre de documentation, de recherche et d'expérimentation sur les pollutions accidentelles des eaux)
CPIE	Permanent centre for environmental initiatives (Centre Permanent d'Initiatives Environnementales)
EPS	Expanded polystyrene
EU	European Union
GIP	Public interest group (Groupement d'Intérêt Public)
MPA	Marine protected area
MSFD	Marine Strategy Framework Directive
MSR	Marine sub-region
NGO	Non-governmental organisation
OFB	French Biodiversity Agency (Office Français de la Biodiversité)
ONF	French National Forestry Office (Office National des Forêts)
OSPAR	Oslo-Paris convention
POLMAR	Marine pollution (Pollutions Marines)
XPS	Extruded polystyrene

Overview and key findings

1. SURVEY BACKGROUND AND IMPLEMENTATION

In 2020, as part of the Interreg project CleanAtlantic, Cedre launched at a French level, an online survey on macro-litter on the coastline, with a two-fold objective:

- (i) to map and characterise the main litter accumulation areas along the coastline; and
- (ii) to review clean-up operations (techniques and resources, costs) and good clean-up practices.

This survey also aimed to obtain information for public policy actions relating to marine litter: (i) the French national roadmap against marine litter (“Zéro déchet plastique en mer”, action 19) by the French Ministry for the Ecological Transition, and (ii) the OSPAR Regional Action Plan for Marine Litter (actions 55 and 56).

The survey targeted the stakeholders involved in implementing and financing clean-up, namely: local authorities, primarily municipalities (and groups thereof); marine protected areas (in the broadest sense); certain public institutions; and associations and cooperatives specialised in marine litter.

In order to reach as wide an audience as possible, Cedre extended the survey beyond the relevant stakeholders with whom it has been working for several years (in particular the members of the national litter monitoring networks which it coordinates). The survey was therefore sent to:

- public establishments, in particular the French Biodiversity Agency (OFB) (its maritime facade offices and the associated marine protected areas: marine nature parks, forum, Natura 2000 sites, regional nature parks), the French water agencies, the French coastal protection agency “Conservatoire du littoral” (including “Rivages de France”), national parks, French National Forestry Office (ONF);
- decentralised government services: Interregional Directorates for the Sea, Regional Directorates for the Environment, Planning and Housing, Departmental Directorates of Territories and the Sea, and departmental marine pollution (POLMAR-Terre) correspondents;
- certain local authorities: regions, departmental councils and associations (Vigipol, national association of coastal councillors ANEL);
- various other organisations: professional maritime associations (fisheries and aquaculture), environmental protection organisations (NGOs, associations, nature reserves, permanent initiative centres), social integration structures, research institutes and laboratories, etc.

Some of these contacts agreed to send the link to their own network of contacts, and it was also shared on social media.

The survey was launched in October-December and conducted in December 2020, with the support of Data Terra (www.dataterra.fr). The survey questionnaire circulated is presented in **Appendix 1**. The key information obtained from the survey responses is presented below.

Acknowledgements

We would like to express our sincere thanks to the organisations and individuals who agreed to share the link to the survey via their own network, and of course to those who took time to complete the survey.

2. SURVEY RESULTS

2.1. Number of respondents who completed the survey

The link to the online survey was emailed to over 400 stakeholders potentially involved in beach clean-up. Certain recipients, who were asked to share the link within their own network, greatly helped to broaden the survey's reach.

The survey lasted for 1 month. Only 303 responses were collected online (Figure 1); this was a relatively low result for a nationwide survey targeting local level responses.

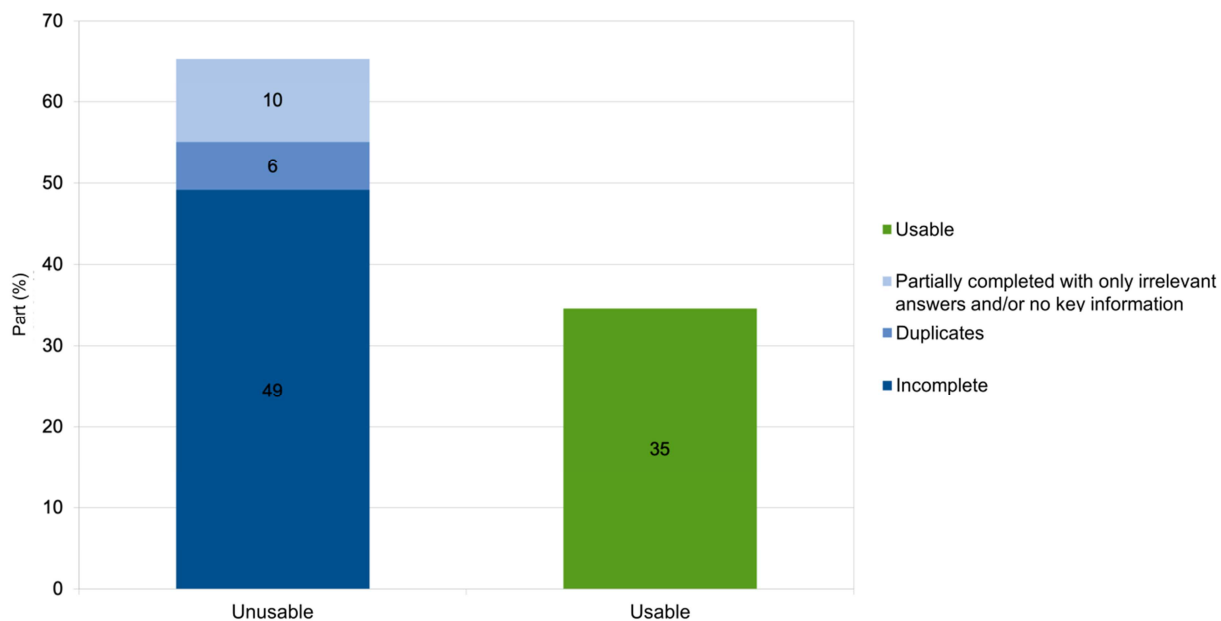


Figure 1: Usable responses (%; of 303 responses collected online)

Of the 303 responses, just over a third (Figure 2) were usable (105 questionnaires). The survey analysis presented below is based on this sample.

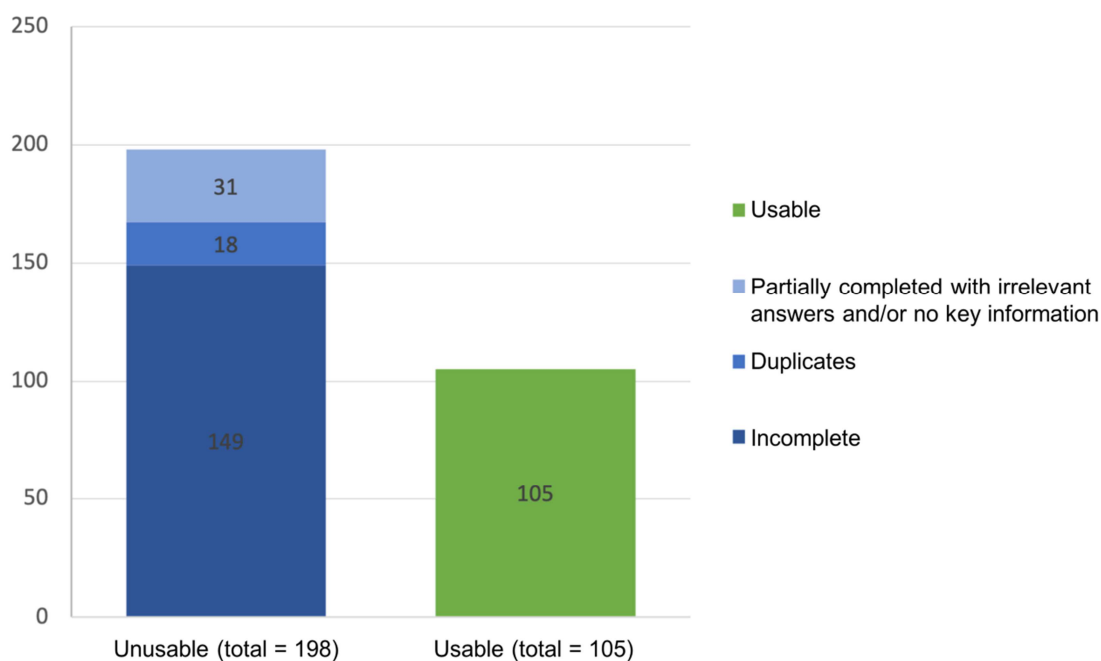


Figure 2: Usable responses (number; of 303 responses collected online)

Two thirds of the unusable responses consisted in:

- (i) blank questionnaires (almost half of the total);
- (ii) partially completed questionnaires with only irrelevant answers and/or no key information (10% of total);
- (iii) duplicates (6%).

2.2. Description of the respondents

The questionnaire was geared towards local granularity, and therefore targeted local stakeholders liable to have very good field knowledge: (i) (groups of) municipalities, (ii) marine protected areas and (iii) associations.

The survey obtained a limited number of responses; however, the responses show a relatively even spatial coverage of the coastline of mainland France (Figure 3). The participation rate was highest in the Western Channel (northern Brittany) and the Bay of Biscay (these two areas correspond respectively to two marine sub-regions under the MSFD: Celtic Seas and Bay of Biscay).

The organisation types with the highest response rate (Figure 4) were: (i) municipalities (ii) associations and (iii) marine protected areas. Differences in response rates are found between the marine sub-regions (Figure 5), mainly due to the dissemination of the survey.

Survey participation rates by municipalities (or groups of municipalities) were extremely low in relation to the total number of **coastal municipalities** in France. Furthermore, the number of municipalities having completed the survey is disproportionately high as some stakeholders responded as municipal agents and not as managers/operators of protected sites (for instance certain coastal wardens). The weak link in the dissemination of the questionnaire was undoubtedly in liaising with the municipalities (and groups thereof).

Associations involved in clean-up initiatives - few in number and for the most part known to Cedre - showed a good survey response rate: this includes various organisations, in particular environmental associations (encouraging citizen engagement by volunteers in clean-up events), social integration associations (directly commissioned and paid by the authorities – local, departmental, agencies – to conduct clean-up operations).

Managers of protected sites (in the broadest sense of the term, i.e. coastal areas where environmental protection measures are in place) were either directly targeted by the survey (as members of the Beach litter National Monitoring Network, coordinated by Cedre) or were indirectly notified by their national or regional directorate (OFB, ONF, etc.) which had received the questionnaire and been asked to pass it on to their field agents.

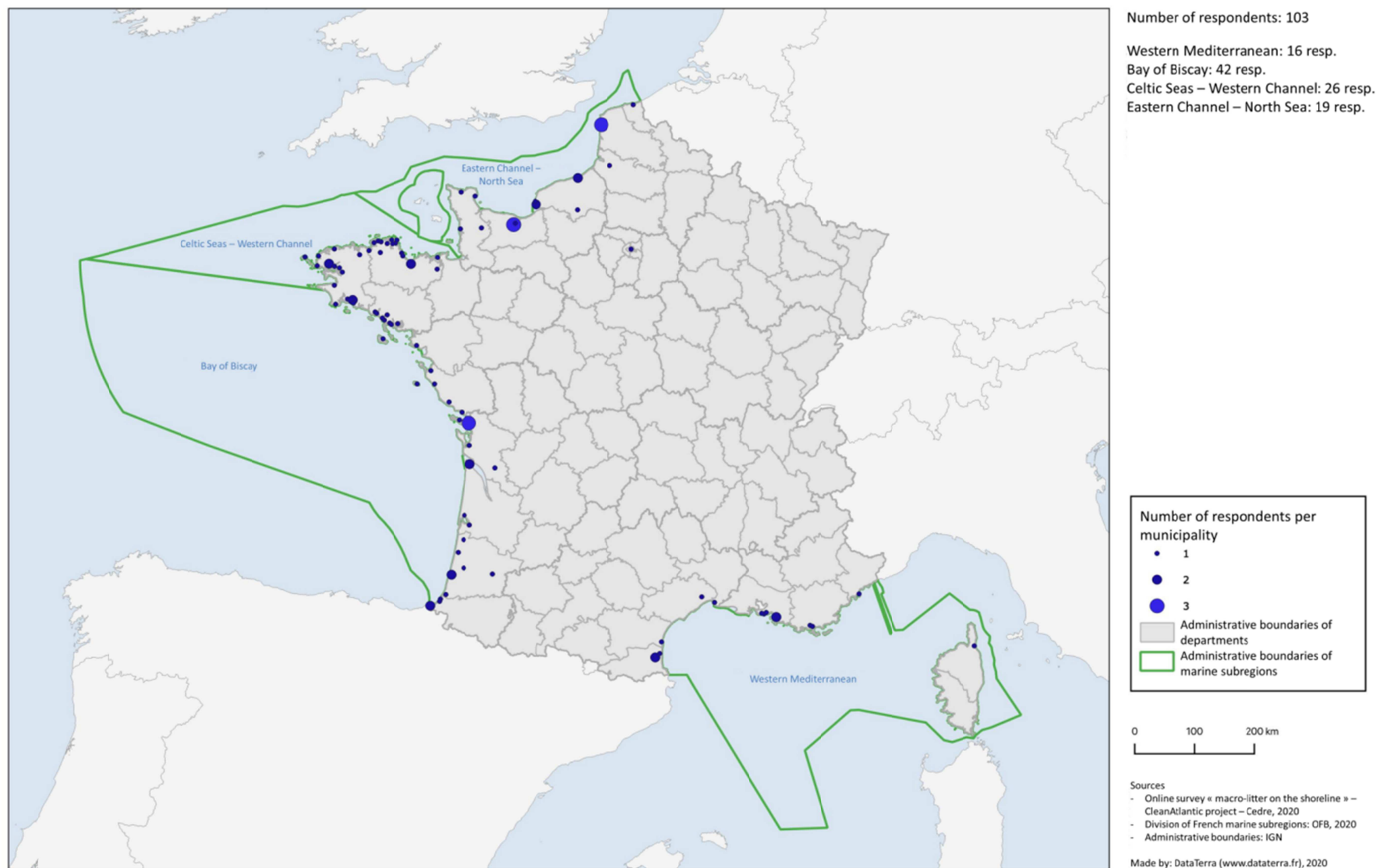


Figure 3: Location of the respondents

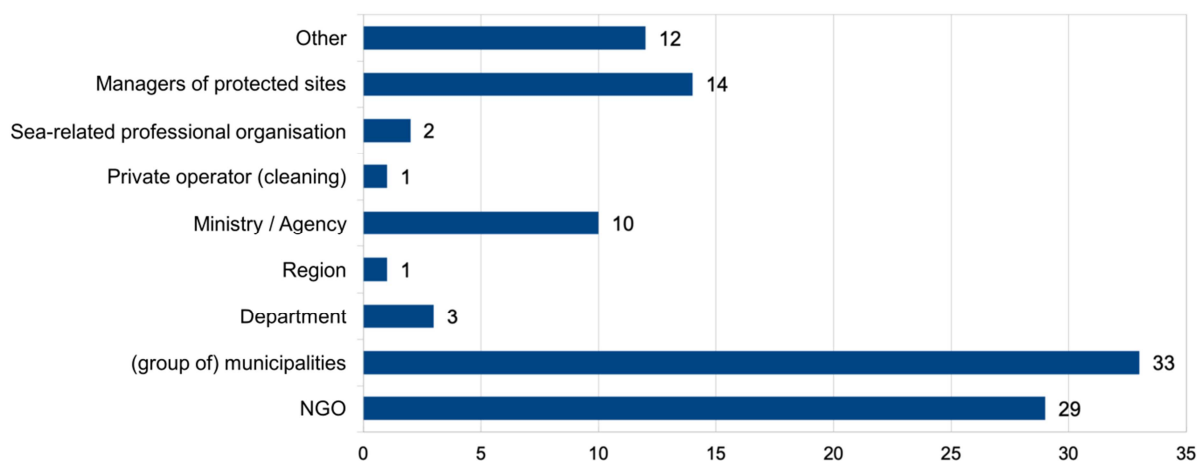


Figure 4: Status of the survey respondents (105 respondents)

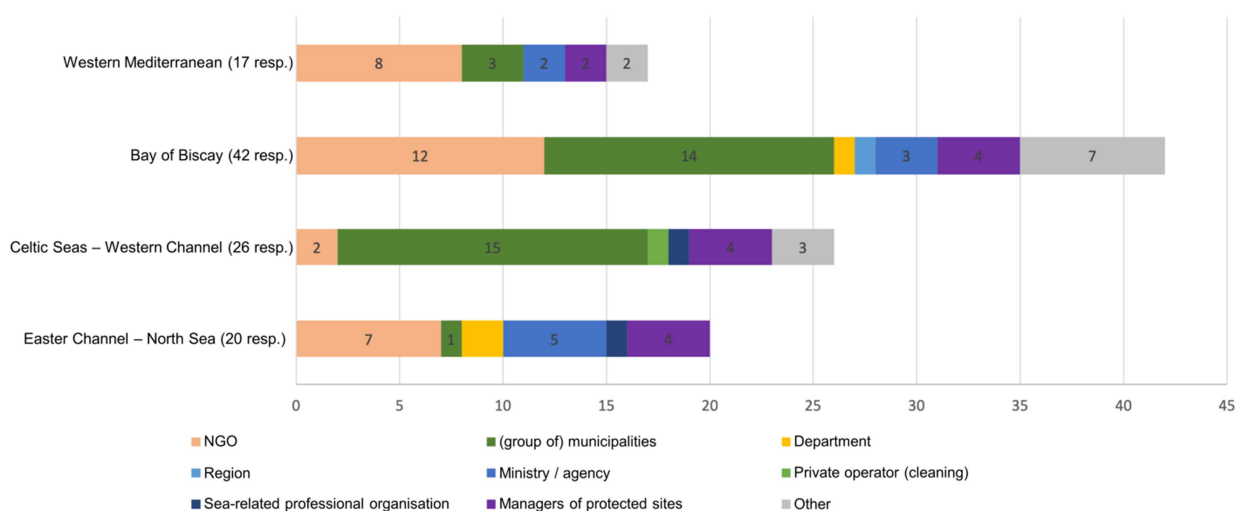


Figure 5: Distribution of the respondents (number) per marine sub-region, according to their status

2.3. Role of the respondents in field of beach clean-up

The main roles played in the field of beach clean-up by the respondent organisations are, in more or less equal proportions, awareness-raising (influence of associations) and conducting clean-ups (Figure 6).

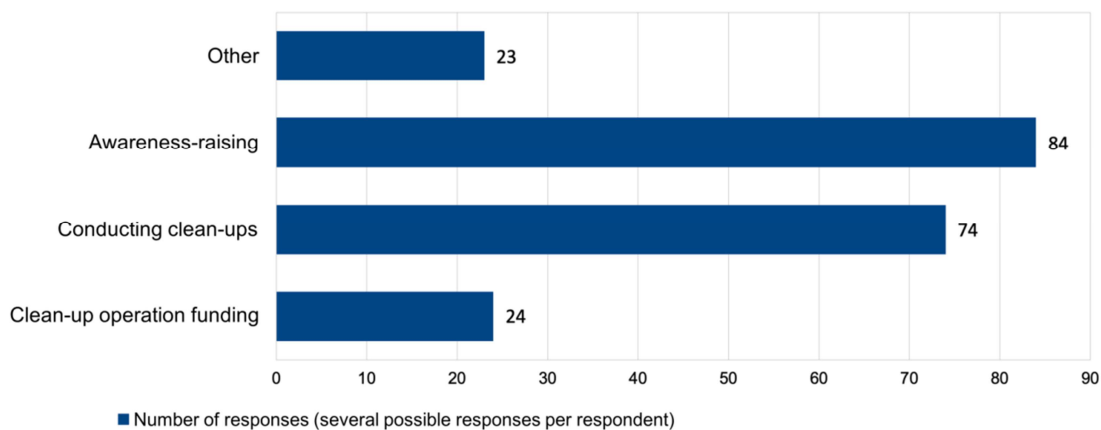


Figure 6: Respondent organisations' roles in beach clean-up

The "other" roles mainly relate to litter monitoring activities (Bay of Biscay and Mediterranean), support for public policies (Channel & North Sea) and research (Bay of Biscay).

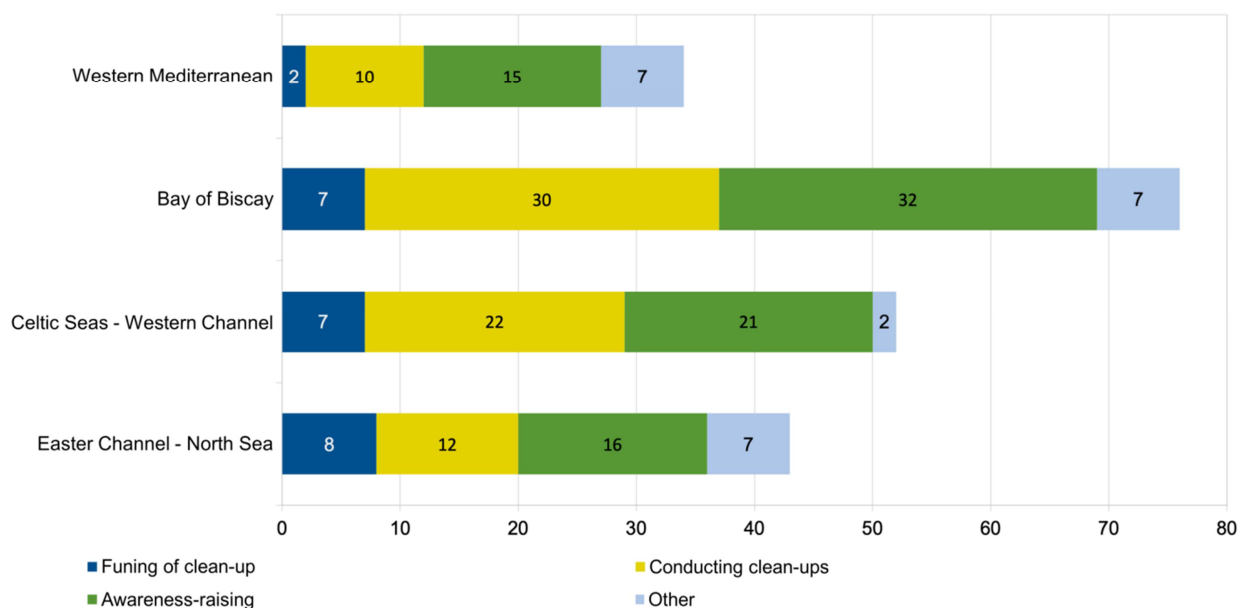


Figure 7: Respondent distribution (number) according to their roles by marine sub-region

There is little mention of the funding of clean-up, due no doubt to the low participation of municipalities (and groups thereof), regardless of the marine sub-region (Figure 7).

2.4. Main sector of activity of the respondents

The main **sectors of activity** (Figure 8) – again reflecting the typology of respondent organisations – concern (i) environmental protection and (ii) public policy/environmental management.

These are followed by marine area management and the "other" category

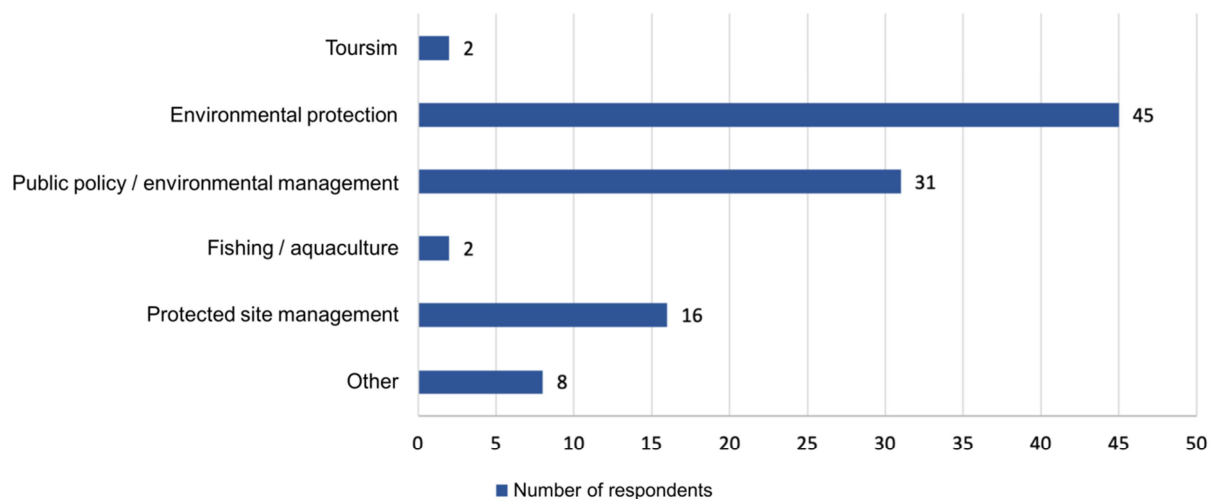


Figure 8: Sector of activity of the respondents (104 respondents)

2.5. Geographical area considered by the respondents

The geographical areas taken as a reference for the survey responses (Figure 9) are mainly (between 30% and 50% depending on the sub-region; Figure 10) relatively small territories: a municipality (or group of municipalities) or a marine protected area for instance.

Some respondents checked the "other" category for their chosen geographical area of reference, i.e. an area not represented by an administrative division. Although such areas vary greatly in size, they are nevertheless relatively clearly defined: a bay or the downstream part of an estuary, a specific stretch of coastline (e.g. 22 km; from municipality X to municipality Y, etc.) for which the respondent organisation is generally involved in or even commissioned for clean-up, etc.

The coastline of the reference areas is effectively well known to the respondents. This suggests a good understanding of the local beach litter situation on the section of coastline considered.

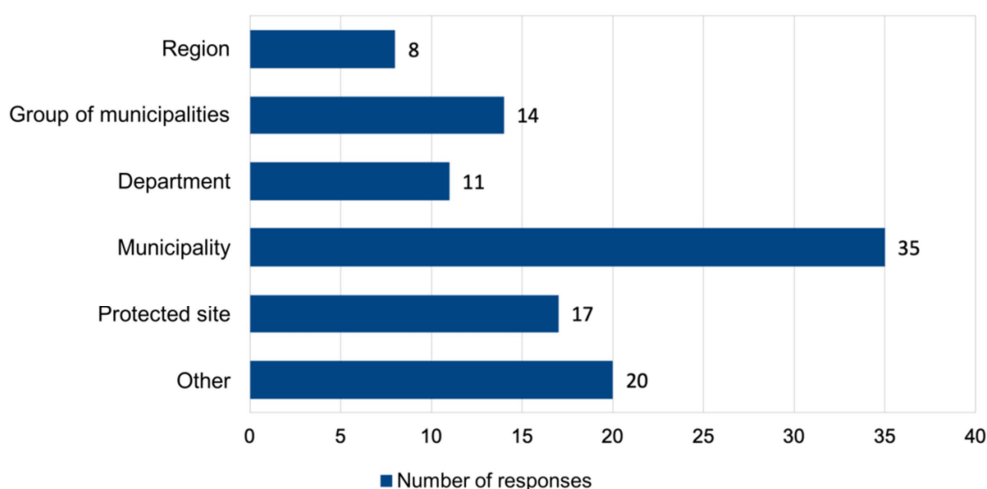


Figure 9: Geographical areas of the respondents (105 respondents)

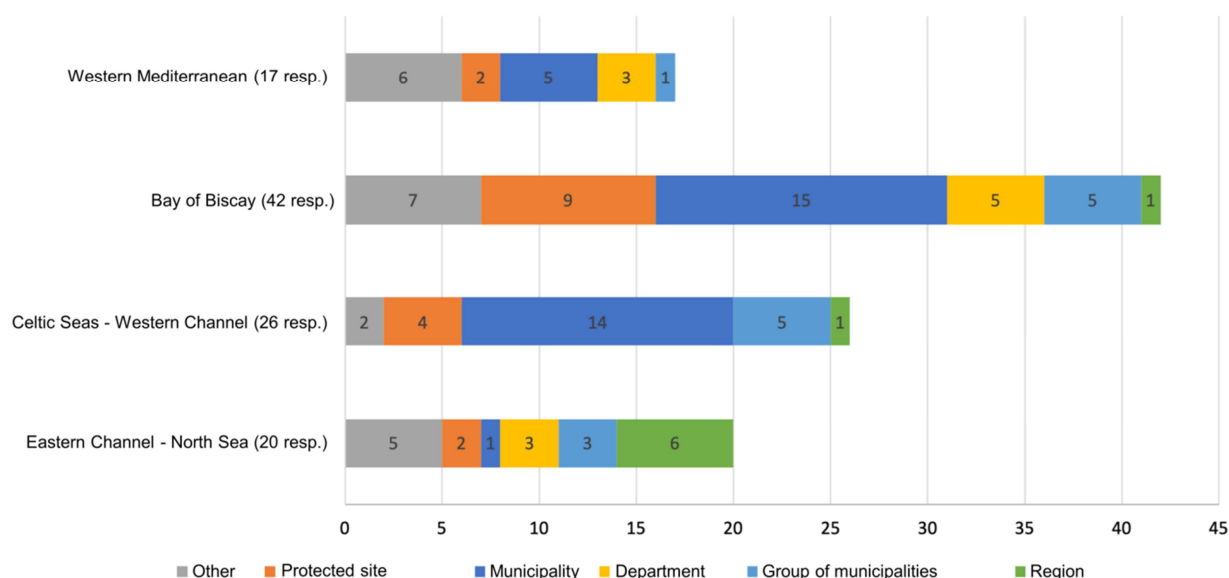


Figure 10: Geographical area of the respondents by marine sub-region (number)

3. DIAGNOSIS OF LITTER POLLUTION ON THE COASTLINE

3.1. Perception of the pollution

3.1.1. Litter pressure on the coastline

Three quarters of respondents consider their coastal area to be at least moderately affected by litter and almost half consider it to be strongly affected by marine litter (Figure 21).

More than 10 % consider it to be unaffected or only slightly affected.

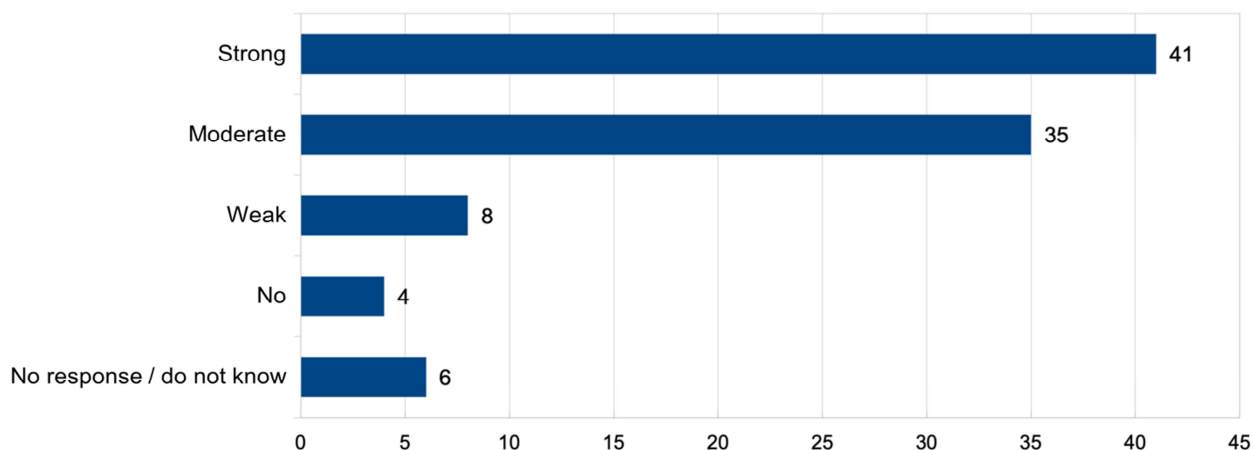


Figure 11: Intensity of the perceived marine litter pollution (94 respondents)

3.1.2. Perceived impact

The ecological impact (Figure 12) of litter pollution is the main harmful effect mentioned, followed by the negative image. Economic impacts due to a loss of business went almost unmentioned, probably due to a combination of the difficulty in assessing these financial impacts and the very low participation of municipalities. Impacts reported as “other” are in fact “combined” effects (i.e. environmental and economic).

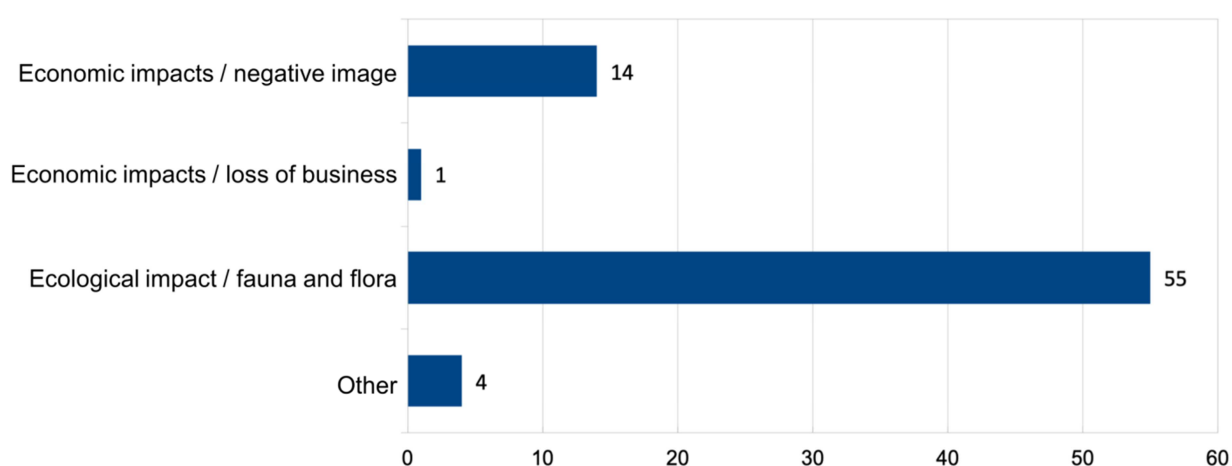


Figure 12: Perceived impacts of the pollution (74 respondents)

The comments provided regarding perceived impacts can be summarised as follows:

- Direct and indirect environmental impacts due in particular to:
 - Additional pressure on environments that are sometimes already considerably degraded;
 - Interactions with dune vegetation, as a result of the burial of litter and microparticles at high levels (embryonic dune and white dune) and plant cover;
 - Interactions with wildlife, particularly birds (ingestion, entanglement, nests) not only seabirds but also birds dwelling in the surrounding brackish and freshwater environments. One respondent wondered about a possible link with the local decline in populations of crustaceans;
 - The potential impact of clean-up: not always perceived as suited to the sensitivity of the shoreline (including the strandline), in particular because of the pressure exerted by some locals and tourists on the municipalities to have a "clean" beach.
- Direct and indirect economic impacts, in particular:
 - on tourist numbers (most frequently mentioned activity);
 - related to the cost of clean-up operations;
 - on the local image: tourism image (beaches), 'nature' image (nature reserves; sailing in an emblematic island environment: the Glénan islands, for example) and image of maritime professions;
 - and, possibly for some, on the consumption of seafood.
- A clear lack of knowledge on the actual intensity of these impacts.

Areas more heavily affected by major sources of litter input are: historical background (former landfills, ammunition dump), local activities (shellfish farming), or proximity to watercourses (large estuaries, in particular the Seine; mountain watercourses); these inputs are amplified during certain weather events (e.g. Cevenol or Mediterranean rainstorms).

3.1.3. Seasonal specificities of litter strandings

Most litter strandings appear to occur in Winter (Figure 13). However, there are very marked differences in seasonality between the Mediterranean coastline and the Channel-Atlantic coastline (Figure 14).

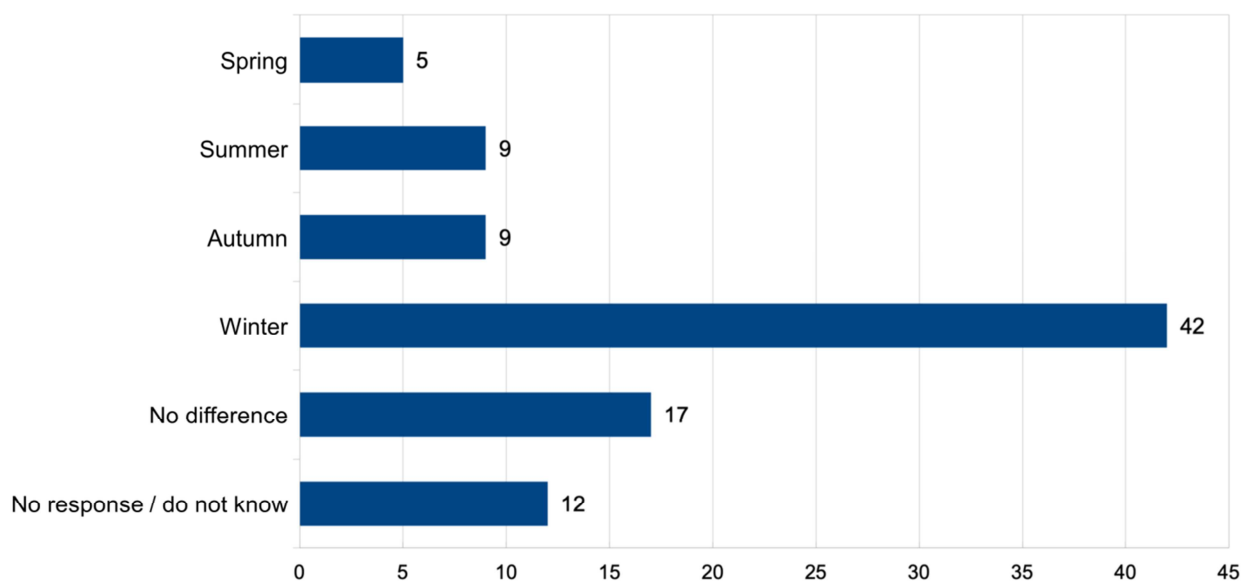


Figure 13: Seasonality of litter strandings (94 respondents)

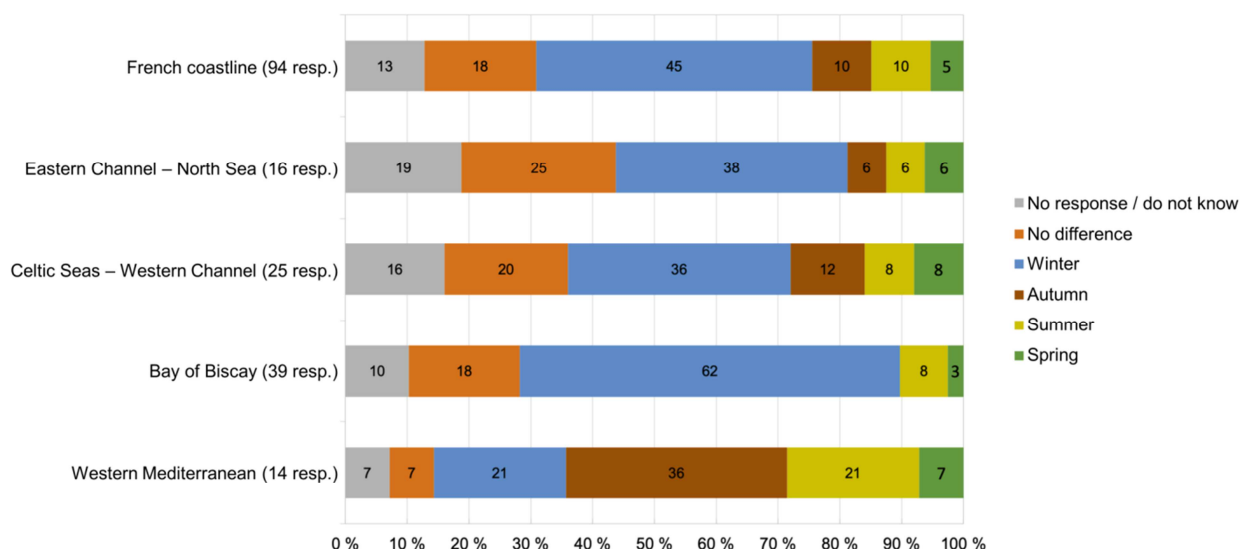


Figure 14: Seasonality of strandings in the marine sub-regions (%)

Winter storms and waves remobilise beach sediment and release the litter trapped within it; this litter is then scattered along the shoreline while litter previously lying in the shallows is washed up on the foreshore. This phenomenon is amplified during spring tides.

While strandings of litter in the autumn are reported to be low on the Atlantic-Channel coastline (and, surprisingly, not reported at all for the Bay of Biscay), the autumn is considered to be the dominant season for coastal litter in the Mediterranean: indeed, this time of year is a time of heavy rainfall and associated flooding; so-called Cevenol or Mediterranean episodes bring major influxes of litter from watercourses. The litter that has been building up for several weeks or months on the beds of almost dried up watercourses is suddenly expelled into the sea by the sudden torrential waters.

Results for the summer are clearly related to the increase in the population in areas with high tourist numbers (all marine sub-regions combined). This is particularly marked in the Mediterranean and is characterised by a very significant increase in litter left on the beach, where it is sometimes even deliberately buried.

3.1.4. Sources of litter pollution

According to the respondents, the main sectors of activity that generate coastal litter (Figure 15) are fishing (27%), followed by aquaculture and tourism (17%). This is followed by mass-market retail (12%) and shipping (8%), then by groups with a similar rate of incidence (<5%): pleasure boating, wastewater treatment, industry and ports.

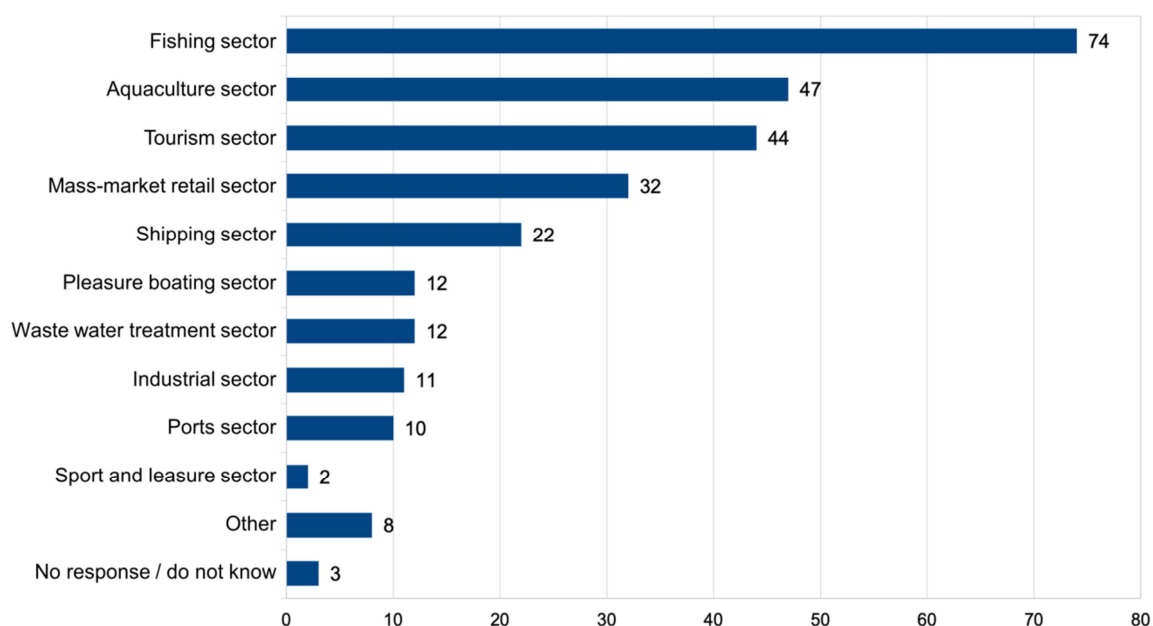


Figure 15: Principal sectors of activity that generate coastal litter (3 possible choices; 99 respondents)

However, there are marked regional differences among these sources (Figure 16): tourism and mass-market retail rank high in the Mediterranean (accounting for half) but are much less prevalent on the Channel-Atlantic coast (tourism indicated half as often).

Conversely, the fishery and aquaculture sectors are cited much less in the Mediterranean (where there is little mention of fish or shellfish farming in particular). The industrial sector is mainly mentioned for the Mediterranean and the Channel and North Sea. Maritime shipping is not mentioned for the Mediterranean (perhaps due to the distance of certain coastal sectors from shipping routes), unlike for the Channel-Atlantic coastline.

Although based on a relatively small sample size, the results of the survey fairly accurately reflect the regional differences between the economic fabrics of the areas concerned.

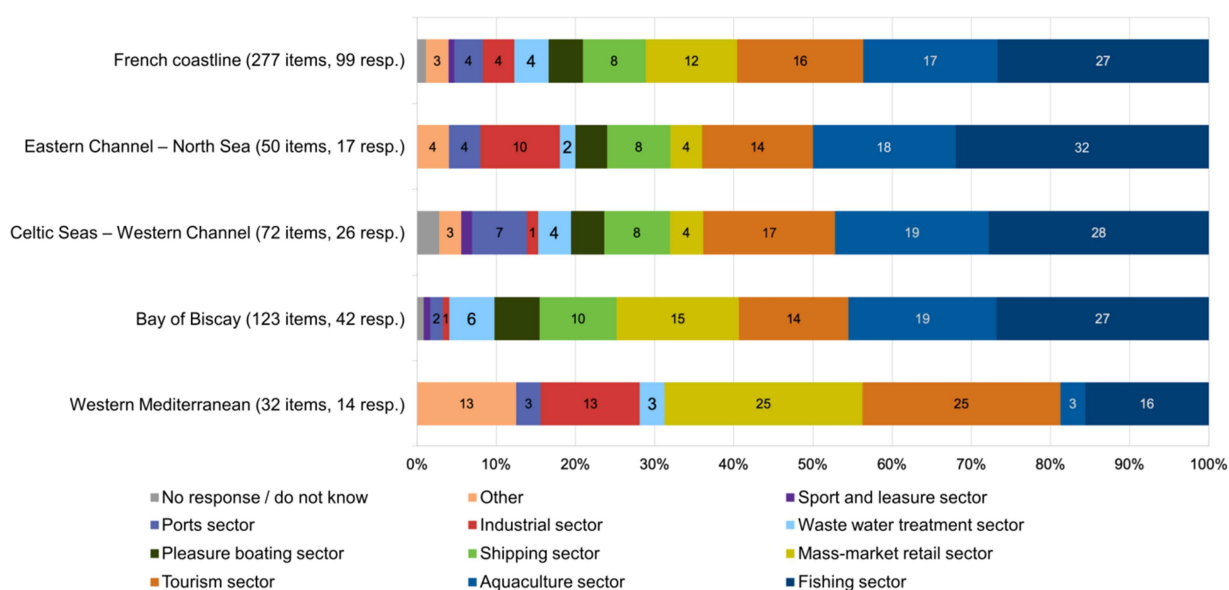


Figure 16: Principal sectors of activity that generate coastal litter by marine subregion (%)

3.1.5. Most common types of litter found on the coastline

Regional differences or trends, previously identified for sources, are also found in relation to the most frequently cited types of litter:

“plastic packaging” followed by “fisheries and aquaculture” (Channel & North Sea marine sub-region);

“fisheries and aquaculture” followed by “plastic packaging” (Celtic Seas & Western Channel marine sub-region and Bay of Biscay marine sub-region);

“plastic packaging” and “plastic fragments” (Western Mediterranean marine sub-region).

3.1.6. Pathways of entry for litter

The sea is cited as the main pathway for litter washed up on the coast (Figure 17).

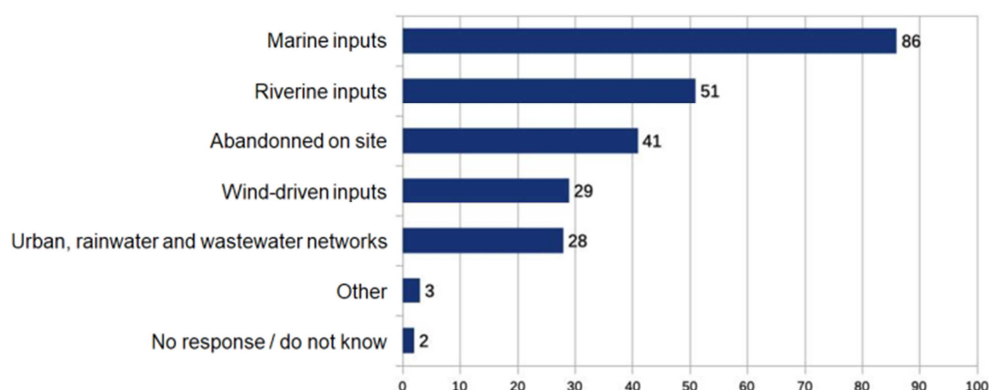


Figure 17: Main pathways of entry for litter into the respondents' sectors (3 possible answers per respondent; 99 respondents)

Whatever the marine sub-region (Figure 18), marine inputs are estimated on average at around 35% of the total for all marine sub-regions combined and range from 25% (Mediterranean MSR) to 40% (Bay of Biscay MSR).

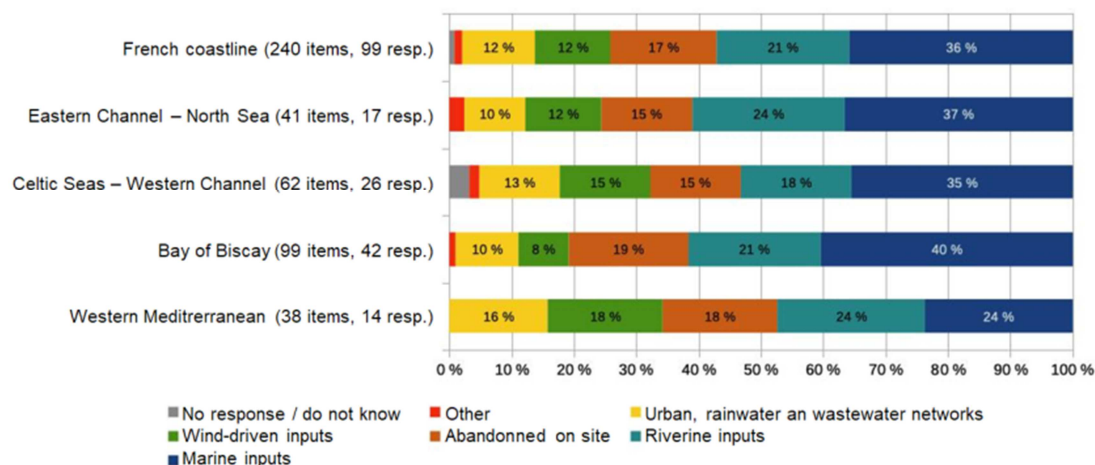


Figure 18: Main pathways of entry for litter into the respondents' sectors (% per marine sub-region)

The majority of inputs therefore originate from land-based sources. The estimated contributions of the different land-based pathways are as follows:

- rivers: between 20% and 25% (except in the Celtic Sea, due to the absence of large watercourses);

- dumping on site: between 15% and 18%;
- finally, almost on a par, land-based wind-driven inputs (between 8% and 18%) and inputs from urban, rainwater and wastewater networks (between 10% and 16%).

3.2. Inventory of stranded litter accumulation sites

3.2.1. Number of litter accumulation sites inventoried

The survey identified a total of 207 key litter accumulation sites (Figure 19) along the entire coastline.

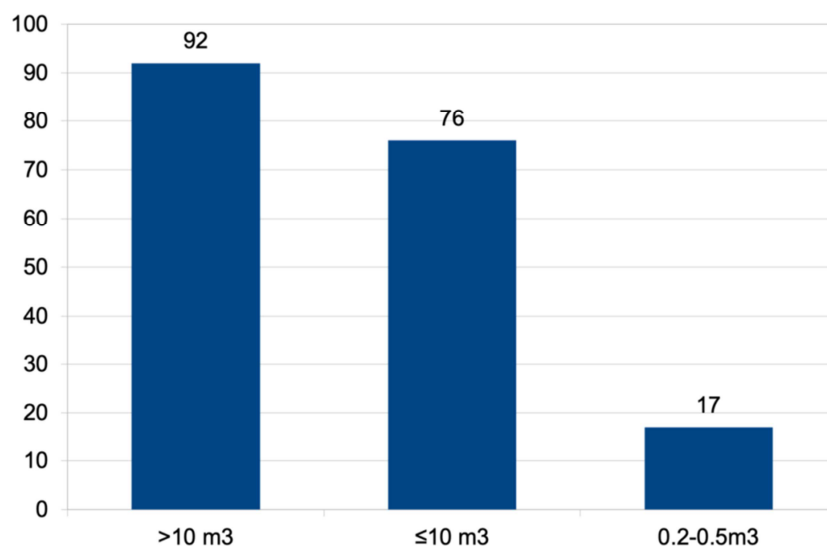


Figure 19: Litter accumulation sites (number) per category of estimated annual volume (185 sites reported)

These sites are distributed between the different marine sub-regions as follows (Figure 20):

- 41 in the Eastern Channel & North Sea;
- 63 in the Celtic Seas & Western Channel;
- 79 in the Bay of Biscay;
- 24 in the Western Mediterranean.

It is estimated that about half of these sites receive more than 10 m³/year (93 sites, plus certain unquantified sites): these sites can be considered to be marine litter hotspots.

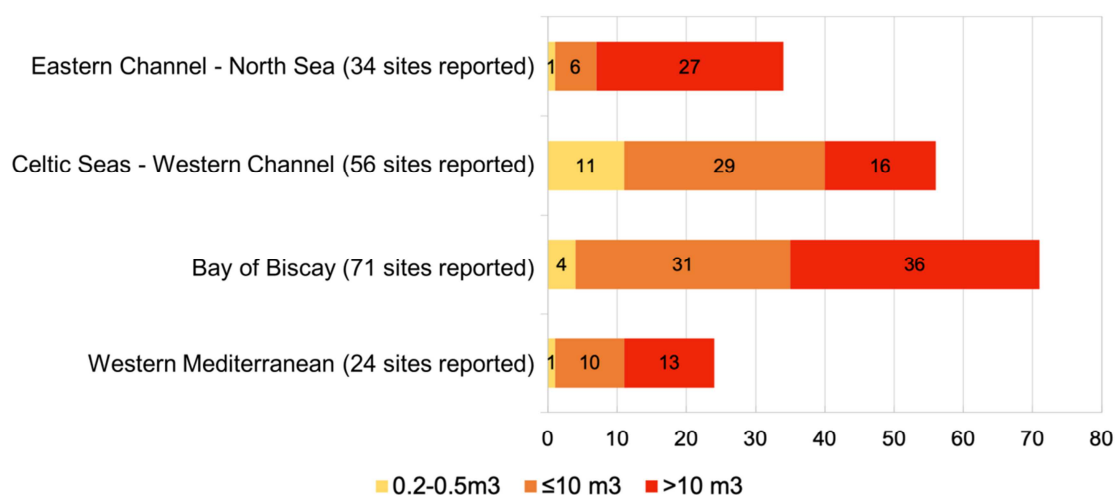


Figure 20: Litter accumulation sites (number) per volume category and marine sub-region

These hotspots (Figure 21) represent around 80% of the sites identified in the Eastern Channel & Northern Sea area, about 50% in the Bay of Biscay and the Mediterranean, and 30% in the Celtic Seas.

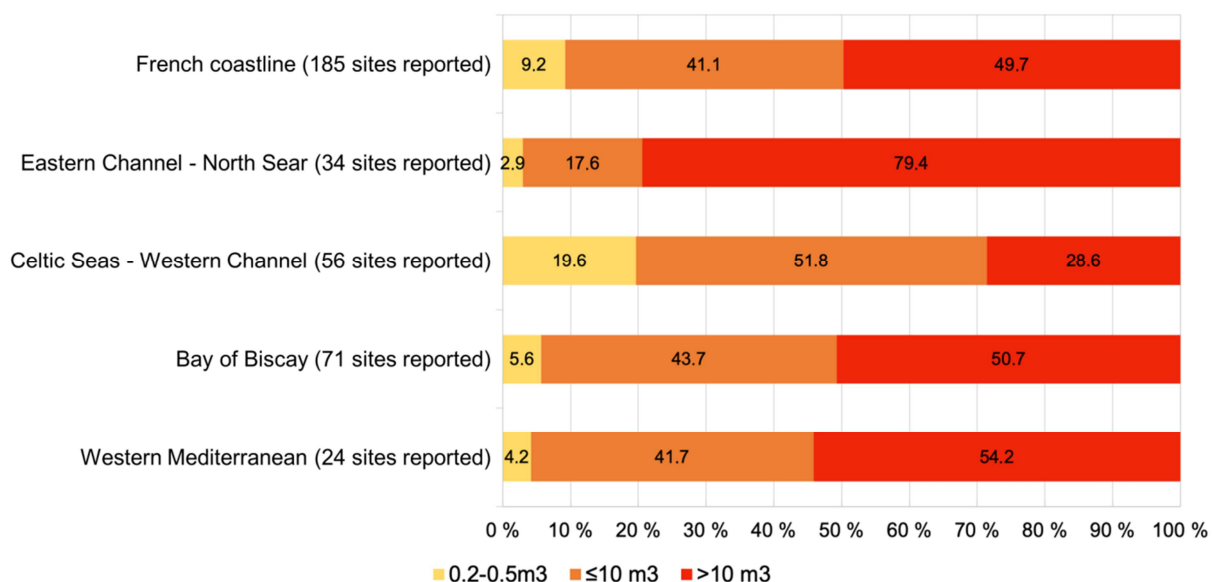


Figure 21: Litter accumulation sites (%) per volume category and marine sub-region

The distribution of accumulation sites according to the **geographical reference area** (i.e. region, department, group of municipalities, municipality, other) chosen by the respondent shows that the smallest reference areas (i.e. marine protected areas, groups of municipalities and municipalities) are very well represented (Figure 22).

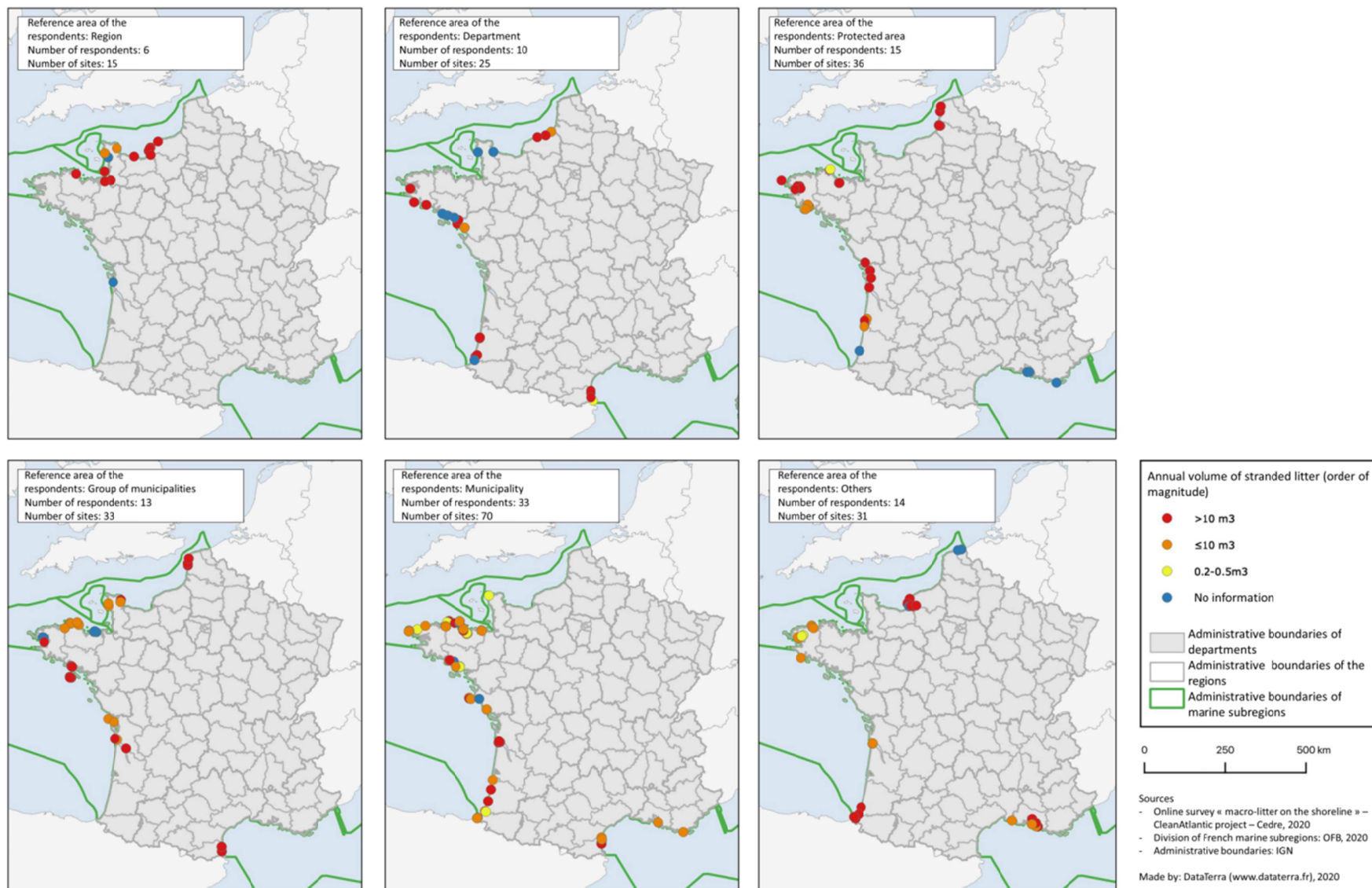


Figure 22: Location of the accumulation sites according to the geographical reference area chosen by the respondent and by volume of stranded litter

3.2.2. Characteristics of these key stranding sites

Based on the survey results, a participatory map of macro-litter accumulation sites along the coastline of mainland France was drafted (Figure 23) (**Appendix 2**).

This map, together with a site ranking system according to the volume of stranded litter (based on estimations of the annual quantity stranded at the site), demonstrates the relevance of the "3 most affected sites in your area" approach used during the survey, whatever the geographical reference area considered and the origin of the respondent.

These accumulation points are permanent; they are created by the prevailing hydrodynamic forces (waves, wind, currents, tides) at regional - and local - scale, which govern the movement, stranding - and possible subsequent remobilisation - of floating litter, as well as sunken litter in shallow waters.

3.2.3. Site distribution by marine sub-region

The breakdown of key accumulation sites by marine sub-region is outlined below. The lists of these sites and their main characteristics (location and types of litter) are provided in Appendix 1.

In the **Eastern Channel - North Sea marine sub-region** (Figure 24) 40 sites were identified; they are distributed as follows according to the volume of litter: 1 moderate site, 6 major sites and 28 hotspots, plus 6 additional unquantified sites.

In the **Celtic Seas - Western Channel marine sub-region** (Figure 25) 63 sites were identified; they are distributed as follows: 11 moderate sites, 29 major sites and 16 hotspots, plus 7 additional unquantified sites.

In the **Bay of Biscay marine sub-region** (Figure 26) 79 sites were identified; they are distributed as follows: 4 moderate sites, 31 major sites and 36 hotspots, plus 8 additional unquantified sites.

In the **Western Mediterranean marine sub-region** (Figure 27) 28 sites were identified; they are distributed as follows: 1 moderate site, 10 major sites and 13 hotspots, plus 4 additional unquantified sites.

The maps described above are available section **Erreur ! Source du renvoi introuvable.** below.

3.2.4. Focus on hotspots

The sites with the largest quantities of litter ($> 10 \text{ m}^3$) are considered to be litter hotspots.

The inventory of these litter hotspots – and their geomorphological characteristics – is presented by marine sub-region in **Appendix 3**.

Litter accumulates on all types of shores (Figure 28). Certain coves can act as traps and wide open stretches of coastline (dune systems and shingle bars) also feature key accumulation points according to the currents and waves, especially where man-made structures are present to block the litter's drift.

There is no clear link between the type of litter accumulation site and the type of coastline, however the sites do reflect the regional geomorphological characteristics (e.g. vast dune belt in Aquitaine; shingle bar in Haute Normandie, etc.).

Number of respondents: 91
Number of sites: 210

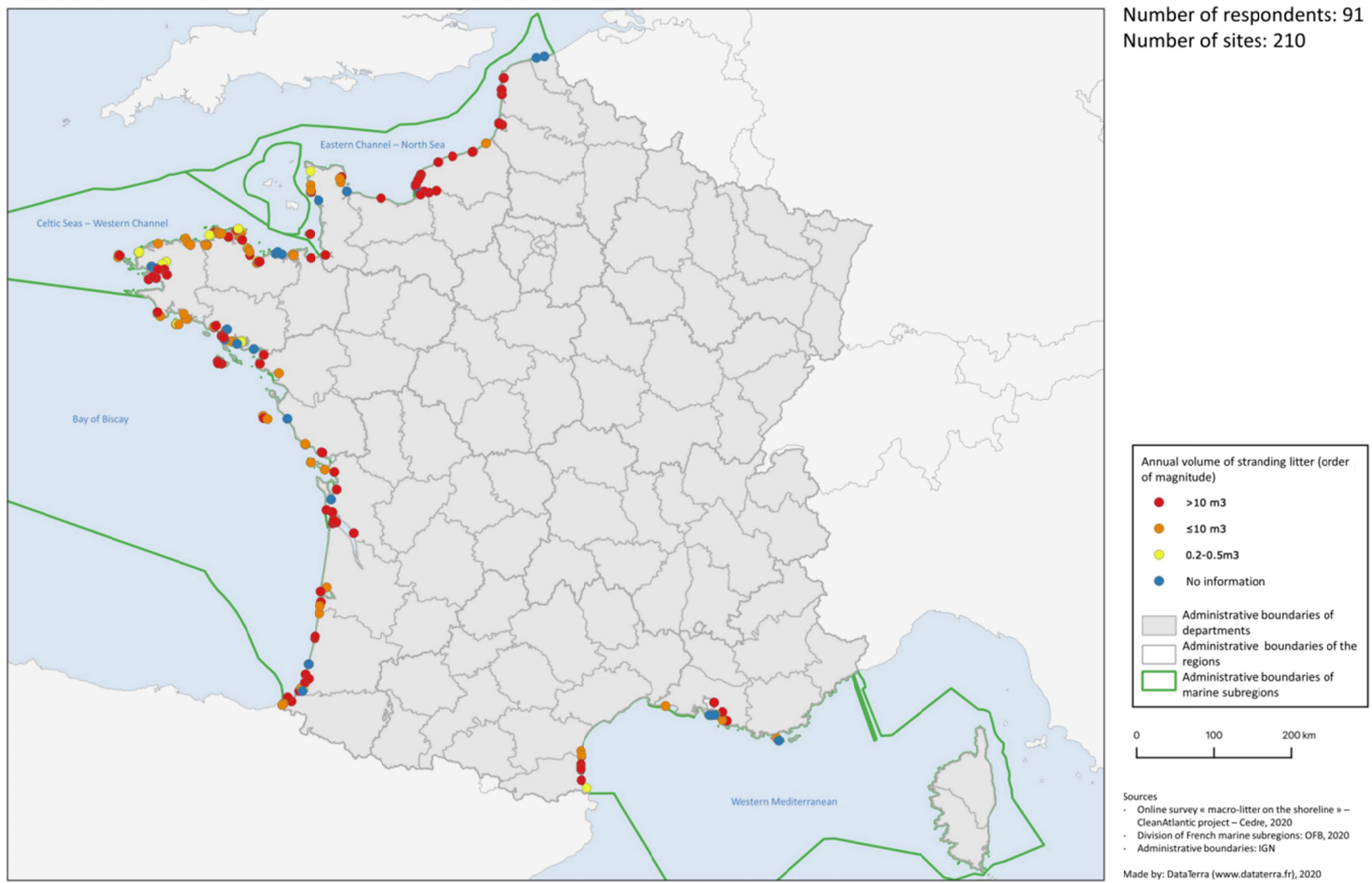


Figure 23: Location of the accumulation sites and categories of annual volumes of stranded litter

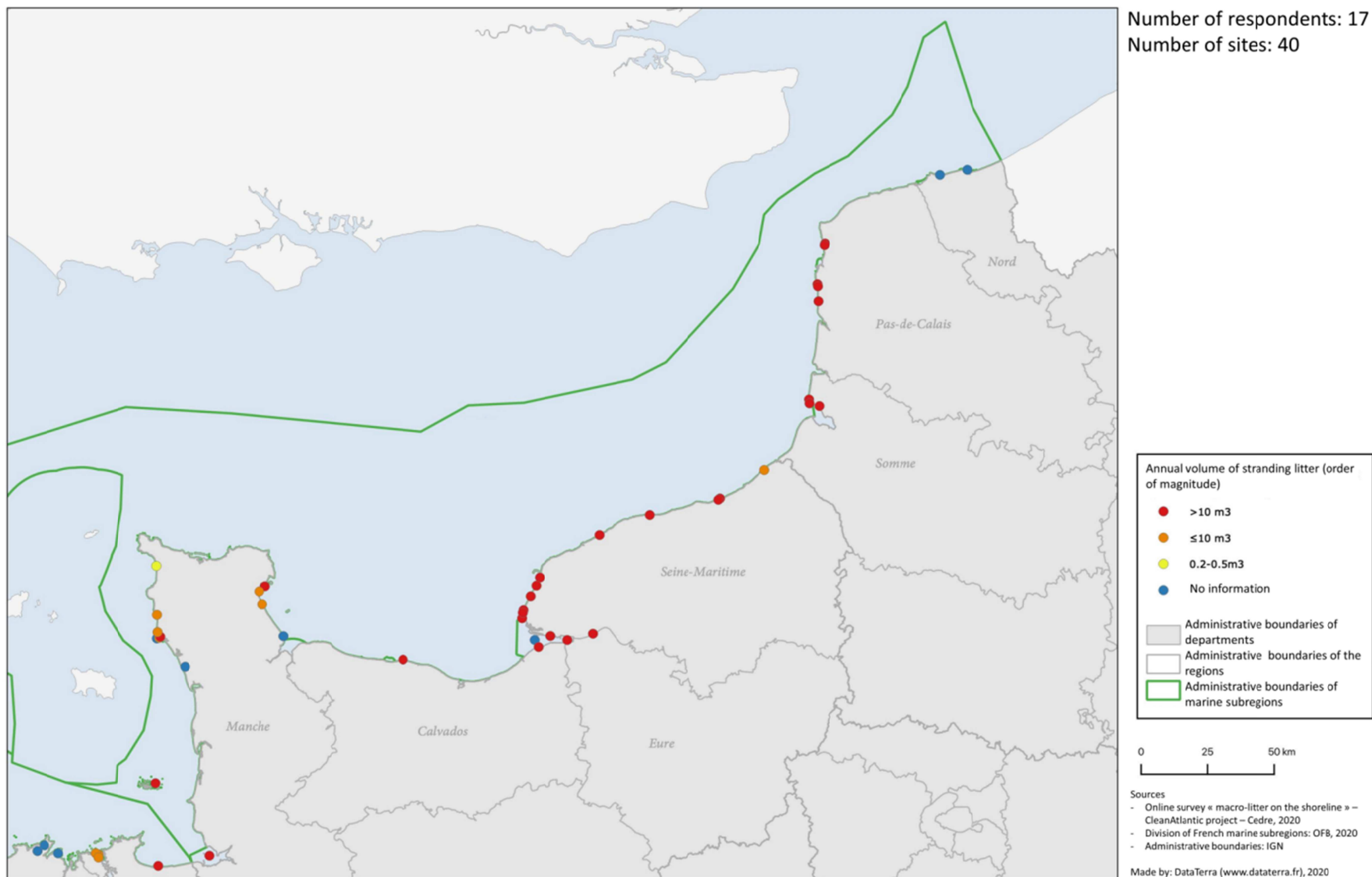


Figure 24: Marine sub-region Eastern Channel – North Sea: location of the accumulation sites and categories of annual volumes of stranded litter

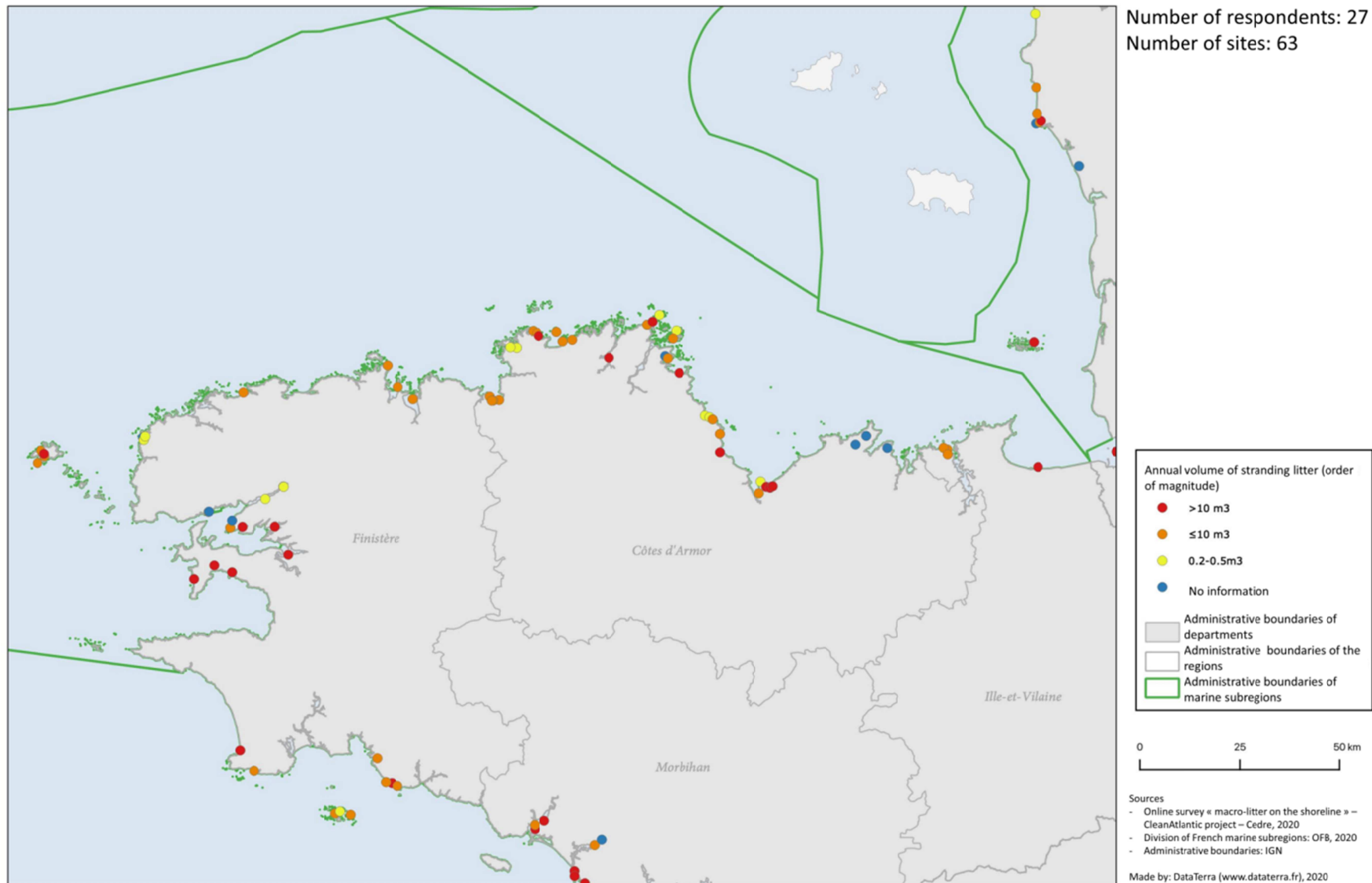


Figure 25: Marine sub-region Celtic Seas – Western Channel: location of the accumulation sites and categories of annual volumes of stranded litter

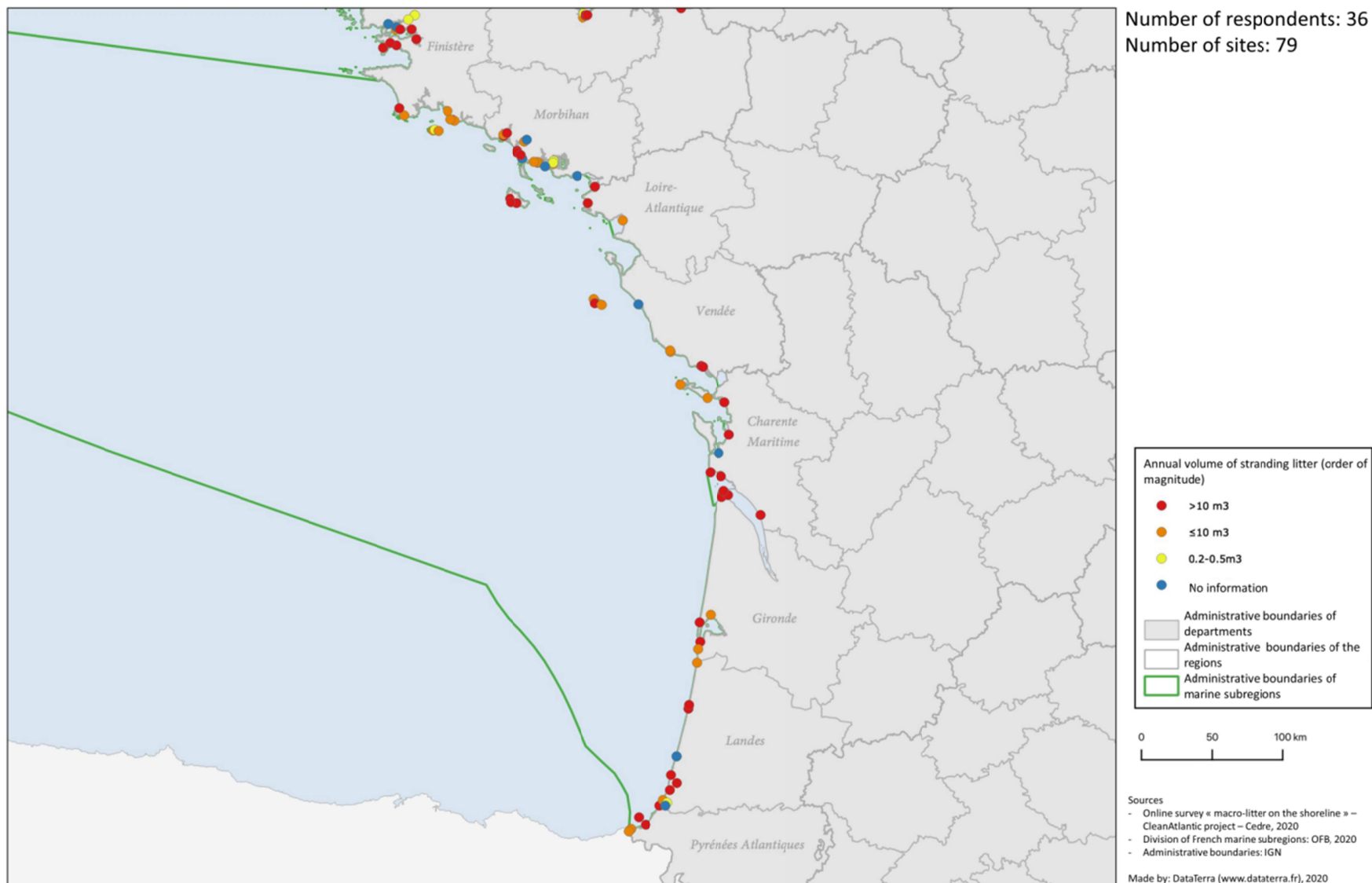


Figure 26: Marine sub-region Bay of Biscay: location of the accumulation sites and categories of annual volumes of stranded litter

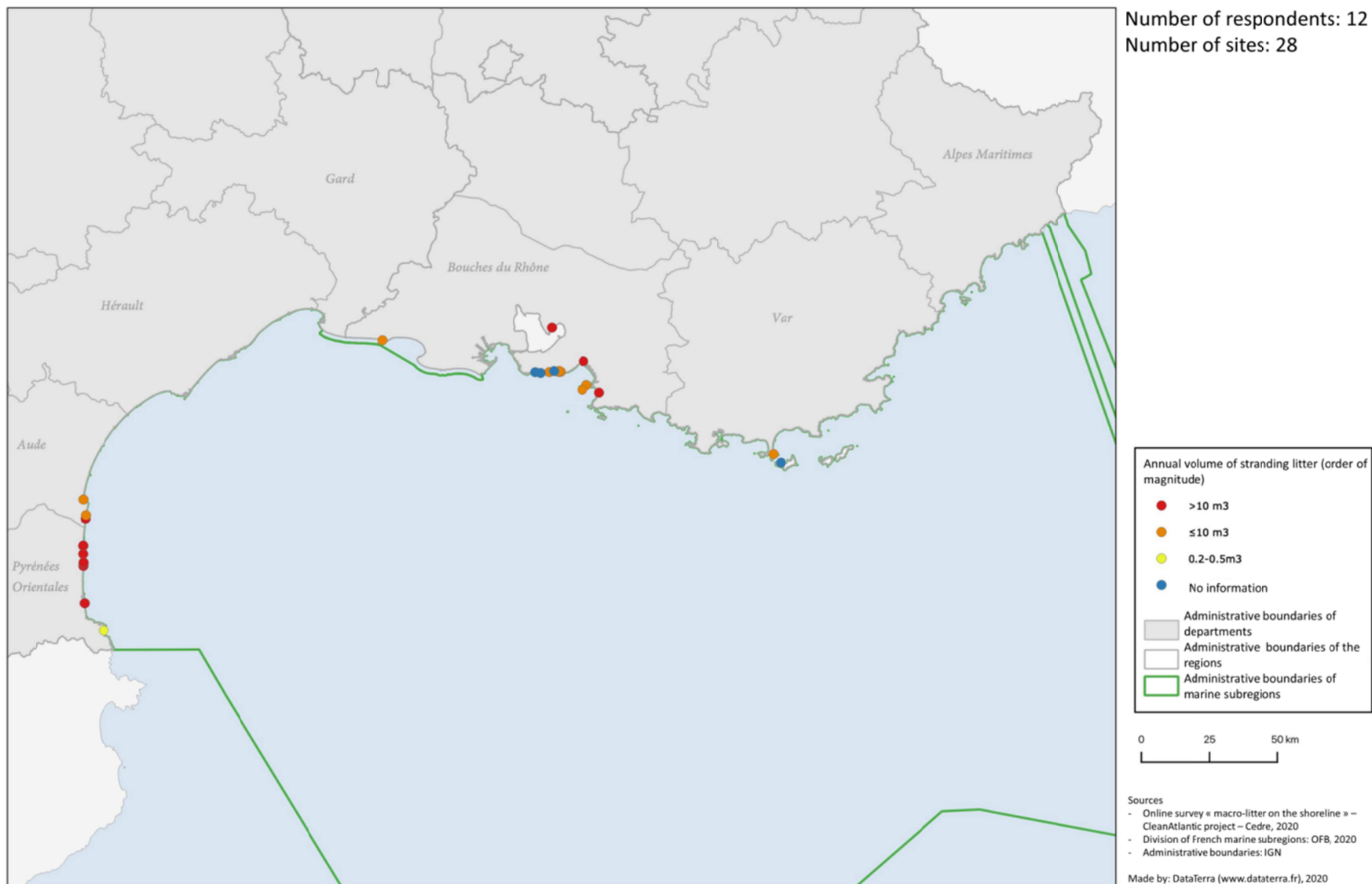


Figure 27: Marine sub-region Western Mediterranean: location of the accumulation sites and categories of annual volumes of stranded litter

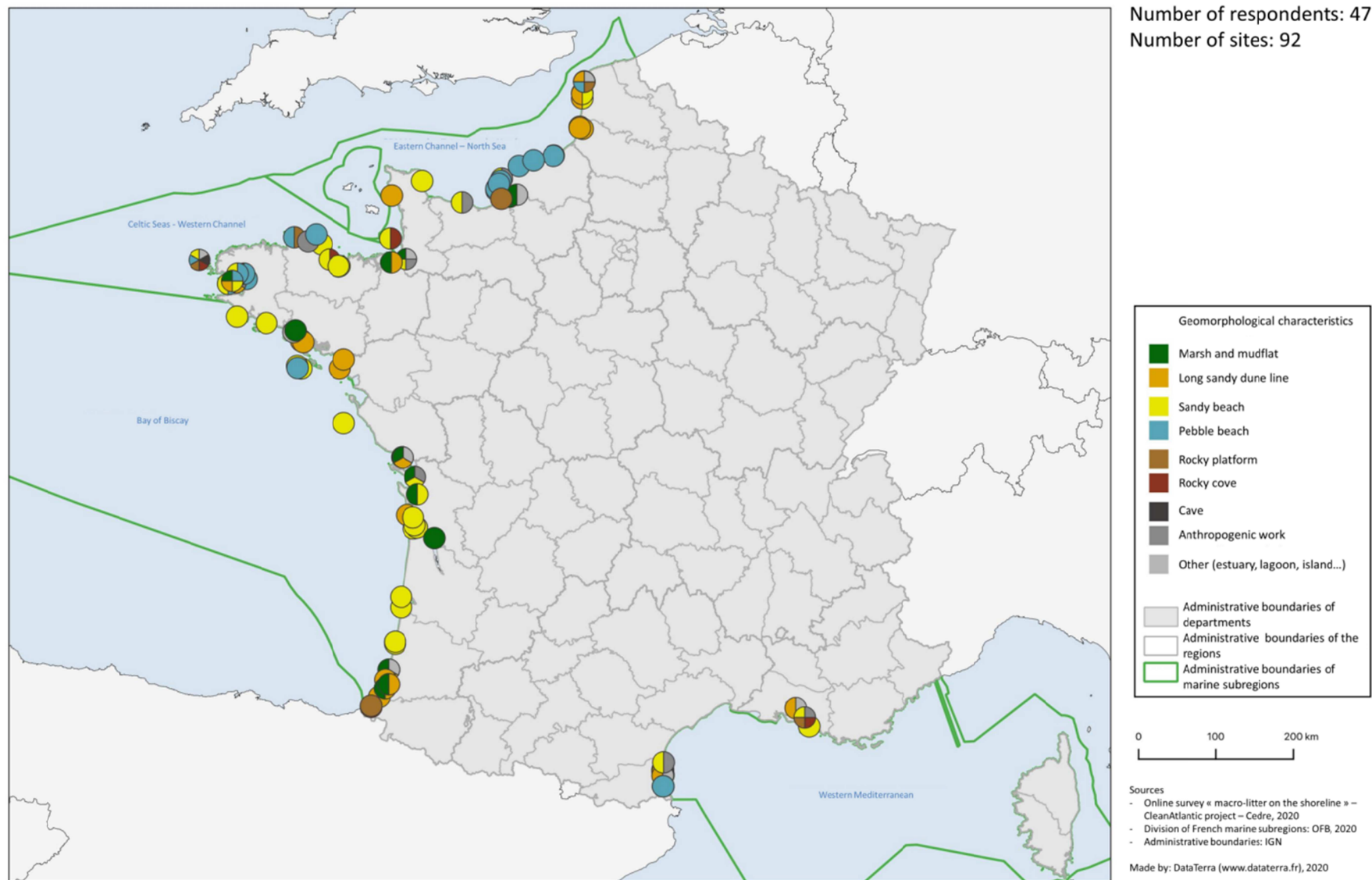


Figure 28: Location of the litter hotspots and their geomorphological characteristics

3.3. Focus on foamed polystyrene

3.3.1. The foamed polystyrene issue

The vast majority of respondents confirmed the frequent presence of EPS (expanded polystyrene) / XPS (extruded polystyrene) in their area (Figure 29), mostly in the form of fragments or objects, particularly in the Bay of Biscay (Figure 30).

We should of course avoid jumping to the conclusion that EPS/XPS is more abundant in this region, as the amplifying effect of the number of respondents must be taken into account.

However, this predominance may also be explained by the strong presence of certain production and processing activities that use foamed polystyrenes, for instance connected to fishing and aquaculture, and the associated fish trade: floats, buoys; transport crates; trays, etc.

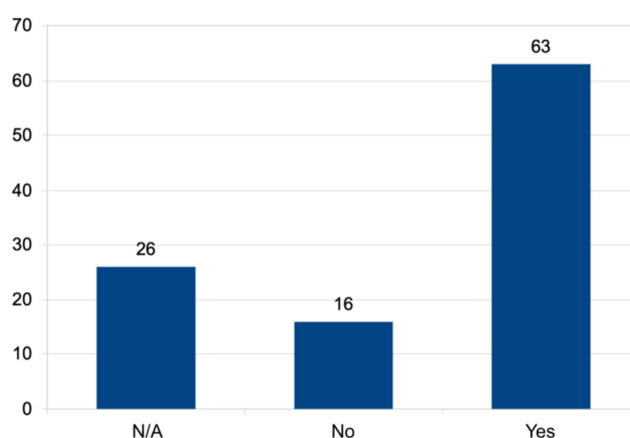


Figure 29: Presence of foamed polystyrenes (EPS/XPS) according to the respondents

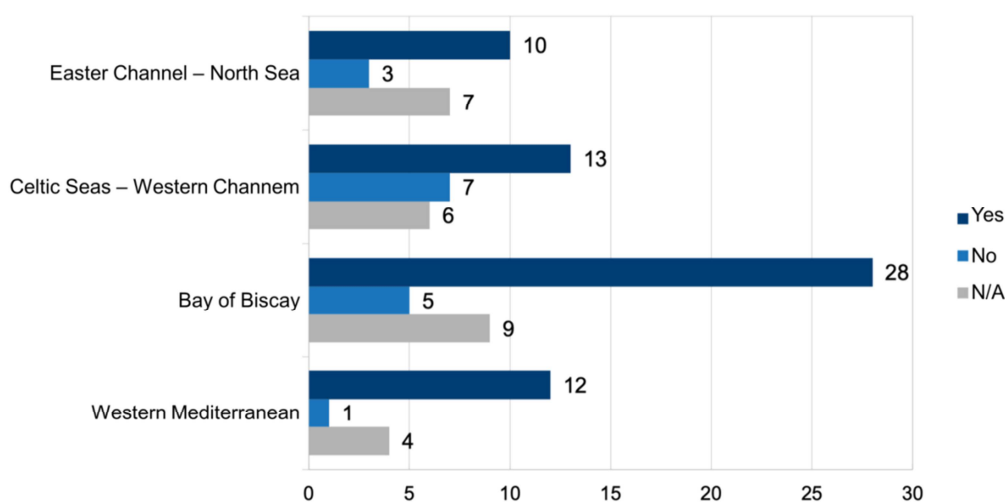


Figure 30: Stranding frequency of foamed polystyrene (marine sub-region)

3.3.2. Sites most affected by foamed polystyrenes

Based on the survey results, around 30 accumulation sites with high proportions of EPS/XPS (Figure 31) were identified across the different marine sub-regions.

The detailed list of sites and accompanying comments can be found in **Appendix 3**.

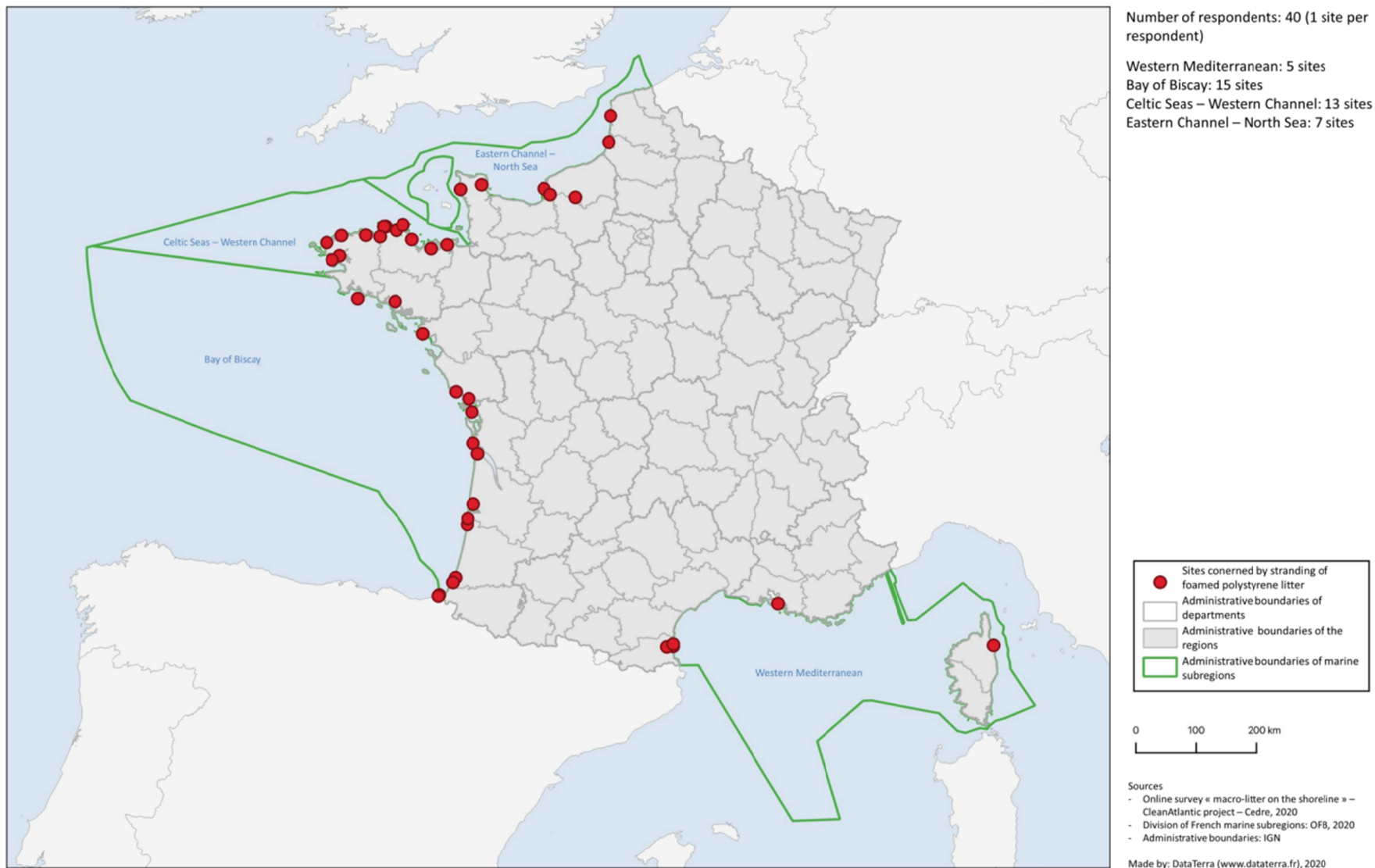


Figure 31: Location of the accumulation sites for stranded foamed polystyrene

4. IDENTIFICATION OF MEASURES IN PLACE TO REDUCE STRANDED LITTER

4.1. Incentives implemented to reduce stranded litter

Incentive schemes to reduce the amount of litter washing up on the shoreline are increasingly common (Figure 32); they are usually implemented at the initiative of municipalities, on or near the shore.

Over and above awareness-raising, such schemes have two major objectives:

- Encouraging people not to dump litter or reduce inputs (urban, ports);
- Encouraging people to pick up beach litter.

In the first case, the most common system is a metal **plate** or stud, or even a simple tag (with chalk or a stencil), next to storm drains, bearing the message “*Ici commence la mer*” (“The sea starts here”).

In the second case, a wooden container known as a “bac à marée”, or tidal bin, specifically for beached debris is provided on the backshore (Figure 33). These containers, reportedly installed a few years ago in southern Brittany, are now being replicated along the coastline; they play an essential role both in beach clean-up, by encouraging ongoing collection, and in reducing costs for the municipalities.

In addition, these “tidal bins” are increasingly used for litter monitoring (based on a standardised characterisation system to identify litter sources and implement relevant actions, for instance the “Trait Bleu” programme, <https://bacamaree.fr/>). This incentive scheme is the most frequently mentioned in the survey, mainly in the Bay of Biscay (where the first tidal bins were set up, and where the Trait Bleu project is currently being rolled out).

Other incentive schemes were also mentioned:

- “tidal walls” or “sorting walls”, inspired by the so-called tidal bins, consist in a series of baskets mounted on a large board designed for beach-goers to directly sort objects collected on the beach into broad categories;
- collection drums/buckets: containers, generally recovered from the beach, provided so that beach-goers can deposit collected waste;
- information boards with a clear slogan: “If the bin is full, take your rubbish home”, “Don’t leave rubbish, it will end up in the sea”, “1 cigarette butt pollutes 500 litres of water”, etc.;
- beach ashtrays available to beach-goers;
- and in ports, near beaches:
 - special floating bins
 - mini-waste stations in careening areas.

Other initiatives also mentioned were **awareness campaigns** such as “*Ecogestes Méditerranée*”, in the Landes area “*Chantiers citoyens*” and “*J’aime ma plage*”, as well as the “*Plage sans tabac*” (smoke-free beaches) charter.

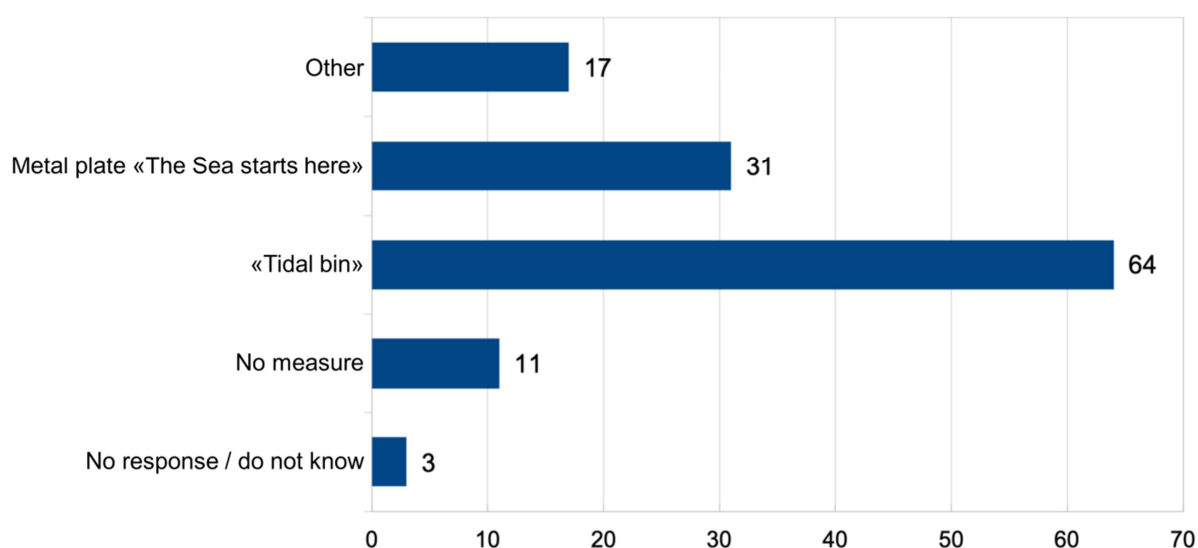


Figure 32: Incentives implemented to reduce stranding litter (93 respondents)

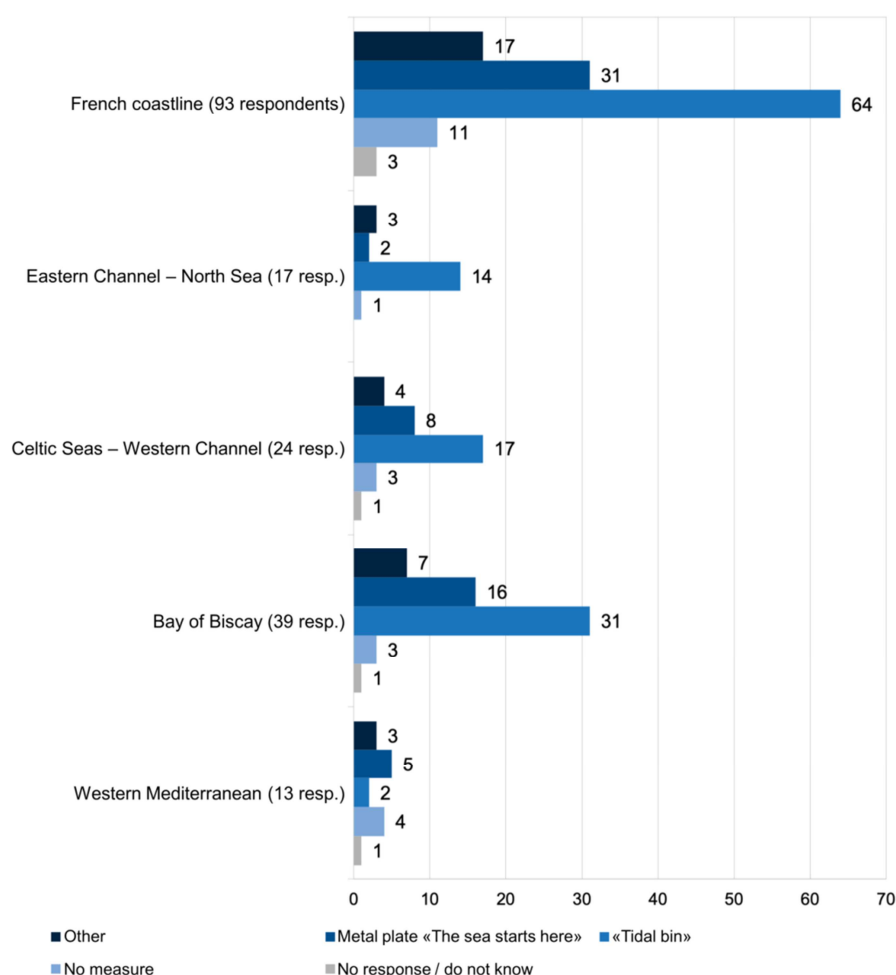


Figure 33: Measures in place to reduce stranding litter (several possible responses per respondent)

4.2. Protective equipment in place to reduce litter washing up on the shore

Such systems are not often mentioned. So far, very few municipalities have set up such devices (Figure 34), however the trend seems to be on the rise.

Various such devices are in operation at sea, in rivers and in ports:

- a **recovery boat**, for instance a fishing boat or specialised barge, to collect waste inshore;
- a **floating boom** positioned inshore to provide a litter-free bathing area;
- a **floating boom** positioned immediately upstream of a river estuary, in order to capture some of the waste carried by the flow, particularly when the river is in spate;
- a **net positioned across stormwater outfalls** in ports, in order to intercept waste from the urban road network; such systems are increasingly favoured by the authorities;
- a **straight net** across a small Mediterranean stream or drainage channel is also mentioned, however it is specified that this system is not always operating due to lack of maintenance.

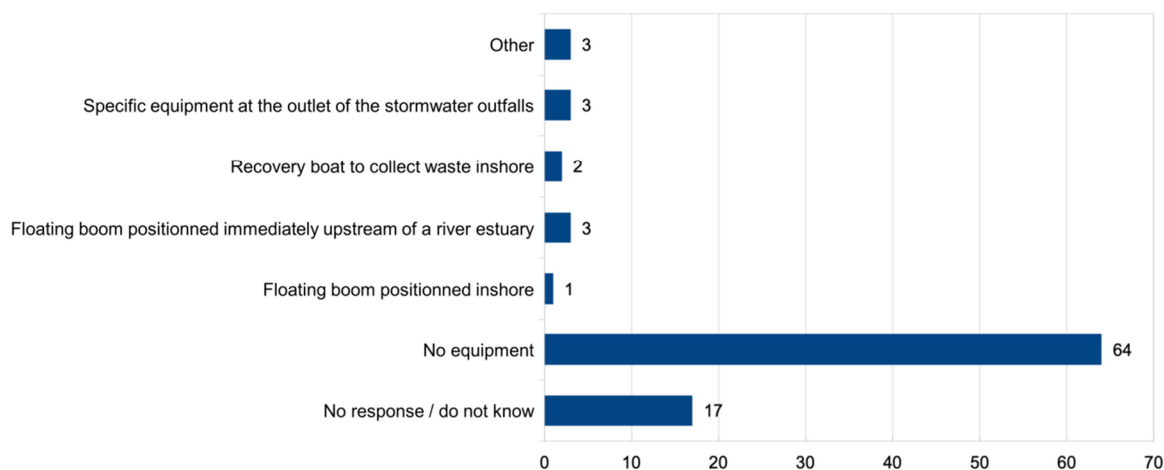


Figure 34: Protective equipment implemented to reduce litter washing up on the shore (93 respondents)

4.3. Accreditation programmes promoting the reduction of stranded marine litter

Various accreditation initiatives (in the broadest sense) of varying scope (local, regional, national and international) (Figure 35), ranging from simple projects to more demanding certification programmes, have been identified across the 4 marine sub-regions.

These initiatives consist in:

- **certification or accreditation** to guarantee users certain standards of health, comfort, access, etc., with certain cleanliness criteria taking into account marine litter, particularly plastics;
- **a charter, strategy or project**, which are less restrictive, aimed at reducing coastal litter, particularly plastics.

The different measures mentioned are as follows:

- At local scale:
 - the “*Calanques propres*” project (MerTerre association)
 - the “*Port partenaire*” charter (Parc naturel marin d’Iroise)
 - the “*Trait Bleu*” charter (T.É.O. association) for the installation and management of tidal bins
 - the “*Ville propre*” plan (municipalities)
- At regional scale:
 - the “*Développement durable des ports de pêche et de plaisance*” (sustainable development of fishing harbours and marinas) charter (Provence-Alpes-Côte d’Azur region)
 - the ZDZG project “*Zéro Déchets – Zéro Gaspillage – Territoire économe en ressources*” (Brittany’s Environment and Energy Management Agency, ADEME)

- the “*Destination touristique*” strategy (Tourisme Bretagne)
- the “*Gestion intégrée de la bande côtière*” (integrated management of the coastal strip) strategy (GIP Littoral Aquitain).
- At national scale:
 - the “*Plages sans déchets plastique*” (beaches without plastic waste) charter (French Ministry for the Ecological Transition)
 - the project “*ZDZG – Zéro Déchets – Zéro Gaspillage*” project (French Ministry for the Ecological Transition)
 - the “*Gestes propres*” charter (formerly “*Vacances Propres*”) (Progrès & Environnement association)
 - the “*Plages sans tabac*” (smoke-free beaches) charter (Ligue contre le cancer)
 - the “*Qualité de baignade*” (bathing quality) label (ANEL association, ANETT association, French Ministry of Health and Sports, the French Ministry in charge of Tourism and the French Ministry of the Interior).
- At international scale:
 - the “*Pavillon Bleu*” (blue flag) award (Teragir association)
 - the “*Ports propres*” (clean ports) certification.

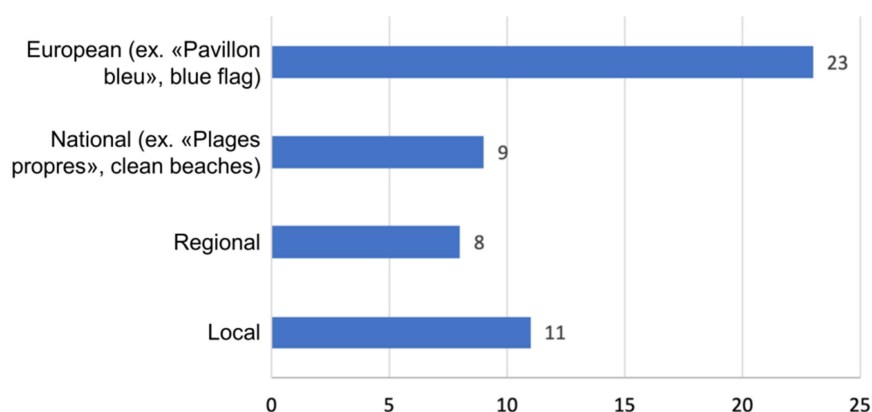


Figure 35: Accreditation programmes promoting the reduction of stranded marine litter

5. IDENTIFICATION OF BEACH CLEAN-UP TECHNIQUES AND COSTS

The survey results indicate that **environmental sensitivity** is the number one key point in relation to clean-up (Figure 36). In second place comes the **organisation of clean-up**, which is of course crucial for all structures, whether public or voluntary, and which must also include the necessary local coordination of clean-up operations (reported in “Other”).

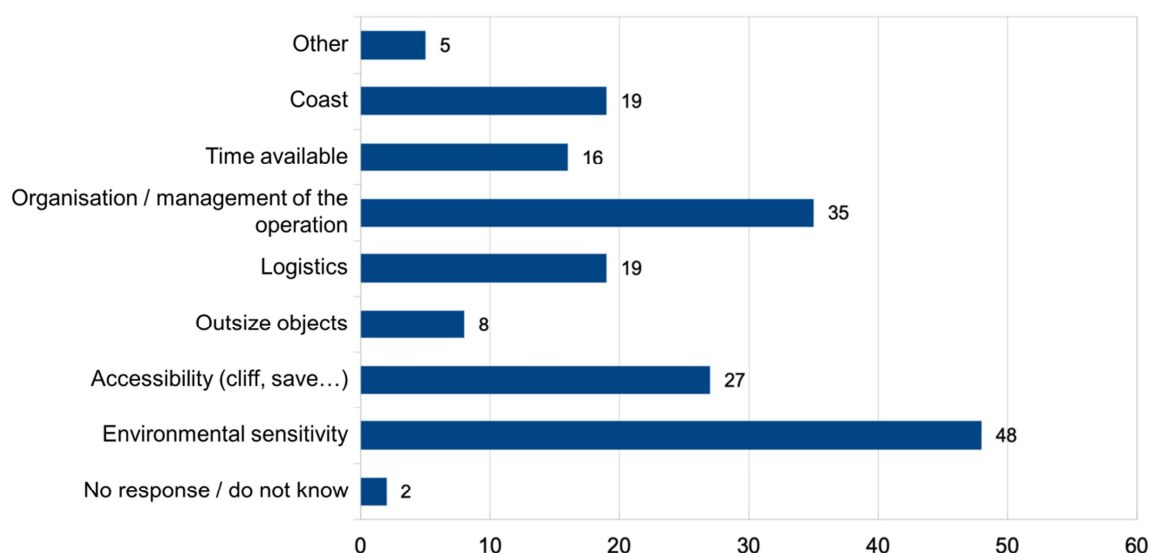


Figure 36: Key factors to consider for coastline clean-up (66 respondents; several responses possible)

The survey responses also highlight the fact that access to certain accumulation sites entails certain constraints, in addition to safety considerations (particularly for volunteers), due to:

- the limited number of shoreline access points (e.g. coastline composed of cliffs or dune strip),
- tide times,
- sudden erosion (of the beach or coastline),
- associated logistics, particularly in the case of oversized objects.

The cost does not appear to be identified among the most determining factors (on a par with availability); this score should however be adjusted given the prevalence of volunteer associations among the respondents and, conversely, the low proportion of funders, particularly municipalities.

5.1. Environmental considerations

To the question “are environmental issues taken into account”, the answer is almost unanimously yes (Figure 37) (even although a few respondents express a lack of knowledge in this respect and, in a few rare cases, doubts about the operations conducted by their local authority). The issues listed first, ranking equally, are the presence of sensitive species – whether protected or not (in particular birds nesting on the foreshore) –, the sensitivity of certain habitats (mainly dunes and the strandline); followed by the risk of erosion caused by aggressive cleaning.

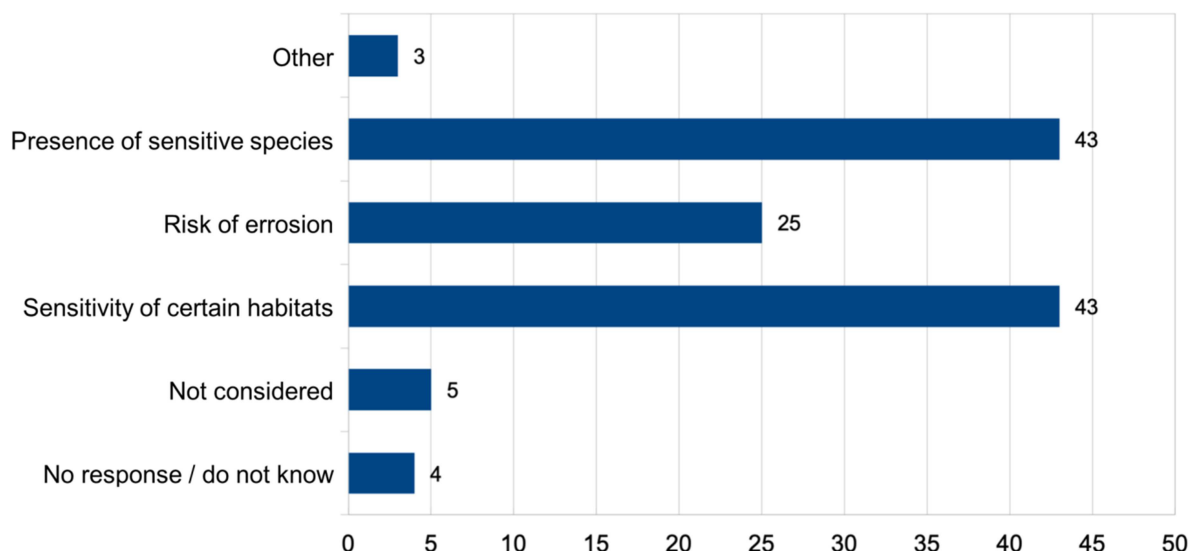


Figure 37: Environmental issues taken into account (66 respondents; several responses possible)

5.2. Type of cleaning

Manual collection is by far the preferred option (Figure 38) in the survey results (probably also amplified by the strong participation of the voluntary sector). Mechanical collection – implemented three times less than and generally together with manual collection – is nevertheless common in certain areas, notably large dune areas and tourist beaches, whether in urbanised areas or not.

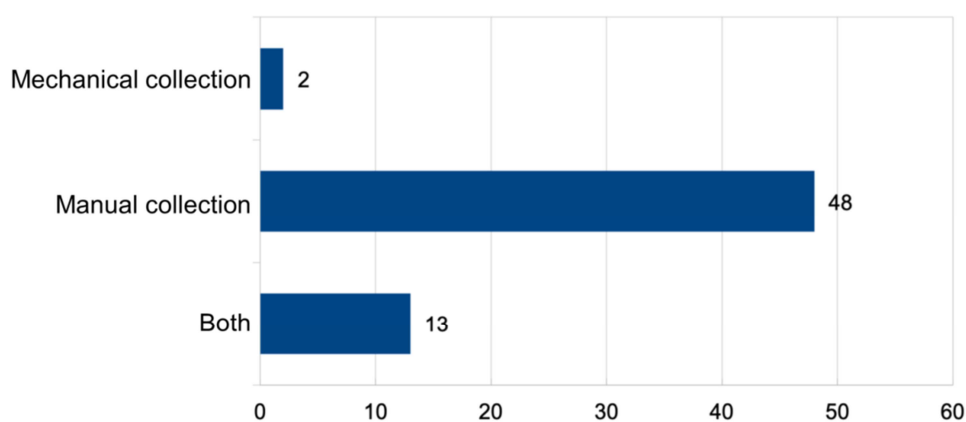


Figure 38: Types of cleaning (63 respondents)

While all stakeholders involved in cleaning implement manual collection, this is not the case for mechanical cleaning, which is only organised by local authorities (Figure 39): municipalities (or groups of thereof) or departments (larger administrative divisions).

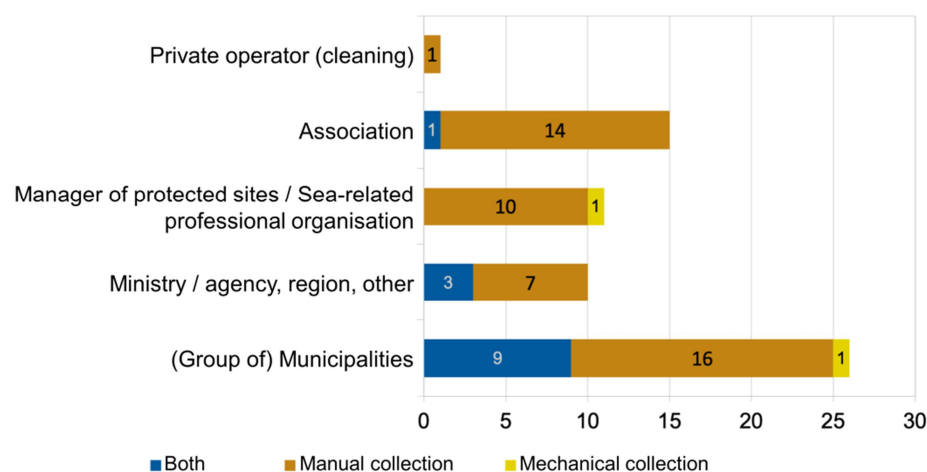


Figure 39: Types of cleaning per organisation type

5.3. Cleaning operators

The main operators involved are of course the municipalities (and groups thereof) (Figure 40), which are responsible for beach cleanliness.

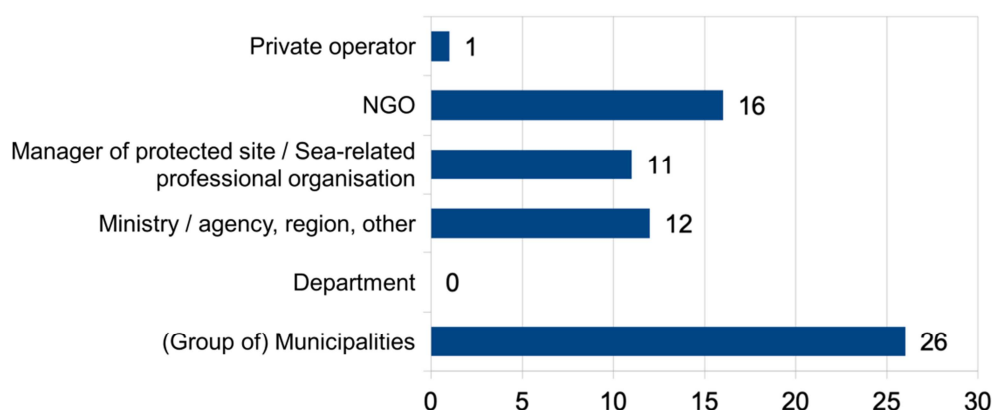


Figure 40: Types of organisation responsible for cleaning operations

5.4. Resources involved

The workforce and equipment come from various sources depending on who is organising clean-up operations (Figure 41).

Departmental and regional authorities and government agencies use various external resources in addition to their own.

Municipalities deploy their staff; they also often contract work integration social enterprises – which may or may not be associations – as well as cleaning companies.

Site managers manage the cleaning of their section of coastline with their own resources, and/or via agreements with local associations, or even by contracting a private operator that may be a work integration social enterprise (for manual collection) or a private cleaning contractor with specialised equipment.

Clean-up operations are sometimes organised by professional associations of maritime professions (e.g. shellfish farmers), by mobilising their members and volunteers.

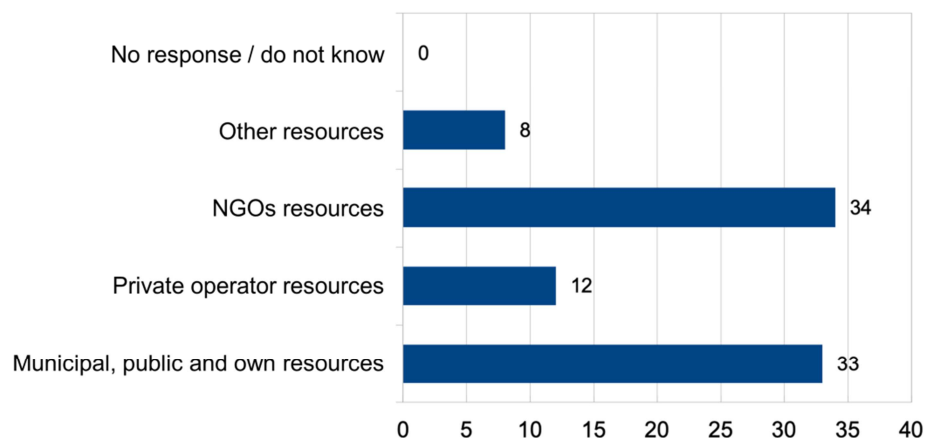


Figure 41: Origin of the resources used (48 respondents concerned; several responses possible)

With the help of volunteers, environmental associations organise opportunistic community beach cleans, and even national campaigns in the case of the largest associations. Most of these operations are conducted on a voluntary basis (Figure 42).

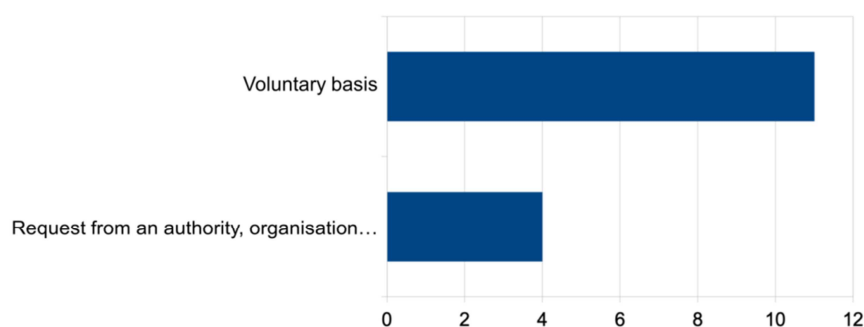


Figure 42: Nature of the associations' intervention (16 respondents)

Clean-up teams are always composed of more than 5 people, regardless of the operator or cleaning method (Figure 43).

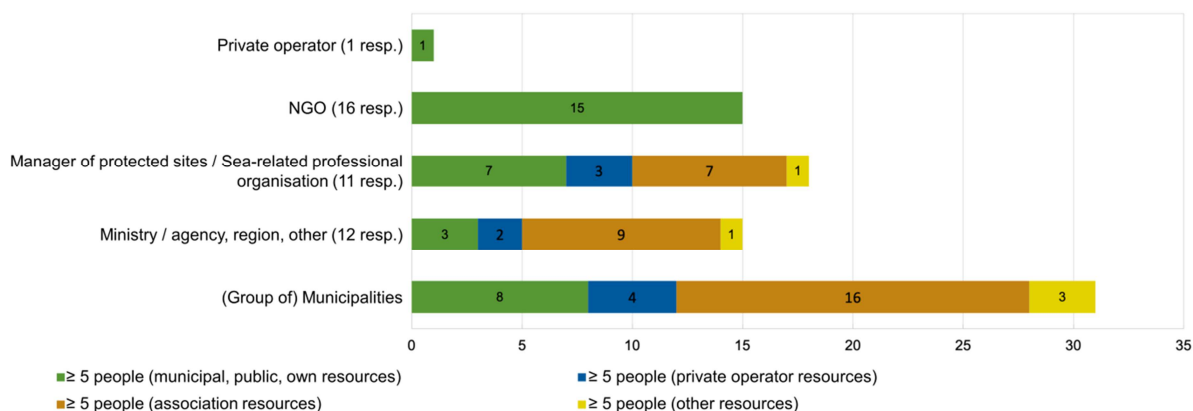


Figure 43: Size of the cleaning teams

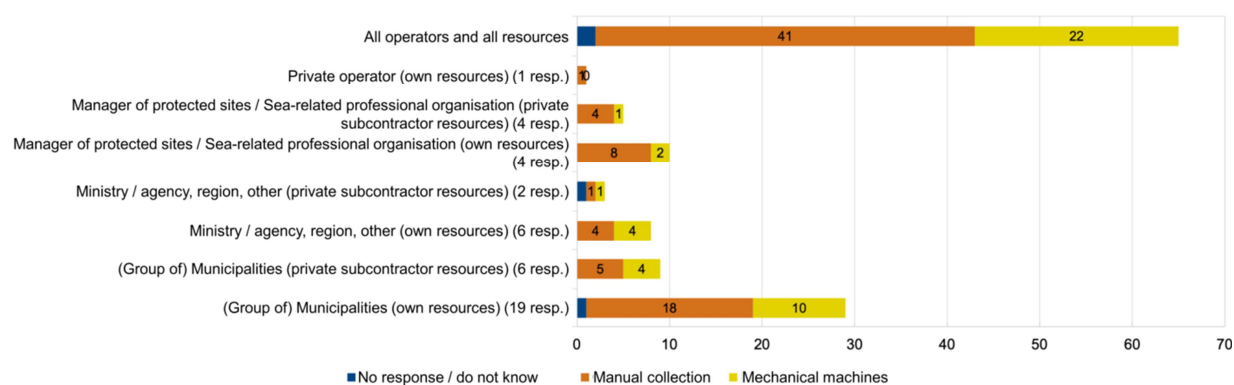


Figure 44: Types of resources used by operator

5.5. Machines involved

The few answers provided in relation to machinery indicate that the most commonly used type of mechanical equipment is, unsurprisingly, beach cleaners; however, rakes are also relatively common (Figure 45).

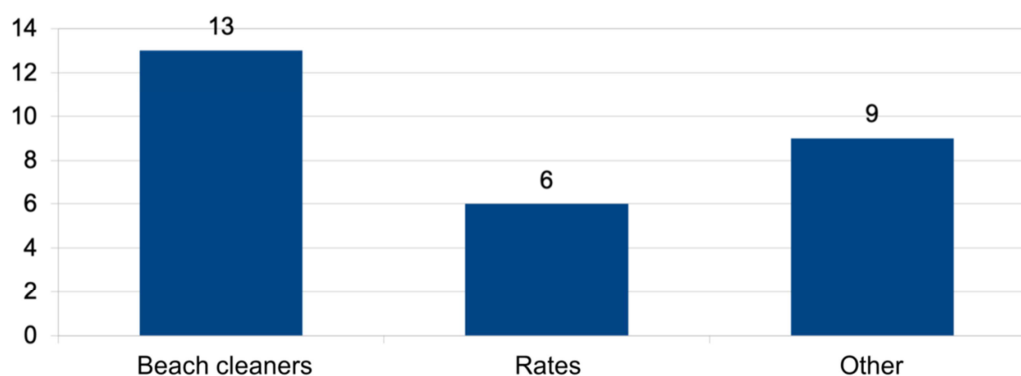


Figure 45: Mechanical machines used (all operators and resources who declared using them; 22 respondents)

5.6. Cleaning frequency

Unsurprisingly, the frequency of cleaning varies according to the season: monthly cleaning is the most common (for all types of cleaning), especially in Winter (Figure 46). Cleaning efforts begin in the spring and continue through to the autumn, during which daily and weekly cleanings take precedence over monthly cleaning, while in summer daily cleaning reaches its highest level.

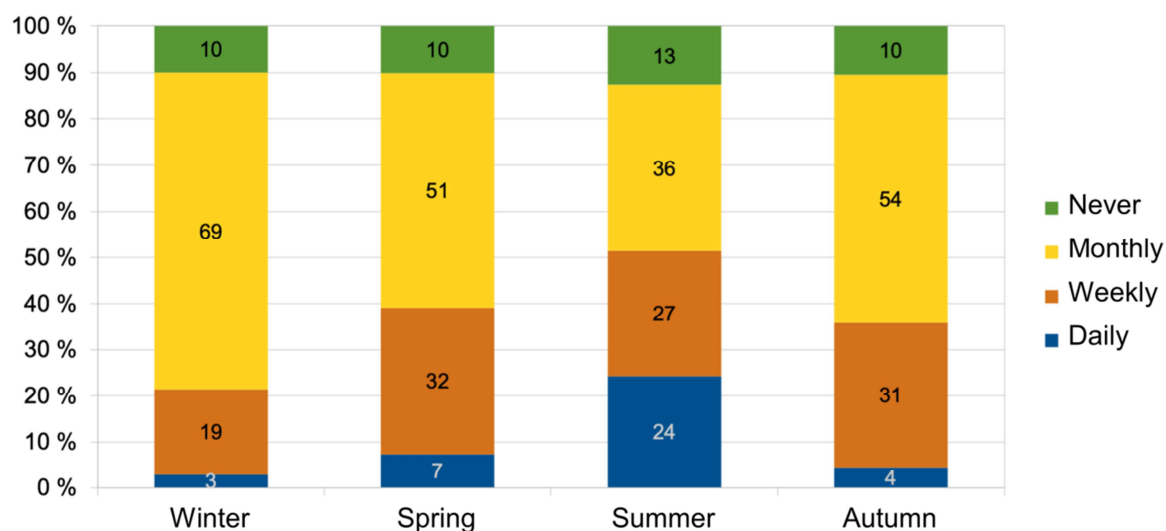


Figure 46: Frequency of coastal cleaning (%; 66 respondents)

Finally, and as something of a surprise, 10% of the areas relevant to the survey respondents are reportedly never cleaned.

5.7. Amount of litter collected annually

Two thirds of the annual quantities reported by respondents are greater than 10 m³ (Figure 47), while a quarter report annual volumes in excess of 100 m³.

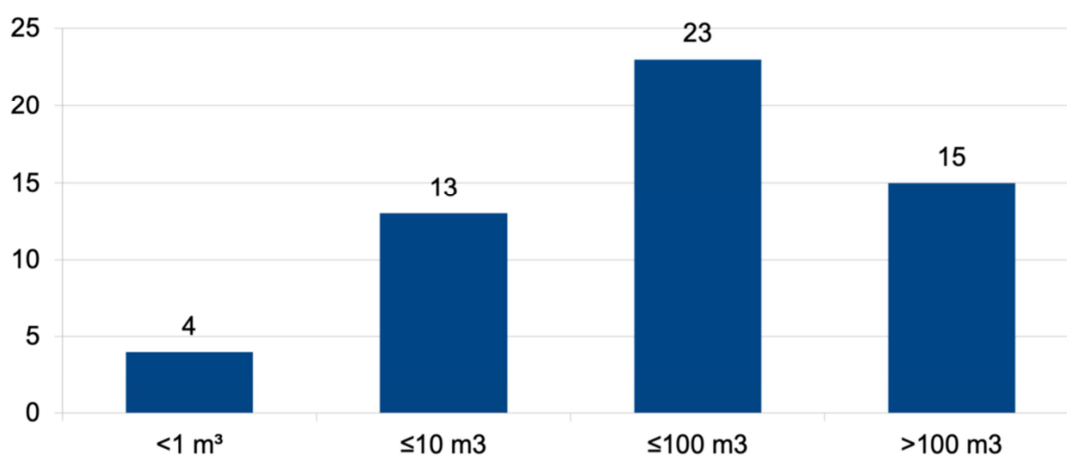


Figure 47: Volume of stranded litter collected annually by volume category (66 respondents)

More detailed answers are relatively rare and heterogeneous, and are therefore difficult to compare and generalise (Figure 48).

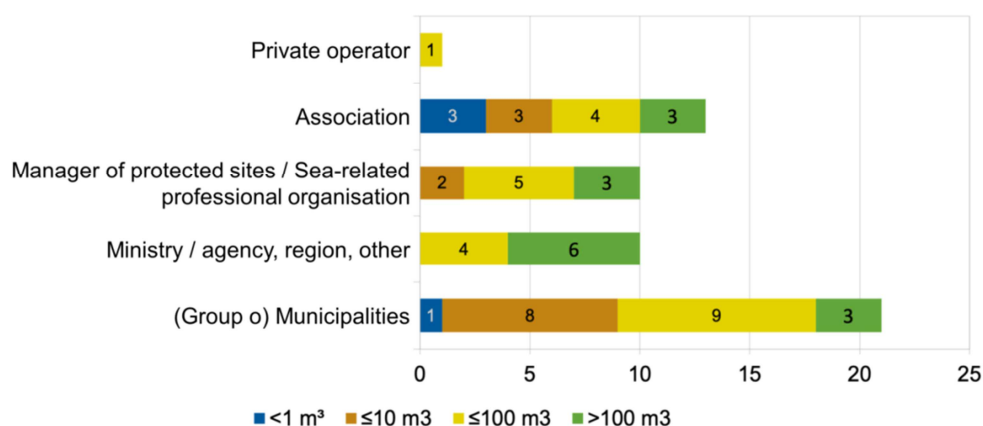


Figure 48: Volume of stranded litter collected annually by volume category and type of operator (66 respondents)

However, some interesting figures are mentioned:

- annual volumes of less than 10 m³ collected along short sections of shoreline (2 to 7 km) reported by municipalities (or groups thereof), nature site managers and associations (quantities reported: 3 to 5 m³; 1 to 2 tonnes);
- annual volumes of less than 100 m³ collected along relatively short sections of shoreline (1 to 15 km) reported by municipalities (or groups thereof), nature site managers and associations (quantities reported: 15 tonnes for 25 km; 30 m³ for 6 km; > 45 m³ for 15 km; 85 m³; 1 to 2 tonnes);
- annual volumes of more than 100 m³ collected along sometimes short sections of shoreline reported by municipalities (or groups thereof) (920 tonnes for a 5 km stretch of beach, 100 m³ for 15 km of banks/shoreline), by site managers (5/6 km; 300 m³ for a 15 km stretch), by associations (5 km of shoreline) and far larger volumes reported by public bodies: 7,380 m³ for a 100 km stretch, 1,062 tonnes for 58 km of riverbanks, 707 m³ for 273 km of shoreline.

Finally, a new and very effective initiative, the Trait Bleu programme (<https://bacamaree.fr/>), a tidal bin programme, has resulted in the collection of 240 m³ of waste from just 50 km of coastline in 6 months of operation.

5.8. Beach clean-up funding

Municipalities (and groups thereof), as the bodies responsible for keeping beaches clean, are naturally the structures that contribute financially the most (often, at least) to beach cleaning (including for management of the recovered waste) (Figure 49).

They are followed by:

- The State: the French Ministry for the Ecological Transition and associated public establishments (French Biodiversity Agency, French Water Agency and French coastal protection agency, mainly), including bodies in charge of managing protected sites (marine nature park, nature reserve),
- Other local authorities: departments - and to a lesser extent regions – which, in addition to funding professional insertion, coordinate and co-fund clean-up in certain departments.

“Other” funding corresponds to volunteer associations working on own funds, as well as 3 stakeholders benefiting from European funding (mainly Natura 2000 and Interreg), and a major sea port.



Figure 49: Funders of clean-up operations in which respondents participate (68 respondents; several responses possible)

5.9. Cost of clean-up operations

The survey provided some information on the cost of shoreline clean-up. Clean-up practices and the overall organisation (operators and funders) vary considerably along the coastline according to various parameters: volumes of stranded litter, local environmental characteristics (ecological and economic), coastal population density, site accessibility (in terms of remoteness, number of access points and hazardousness).

Clean-up costs also vary according to the effort required and agreed on a seasonal basis according to ecological considerations (sensitivity) and economic factors (tourism).

To ensure its beaches are clean, each municipality generally deploys its own resources (staff and equipment – possibly specialised machinery such as a tractor and towed beach cleaner); it often calls upon social integration organisations (very often), while also facilitating or even encouraging community collection actions (volunteers). In addition, more and more municipalities are now introducing a tidal bin system (requiring an investment of a few thousand € in the case of detailed monitoring of the waste collected).

The clean-up costs at municipal level mentioned in the survey responses vary enormously: they range from a few days' work for their staff or around one hundred euros to supervise volunteers, to far higher amounts in the case of municipalities that are greatly exposed to the various types of stranded waste, often comprising a high proportion of wood (for example: €44,000 for one municipality in Pyrénées Atlantiques, and a contribution of €53,846 for manual and mechanical clean-up of its shoreline, including the treatment of the recovered waste, in the case of a municipality in Landes).

In order to optimise costs, clean-up is very often organised through a group of municipalities (a joint union, community of communes or agglomeration community, etc.) with variable budgets and sometimes with a subsidy from the department or the Water Agency (from €5,000 to €115,000 according to the responses).

For managers of natural sites, also responsible for cleaning their site, the cost varies according to the size, accessibility, etc. of the site and remains limited as long as the site is relatively small; in some cases, it can be subsidised, by the French Ministry for the Ecological Transition in the case of Natura 2000 sites (e.g. approximately €5,000 in a response) or by the region in the case of sites classified as "Grands Sites de

France” or regional nature reserves, for example. The budget can sometimes be substantial, up to €85,000 public contract for litter collection in one case.

Finally, we note the specific role played, on a larger scale, by two major beach cleaning stakeholders. On the one hand, one water agency contributes to the response to litter washed up on specific coastline of interest by granting subsidies to the departmental councils and municipalities, up to €300,000 in order to carry out clean-up of the specific shoreline under a charter for reasoned collection. The agency also grants subsidies to permanent centres for environmental initiatives (CPIE) (€50,000) for communication and environmental education actions. On the other hand, an administrative department through an association, coordinates and co-funds cleaning (including the treatment of recovered waste) of the entire department coastline. The municipalities contribute financially and are responsible for cleaning access pathways to their beaches (300 m). The total annual cost of beach cleaning across the department (including the management and treatment - recycling, recovery - of the waste collected) amounts to €1,650,000: 50% of this is covered by the involved association, with the remainder being divided on a pro rata basis among the municipalities.

Appendices

Appendix 1: Beach litter online survey form

Appendix 2: Accumulation sites – Inventory, location and types of litter

- Eastern Channel & North Sea MSR
- Celtic Seas & Western Channel MSR
- Bay of Biscay MSR
- Western Mediterranean MSR

Appendix 3: Hotspots (> 10 m3) - Inventory and types of sites

- Eastern Channel & North Sea MSR
- Celtic Seas & Western Channel MSR
- Bay of Biscay MSR
- Western Mediterranean MSR

1. Appendix 1: Beach litter online survey form

WELCOME TO THE BEACH LITTER SURVEY!

Thank you for taking the time to engage with this survey and assist with our research looking at best practices for dealing with marine litter on the shoreline.

What is marine litter?

Marine litter is defined as any solid material which has been deliberately discarded or unintentionally lost on beaches, on shores or at sea. The definition covers materials transported into the marine environment from land by rivers, draining or sewage systems or winds. It includes any persistent, manufactured or processed solid material. Originating from sources both on land and at sea, marine litter comprises a wide range of materials, including plastic, metal, wood, rubber, glass and paper (OSPAR).

What are beach litter accumulations sites and hot spots?

Under the effect of prevailing currents and winds, marine litter naturally tends to accumulate regularly in the same places along the coastline; it can also be trapped in natural (e.g. caves or rock faults) or anthropogenic (e.g. piers) traps. All these places where litter piles up constitute “accumulation sites”, the most important of which are called “hot spots”.

What is the purpose of this survey?

This survey is distributed on behalf of the EU Interreg Atlantic Area funded project <http://www.cleanatlantic.eu/> which seeks to address the marine litter problem by improving data management, monitoring, modelling, mapping, collection and removal in the North-East Atlantic area.

The purpose of this survey which is being launched in the five Atlantic countries involved, i.e. Ireland, UK, France, Spain and Portugal, is to map (at a high scale) main sites of litter accumulations on the shoreline and to list procedures and techniques used for beach litter cleaning and provide recommendations for best practices for beach cleaning.

This survey will thus contribute to provide elements from Atlantic countries about experiences on good beach litter cleaning practices of and location of beach litter hot spots as recommended in the OSPAR Regional Action Plan (respectively Action 54 and Action 56).

In addition to this beach litter survey, another one about floating litter in port areas will be distributed on behalf of the CleanAtlantic project during the same period. If you are concerned about this other issue, do not hesitate to fill it in also.

Accessing results of the survey?

A summary of the results (tables, graphs and maps) of the surveys will be available in the next few months on the following page: <http://www.cleanatlantic.eu/results/>

Thank you!

This is an opportunity for you to make your beach litter experience known and share it within the European Atlantic Area. Do not hesitate to circulate this survey to those concerned with beach litter cleaning management (funding and/or implementation).

Thank you (in advance) for your time.

Questions?

If you have any question, do not hesitate to send an e-mail at:

- about the project (general contact): cleanatlantic@cetmar.org
- about the survey: survey@cedre.fr

This survey is distributed with the technical and methodological support of [Data Terra](#).

General Data Protection Regulation (GDPR)

To consult the Personal Data Privacy Policy in compliance with the requirements of the General Data Protection Regulation (GDPR), please click [here](#).

General Data Protection Regulation (GDPR)

Here after are explained the reason for the processing, the way we collect, handle and ensure protection of all personal data provided, how that information is used and what rights you may exercise in relation to your data (the right to access, rectify, block etc.).

Please note that:

- Data are collected in the framework of the EU-funded project CleanAtlantic;
- Contributions received from this survey will be used for research purposes. The purpose of the survey is mentioned above;
- Stakeholders contributions to the present survey are on a voluntary basis. The legal basis for processing is consent (Art. 6.1.a of the RGPD);
- Questions marked by an asterisk (*) are mandatory. Otherwise you will not be able to complete the questionnaire.
- Cedre (www.cedre.fr), as action leader of the CleanAtlantic project, is in charge of the survey;
- The survey will be carried out by Cedre with contribution from one national partner or NP (one NP per country – see after) aiming at (i) launching the questionnaire at national level towards national stakeholders, (ii) translating part of their answers and (iii) support partial analysis. NPs are as follows: Marine Institute (Ireland, survey@marine.ie), Cefas (UK, josie.russell@cefas.co.uk), Cedre (France, loic.kerambrun@cedre.fr), Cetmar (Spain, cleanatlantic@cetmar.org) and DGRM (Portugal, smoutinho@dgrm.mm.gov.pt)
- Each NP will provide a link for the questionnaire to 'its' national stakeholders. Each NP will respectively have access to data coming from 'its' national stakeholders;
- Data will be stored in the UK (on a dedicated LimeSurvey server) and will be managed from France by Cedre;
- All personal data (name, contacts) will be stored during the lifetime of the project;
- All personal data will be deleted one year after the last action in relation to the consultation;
- As a stakeholder, you are entitled to access your personal data and rectify, block or delete them in case the data is inaccurate or incomplete. You can exercise your rights by contacting Cedre (survey@cedre.fr).

1. YOUR ORGANISATION AND YOUR BEACHLITTER 'AREA'

The purpose of the section 1 of the survey is to characterise your organisation, its geographic "area" (i.e. where you are involved in) and its connection with beach litter issue.

1.1. What is the name of your organisation?

1.2. What is the location of your organisation (Postal code)?

1.3. In terms of beach litter, which geographical area is covered by your organisation? *

(Important: this geographical entity corresponds to "your area" in the questionnaire)

- Region
 - Name of the Region :
 - Web site:
- Department
 - Name of the department
 - web site:
- Group of communes
 - Name of the group of communes :
 - Web site
- Marine protected area / Protected natural site
 - Name of the MPA:
 - Postal code (for small area site)
 - Web site:
- Commune
 - Name :
 - Post/zip code :
- Other (specify):

1.4. What is the statute of your organisation?*

- | | |
|--|---|
| • National authority / Agency | • Sea professional representative association |
| • Regional authority | • NGO |
| • Local authority / Municipality | • Private contractor (clean-up) |
| • Organisation in charge of management of a Protected Natural Site | • Other |

1.5. What is the main activity sector of your organisation?

- Policy / regulation / territorial management
- Protected area
- Fishing / Fish-farming
- Tourism
- Environment protection
- Other

1.6. What is the responsibility of your organisation regarding beach litter clean-up? *

- Funding of clean-up operations
- Implementing of clean-up operations
- Outreach / Awareness
- Other

2. BEACH LITTER ON YOUR SHORELINE AREA

The purpose of the section 2 of the survey is to map in details and characterise main sites of litter accumulations on the shoreline.

2.1. Is beach litter an issue in your area?

- Yes, it is a major issue
- Yes, it is a medium issue
- Yes, it is a minor issue
- No issue

2.2. Where are the 3 most litter-affected sites on your area?

Please use the 3 maps below to pinpoint separately the location of the 3 main litter accumulations on your area and describe the site.

2.2.1. Site 1

What is the location of the site?

Please write your answer here:

Click to set the location or drag and drop the pin. You may also enter name or coordinates. Use the "Zoom in" tool to see a more detailed view (for an accurate location of your site).

What is the site name?

What are the characteristics of the site?

- Mudflat /salt marsh
- Long sandy dune
- Sandy beach
- Pebble beach
- Rocky platform
- Rocky cove
- Cave
- Along a man-made structure
- Other:

In your opinion, what is the approximate annual volume of litter in the site (order of magnitude)?

- 0.2-0.5m³
- ≤10 m³
- >10 m³

In your opinion, what items/objects characterise the beach litter of this site?

(Example: plastic bottle, plastic food-packaging, rope, oyster bags, plastic debris, net, pallets etc.)

Are pieces or objects of foamed EPS/XPS polystyrene (example: fish box, food containers...) a common issue in this site?

- No
- Yes
- Specify

(...)

3. YOUR OPINION ABOUT BEACH LITTER ON YOUR SHORELINE AREA

Section 3 of the survey examines aspects related to the main assumed pathways, sources, and impacts of beach litter in your area.

3.1. In your opinion, which are the 3 major pathways of beach litter in your area?

- No idea / don't know
- Sea-borne
- Abandoned on the shoreline
- Land wind-borne
- River
- Urban storm drainage
- Other

Feel free to give more details about pathways of beach litter in your area:

3.2. In your opinion, what are the 3 major sources of beach litter in your area?

- No idea / don't know
- Shipping sector
- Fishing sector
- Aquaculture sector
- Industry sector
- Port/harbour sector
- Urban drainage & waste water systems
- Tourism sector
- Shopping/food retail sector
- Recreational boating and fishing
- Other Leisure / sport (e.g. surfing, diving...)
- Other

Feel free to give more details about predicted sources of beach litter in your area:

3.3. For which season(s) does beach litter seem more abundant in your area?

- No idea / don't know
- No differences
- Winter
- Spring
- Summer
- Autumn

Feel free to give more details about the season(s) which beach litter seems more abundant in your area:

3.4. Do you think your area is particularly affected by beach litter?

- No idea / don't know
- No impact
- Minor impact
- Medium impact
- Major impact

3.5. In your opinion, what is the main beach litter impact in your area?

- Ecological impacts / fauna & flora
- Economic impacts / activity loss
- Economic impacts / damaged scenery
- Other

Feel free to give more details about the beach litter impacts in your area:

4. EXISTING MEASURES TO REDUCE BEACH LITTER IN YOUR AREA

The purpose of this section is to describe incentive and/or protection measures, equipment or scheme that prevent or reduce litter from washing ashore.

4.1. Are there any incentive measures/schemes in your area to promote the reduction of litter?

- No idea / don't know
- No measure
- Yes: dedicated litter bin (photo 1)
- Yes: Plaque "The sea begins here" (photo 2)
- Yes: Other



Feel free to give more details about incentive measures in your area:

Do not hesitate to mention web site and send any relevant documents (leaflet, report, etc.) at the following addresses: cleanatlantic@cetmar.org and survey@cedre.fr.

4.2. Are there any protection scheme/equipment that prevent/reduce litter from washing ashore present in your area?

- No idea / don't know
- No scheme/equipment
- Yes, Floating boom/net in front of beach
- Yes, Floating boom/net on nearby river
- Yes, Dedicated litter recovery vessel along the coast
- Yes, Specific tools within urban water drainage system
- Yes, Other

Feel free to give more details (types, location) about protection scheme/equipment in your area

4.3. Are there any eco-label programmes taking into account beach litter in your area?

Please use the "comments field" to specify the name of the eco-label programme.

- At local level:
- At regional level :
- At national level:
- At European level (example: Blue Flag):

Feel free to give more details about eco-label programme in your area:

5. COST OF BEACH CLEANING

The purpose of the section 5 of the survey is to collect information about economic impact of beach litter in your area.

The total cost of beach litter cleaning operations includes: the litter recovery operations strictly speaking (incl. logistics) and possibly the management of the recovered beachlitter (litter storage, transport and treatment - disposal, valorisation, etc.). Thanks in advance to precise as much as possible.

5.1. Who pays for the beach litter cleaning operations that you are involved in?

Please use the "comments field" to specify the name of the organisation.

- No idea / Don't know
- National authority / agency
- Region
- County
- Commune / Group of communes
- Marine protected areas administration
- Sea professionals' organisation
- Other

5.2. The National Authority / Agency pays for what and how much

Please use the "comments field" to indicate the cost in k€/year.

- No idea / Don't know
- Only for litter cleaning operations
- Only for management of recovered litter
- For beach litter response in global (litter cleaning operations and management of recovered litter)
- For other operations

Feel free to give more details about the financial contribution of the Government / agency.

Thanks in advance to precise as much as possible.

Do not hesitate to mention links and send any relevant documents (leaflet, report, etc.) at the following addresses: cleanatlantic@cetmar.org and survey@cedre.fr.

6. IMPLEMENTATION OF BEACH CLEANING OPERATIONS IN YOUR AREA

The purpose of the section 6 of the survey is to identify procedures and techniques used for beach cleaning operations that you are involved in in your area.

6.1. What are the main issues/key points that need to be considered for the beach cleaning operations in your area?

- No idea / don't know
- Environmental sensitivity
- Access (ex: cliff, cave, etc.)
- Extra Size/ weight (ex: rope, net trapped on rocky shore)
- Logistics
- Organization/management
- Time availability
- Cost
- Other:

6.2. Do the beach cleaning operations in your area take environmental issues into account?

Please feel free to use the "comments field" to specify how these environmental issues are taken into account.

- No idea / don't know
- No account taken
- Account taken of habitat sensitivity
- Account taken of substrate sensitivity (erosion)
- Account taken of species presence e.g. mammals, birds, turtles, flora...
- Other

6.3. Which type of clean-up are you using in your area?

- Mechanical clean-up
- Manual clean-up
- Both

6.4. What is the approximate annual volume of the total collected beach litter in your area?

Please specify, as well as you can in comment field, the approximate total length of shoreline cleaned (from which the litter is collected), as well as volume >100 m3.

- <1 m3 (approx. length:)
- ≤10 m3 (approx. length:)
- <100 m3 (approx. length:)
- > 100 m3 (specify if possible, app. volume) (approx. length:)

6.5. Which resources are used for the beach cleaning operations that you are involved in?

- Municipality resources
- Private contractor resources
- NGO resources
- Other resources
- No idea / don't know

6.5.1. How many people operate the beach cleaning operations (municipality resources)?

- <5
- ≥5

6.5.2. Which types of tool/equipment are used for the beach cleaning operations (municipality resources)?

- No idea / don't know
- Manual tools
- Mechanical equipment
- Please specify the manual tools (e.g. pick, clamp, etc.).
- Please specify the mechanical equipment.
- Sand-screening machine
- Rake machine
- Other

Please use the "comments field" to specify the name brand & model / number of the mechanical equipment.

6.6. How often are the main beaches cleaned during the year (municipality resources)?

Winter Spring Summer Autumn

Daily

Weekly

Monthly

Never

6.7. If you have any other additional comment about improving beach cleaning operations and/or reducing ecological impact, please specify:

Question for NGOs only:

6.8. You are involved in the beach cleaning operations:

- On order (from an authority, organisation)
- On a citizen voluntary basis

6.9. How often are the main beaches cleaned-up in the beach cleaning operations that you are involved in?

7. FINAL SECTION

The purpose of the final section of the survey is to mention relevant links and provide contact information.

Thank you very much for participating in our beach litter survey!

This was an opportunity for you to make your beach litter experience known and shared within the European Atlantic Area.

Do not hesitate to circulate this survey to those concerned with beach litter management.

A summary of the results will be available in the next few months on the following page:

<http://www.cleanatlantic.eu/results/>

If you have any question about the project or the survey, do not hesitate to send an email at:

cleanatlantic@cetmar.org and survey@cedre.fr

If you accept to be further contacted about complementary questions and particular innovative measures/actions, please specify your contact details:

Thank you very much for participating in the beach litter survey

2. Appendix 2: Accumulation sites – Inventory, location and types of litter

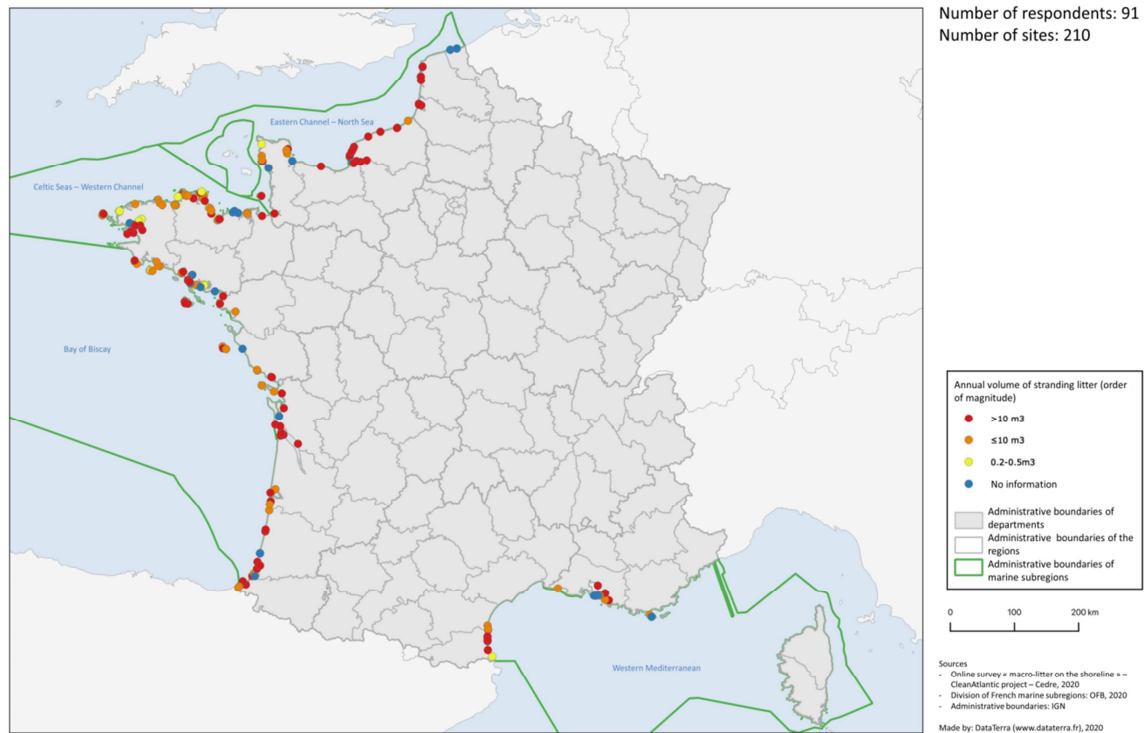


Figure 50: Location of the accumulation sites and categories of annual volumes of stranded litter

2.1. Eastern Channel & North Sea marine sub-region (E → W)

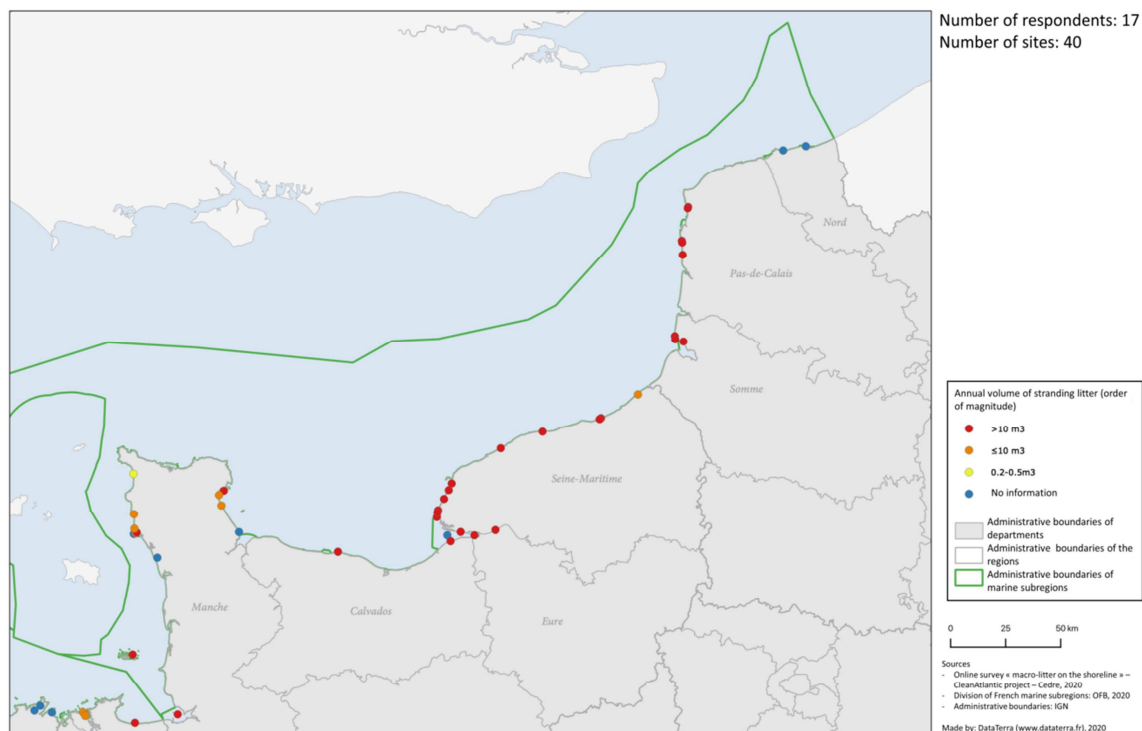


Figure 51: Marine sub-region Eastern Channel – North Sea: location of the accumulation sites and categories of annual volumes of stranded litter

<i>Location of responding organisation</i>	<i>Name of litter accumulation site</i>	<i>Geographical coordinates of the site</i>	<i>Annual volume of litter (order of magnitude)</i>	<i>Items/objects that best characterise the litter found at this site</i>
Annual volume of stranded litter >10 m ³				
Boulogne-sur-Mer, 62200	Slack estuary	50.80214;1.60824	>10 m ³	miscellaneous plastic, ropes, mussel farming bags
Boulogne-sur-Mer, 62200	Wimereux cliffs and dunes, Slack estuary	50.79693;1.60589	>10 m ³	Plastic bottles, plastic engine oil bottles and containers > 50 cm, other plastic bottles and containers, plastic shotgun cartridges, fish boxes (plastic and foamed polystyrene), plastic crates/boxes/baskets, plastic crab/lobster traps and pots, plastic biomass holder, plastic mussels/oyster mesh bags, plastic nets and pieces of nets, plastic floats for fishing nets, plastic sheets and industrial packaging.
Boulogne-sur-Mer, 62200	Ecault La Wrenne	50.66436;1.57151	>10 m ³	Miscellaneous plastic, ropes, mussel farming bags, treated wood with scrap metal, items from illegal crossings
	Dannes Mont Saint Frieux	50.6067;1.57859	>10 m ³	
Boulogne-sur-Mer, 62200	Canche estuary, Picardy dunes against the ancient cliff, Hardelet forest and Equihen cliff	50.65708;1.57413	>10 m ³	Plastic bottles, plastic engine oil bottles and containers > 50 cm, other plastic bottles and containers, plastic shotgun cartridges, fish boxes (plastic and foamed polystyrene), plastic crates/boxes/baskets, plastic crab/lobster traps and pots, plastic biomass holder, plastic mussels/oyster mesh bags, plastic nets and pieces of nets, plastic floats for fishing nets, plastic sheets and industrial packaging.
Abbeville, 80100	Northern boundary of the reserve... Ultimately the coastal stretch of the nature reserve	50.27409;1.53826	>10 m ³	Plastic bottles, fishing waste
	Pointe de Saint Quentin Baie de Somme national nature reserve	50.26081;1.54118	>10 m ³	
	Parking de la Maye	50.25242;1.59362	>10 m ³	
Dieppe, 76203	Seine-Maritime department	49.93266;1.08078	>10 m ³	plastic packaging, fishing waste (nets and pots), plastic fragments
Dieppe, 76200	Dieppe beach	49.92796;1.07241	>10 m ³	small items of plastic food packaging (caps, pieces of packaging), pieces of nets, and pieces of fast food packaging
	Saint Valery En Caux	49.87039;0.71425	>10 m ³	Plastic packaging

Octeville-sur-mer, 76930	St Jouin Bruneval	49.64677;0.15308	>10 m ³	Plastics, ropes
	Sainte-Adresse	49.50704;0.06802	>10 m ³	Miscellaneous metals. Wood. Tyres/rubber.
Hérouville-Saint-Clair, 14203	21 km of shoreline between Sainte-Adresse and the sea wall in Antifer	49.58223;0.10849	>10 m ³	33% scrap metal / 30% plastics and miscellaneous / 20% wood / 10% rubber / 7% tyres (presence of a decommissioned waste recycling centre affected by coastline retreat)
Octeville-sur-mer, 76930	Le Havre	49.53486;0.07379	>10 m ³	Polystyrene, driftwood,
Rouen, 76000	Inaccessible Eletot beach	49.79742;0.45436	>10 m ³	Industrial plastic bottles and cans, fishing gear, etc... visible from the top of the cliff (90 m) or by visiting at low tide (danger!)
Rouen, 76000	Inaccessible Heuqueville beach	49.61894;0.1363	>10 m ³	Industrial plastic bottles and cans, fishing gear, etc... visible from the top of the cliff (90 m) or by Zodiac.
	Dollemard du Havre - Octeville coastal dumps (the largest of the multitude of coastal dumps along the Seine-Maritime coast)	49.52584;0.0707	>10 m ³	Household waste, industrial waste, cemetery waste, rubble and miscellaneous plastics
Le Havre, 76600	Grassy bank	49.43878;0.30702	>10 m ³	Old plastic bottles, fragmented hard plastics > 5 cm in diameter, 10 and 25 L plastic jerrycans, construction helmet
	Dune du reposoir	49.45042;0.22007	>10 m ³	According to the season: In winter: large plastic bottles, single-use plastics (wrappers, cups, caps), professional fishing gear (nets, buoys, polystyrene boxes) In summer: individual meal packaging (Actimel, Pompote, small water bottles) or individual plastic wrappers (cake bars, biscuits), beach toys
	Pointe de Tancarville	49.46299;0.43731	>10 m ³	waste from urban run-off, old riverine debris deposits composed of plastic bottles, plastic jerrycans, tennis balls, construction helmets and cotton buds. Very fragmented plastics. Many < 5 cm
Hérouville-Saint-Clair, 14203	South side of the mouth of the Seine (between Bénerville and Honfleur)	49.41171;0.15896	>10 m ³	1/3 plastic waste, 1/3 fisheries and pleasure boating waste
Caen, 14000	Ver / Meuvaines and Côte de Nacre	49.35039;-0.5416	>10 m ³	ropes; oyster bags; plastic fragments; nets or fragments of net;
Saint-Vaast-la-Hougue, 50550	East coast of Cotentin (from Lestre to Saint-Vaast-la-Hougue)	49.5751;-1.27441	>10 m ³	oyster bags and bands

Hérouville-Saint-Clair, 14203	"Côte des Isles" area	49.3843;-1.80433	>10 m ³	Roughly 50% shellfish farming / 25% fisheries and pleasure boating / 15% plastics
Chausey islands	Chausey islands	48.88823;-1.78322	>10 m ³	Glass bottles and waste from fisheries and oyster farming
Caen, 14000	Mont Saint-Michel Bay	48.65405;-1.48387	>10 m ³	plastic bottles; plastic food packaging; oyster bags; plastic fragments; nets or fragments of net;
Annual volume of stranded litter ≤ 10 m ³				
Dieppe, 76200	Criel	50.03237;1.31132	≤10 m ³	Small pieces of plastic, nets...
Cherbourg-en-Cotentin, 50100	Quineville and all the beaches in the Montebourg area	49.51139;-1.29888	≤10 m ³	Ropes, oyster farm waste, fishing and pleasure boating waste
Caen, 14000	Val de Saire	49.55661;-1.30309	≤10 m ³	ropes; oyster bags; plastic fragments
Normandy	Beaches and dunes on the west coast (Hatainville, Surtainville...)	49.39958;-1.81987	≤10 m ³	Fishing and oyster farming waste, and litter from leisure activities (plastic food packaging, cans, etc.)
Cherbourg-en-Cotentin, 50100	Surtainville + all the beaches in the Pieux area (<i>Pôle de proximité de Pieux</i>)	49.45888;-1.8133	≤10 m ³	Ropes, fishing and pleasure boating waste, wooden pallets
	Barneville-Carteret (Hatainville dunes) and all the beaches in the Côte des Isles area (<i>Pôle de proximité de la Côte des Isles</i>)	49.3779;-1.78408	≤10 m ³	Ropes, fishing and pleasure boating waste, oyster farming waste,
Annual volume of stranded litter: 0.2-0.5m ³				
Caen, 14000	Mare de Vauville national nature park	49.62265;-1.84716	0.2-0.5m ³	plastic bottles, miscellaneous fishing waste, pallets
Annual volume of stranded litter: unspecified				
Dunkerque, 59386	East port	51.05744;2.36149		
		51.03583;2.20852		
Le Havre, 76600		49.43503;0.13733		

Hérouville-Saint-Clair, 14203	Havre de Surville	49.28812;- 1.66623		Waste from shellfish farming and fishing activities (bags, ropes, etc.) Litter from leisure activities (glass bottles, miscellaneous plastics, cigarette butts, etc.)
Saint-Lô, 50000		49.3779;-1.82167		
		49.41008;- 1.16558		

2.2. Celtic Seas & Western Channel marine sub-region (E → W)

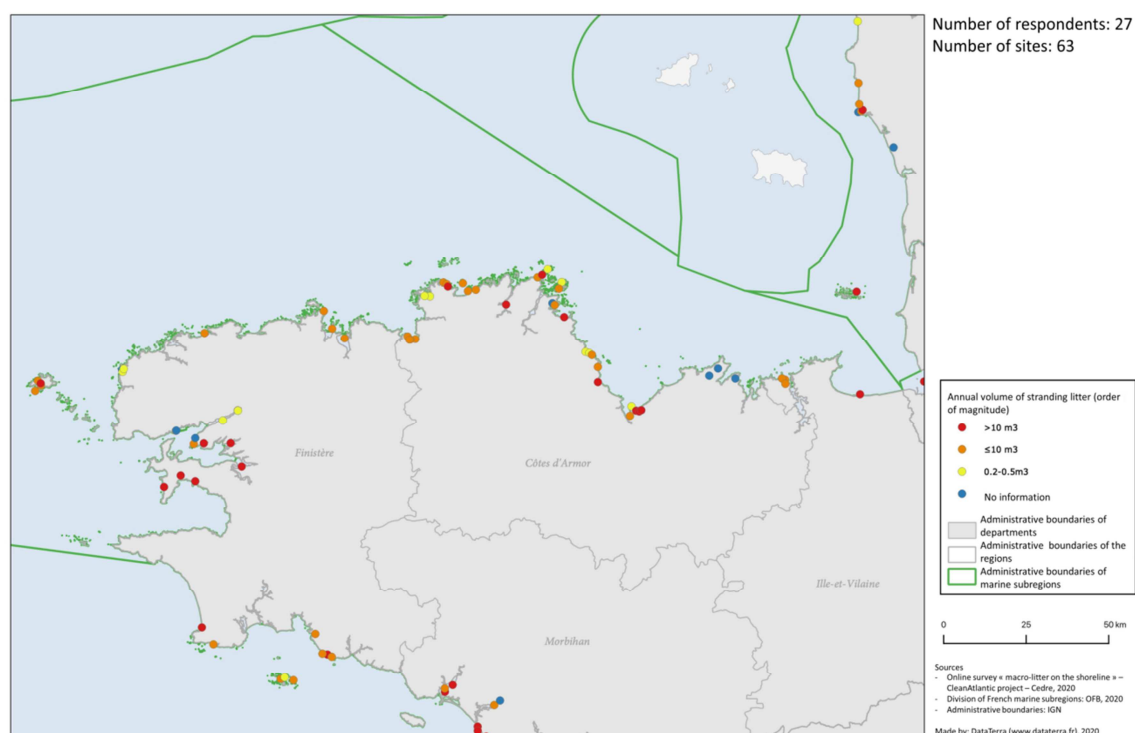


Figure 52: Marine sub-region Celtic Seas – Western Channel: location of the accumulation sites and categories of annual volumes of stranded litter

Name and municipality of responding organisation	Name of litter accumulation site	Geographical coordinates of the site	Annual volume of litter (order of magnitude)	Items/objects that best characterise the litter found at this site
Annual volume of stranded litter > 10 m ³				
Morlaix, 29678	Mont Saint-Michel Bay	48.60931;-1.74374	>10 m ³	
Hillion, 22120	Bon-abri beach	48.52479;-2.65594	>10 m ³	Mussel farming waste, nets, rope, elastics, skirts
	Grandville beach	48.52343;-2.64324	>10 m ³	Mussel farming waste, nets, rope, skirts, bottles, elastics
	Saint-Maurice beach	48.52729;-2.635	>10 m ³	Mussel farming waste, elastics, nets, rope, bottles, pieces of plastic
Binic-Étables-sur-Mer, 22520	La Banche	48.59455;-2.82091	>10 m ³	All kinds of plastic (oyster farming plastic, bottles); nets and rope; glitter; plastic spoons and straws; cigarette butts green algae complicates clean-up
Morlaix, 29678	Baie de Paimpol	48.76497;-2.97927	>10 m ³	
Pleubian, 22610	Sillon de Talbert	48.87482;-3.08317	>10 m ³	Oyster farming waste, plastic bottles, fishing pots, fragments of net
Tréguier, 22220	Tréguier marina	48.78681;-3.22177	>10 m ³	Branches and trunks lodged between boats and pontoons; plastic bottles, pieces of plastic and polystyrene of all sizes, pieces of plastic rope and cigarettes.

Perros-Guirec, 22700	Grève Saint-Pierre	48.82291;- 3.46688	>10 m ³	Bottles, fishing crates, waste from professional and amateur fishing, wood
Le Conquet, 29217	Ushant Island	48.45761;- 5.09615	>10 m ³	Fishing industry litter (used fishing gear, nets, ropes, fish crates), food packaging and metal scrap.
	Crozon peninsula, in particular the beaches of Pen Hat (Camaret sur mer), La Palue and Lostmarc'h (Crozon)	48.24643;- 4.48993	>10 m ³	Used fishing gear, ropes, nets and fish crates, food packaging, industrial plastic pellets
Le Faou, 29590	Kersanton, Loperhet	48.3453;-4.29915	>10 m ³	90% plastics and polystyrenes
	Lauberlac'h, Plougastel-Daoulas	48.33812;- 4.40812	>10 m ³	
	Le Seillou, Rosnoën	48.28571;- 4.24553	>10 m ³	
Douarnenez, 29100	Etang de l'Aber	48.23481;- 4.42865	>10 m ³	Nets and rope, caps, cotton bud sticks, primary and secondary microplastics
Concarneau, 29900	LostMarc'h	48.21154;- 4.55312	>10 m ³	Micro-plastics, plastic bottles; plastic food packaging; ropes; oyster bags; plastic fragments; nets or fragments of net; pallets... syringes, containers lost overboard
Annual volume of stranded litter ≤ 10 m ³				
Dinard, 35800	Plage de l'Ecluse beach	48.63586;- 2.05444	≤10 m ³	Cigarette butts, plastic bottles; plastic food packaging; ropes; plastic fragments; nets or fragments of net
	Saint Enogat beach	48.63903;- 2.06766	≤10 m ³	
	Prieuré beach	48.62508;- 2.05238	≤10 m ³	
Hillion, 22120	La Grandville	48.52597;- 2.63906	≤10 m ³	Plastic waste from mussel farming >>> fishery waste (ropes, pieces of net...) > some household waste (bottles,...)
	Pissoison	48.50928;- 2.67958	≤10 m ³	Fisheries > household waste
Tréveneuc, 22410	Saint-Marc beach	48.66724;- 2.85378	≤10 m ³	Fisheries: rope, plastic fragments, nets or pieces of net, fishing trap buoys, pots
Binic-Étables-sur-Mer, 22520	Plage des moulins beach	48.63567;- 2.82568	≤10 m ³	All kinds of plastic (oyster farming plastic, bottles) nets and rope glitter
Île de Bréhat, 22870	Nodgoven	48.84089;- 3.01003	≤10 m ³	Boat wreckage, wire mesh, asbestos...
Pluzunet, 22140	Launay beach - Ploubazlanec	48.79601;- 3.02193	≤10 m ³	Oyster bags and other oyster farming gear, ropes...
	Sillon du Talbert - Pleubian	48.86721;- 3.10106	≤10 m ³	Ropes, oyster bags and other oyster farming gear

	Saint Efflam beach - Plestin les Grèves	48.66977;-3.60665	≤10 m ³	Plastic food packaging, rope, net or pieces of net
Treleven, 22660	Tomé island	48.83508;-3.40653	≤10 m ³	Nets, pieces of net, pots, plastic fragments, buoys, polystyrene...
	Port l'Epine	48.81506;-3.38302	≤10 m ³	Plastic fragments, rope, plastic packaging, cigarette butts, polystyrene, hunting cartridges, etc.
	Trestel	48.8203;-3.35113	≤10 m ³	Plastic fragments, pieces of rope, polystyrene, ropes, cigarette butts, hunting cartridges, filter media, etc.
Perros-Guirec, 22700	Anse Saint-Guirec	48.83288;-3.48633	≤10 m ³	Cigarette butts, plastic packaging, waste from professional and amateur fishing
	Grève du Ranolien	48.82912;-3.47282	≤10 m ³	Bottles, fishing crates, waste from professional and amateur fishing, wood
Plestin les Grèves, 22310	Mouth of the Yar river	48.67281;-3.58249	≤10 m ³	Wood, net, fishing traps, buoys, etc.
	Poul Guioc’h	48.67849;-3.61485	≤10 m ³	Wrecks and wreckage, keels, inboard motors, tanks
		48.67024;-3.60274	≤10 m ³	Fishing traps, buoys, wood, pallets, etc.
Concarneau, 29900	Ti Saozon	48.72811;-3.96744	≤10 m ³	Fishing gear: nets, buoys, ropes, plastic crates... Wooden pallets Plastic
	West coast of Callot island	48.68222;-3.92715	≤10 m ³	Oyster farming equipment: bags, plastic bag sliders/rubber bands with plastic or metal hooks various types of packaging: bottles, bags, paper summer season: beach accessories, beach toys, beachwear made of fabric, neoprene... fishing gear: rope, polystyrene, etc.;
	Morlaix river	48.65831;-3.87268	≤10 m ³	Oyster farming equipment: bags and plastic sliders/rubber bands with plastic or metal hooks to attach the bags to the tables various types of plastic food packaging, paper...
Guissény, 29880	Curnic	48.63852;-4.44783	≤10 m ³	
Ushant, 29242	An Aod Meur	48.46382;-5.10864	≤10 m ³	Plastic bottles; plastic packaging; glass bottles; driftwood; pieces of net; ropes
	Korz, Pors Noan and Kejou beaches	48.45243;-5.09422	≤10 m ³	
	Pors Doun and Pors Goret	48.43558;-5.11551	≤10 m ³	
Plougastel Daoulas, 29470	La grande Palud	48.43687;-4.28257	≤10 m ³	Plastic packaging plastic fragments plastic ropes pieces of polystyrene
	Larmor	48.33373;-4.44891	≤10 m ³	
	Quatre Pompes	48.36446;-4.52637	≤10 m ³	
Annual volume of stranded litter: 0.2-0.5m ³				

Hillion, 22120	Pointe des Guettes	48.53563;- 2.67614	0.2-0.5m ³	Again the same types of waste but in smaller quantities due to the site's exposure
Tréveneuc, 22410	Grève du Palus	48.67436;- 2.88061	0.2-0.5m ³	Ropes, nets, plastics
	Port Goret beach	48.67175;- 2.86473	0.2-0.5m ³	Ropes, wood, nets, plastics
Île de Bréhat, 22870	Groua	48.85918;-3.0003	0.2-0.5m ³	Nets, ropes, oyster bags
Pleubian, 22610	Stallio Bras	48.89118;- 3.06203	0.2-0.5m ³	Oyster farming elastics, rope/string, plastic bottles
Pleumeur-Bodou, 22560	Ile Grande	48.79239;-3.5376	0.2-0.5m ³	All kinds of containers (bottles, jerycans, nets, crustacean traps, pallets, pieces of shipping containers)
	Landrellec peninsula	48.79239;- 3.55957	0.2-0.5m ³	
Porspoder, 29840	Plage du bourg beach	48.51119;- 4.76705	0.2-0.5m ³	Transatlantic waste, plastic bottles from all countries
	Plage du Vivier beach	48.51926;- 4.76363	0.2-0.5m ³	
Daoulas, 29460	La Forest Landerneau	48.43639;-4.2819	0.2-0.5m ³	Plastic food packaging, plastic fragments
	Le Vern - Loperhet	48.40527;- 4.33966	0.2-0.5m ³	Net, rope and plastic packaging
Annual volume of stranded litter: unspecified				
Dinan, 22100		48.63333;- 2.36667		
		48.63039;- 2.25889		
		48.65445;- 2.33272		
Ploubazlanec, 22620		48.80039;- 3.03194		
Porspoder, 29840	Plage des Dames beach	48.51649;- 4.77044		Transatlantic waste, plastic bottles from all countries
Brest, 29200	Grève des Quatre Pompes	48.36517;- 4.52499		Glass bottles, net, piece of fishing net
	Pointe du Corbeau	48.3499;-4.44496		

2.3. Bay of Biscay marine sub-region (N → S)

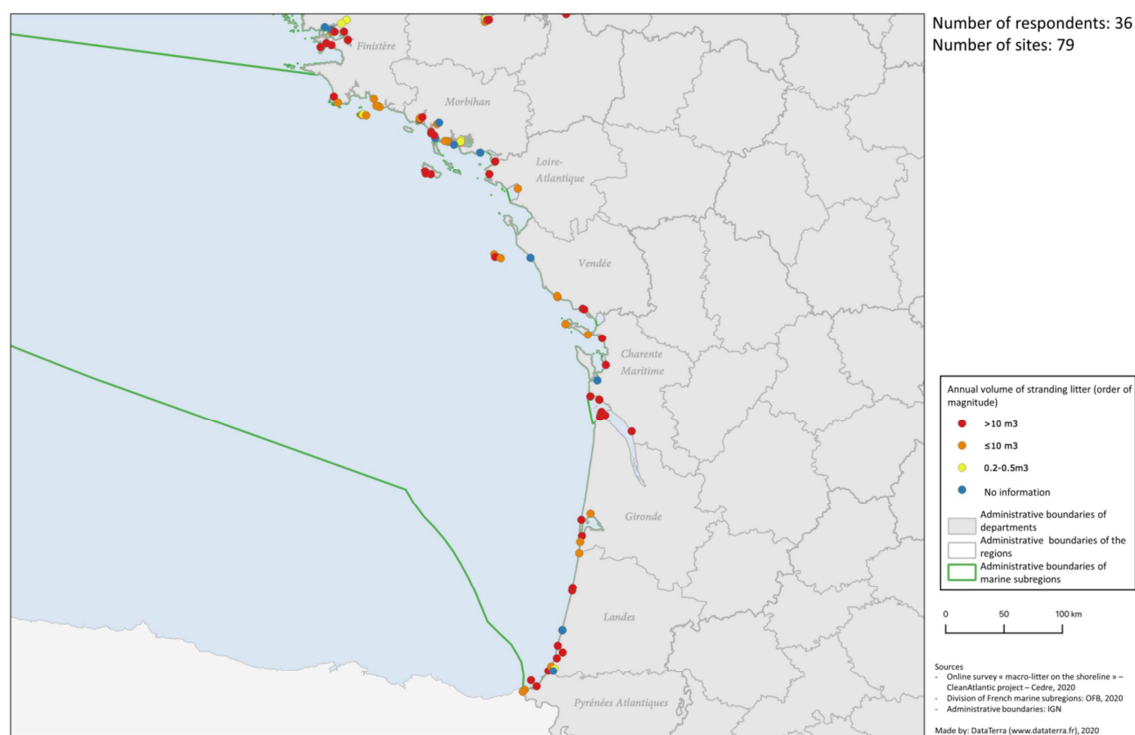


Figure 53: Marine sub-region Bay of Biscay: location of the accumulation sites and categories of annual volumes of stranded litter

Name and municipality of responding organisation	Name of litter accumulation site	Geographical coordinates of the site	Annual volume of litter (order of magnitude)	Items/objects that best characterise the litter found at this site
Annual volume of stranded litter > 10 m ³				
Concarneau, 29900	La Torche beach	47.83874;-4.34612	>10 m ³	Plastic bottles; plastic food packaging; ropes; oyster bags; plastic fragments; nets or fragments of net; pallets, industrial plastic pellets, containers lost overboard
	Plage du Don beach	47.79621;-3.83041	>10 m ³	Containers lost overboard, slippers, syringes, plastic bottles; plastic food packaging; rope; oyster bags; plastic fragments; nets or fragments of net; pallets
Erdeven, 56410	Barre d'Etel	47.63347;-3.202	>10 m ³	micro- and macro-plastics, pallets and treated wood, food packaging (cans, plastics, boxes), oyster bags, nets, military training ammunition, wartime shells, fishing nets, rope, etc.
	La Roche Sèche	47.62209;-3.20037	>10 m ³	
	Kerhilio beach	47.60805;-3.16458	>10 m ³	
Le Palais, 56360	Herlin beach	47.30166;-3.16809	>10 m ³	Rope < 1 cm in diameter, unidentified plastic fragments 0-2.5 cm, 2.5-50 cm, cigarette butts, lids and caps, bottles, plastic bags
	Donnant beach	47.32597;-3.23614	>10 m ³	
	Port Goulphar	47.3041;-3.22615	>10 m ³	

Locmiquelic, 56570	Anse du Loch	47.72023;-3.34474	>10 m ³	Fish crates, polystyrene, objects fallen overboard from pleasure boats (shoes, caps, etc.), cans, net remains, dinghies, all kinds of plastic
	Sterbouest	47.74057;-3.31568	>10 m ³	Oyster bags, plastics (bottles, packaging, bags, etc.), cans, unregistered dinghies, fish crates, polystyrene, remains of fishing nets...
La Baule-Escoubiac, 44500	Baie de La Turballe	47.33506;-2.50488	>10 m ³	Nets, plastics
	Baie de Pont-Mahé	47.44221;-2.44984	>10 m ³	Nets, mussel and oyster farming waste, bottles and packaging
La Faute Sur Mer, 85307	Lagune de La Belle Henriette	46.34632;-1.36169	>10 m ³	Oyster bags; spat collectors, plastic fragments; nets or fragments of net
	La Casse de La Belle Henriette national nature reserve	46.34103;-1.34507	>10 m ³	
Île d'Yeu, 85350	Les Sabias	46.70241;-2.37605	>10 m ³	Plastic bottles, unspecified plastic fragments and fishing gear
La Rochelle, 17000	Aytré - Anse de Godechaud	46.1237;-1.12747	>10 m ³	Oyster farming equipment (bags, pipes, coupelles)
	Saint-Froult	45.9195;-1.07194	>10 m ³	Oyster farming equipment
	Saint-Palais-Sur-Mer - Le Petit Poucet	45.65209;-1.12335	>10 m ³	Large items from offshore
Mosnac, 17240	Marais de Port Maubert	45.41916;-0.75148	>10 m ³	Plastic bottles, tyres, glass bottles, jerrycans, miscellaneous plastics
	Pointe de La Coubre	45.6738;-1.2248	>10 m ³	Plastic bottles and jerrycans, fishing waste (nets, oyster farming equipment, rope...), polystyrene, "Transatlantic" plastic
Verdon-sur-Mer, 33123	Les Cantines	45.52081;-1.10756	>10 m ³	All the cited litter types + lollipop sticks, cigarette butts, cartridges and cartridge cases
	La Chambrette beach	45.53528;-1.05057	>10 m ³	
	Océane beach	45.56039;-1.0928	>10 m ³	
Le Teich, 33470	Arguin	44.59413;-1.2351	>10 m ³	Plastic bottles, food packaging, oyster farming waste (bags and spat collectors)
	Truc Vert beach	44.71724;-1.25032	>10 m ³	All sort of rope and fish crates + plastic bottles
Lesperon, 40260	Lespecier beach	44.18803;-1.30377	>10 m ³	nets and pieces of net, rope and pieces of rope, oyster bags, fish crates, plastic packaging, plastic fragments
Mimizan, 40200	Lespecier	44.16534;-1.3078	>10 m ³	Plastic Fishing waste (rope, nets...) Glass (bottles....)
Moliets et Maa, 40660	Mouth of the Courant d'Huchet	43.85879;-1.38835	>10 m ³	Plastic bottles; plastic food packaging; ropes; plastic fragments; nets or fragments of net; wastewater treatment plant filter media; nurdles;
Moliets et Maa, 40660)	Mouth of the Courant d'Huchet	43.85854;-1.38854	>10 m ³	Plastic food packaging, rope, net or pieces of net. Disintegrated microplastics.

Mont De Marsan, 40000	Capbreton	43.64238;-1.43123	>10 m ³	Plastic fragments, waste from fishing and oyster farming
Mimizan, 40200	La Mailloueyre biological reserve	44.18968;-1.30377	>10 m ³	Plastic Fishing waste (rope, nets...) Glass (bottles....)
Mont De Marsan, 40000	Seignosse	43.6894;-1.37328	>10 m ³	Plastic fragments, waste from fishing and oyster farming
Biarritz, 64200	La Forêt, between Seignosse and Vieux Boucau	43.73821;-1.42862	>10 m ³	Various litter types (fishing, aquaculture, packaging)
	Lafitenia - Guéthary	43.41368;-1.62818	>10 m ³	Various litter types (fishing, aquaculture, packaging)
	Plage de La Digue beach - Tarnos	43.53968;-1.51471	>10 m ³	Various litter types (fishing, aquaculture, packaging)
Bidart, 64200	from Anglet to Hendaye	43.59631;-1.74683	>10 m ³	Plastic, rope, cigarette butts, packaging
Annual volume of stranded litter ≤ 10 m ³				
Treffiagat, 29730	La Grève Blanche	47.79599;-4.2933	≤10 m ³	Pieces of net from net mending
Fouesnant, 29170	Shores of Drenec island	47.71744;-4.01044	≤10 m ³	Miscellaneous debris, numerous pallets and large pieces of wood
	Western beaches of Penfret island	47.7175;-3.9583	≤10 m ³	Various litter types: plastic water bottles, clothes, plastic food packaging, miscellaneous plastic fragments, glass fragments, fishing nets and pieces of net, pieces of fishing traps, miscellaneous pieces of rope, fish crates
Trégunc, 29910	Don	47.79102;-3.81226	≤10 m ³	Plastic bottles; plastic food packaging; rope; oyster bags; plastic fragments; nets or pieces of net; pallets
	Feuteunaodou	47.79724;-3.85105	≤10 m ³	
	Ster-Greich	47.84894;-3.8865	≤10 m ³	
Locmiquélic, 56570	Pointe du Bigot	47.72934;-3.3465	≤10 m ³	Plastic packaging (bottles, trays, etc.), net remains, objects fallen overboard (shoes, food packaging, etc.)
Locoal-Mendon, 56550	Ria d'Étel, Locoal-Mendon	47.69497;-3.14209	≤10 m ³	Oyster farming plastic, nets, ropes, syringes
Ile-Aux-Moines, 56780	Kerbozec	47.56744;-2.86108	≤10 m ³	Oyster bags; plastic fragments; fragments of net, rope, plastic bottles
Saint Philibert, 56470	Kernevest beach	47.56758;-3.00167	≤10 m ³	Plastic bottles plastic food packaging rope oyster bags pieces of plastic from oyster farming pieces of wood
	Men Er Beleg beach	47.57143;-2.99608	≤10 m ³	
		47.57175;-3.00825	≤10 m ³	
La Trinite Sur Mer, 56470	Kervillen beach	47.57143;-3.03829	≤10 m ³	Flat oyster spat socks and plastic collector trays

La Baule-Escoubiac, 44500	La Courrance/Le Pointeau	47.24007;-2.17226	≤10 m ³	Bottles, nets, PVC boat hulls, car wheels...
Île d'Yeu, 85350	Les Broches	46.7285;-2.38865	≤10 m ³	Fishing gear (nets and ropes) and unidentified plastic debris
	Les Vieilles	46.69537;-2.31239	≤10 m ³	Microplastics and unidentified small pieces of plastic, ropes and nets
Talmont Saint Hilaire, 85440	Plage des Grottes beach	46.42466;-1.65032	≤10 m ³	Ropes and plastic fragments
	Plage du Veillon beach	46.43315;-1.65593	≤10 m ³	
Saint Martin De Ré, 17410	Lower Rhine (between Ars-en-Ré and Saint Clément des Baleines)	46.21981;-1.54341	≤10 m ³	Pieces of plastic
	West of Port Notre Dame beach (Sainte Marie de Ré)	46.14478;-1.28891	≤10 m ³	Oyster farming equipment (rubber), pallets and plastic fragments, a few animal carcasses
Mosnac, 17240	Grande Côte	45.65503;-1.1273	≤10 m ³	Caps, plastic bottles, miscellaneous plastics
Le Verdon Sur Mer, 33123	Les Cantines	45.53793;-1.104	≤10 m ³	Plastic bottles and caps, plastic packaging
	Maison de Grave	45.55128;-1.09711	≤10 m ³	Plastic packaging, ropes and nets
Arès, 33740 Lège-Cap Ferret, 33950	Prés Salés d'Arès and Lège-Cap Ferret national nature reserve	44.76931;-1.15417	≤10 m ³	Plastic bottles; plastic food packaging; ropes; oyster bags; plastic fragments; nets or fragments of net; pallets, hunting waste (cartridges, wood, resin debris...)
Le Teich, 33470	Le Wharf	44.54724;-1.25047	≤10 m ³	Miscellaneous plastic packaging, fishery ropes, plastic bottles
Biscarrosse, 40600	Le Vivier	44.46017;-1.25328	≤10 m ³	Plastic fragments, food packaging, nets
Ondres, 40440	Ondres beach	43.61222;-1.66992	≤10 m ³	Plastic bottles, ropes, nets, wood, plastic litter
Hendaye, 64701	Baie de Chingoudy - Observatory	43.36543;-1.77019	≤10 m ³	Plastic bottles; plastic food packaging; plastic fragments; pallets
	Domaine Abbadia - Erdiko	43.381;-1.75399	≤10 m ³	Plastic food packaging; plastic fragments
	Domaine d'Abbadia - Erdiko cove	43.38094;-1.75389	≤10 m ³	Plastic bottles; plastic food packaging; plastic fragments
	Hendaye - Observatory	43.36536;-1.77016	≤10 m ³	Plastic bottles; plastic food packaging; plastic fragments
Annual volume of stranded litter 0.2-0.5m ³				
Fouesnant, 29170	Shores of Bananec island	47.72293;-3.99473	0.2-0.5m ³	Miscellaneous litter, large amounts of glass on the west coast
Ile-Aux-Moines, 56780	Les Trois Sapins	47.57451;-2.85965	0.2-0.5m ³	Oyster bags; plastic fragments; bottles, pieces of net, rope
	Le Rahic	47.58778;-2.85635	0.2-0.5m ³	Plastic bottles, pieces of net, oyster bags, rope, plastic fragments

Ondres, 40440	Ondres beach dune	43.5615;-1.44911	0.2-0.5m ³	As above, mainly wind-blown objects
Annual volume of stranded litter: unspecified				
Locoal-Mendon, 56550		47.70843;- 3.12012		
Lorient, 56100	Baie de Quiberon - Golfe du Morbihan	47.54783;- 2.93129		1) Oyster farming waste (90%) 2) Household waste (plastic packaging) 3) Fishery waste: rope, nets, plastics...
	from Gâvres to Plouharnel	47.58689;-3.1493		1) Fishery waste (75%): ropes, nets, plastic fragments... 2) Household waste (25%): plastic packaging
	Vilaine estuary	47.50191;- 2.62608		1) Oyster farming waste (90%) 2) Household waste (plastic packaging) 3) Fishery waste: rope, nets, plastics...
Saint-Hilaire-De-Riez ,85270	Grande Plage de Sion beach	46.71371;- 1.97887		
La Rochelle, 17000		45.79913;-1.157		
Moliets et Maa, 40660		43.85873;- 1.38874		
Mont De Marsan, 40000	Tarnos	43.5417;-1.46281		Plastic fragments, waste from fishing and oyster farming

2.4. Western Mediterranean marine sub-region (W → E)

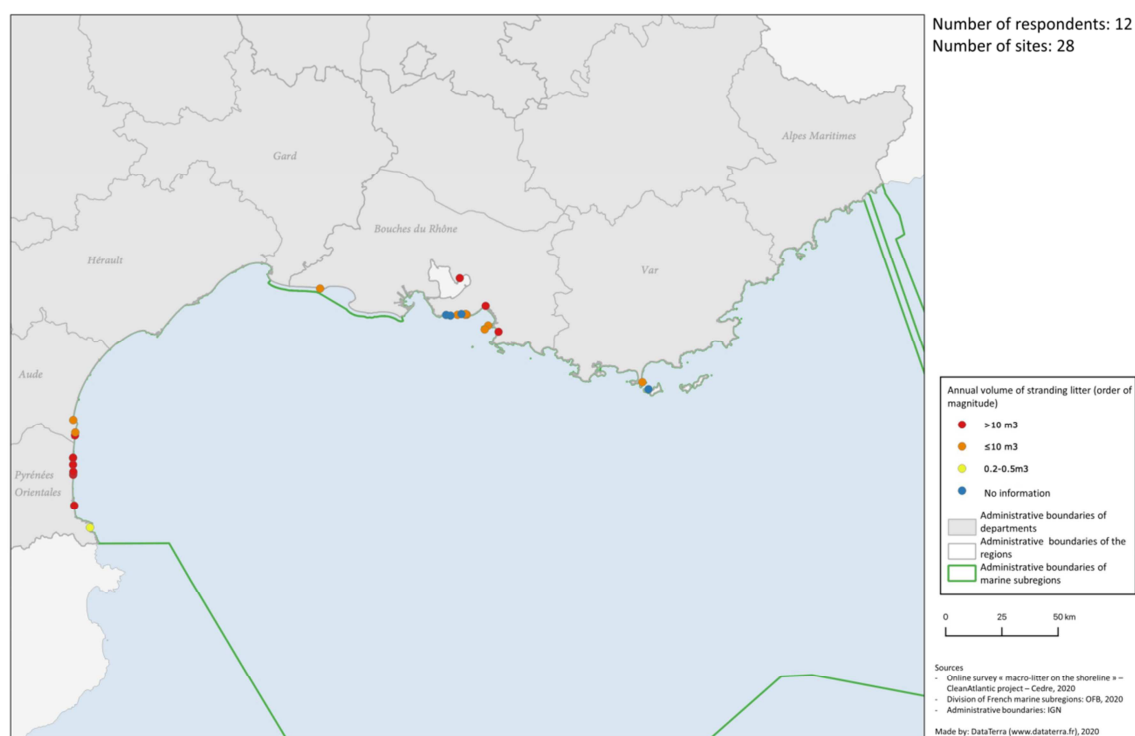


Figure 54: Marine sub-region Western Mediterranean: location of the accumulation sites and categories of annual volumes of stranded litter

Name and municipality of responding organisation	Name of litter accumulation site	Geographical coordinates of the site	Annual volume of litter (order of magnitude)	Items/objects that best characterise the litter found at this site
Annual volume of stranded litter > 10 m ³				
Torreilles, 66440	Mouth of the Agly river	42.77839;3.03841	>10 m ³	By order of importance: Wood, plastics, miscellaneous litter carried by the river
	Mouth of the Bourdigou river	42.75212;3.03841	>10 m ³	Plastic bottles, plastic fragments
Perpignan, 66000	Mouth of the Têt river (Canet-en-Roussillon)	42.71359;3.03922	>10 m ³	1) Pieces of expanded polystyrene 2) PET bottles 3) Plastic fragments followed by: - plastic food containers - food packaging - lids/caps - medicines - aluminium/steel cans - glass bottles - lighters - pieces of foam/polyurethane - balls
Perpignan, 66000	Mouth of the Tech river (Argelès sur mer)	42.58921;3.04509	>10 m ³	Plastic

	La Crouste beach (Canet-en-Roussillon)	42.71877;3.03973	>10 m ³	Plastic (cotton buds, bottles)
	Sainte Marie la Mer beach	42.72414;03:04	>10 m ³	Plastic
No name (organisation status: ministry/agency)	Mouth of the Têt river	42.71244;3.03918	>10 m ³	Plastic litter, aluminium cans, glass bottles, plastic packaging, giant reed, wood
	Agly estuary	42.77988;3.03863	>10 m ³	
	Tech estuary	42.58967;3.04479	>10 m ³	
Leucate, 11370	Port Leucate beach	42.86823;3.04939	>10 m ³	Plastics, fishery debris
Sausset-les-Pins, 13960	Estaque beach	43.36385;5.30854	>10 m ³	Plastic bottles Food packaging Cigarette butts Plastic fragments Lollipop sticks Ice lolly sticks Beer bottles/cans
	Etang de Berre	43.47809;5.17044	>10 m ³	
Marseille, 13001	Plage des Véloplanchistes nicknamed "Epluchure Beach"	43.25867;5.37523	>10 m ³	Plastic food packaging and industrial packaging
Annual volume of stranded litter ≤ 10 m ³				
Leucate, 11370	La Franqui	42.93183;3.03966	≤10 m ³	Plastics, fishery waste
	Naturist area	42.87985;3.05083	≤10 m ³	
Le Grau du Roi, 30240	Tiki (mouth of the Little Rhône)	43.44885;4.39977	≤10 m ³	Plastic packaging, cans, glass bottles
Sausset-les-Pins, 13960	Rouet beach	43.33139;5.15237	≤10 m ³	Plastic bottles, Food packaging, Cigarette butts, Plastic fragments, Lollipop sticks, Ice lolly sticks, Beer bottles/cans
Ensuès-la-Redonne, 13820	Calanque des Anthenors	43.33128;5.20337	≤10 m ³	Plastic bottles; plastic packaging
	Madrague de Gignac	43.33103;5.1953	≤10 m ³	Plastic bottles; ropes
	Plage des Pebraire beach	43.33392;5.19772	≤10 m ³	Plastic fragments; nets or fragments of net
Marseille, 13001	Eoube calanque or port	43.285;5.3192	≤10 m ³	Food packaging and industrial packaging
	Pomègues port (Frioul)	43.26983;5.29945	≤10 m ³	Plastic food packaging and industrial packaging
Hyères, 83400	Badine / Carbet	43.03572;6.15297	≤10 m ³	Bottles, plant pots, corks, food packaging, hard plastic fragments, plastic bags, polystyrene for construction and public works, fisheries, single- use tableware, pallets, ropes, from France and Italy
Annual volume of stranded litter: 0.2-0.5m ³				
Perpignan, 66000	Plage des Pêcheurs beach (Baie de Paulilles, Port- Vendres)	42.49941;3.13038	0.2-0.5m ³	1) Plastic fragments; 2) pieces of polystyrene; 3) food packaging; 4) cigarette butts; 5) ropes; 6) bags, tarpaulins, plastic films; 7) bottles/fragments of glass; - plastic caps and corks; - plastic skirts of hunting cartridges; -

				lollipop sticks
Annual volume of stranded litter: unspecified				
Carry-le-Rouet, 13620	Anse de Boumandariel	43.33217;5.08976		
	Rouet beach	43.33417;5.17417		
	La Corniche beach (Sausset-les-Pins)	43.32907;5.11377		
Hyères, 83260	Porquerolles island (no specific site)	43.00647;6.1849		Plastic fragments, plastic bottles

3.1. Eastern Channel & North Sea marine sub-region (E → W)

Figure 55: Eastern Channel – North Sea: location of the litter hotspots and their geomorphological characteristics

3.2. Celtic Seas & Western Channel marine sub-region

Number of respondents: 10
Number of sites: 16

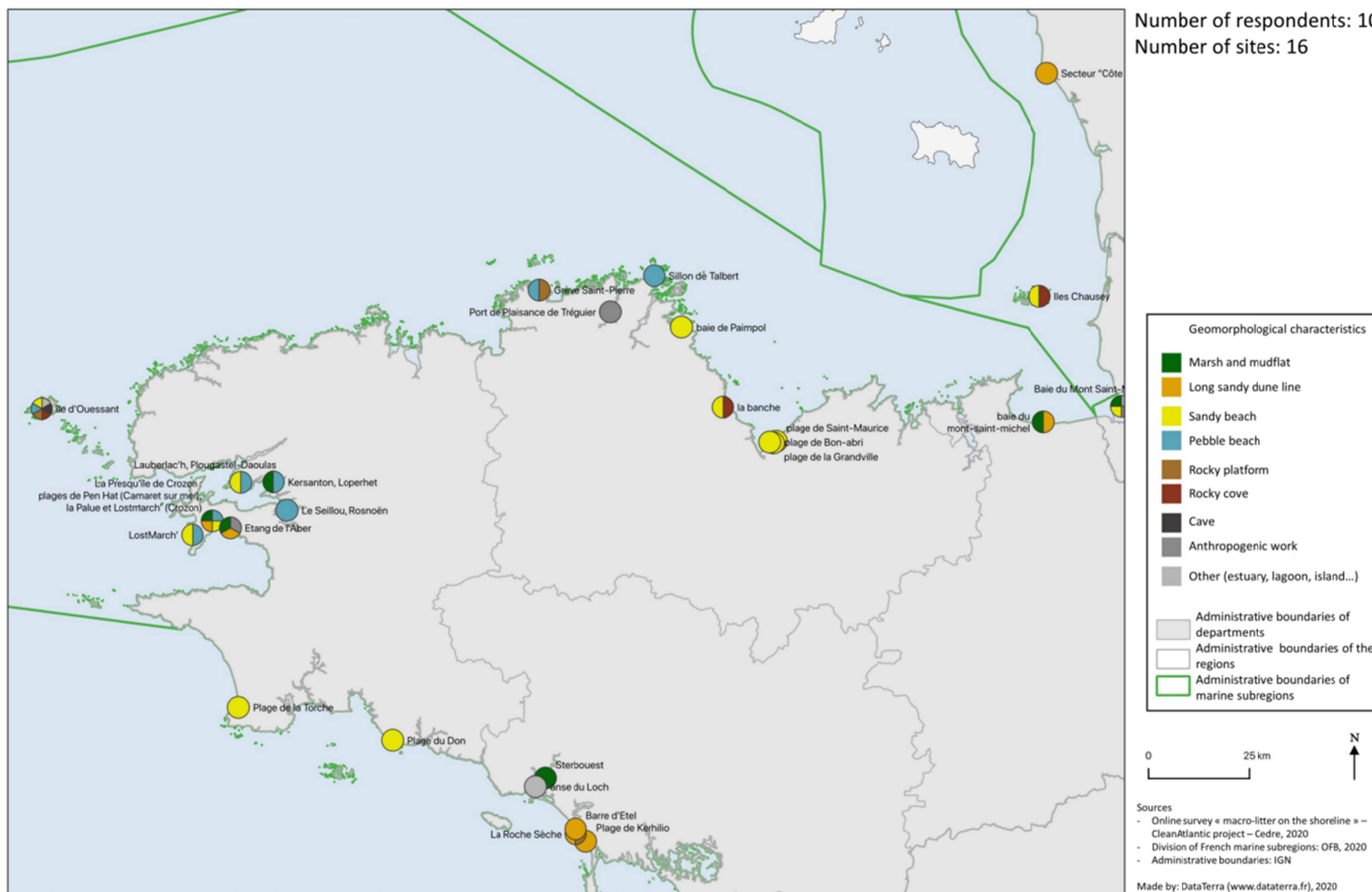


Figure 56: Celtic Seas – Western Channel: location of the litter hotspots and their geomorphological characteristics

3.3. Bay of Biscay marine sub-region (N → S)

Number of respondents: 18
Number of sites: 36

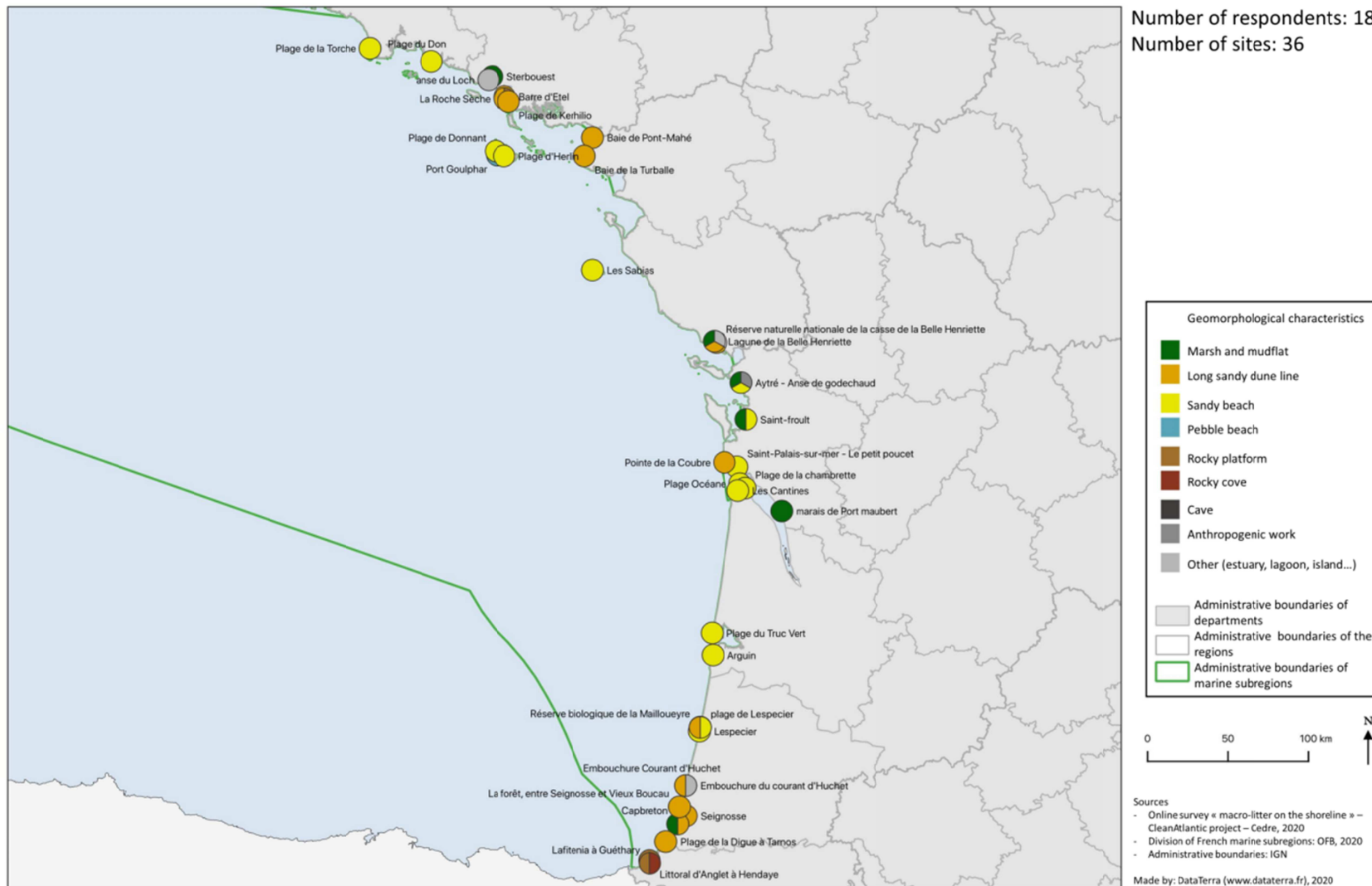


Figure 57: Bay of Biscay: location of the litter hotspots and their geomorphological characteristics

3.4. Western Mediterranean marine sub-region (W → E)

Number of respondents: 7
Number of sites: 13

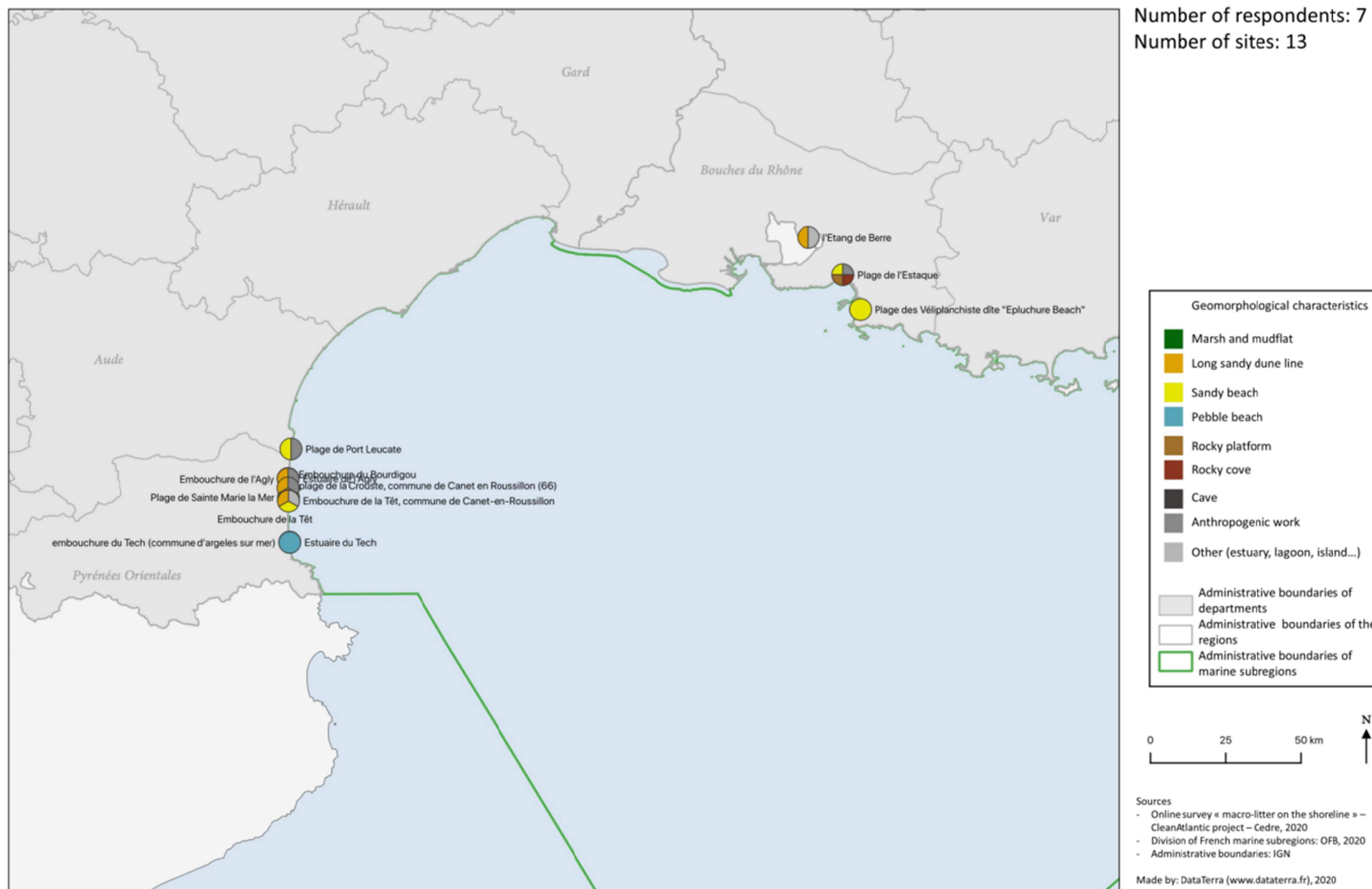


Figure 58: Western Mediterranean: location of the litter hotspots and their geomorphological characteristics