SURVEY OF PUBLIC OPINION IN THE ECONOMIC SECTOR CONCERNING ENVIRONMENTAL IMPACT ASSESSMENT (EIA) LEGISLATION FOR SEAGRASS SPECIES

ANALYSIS OF SURVEY RESULTS

PROJECT: Carbon Binding Blue Black Sea/ BSB00020

This survey is carried out by the Burgas Regional Tourism Association within the framework of the **"Carbon Binding Blue Black Sea" Project.**

PROJECT NUMBER	**BSB00020**
PROJECT ACRONYM	**BlueC**

Dissemination level: **Public/Open Access**

1. Executive Summary

Seagrass meadows in the Black Sea represent valuable coastal ecosystems that stabilize the seabed, improve water quality, capture and store carbon, and provide habitats for numerous fish species. Within the framework of the project Carbon Binding Blue Black Sea (BlueC) / BSB00020, a questionnaire-based survey was conducted to assess the level of awareness and public attitudes regarding the role of seagrass and the need for their systematic inclusion in Environmental Impact Assessment (EIA) procedures. A total of 1,553 responses were recorded, although not all respondents answered all questions. The analysis of the results reveals clearly expressed relationships between regional affiliation, educational level, professional sector, level of knowledge, and willingness to support management and regulatory measures.

The results indicate that overall awareness of seagrass habitats along the Bulgarian Black Sea coast remains low, despite the significance of the issue for the condition of coastal ecosystems. Respondents from coastal areas demonstrate better general knowledge of seagrass but are less familiar with EIA procedures and their economic value. In contrast, participants from inland regions—particularly those with higher education and employed in academic, administrative, or non-governmental organizations—show a better understanding of regulatory and economic aspects and express stronger support for the introduction of stricter management measures. The data clearly show that increasing levels of awareness are associated with stronger support for regulatory measures and a greater willingness to participate in public consultations. Feedback from respondents demonstrates strong public support for the more systematic inclusion of seagrass in EIA procedures and a clear recognition of their ecological importance and vulnerability. A need for stronger scientific underpinning, more effective communication, and greater legislative clarity has been identified. Some of the measures proposed by respondents are directly applicable and can be integrated as recommendations in the subsequent stages of the project. For more effective conservation of seagrass ecosystems, a combined approach is recommended, involving institutional strengthening through collaboration with expert communities and competent authorities, alongside targeted information and educational initiatives aimed at coastal communities and local stakeholders.

2. Context and Objectives of the Survey

Within the framework of the project Carbon Binding Blue Black Sea (BlueC) / BSB00020, a 30-question survey was conducted to assess the level of awareness, knowledge, and attitudes regarding the role of seagrass and their inclusion in planning processes and Environmental Impact Assessment (EIA) procedures. The survey was carried out in the context of increasing environmental challenges in the Black Sea, related to the deterioration of water quality, loss of coastal habitats, and intensified anthropogenic pressure from urbanization, fisheries, and infrastructure development projects. Seagrass meadows are key coastal ecosystems that play a significant role in the capture and storage of "blue carbon," sediment stabilization, and the maintenance of high biodiversity; however, they remain poorly understood and insufficiently integrated into planning processes and EIA procedures.

If you want, I can also slightly shorten it, adapt it for a questionnaire introduction, or align it strictly with Interreg / EU reporting terminology.

2.1. Survey Objective

The objective of the present survey is to assess the level of awareness, knowledge, and attitudes of different societal groups regarding the role and impact of seagrass on the state of the marine environment and water quality. In addition, the survey identifies key information gaps and needs for further awareness-raising.

The results obtained will serve as a basis for more effective conservation of seagrass ecosystems and for the development of targeted information and educational measures. In this context, the project aims to strengthen the scientific knowledge base, institutional capacity, and public awareness regarding the role of seagrass as a nature-based solution for climate change adaptation and the protection of marine ecosystems.

2.2. Key Issues Addressed by the Survey

- Awareness of seagrass habitats and their ecological role;
- Knowledge of their economic value and importance for sustainable management;
- Level of awareness regarding Environmental Impact Assessment (EIA) procedures and the inclusion of seagrass in strategic planning;
- Attitudes towards different management measures and willingness to participate in public consultations.

2.3. Target Groups of the Survey

The survey is targeted at various stakeholder groups, including coastal communities, academic and administrative institutions, non-governmental organizations, and other stakeholders that have direct interactions with seagrass habitats.

3. Methodological Approach

The survey was conducted through face-to-face and online interviews, carried out by 15 trained interviewers, to assess levels of awareness and attitudes regarding the role of seagrass and their inclusion in Environmental Impact Assessment (EIA) procedures.

Topic	Description
Survey Channels	In-person or online interviews
Data Collection Period	07 May - 15 September 2025
Number of specific questions	37
Thematic Categorization	1. Demographic and socio-economic characteristics 2. Ecological role and habitats of seagrass 3. Economic value and sustainable management 4. Environmental Impact Assessment (EIA) procedures and regulatory aspects 5. Attitudes towards management measures and participation in public consultations
Respondents Type	Targeted and voluntary; participants from coastal and inland regions of Bulgaria, as well as from abroad.
Number of	1,553
Methodological Limitations and Biases	● Potential social desirability bias, whereby respondents may provide answers perceived as socially acceptable; ● Possible underrepresentation of certain stakeholder groups within the sample; ● Partial subjectivity of responses, inherent to self-reported data.

4. Respondent Profile

4.1. Demographic Characteristics (age, gender, geographic location, etc.)

The age distribution of the sample (Fig. 1) is strongly concentrated in the middle and older age groups, with respondents aged 56–68 years (35.7%) and 31–43 years (29.9%) being dominant. Participation of younger respondents (18–30 years) accounts for 17%, while the 44–56 years age group represents 13.6%. The proportion of respondents aged over 68 years is minimal.

The gender distribution is practically balanced, with 49.4% of respondents identifying as female and 49.2% as male, indicating a well-balanced sample. Only 1.4% of respondents preferred not to disclose their gender (Fig. 2).

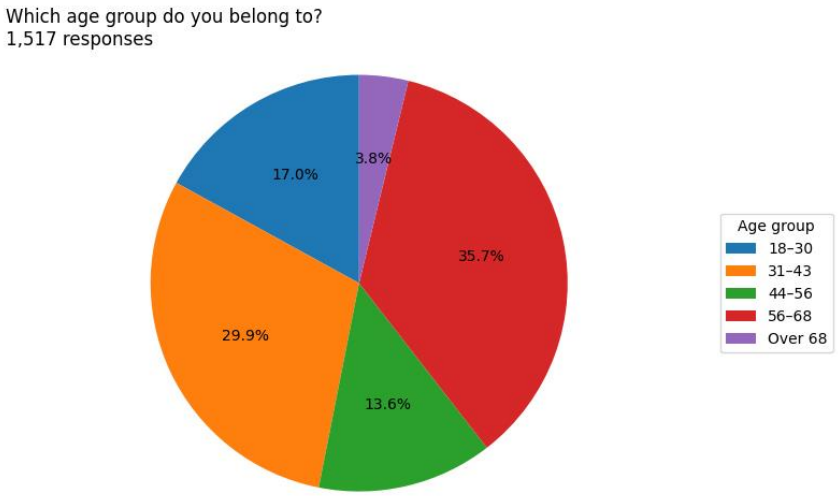


Fig. 1. Age Group Distribution of Respondents

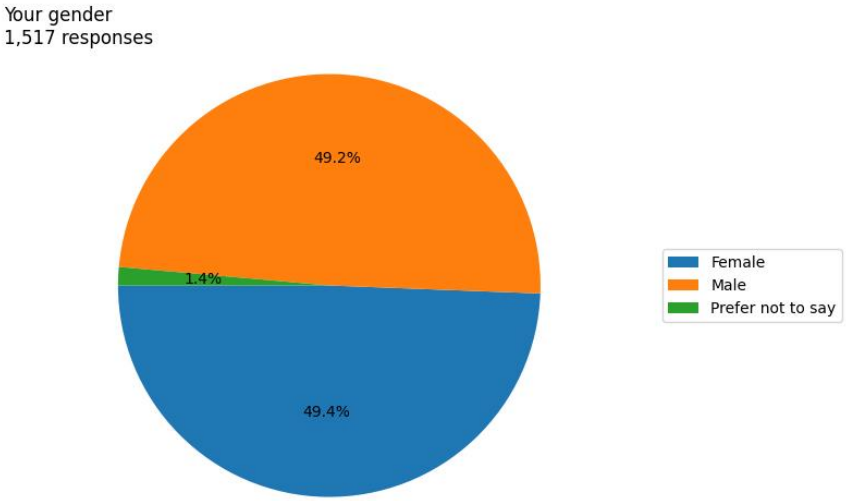


Fig. 2. Respondents by Gender

A total of 1,517 respondents provided information on their region of residence or employment. Participants represent nearly all regions of Bulgaria, as well as a significant number of respondents living or working abroad—primarily in Belgium, Germany, the

Netherlands, and the United Kingdom. After grouping settlements into categories, the following distribution was obtained:

- Coastal municipalities and settlements – 74.9%
- Inland / other parts of Bulgaria – 22.2%
- Abroad – 0.6%
- Missing / unspecified region – 2.3%

Therefore, the collected data should be interpreted with caution, taking into account the strong representation of coastal communities in the sample. This overrepresentation may influence the overall results, as these groups are likely to exhibit higher sensitivity and awareness regarding the condition of the marine and coastal environment.

4.2. Education and Employment Sector of Respondents

The educational structure of the sample (Fig. 3) is strongly dominated by respondents with higher education (59.7%), indicating a high level of formal qualification among participants. A substantial share of respondents have completed secondary education (33.9%). Respondents with primary education account for 3.8%, while participants holding a doctoral degree represent 2.6%, forming a relatively small but highly qualified subgroup.

Awareness of Environmental Impact Assessment (EIA) procedures and the economic value of seagrass increases with higher levels of education. Among respondents with primary education, 73.3% report having no knowledge of EIA, whereas this share decreases to 23.2% among those with higher education; no respondents with a doctoral degree report a complete lack of knowledge. At the levels of higher education and doctoral degree, there is a marked increase in the proportion of respondents who identify themselves as partially or well-informed, as well as experts. A similar pattern is observed with regard to awareness of economic value: 80% of respondents with primary education are not aware of it at all, compared to 69.7% among those with secondary education and 51.3% among those with higher education, while among respondents with a doctoral degree, the share of those completely unaware decreases to 17.3%. These findings support the conclusion that the core of the most informed respondents consists of individuals with higher education, and in particular, those holding a doctoral degree.

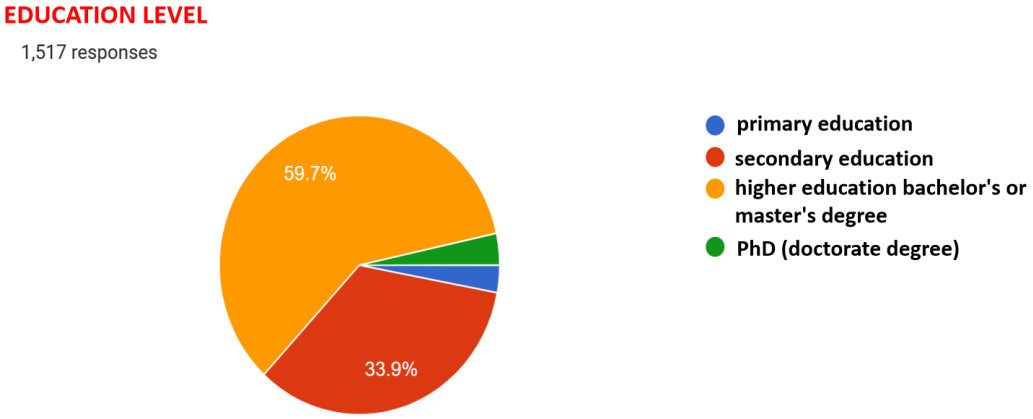
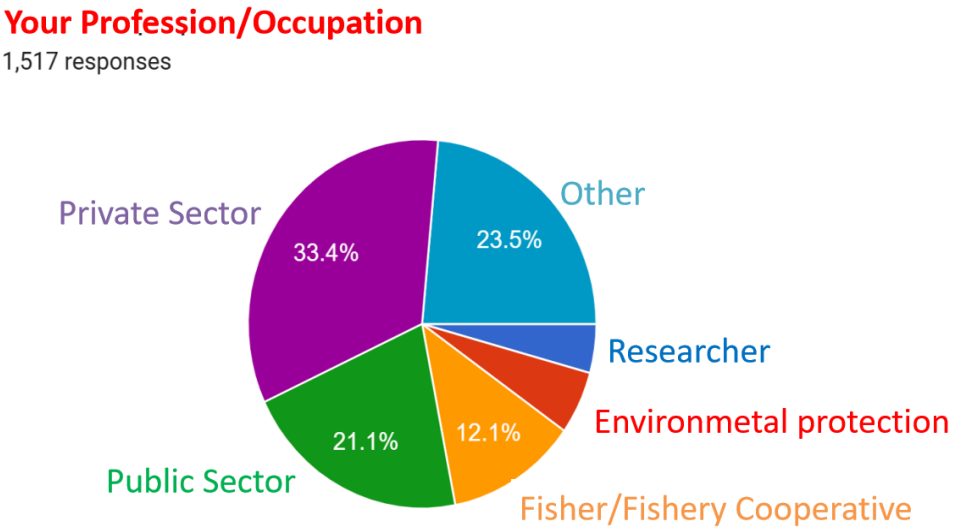


Fig. 3Educational Level of Respondents

33% of the respondents are employed in the private sector, followed by individuals with other professions (23.5%) and those working in the public sector (21%). Academic staff and researchers represent the smallest proportion of the sample (Fig. 4). This professional distribution suggests that the survey captures perspectives primarily from practice-oriented sectors, which are directly influenced by regulatory frameworks and environmental management decisions.

In terms of professional experience, the largest share of respondents report more than 20 years of work experience (Fig. 5), indicating that the results largely reflect the views of experienced professionals with long-term exposure to environmental, regulatory, and socio-economic processes related to coastal and marine management.



Figr. 4. Employment Sector of Respondents

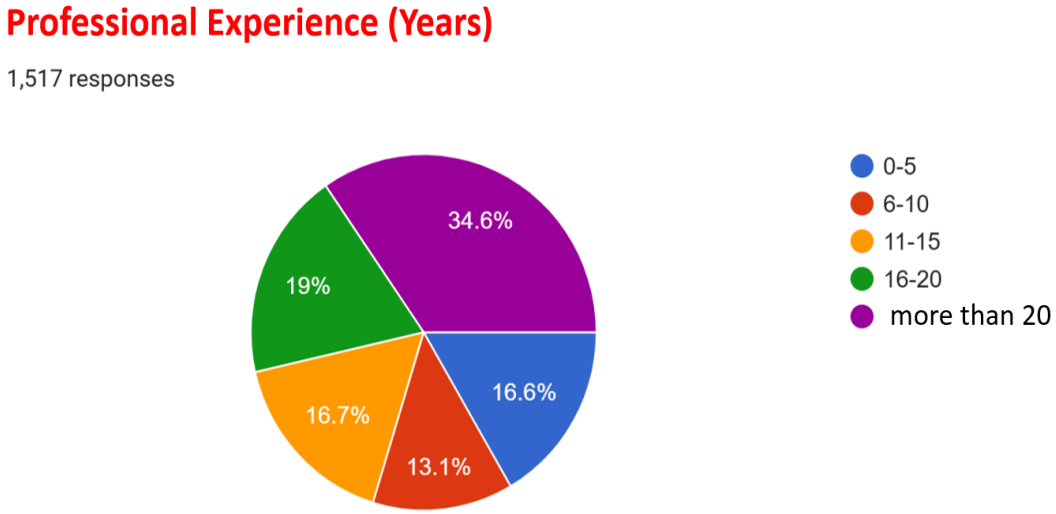


Fig. 5. Years of Professional Experience of Respondents

The academic and research community, non-governmental organizations, and public administration demonstrate the highest levels of awareness regarding Environmental Impact

Assessment (EIA) procedures and the economic value of seagrass. Local stakeholders (fisheries, tourism, ports) and the private sector more frequently report limited knowledge of regulatory procedures and economic aspects; however, they show a higher proportion of respondents with direct knowledge of actual seagrass habitats. For example, approximately 29.4% of local stakeholders and 27.7% of academic respondents declare familiarity with seagrass habitats, whereas this share is significantly lower within the private sector.

These findings indicate the presence of two mutually reinforcing sources of information: the structured, expert-based knowledge of academic and administrative actors, and the practical, experience-based knowledge of local communities.

5. Phematic and Question-Based Analysis of Survey Results

5.1. Knowledge of Environmental Impact Assessment (EIA) Procedures

The data (Fig. 6) indicate a clearly expressed low overall level of awareness of the Environmental Impact Assessment (EIA) process among respondents. Nearly one third (33.4%) state that they have no knowledge at all, while an additional 26.1% report that their knowledge is very limited. This means that almost 60% of respondents fall within the lower end of the scale, possessing minimal or no understanding of EIA.

The intermediate group—those who consider themselves partially informed—accounts for 25.4%, suggesting the presence of some basic awareness, but not an in-depth understanding of EIA procedures and requirements. Higher levels of awareness are considerably less represented: 12.7% report being well informed, and only 2.5% identify themselves as experts. This highlights that respondents with a high level of competence are very few, which is typical for topics characterized by high regulatory and administrative complexity.

Overall, the response profile demonstrates that public understanding of EIA is limited, dominated by basic or absent knowledge, while advanced expertise is concentrated within a small proportion of participants.

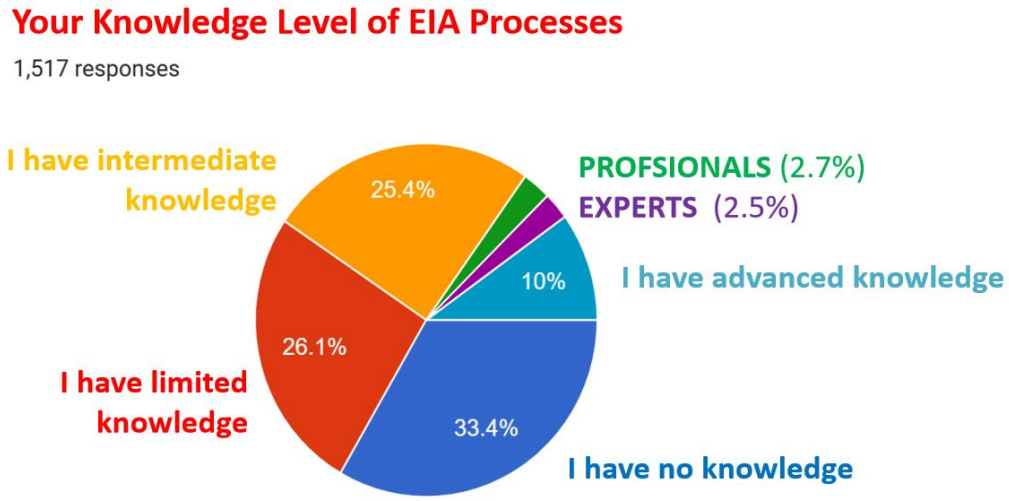


Fig. 6 . Familiarity with the EIA Procedure

Substantial differences are evident between regions.

Among respondents from inland areas:
22 % – report no knowledge of EIA
29.6% – report limited knowledge
30.1% – moderate level of awareness
– high level of knowledge of EIA
2.6% – are experts in EIA

Among respondents from coastal areas:
37% – report no knowledge of EIA
25% – report limited knowledge
24% – moderate level of awareness 15.7%
11.5% – high level of knowledge of EIA
2.4% – are experts in EIA

The data reveal significant regional differences in the level of familiarity with the Environmental Impact Assessment (EIA) process. The response profile for inland regions shows a higher average level of awareness compared to coastal respondents. The proportion of respondents with no knowledge at all is considerably lower inland (22%, compared to 37% in coastal areas), while the share of respondents with at least partial knowledge (levels 2–4) is higher. This pattern suggests a stronger concentration of experts, administrative staff, consultants, and non-governmental organizations in inland regions (including Sofia and other major cities), where direct engagement with EIA processes is more common.

These findings should be interpreted with caution, as they may partly reflect the professional composition of the sample rather than purely regional effects. Nevertheless, the results highlight a clear need for targeted capacity-building and awareness-raising measures in coastal regions, where EIA-related knowledge is comparatively lower despite the direct exposure of these communities to marine and coastal development pressures.

5.2. Knowledge of Seagrass Habitats

In response to the question "Are you familiar with the habitats of seagrass along the Bulgarian Black Sea coast?", the data indicate that overall awareness of seagrass habitats along the Bulgarian Black Sea coast is limited, despite the importance of the topic for coastal ecosystems. The majority of respondents are not familiar with seagrass habitats. Only 20.7% state that they are familiar, while 43% report that they are not. A substantial group (33.4%) expresses interest but lacks sufficient knowledge, suggesting a strong potential for engagement through targeted information and awareness-raising campaigns. Only 2.8% indicate neither interest nor knowledge.

This distribution suggests that while the topic is largely unfamiliar to the public, it is not perceived as uninteresting, which provides a favorable basis for future communication efforts. There is significant potential to increase awareness through accessible and clearly presented informational materials.

The regional differences are as follows:
Among respondents from inland areas:

- Only 13.6% are familiar — significantly lower than in coastal areas.
- 34.8% are not familiar — a lower share compared to coastal respondents.
- The largest group (48.7%) consists of respondents who express interest but lack knowledge — nearly half of the sample.
- 2.9% report having neither interest nor knowledge.

Among respondents from coastal areas:

- 22.4% are familiar — slightly above the average level.
- 46.6% are not familiar — a higher share than expected for populations living in close proximity to coastal habitats.
- 28.1% express interest without knowledge — a lower share compared to inland regions.
- 2.9% report having neither interest nor knowledge.

This profile is indicative: immediate geographical proximity does not automatically guarantee higher levels of awareness. Among coastal respondents, the level of knowledge is unexpectedly low. In inland regions, a very strong but unmet interest is observed, indicating that information about seagrass does not easily reach these areas; however, when provided, there is a high degree of receptiveness. In both groups, only about 3% of respondents declare having neither interest nor knowledge. This suggests that the lack of knowledge is not due to a lack of interest, but rather to insufficient information and limited access to appropriate materials.

From a policy and management perspective, these findings underline the need for differentiated communication strategies: awareness-raising efforts in coastal areas should focus on translating proximity into understanding and stewardship, while initiatives targeting inland regions should prioritize access to structured and reliable information. The high level of expressed interest in both groups represents a valuable opportunity for engagement.

Out of a total of 1,552 respondents who answered the question "If you are familiar with such seagrass habitats and have had the opportunity to observe them, have you noticed any changes in their extent or condition in recent years?", the majority (73.8%) indicate that they are unable to assess whether changes have occurred. This points to limited awareness and, more importantly, to the absence of systematic observation among the wider public. Among respondents who do report changes, decreases in density (10%) are more frequently reported than increases (7%), while 9.2% observe no significant changes. Although based on a relatively small number of responses, these observations suggest a tendency toward perceived negative changes.

In this context, the results highlight the potential value of structured monitoring schemes and citizen science approaches. By providing clear guidance, simple observation protocols, and feedback mechanisms, interested stakeholders—particularly local communities and coastal users—could be actively involved in documenting changes in seagrass habitats. Such approaches could contribute both to improved data availability and to strengthened public awareness and ownership, thereby supporting evidence-based management and conservation measures..

5.3. Awareness of the Economic Importance of Seagrass

In response to the question on the economic value of seagrass (rated from 0 – "not familiar at all" to 4 – "very well informed"), the overall distribution is presented in Fig. 7. The results clearly indicate that awareness of the economic value of seagrass is extremely low among respondents. The largest group (57.2%) state that they are not familiar with the topic at all

(score 0), representing more than half of the participants. This highlights a substantial information deficit regarding the role of seagrass in providing ecosystem services, supporting fisheries, enhancing tourism attractiveness, and contributing to coastal protection.

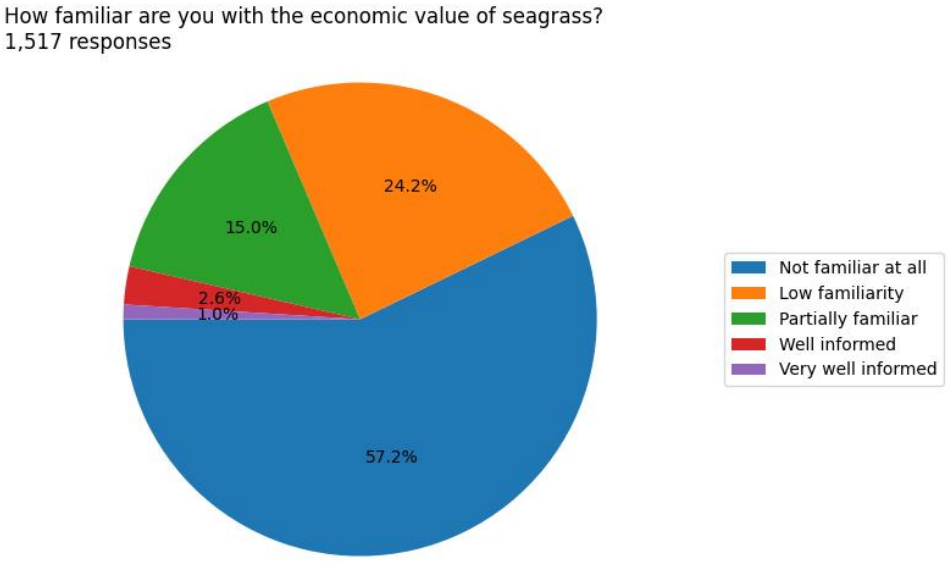
An additional 24.2% identify themselves as having low awareness, while 15% report partial awareness, meaning that in total more than 96% of the sample lack good or in-depth knowledge of the topic. Only 2.6% report being well informed, and just 1% consider themselves very well informed. The proportion of genuinely informed respondents is therefore minimal, underscoring that the economic value of seagrass remains largely unknown to the public, despite its importance for the sustainable management of coastal ecosystems.

Overall, the geographical distribution of responses to this question highlights a clear need to increase public awareness of the economic role of seagrass and their potential to deliver ecosystem services, particularly in the context of climate and nature conservation policies:

Inland regions: 50.7% are not familiar at all; 31.6% report low awareness; 14.8% partial awareness; 2% good awareness; 0.9% very good awareness.

Coastal regions: 59.6% are not familiar at all; 22.1% report low awareness; 14.8% partial awareness; 2.7% good awareness; 0.9% very good awareness.

In both coastal and inland regions, more than half of respondents report no awareness whatsoever of the economic value of seagrass, indicating a very serious information deficit. Coastal respondents are more frequently completely unaware (almost 60%), while inland regions show a slightly higher share of individuals with at least minimal knowledge. This suggests that even populations living in close proximity to seagrass habitats are largely unaware of their economic role, including their contributions to fisheries, tourism, coastal protection, and erosion control.



Фиг. 7. Познаване на икономическата стойност на морските треви

From a policy perspective, these findings clearly demonstrate the need to systematically integrate the economic valuation of seagrass ecosystems into environmental governance,

coastal planning, and communication strategies. The consistently low levels of awareness—particularly in coastal areas—indicate that proximity to seagrass habitats alone does not translate into understanding of their economic and societal benefits. This gap weakens public support for conservation measures and limits the effective implementation of climate and biodiversity policies.

To address this deficit, targeted actions are recommended. First, the economic value of seagrass should be explicitly incorporated into Environmental Impact Assessment (EIA) documentation, strategic planning instruments, and cost–benefit analyses related to coastal development. Second, accessible valuation tools and simplified indicators (e.g. links to fisheries productivity, tourism revenue, carbon sequestration, and coastal protection) should be developed for use by local authorities, stakeholders, and the general public. Third, communication and awareness-raising activities should be tailored regionally: coastal communities should be engaged through practical, place-based examples, while inland audiences should be provided with structured educational materials that link seagrass to broader climate and ecosystem service frameworks.

Finally, strengthening collaboration between scientific institutions, public authorities, and local stakeholders will be essential to translate scientific knowledge into practical policy measures. Improving awareness of the economic role of seagrass can significantly enhance public acceptance of conservation and management actions, supporting the long-term sustainability and climate resilience of coastal ecosystems.

5.4. Understanding Seagrass Functions and Their Role in Climate Mitigation

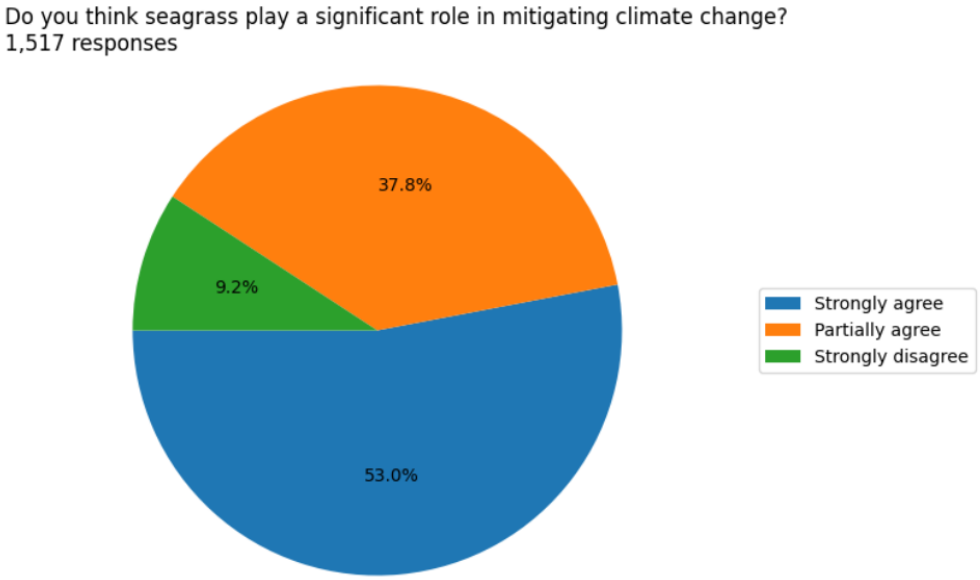


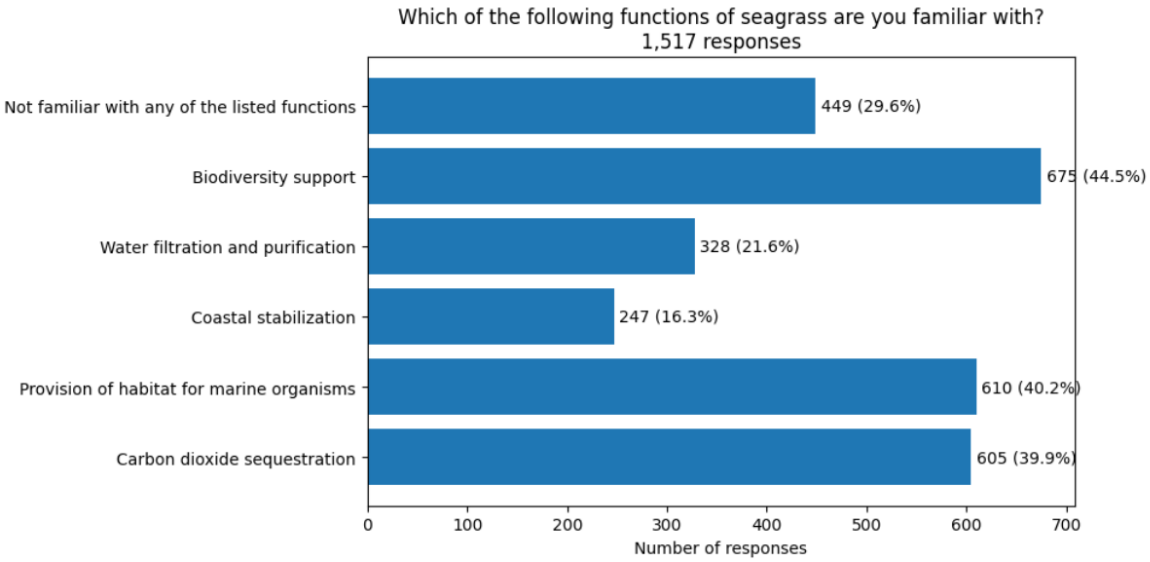
Fig. 8. Seagrass as a Climate-Related Factor

The results (Fig. 8) show a clearly dominant positive perception of the climate-regulating function of seagrass, with 90.8% of respondents expressing agreement (fully or partially). This suggests a relatively high level of public awareness regarding the importance of seagrass for the capture and long-term storage of organic carbon in sediments, as well as their role as a key component of "blue carbon." The presence of 9.2% of respondents who fully disagree highlights the need for targeted communication and dissemination of scientifically grounded

information on blue carbon, as well as for strengthening the expert capacity of stakeholders within coastal communities.

From a geographical perspective, positive responses dominate in both groups (coastal and inland). In coastal areas, 54.1% of respondents fully agree and 36.3% partially agree, meaning that more than 90% acknowledge this role. In inland regions, 49.3% fully agree and 43.2% partially agree. Negative responses remain below 10% in both groups. This indicates a widespread understanding that seagrass play an important role in climate regulation, with slightly stronger conviction along the coast, which may be linked to more direct observation of ecosystem functions and changes in the marine environment.

When asked which functions of seagrass they are familiar with, nearly half of the respondents identify the support of biodiversity (44.5%), while around 40% associate seagrass with providing habitat for marine organisms (40.2%) and carbon dioxide sequestration (39.9%) (Fig. 9). In contrast, the role of seagrass in coastal stabilization (16.3%) and water filtration and purification (21.6%) is much less recognized, and 29.6% of participants report being unfamiliar with any of the listed functions. This indicates that public perception currently links seagrass primarily to biodiversity and, to a lesser extent, to climate regulation, while underestimating their contribution to water quality improvement and shoreline protection—functions that are particularly important for tourism and the local economy.



Фиг. 9. Познаваемост за функциите на морските треви

Overall, the results underscore the need for targeted educational and awareness-raising campaigns aimed at improving recognition of the full range of ecosystem functions provided by seagrass, including shoreline protection and water purification—functions that are critical for tourism, local economic activities, and the sustainable management of coastal zones.

5.5. Level of Public Awareness of Seagrass

Public awareness of seagrass is significantly limited (Fig. 10). More than half of the respondents (55%) report having no information on the topic, 36% demonstrate a low level of awareness, 8.2% have a moderate level of knowledge, and only 0.8% can be considered well informed. These results indicate that knowledge of seagrass among the general population is minimal, which may hinder efforts aimed at their conservation and sustainable management. The lack of awareness highlights the need for targeted educational and information campaigns aimed at improving public understanding of the ecological and economic importance of seagrass ecosystems.

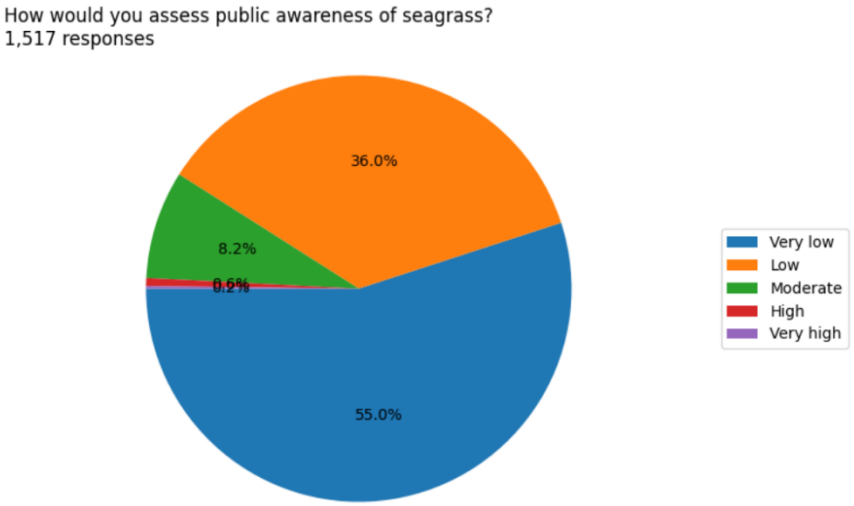


Fig. 10. Level of Public Awareness of Seagrass

Respondents perceive the improvement of seagrass awareness primarily as a matter of education and communication (Fig. 11): 65.5% identify educational programs as the most effective strategy, while 51.7% point to media campaigns. A significant proportion also consider legislative measures to be necessary (40.9%), as well as incentives for the fisheries and maritime sectors (33.4%) and the active involvement of local communities (31.3%). Only 2.1% state that none of the proposed strategies would be effective. This indicates strong public support for a combined approach in which education and media are complemented by policy measures, economic incentives, and local community engagement, while skepticism regarding the potential to increase awareness remains minimal.

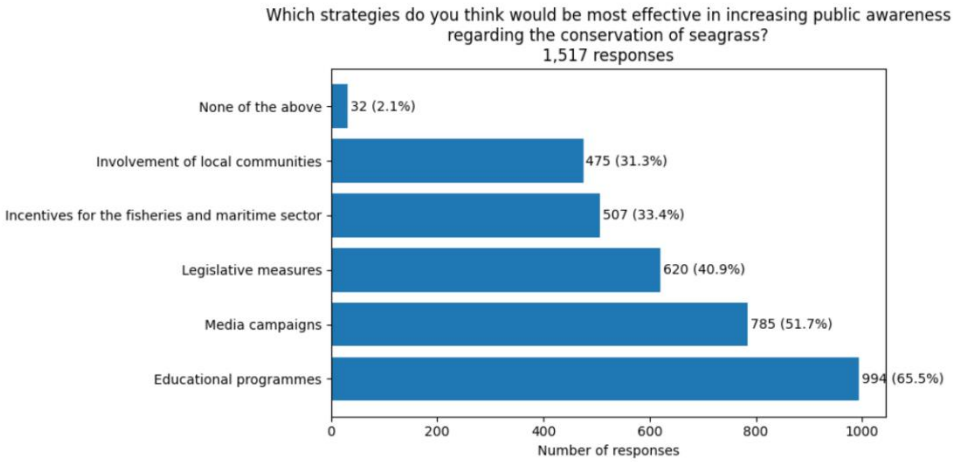


Fig. 11. Strategies to Improve Public Awareness of Seagrass

5.6. Regulatory Measures for the Protection of Seagrass

In response to the question “Do you think that the existing legal regulations are sufficient for the protection of seagrass?”, 45.5% of respondents state that they do not know, 18.7% consider the regulations to be partially sufficient, 28.4% believe that there are no regulations in place, and only 9.4% are aware of their existence and adequacy (Fig. 12).

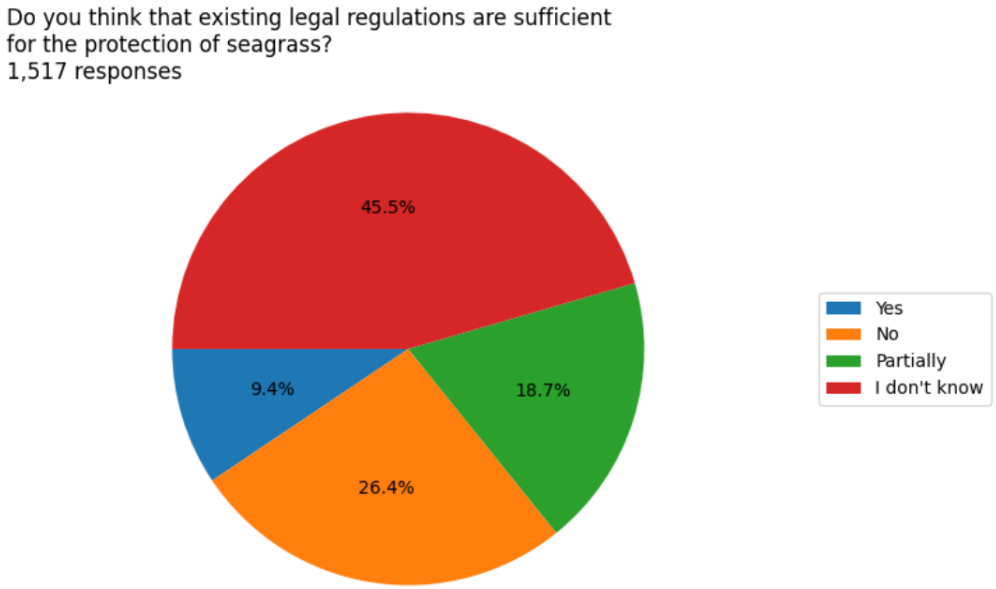


Fig. 12. Adequacy of the Legal Framework for Seagrass Protection

Overall, the results reveal a substantial lack of public awareness regarding the legal framework for the protection of seagrass ecosystems. Nearly half of respondents are unable to assess whether adequate regulations exist, while only a very small proportion are aware of their sufficiency. This knowledge gap limits the effectiveness of existing legal instruments and weakens public engagement in environmental governance. Strengthening communication on how seagrass protection is addressed within current regulatory frameworks—particularly through Environmental Impact Assessment, marine spatial planning, and biodiversity conservation policies—is therefore essential for improving compliance, informed participation, and the overall protection of seagrass ecosystems.

50.6% of respondents believe that seagrass should be included in Environmental Impact Assessment (EIA) procedures, 37% express no opinion, and only 12.5% respond negatively (Fig. 13). The results indicate that, despite the generally low level of awareness regarding seagrass, there is moderate support for their integration into EIA processes. This reflects a clear potential for incorporating seagrass protection into regulatory environmental assessment procedures.

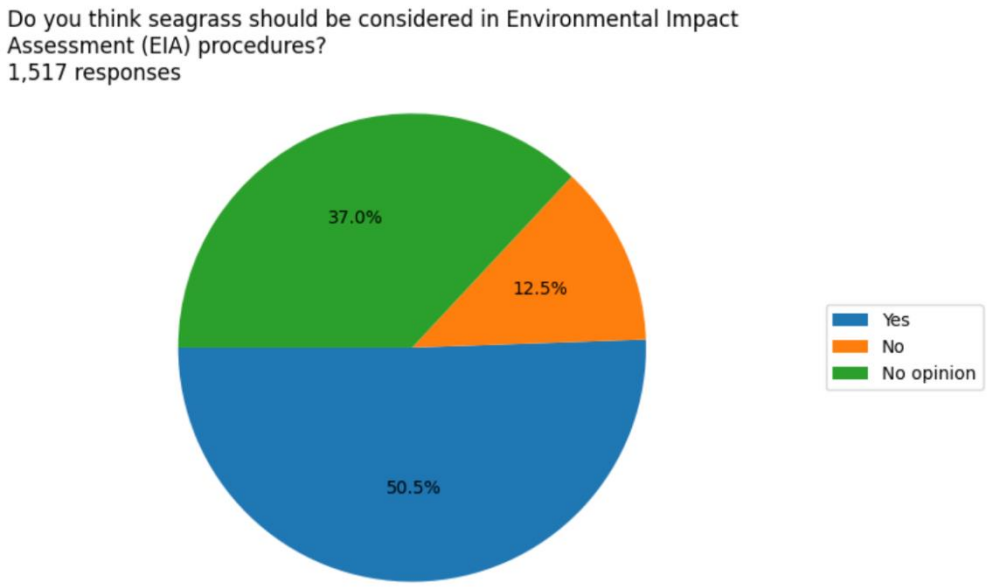


Fig. 13. Integration of Seagrass into EIA Procedures

Nearly half of the respondents (49.7%) believe that specific criteria for the protection of seagrass within Environmental Impact Assessment (EIA) procedures are necessary. A further 39.8% are unable to express an opinion, indicating a high level of uncertainty or insufficient information regarding protection mechanisms and standards (Fig. 14). Only 10.5% respond affirmatively with “yes,” suggesting that only a small proportion of the population is aware of the need for concrete and formalized protective measures.

These results highlight two key aspects: an emerging recognition of the need for structured protection measures, alongside a lack of sufficient information and expert knowledge. This situation calls for targeted educational initiatives and capacity-building efforts aimed at different stakeholder groups, including local communities and institutions involved in coastal environmental protection.

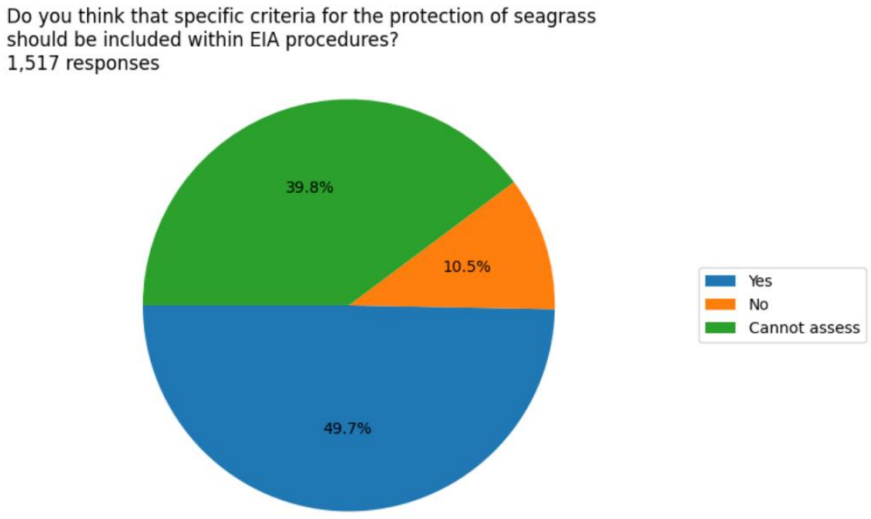


Fig. 14. Need for Specific Protection Criteria for Seagrass within EIA Procedures

More than half of the respondents (53.7%) identify limited awareness of the ecosystem functions of seagrass as the main reason why seagrass are not adequately considered in Environmental Impact Assessment (EIA) procedures, while 43.6% point to their insufficient integration into the legislative framework (Fig. 15). Around one third of respondents also perceive the problem as a result of a lack of expertise among EIA professionals (28.2%) and methodological difficulties in assessing impacts on seagrass (27.8%).

These findings indicate that the public perceives the inadequate consideration of seagrass not as an isolated shortcoming, but as a systemic problem arising from a combination of knowledge deficits, incomplete regulatory frameworks, and limited capacity and methodological tools within EIA practice.

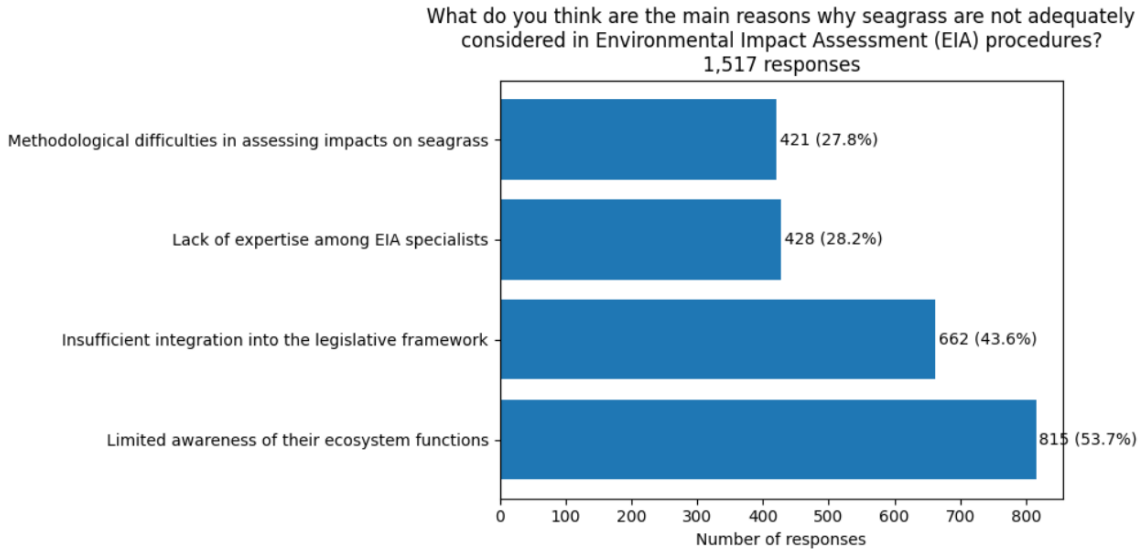


Fig. 15. Main Reasons Why Seagrass Are Not Adequately Considered in Environmental Impact Assessment (EIA) Procedures

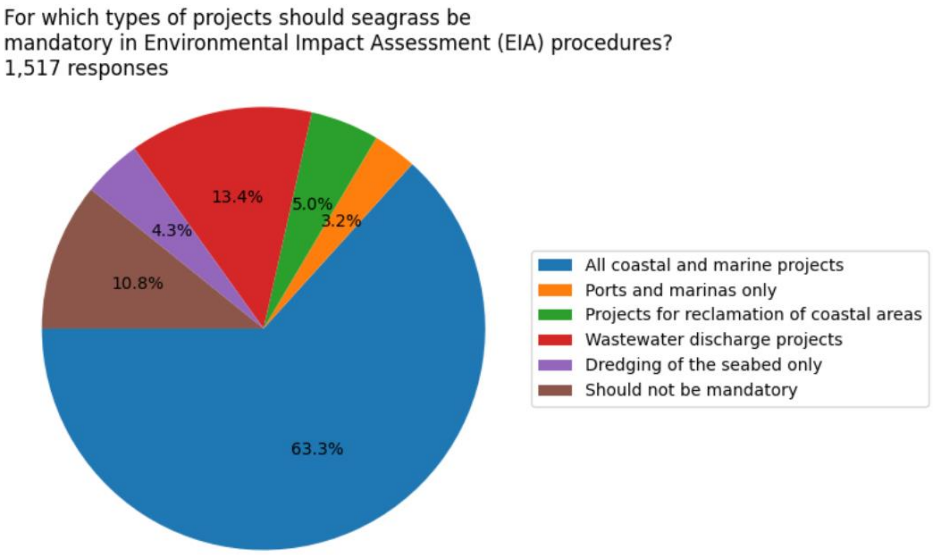


Fig. 16. Types of Projects in Which Seagrass Should Be Considered Mandatory within EIA Procedures

According to the results presented in Fig. 16, nearly two thirds of respondents (63.3%) believe that the consideration of seagrass should apply to all coastal and marine projects, while an additional 13.4% support mandatory consideration at least for projects involving wastewater discharges. Significantly smaller proportions would limit such consideration only to ports and marinas, dredging operations, or coastal reclamation projects, while 10.8% believe that such a requirement should not be mandatory at all.

Overall, the data demonstrate a clearly prevailing support for a broad and precautionary scope of Environmental Impact Assessment (EIA) with regard to seagrass, with only a minority advocating for a narrower or fully permissive regulatory approach.

The responses collected indicates that the most important benefit of including seagrass in Environmental Impact Assessment (EIA) procedures is improved protection of the marine environment, identified by 72.4% of participants (Fig. 17). This is followed by biodiversity conservation (48.5%), protection of fish resources (35.4%), contribution to climate change mitigation (27.2%), contribution to the Sustainable Development Goals (23.5%), and reduction of coastal erosion (18.8%). Other responses, uncertainty, or lack of opinion account for less than 1% of the sample.

These results indicate that public perception of the benefits of integrating seagrass into EIA procedures is strongly oriented toward environmental protection and the conservation of marine resources, while climate-related and sustainable development arguments play a complementary rather than a primary role.

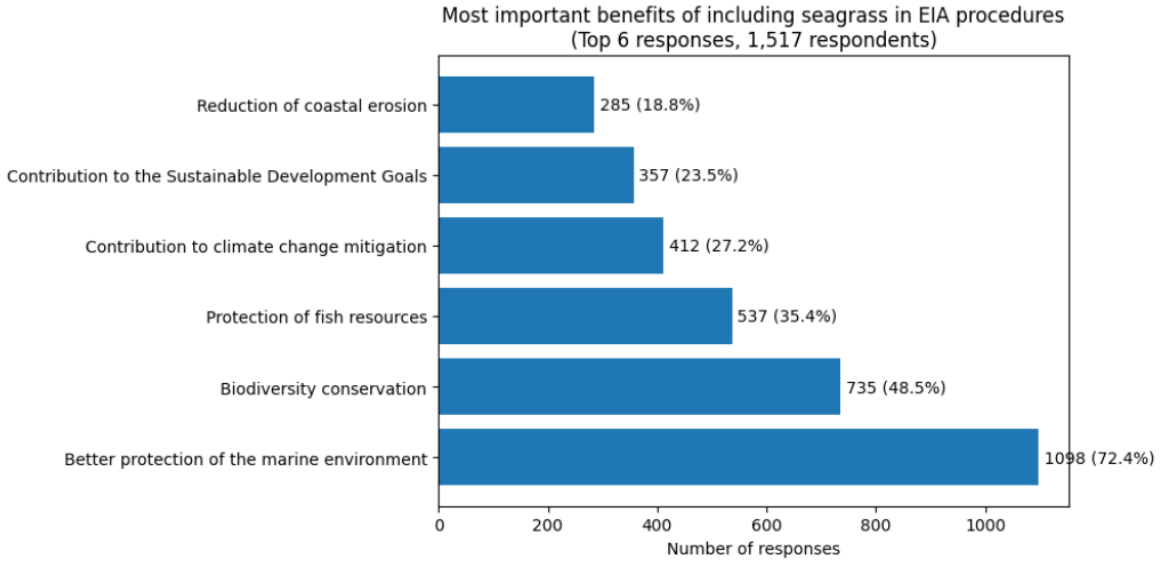
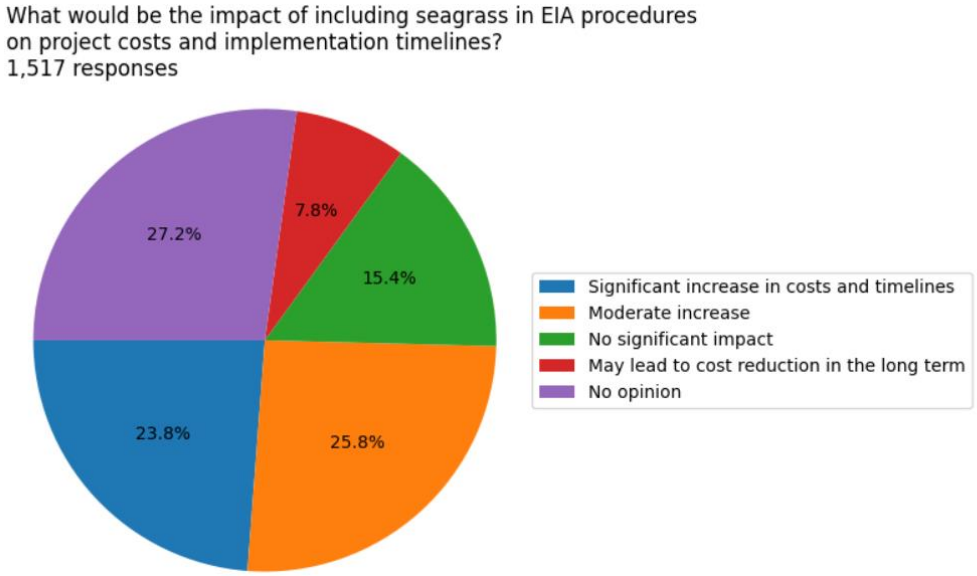


Fig. 17. Perceived Benefits of Including Seagrass in Environmental Impact Assessment (EIA) Procedures

he results presented in Fig. 18 indicate that the public expects the inclusion of seagrass in Environmental Impact Assessment (EIA) procedures to have some effect on project costs and timelines, although attitudes are diverse and not unequivocal. Nearly half of respondents anticipate an increase in costs and duration, with 23.8% expecting a significant increase and 25.8% a moderate increase. At the same time, 15.4% believe that there would be no substantial impact, while 7.8% even expect that improved planning and the prevention of environmental damage could reduce costs in the long term.

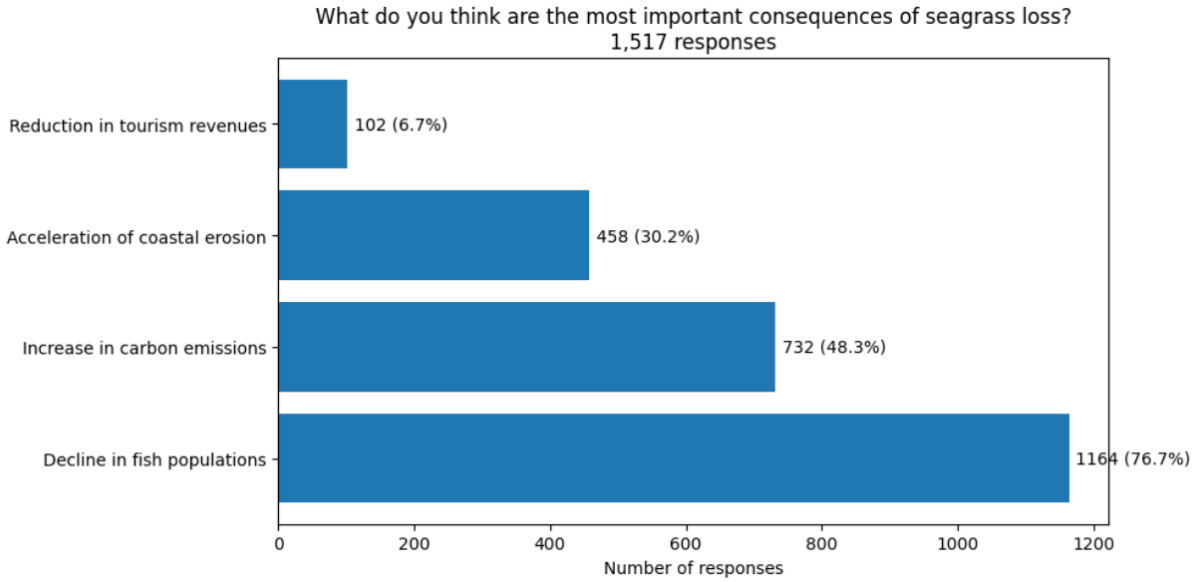
The relatively largest share of respondents (27.2%) express no opinion, reflecting uncertainty and a lack of sufficient information regarding how such integration would affect real-world projects.



Фиг. 18. What would be the impact of including seagrass in EIA procedures on project costs and implementation timelines?

Respondents primarily perceive the loss of seagrass as a threat to marine resources (Fig. 19). 76.7% identify the decline of fish populations as the most significant consequence, while 48.3% point to increased carbon emissions, i.e. climate-related impacts. Around one third (30.2%) associate seagrass loss with accelerated coastal erosion, whereas only 6.7% highlight reduced tourism revenues as a key consequence.

These findings indicate that public risk perception is strongly focused on ecological and climate-related impacts, while the economic effects on tourism and coastal infrastructure remain comparatively less recognized.



Фиг.19. Environmental and Socio-Economic Consequences of Seagrass Loss

he level of awareness among decision-makers regarding the importance of seagrass is perceived as extremely low: 52.9% of respondents rate it as very low, and a further 27.6% as low. Only 14.8% consider it to be moderate, 4.3% high, and just 0.3% very high (Fig. 20). This means that more than three quarters of respondents perceive politicians and senior public officials as insufficiently informed on the issue, which substantiates the need for targeted training, consultative processes, and stronger involvement of the expert community in the formulation of policies related to seagrass ecosystems.

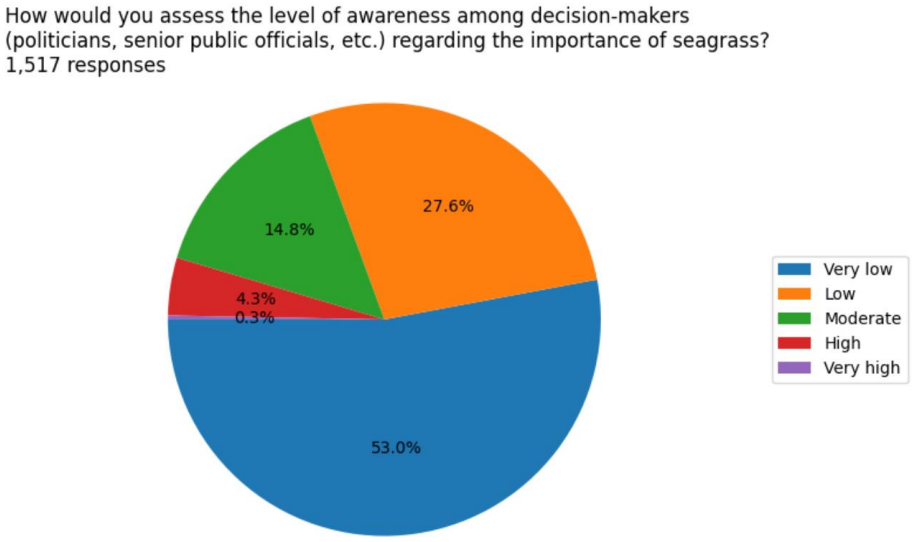


Fig. 20. Awareness Levels of Policy-Makers Regarding Seagrass

The respondents mainly support “hard” and foundational measures for a more effective inclusion of seagrass in the Environmental Impact Assessment (EIA) procedures (Fig. 21). A total of 49.9% are in favour of introducing specific legal provisions for seagrass in the legislation, and another 49.9% support the systematic mapping of seagrass areas. In third place, with 45.4%, is the training of EIA experts, which clearly indicates an acknowledged need to increase professional capacity. In addition, 28.1% support more active public participation, 24.3% the strengthening of the legal protection of seagrasses, and 21.8% the restriction of development in sensitive areas, while 18% insist on better calculation and reporting of economic benefits. Negative or sceptical responses (“I do not support any” and similar) are below 1%, which indicates a broad consensus that concrete legislative, scientific and institutional steps are necessary for the integration of seagrasses into EIA procedures.

The results (Fig. 22) show that the majority of respondents expect the inclusion of seagrasses in EIA procedures to have a real positive effect on the protection of coastal and marine ecosystems: 33.8% believe it would contribute moderately, 27.5% significantly, and 7.5% to a very large extent (a total of 68.8% with a clearly positive expectation). Fewer respondents are sceptical—19.6% believe the effect would be small, and 11.6% believe it would not contribute at all—indicating a generally positive level of trust in the potential of EIA as a tool for the protection of seagrasses, provided it is applied adequately.

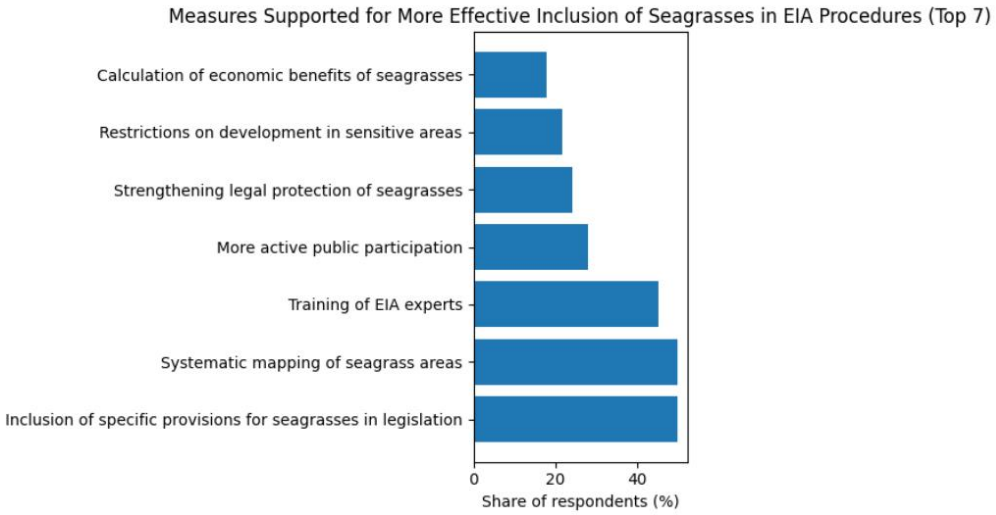


Fig. 21. Inclusion of seagrasses in Environmental Impact Assessment (EIA) procedures

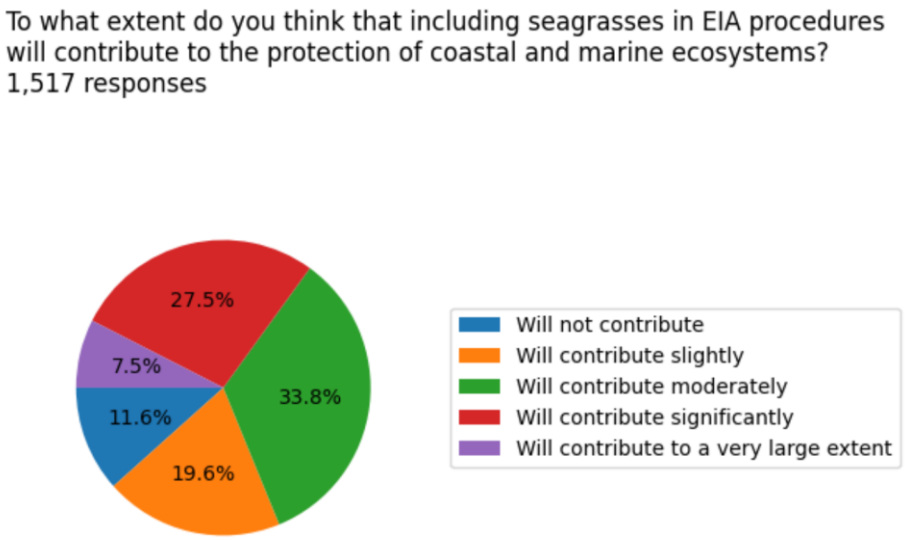


Fig. 22. Inclusion of seagrasses in EIA procedures for the protection of coastal and marine ecosystems

According to the respondents (Fig. 23), the key role in the process of including seagrasses in EIA procedures should be played by state institutions, indicated by 84.1%, and local authorities, indicated by 58.3%. At the next level are academic/scientific institutions and representatives of the fisheries and maritime sector, each with 40.2%, which indicates an expectation that the process should rely simultaneously on scientific expertise and practical, field-based knowledge. The private sector (27.3%), local communities (24.3%), NGOs (25.2%), and international organizations (21.2%) are perceived as important but rather complementary participants. There are virtually no responses indicating that such stakeholders are unnecessary (0.1%), which demonstrates a broad consensus in favour of a multi-stakeholder approach, led by the state and local authorities, with an active contribution from science and the fisheries/maritime sector.

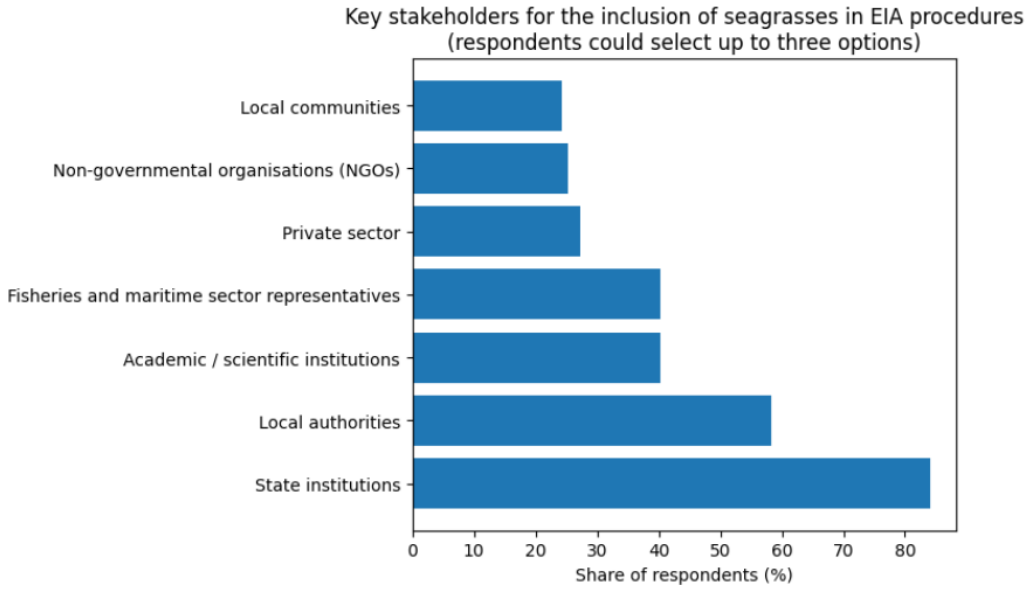


Fig. 23. Key roles in the process of including seagrasses in EIA procedures

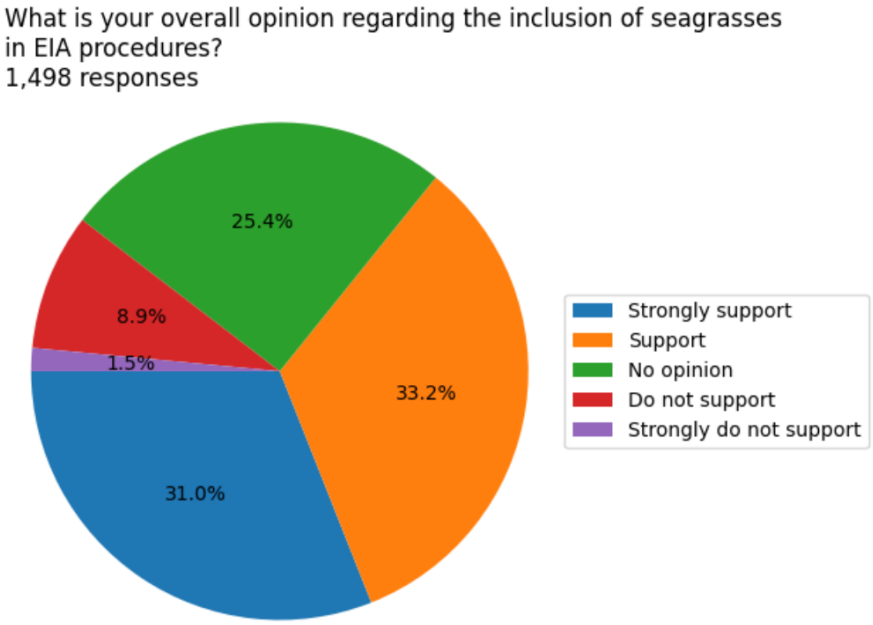


Fig. 24. Attitudes towards the inclusion of seagrasses in EIA procedures

The overall attitude towards the inclusion of seagrasses in EIA procedures is clearly positive (Fig. 24): 31% of respondents fully support it, and an additional 33.2% support it, meaning that a total of 64.2% are in favour. Around one quarter (25.4%) have not formed an opinion, while 8.9% do not support it and only about 1% strongly oppose such a step. In the open-ended question, 43 respondents expressed views that provide a more in-depth insight into public interest, expectations, and needs related to Environmental Impact Assessment (EIA) and the role of seagrasses in this process. The comments can be grouped into several main directions: support for stricter regulation, the need for better information, proposals for specific measures, and expressed doubts or conditional support.

In response to the question, “Do you think that, when implementing projects in coastal zones (ports, marinas, land reclamation, etc.), the presence of seagrasses is adequately taken into account?”, the results show that public perception of the effectiveness of environmental impact assessment procedures and the integration of environmental criteria is highly limited (Fig. 25). For almost 80% of respondents, there is a lack of adequate consideration of seagrasses, as they perceive that ecosystem components such as seagrasses are either not taken into account or are insufficiently considered in the planning and implementation of coastal projects. The results indicate a need for stricter standards and specific criteria for the inclusion of seagrasses in environmental impact assessment processes and in management practices for infrastructure projects. The low assessment of adequate consideration of seagrasses highlights the need for clearer communication to the public regarding procedures and measures for the protection of coastal ecosystems, as well as increased participation of local communities and stakeholders in the monitoring and evaluation of projects.

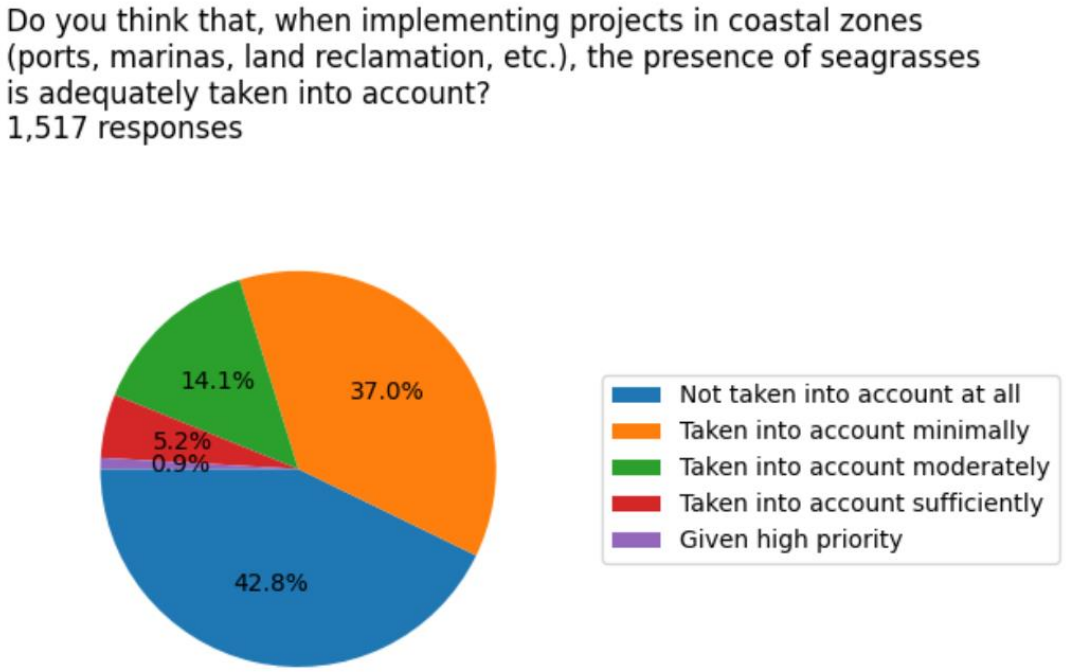


Fig. 25. Opinion on whether the presence of seagrasses is adequately taken into account in the implementation of coastal projects

Overall, the results of Section 5.6 indicate a clear policy gap between the recognized importance of seagrasses and their effective integration into Environmental Impact Assessment (EIA) practice. While a majority of respondents support the inclusion of seagrasses in EIA procedures and expect this to contribute positively to the protection of coastal and marine ecosystems, public perception points to insufficient legal clarity, weak operationalization, and limited institutional capacity. The prevailing view that seagrasses are inadequately considered in coastal development projects, combined with low perceived awareness among decision-makers, underscores the need for targeted regulatory action. Policy priorities emerging from the survey include the introduction of explicit legal provisions for seagrasses within EIA frameworks, the development of clear criteria and standards for their assessment, systematic mapping of seagrass habitats, and capacity building for EIA experts.

Respondents also emphasize the leading role of state institutions and local authorities, supported by scientific expertise and sectoral stakeholders, suggesting that effective governance of seagrass protection requires a coordinated, multi-level approach. Taken together, the findings support the need for strengthening the normative, methodological, and institutional foundations for seagrass protection within EIA, as a prerequisite for translating broad public support into consistent and effective environmental decision-making.

5.7. Local context and support for a national strategy

Building on the findings from the previous sections, which highlight limited awareness, fragmented regulatory integration, and strong public support for more systematic protection of seagrasses, last group of questions focuses on the local context and attitudes towards the development of a national strategy or action plan for seagrass conservation and restoration. The results presented earlier indicate that, despite existing knowledge gaps and uneven implementation of Environmental Impact Assessment (EIA) procedures, there is broad recognition of the ecological importance of seagrasses and a clear expectation for stronger, coordinated governance. In this context, assessing public support for a national strategic framework provides insight into whether stakeholders perceive the need to move beyond project-based and *ad hoc* measures towards a more coherent, long-term policy approach that integrates conservation, restoration, spatial planning, and institutional capacity at both national and local levels.

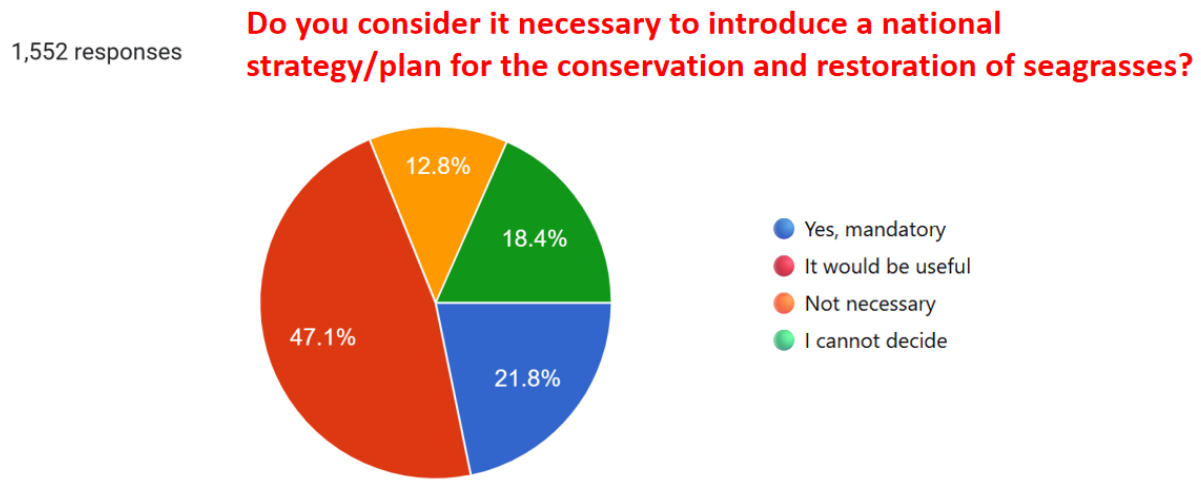


Fig. 26. Public support for the development of a national strategy/plan for the protection and restoration of seagrasses

The results of the question presented in Fig. 26 clearly show prevailing public support for the development of a national strategy/plan for the protection and restoration of seagrasses. Nearly 69% of respondents believe that such a document is necessary or at least would be useful (47.1% – "it would be useful", 21.8% – "yes, mandatory"), which outlines strong expectations for more targeted and coordinated policies in this area. The share of respondents who consider that such a strategy is not necessary is relatively small (12.8%), while 18.4% are unable to assess, which suggests a need for additional information and communication

regarding the role and importance of seagrasses. Overall, the data support the argument for introducing a strategic framework at the national level.

Among respondents with no knowledge of EIA, only 11.3% believe that a national strategy/plan should be mandatory, 42.3% consider it "useful", 14.4% view it as "unnecessary", and 32% are unable to assess. Among experts, 42.1% support a "mandatory" strategy, 34.2% consider it "useful", 15.8% regard it as "unnecessary", and only 7.9% are unable to assess. This shows that as knowledge of EIA increases, uncertainty ("cannot assess") decreases and the share of respondents supporting mandatory strategic documents increases. In other words, more informed respondents are more likely to call for clearer and stronger frameworks for protection.

With regard to the need for a national strategy/plan for seagrass protection, respondents from inland areas more often advocate for a "hard" measure—a mandatory national strategy or plan (32.8% compared to 17.8% in coastal areas). Coastal respondents are more hesitant; they more frequently respond "cannot assess" and almost twice as often consider that such a strategy "is not necessary". This may reflect a combination of regulatory fatigue, scepticism about the effectiveness of policy instruments, and a stronger entanglement with local economic interests.

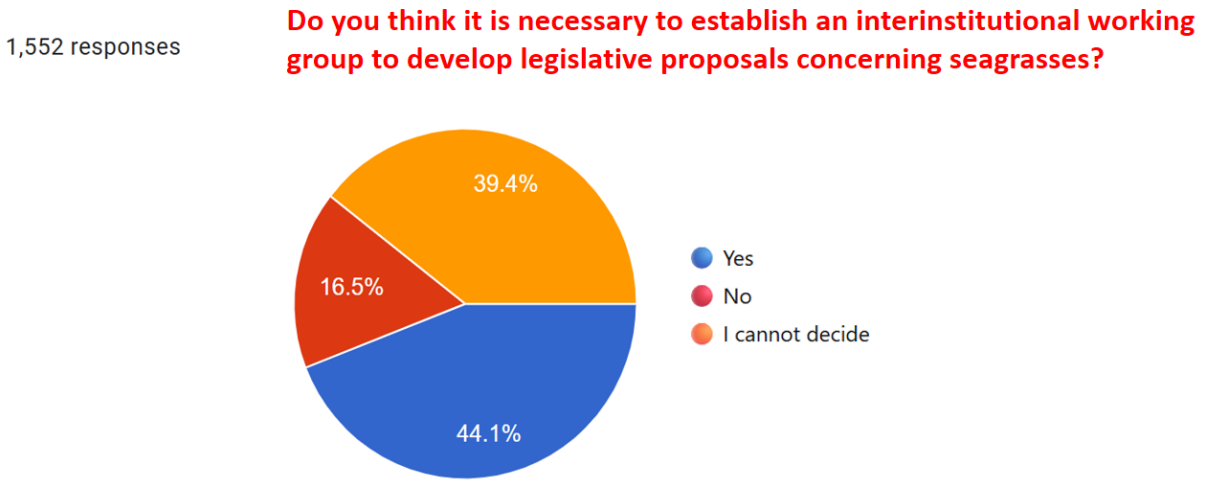


Fig. 27. Public support for establishing an inter-institutional working group on seagrass legislation

The results presented in Fig. 27 indicate the presence of support for the establishment of an inter-institutional working group, but also a certain degree of uncertainty among respondents. The largest share (44.1%) consider such a group to be necessary, which highlights an awareness of the need for coordinated efforts among institutions in the development of legislative proposals related to seagrasses. At the same time, the high proportion of respondents who answered "cannot assess" (39.4%) indicates a lack of information or clarity regarding the role, mandate, and benefits of such a mechanism. Negative responses are relatively limited (16.5%), suggesting that there is no strong opposition to the idea. Overall, the data outline a potential for public support, which could be strengthened through clearer communication about the process and the importance of inter-institutional cooperation.

For this question, respondents from inland areas of Bulgaria express a more clearly positive stance:
• Coastal areas: 39.8% – “Yes”; 41.1% – “Cannot assess”; 19.0% – “No”.
• Inland / other parts of Bulgaria: 55.7% – “Yes”; 34.2% – “Cannot assess”; 10.1% – “No”.

This clearly shows that respondents who are more informed and more frequently involved in institutional processes (more characteristic of inland areas) are more likely to support the establishment of a formal inter-institutional structure, while coastal respondents tend to be more uncertain or sceptical. Overall, the results indicate a potential for support, alongside a need for clearer explanation of the benefits of inter-institutional cooperation.

The results from the survey demonstrate a rather moderate but promising willingness of the respondents to participate and provide support. More than one third of them (36.4%) clearly state that they would participate in or support a public consultation or initiative aimed at establishing a regulatory framework for the protection of seagrasses. A significant share (40.3%) respond with “it depends”, suggesting that their participation would be conditional on factors such as clarity of objectives, the format of the initiative, the institutions involved, and the expected real impact. Refusal to participate is relatively limited (23.3%), indicating the absence of strong resistance. Overall, the results point to a potential for mobilising broader support in the context of a well-structured, transparent, and meaningful public consultation process.

By region, the willingness to participate in or support public consultations on seagrasses is as follows:
Coastal areas: 33.6% – “Yes”; 39.2% – “It depends on the case”; 27.3% – “No”.
Inland areas: 44.1% – “Yes”; 43.2% – “It depends on the case”; 12.8% – “No”.

Respondents from inland areas are more often willing to participate actively (44.1% compared to 33.6% in coastal areas) and less frequently state that they would not participate (12.8% compared to 27.3%). This suggests that coastal respondents, although the most directly affected, may be more reserved towards formal processes, possibly due to a lack of trust or a perception that decisions are taken without real influence from local stakeholders.
The results presented in Fig. 28 indicate that respondents largely favour additional, concrete measures to strengthen the protection of seagrasses. The highest level of support is expressed for more effective control and monitoring of pollution (59.5%), highlighting pollution pressure as a key perceived threat to seagrass ecosystems. This is closely followed by educational campaigns targeting local communities and stakeholders (55.3%), underscoring the importance attributed to awareness-raising and capacity building as complementary instruments to regulation. The expansion of protected areas is also supported by a substantial share of respondents (31%), suggesting recognition of spatial protection as a relevant, though not sufficient, measure on its own. In contrast, only 9.7% consider that no additional measures are needed, while other suggestions account for a marginal share (1.5%). Overall, the distribution of responses points to a preference for a combined approach that integrates stronger environmental control, targeted education, and spatial protection, rather than reliance on existing measures alone.

What additional measures, in your opinion, should be taken to protect seagrasses more effectively?

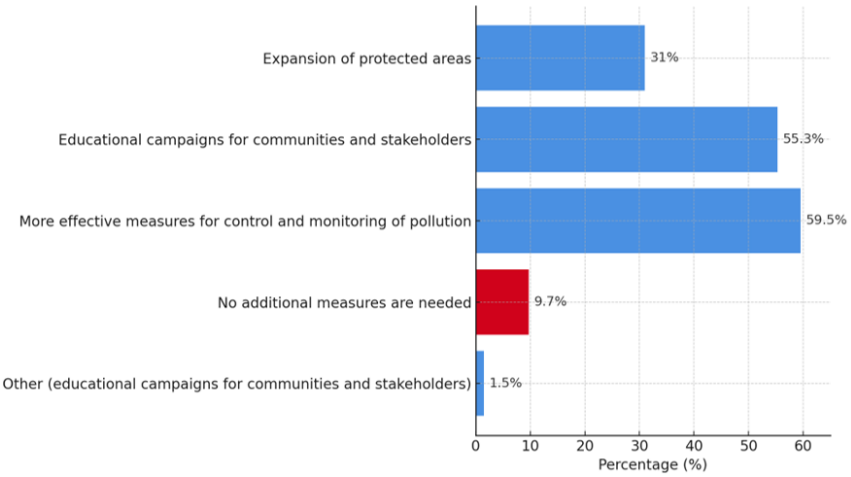


Fig. 28. Suggested measures for improving the protection of seagrasses

6. Feedback from respondents

At the end of the survey, participants voluntarily provided positive or negative feedback regarding the content, structure, and manner of conducting the interview. In total, 56 respondents submitted comments, which can be grouped into several main thematic directions: positive impressions, criticisms and recommendations for improvement, as well as suggestions related to awareness and the practical application of the collected data.

6.1. Posotive feedback

A significant proportion of participants shared positive impressions of the survey interview. The most frequently expressed comments indicate that the survey was interesting, useful, and informative, and that it addresses an important and often overlooked environmental topic. According to other respondents, the questions were clearly formulated, allowed for the expression of personal opinions, and encouraged participants to reflect on issues with which they had not previously been familiar. Some respondents noted that the survey motivated them to seek additional information about seagrasses and their importance. Support was also expressed for conducting similar initiatives, emphasizing the need for more public surveys and discussions on the topic. One of the responses included a suggestion for information exchange with scientific institutions, as well as the sharing of existing databases on seagrasses, which further highlights the scientific interest in the subject.

6.2. Criticisms and challenges

Some respondents point out aspects that could be improved. The main critical comments relate to:

- Length of the survey – a considerable number of participants describe it as too long, with many questions, which may lead to loss of attention and less accurate responses toward the end.
- Repetition of questions – some respondents perceive certain questions as similar or duplicative.
- Lack of a “don’t know” or “no opinion” option for some questions, which, according to some participants, may result in misleading answers.
- Topic specificity – the survey is perceived as overly specialized for the general public.
- Comments on the logical sequence of questions.

The critical remarks raised by respondents can be explained by the methodological approach adopted in the survey. The relatively large number of questions and the perceived length of the questionnaire reflect the intention to capture multiple dimensions of the topic, including ecological knowledge, economic perceptions, legal awareness, attitudes, and governance-related views. Such a comprehensive design inevitably increases respondent burden but was considered necessary to address the complexity of seagrass protection and its integration into Environmental Impact Assessment (EIA) procedures.

The partial repetition or similarity of questions was introduced deliberately to examine the consistency of responses across different thematic contexts and to allow cross-validation of

attitudes and knowledge levels. The absence of “don’t know” or “no opinion” options in certain questions aimed to encourage respondents to take a position, particularly on normative and policy-oriented issues; however, this approach may also have increased uncertainty among less informed participants.

The perceived specificity of the topic is consistent with the expert-oriented nature of several survey sections, which were designed to generate insights relevant for policy development and regulatory improvement rather than for general awareness alone. Finally, comments related to question sequencing and minor technical issues highlight practical challenges inherent in administering a large, multi-thematic survey instrument and provide useful guidance for further refinement. Overall, the identified limitations represent typical trade-offs between analytical depth and respondent convenience in exploratory, policy-oriented survey research and do not undermine the overall validity of the findings, but rather inform future methodological improvements.

6.3. Recommendations for improvement

Respondents formulated a number of concrete suggestions that could be used in future survey studies:

- Inclusion of a short introduction providing basic information about seagrasses and their ecological role.
- Addition of a link to informational materials to facilitate participation by less informed respondents.
- Optimization of the questions, including reducing their number, grouping them into thematic blocks, and avoiding repetition.
- Providing the possibility to select a limited number of answers when prioritizing, in order to enable clearer identification of priorities.

Several respondents also drew attention to other related environmental issues, such as the accumulation of algae on beach areas and the role of concession holders in their management. This indicates that the survey stimulated a broader discussion on marine ecosystems and public perceptions of their condition.

7. Conclusions

The results of the survey reveal clearly expressed differences in levels of awareness, attitudes, and support for management measures related to seagrasses, depending on the regional affiliation, education, and professional profile of respondents. Approximately three quarters of participants live in coastal areas, which ensures a strong “local voice”; however, the survey also includes a significant share of respondents from inland areas of the country and from abroad.

Coastal respondents demonstrate better knowledge of the actual habitats of seagrasses, but are less familiar with Environmental Impact Assessment (EIA) procedures and with the

economic value of these ecosystems. In contrast, respondents from inland areas, particularly those with higher education and those working in academic, administrative, and non-governmental organisations, show better understanding of regulatory and economic aspects and more frequently support stricter management and regulatory measures.

The survey reveals a serious information deficit regarding the economic value of seagrasses. This indicates that even people living in close proximity to these habitats often do not recognise their role in fisheries, tourism, water quality, and protection against coastal erosion. Public perception associates seagrasses mainly with biodiversity and climate-related processes, while economic and social benefits remain less well recognised.

A large proportion of active responses express a clear position that seagrasses should be integrated into EIA procedures as a sensitive and vulnerable habitat type of key importance for coastal ecosystems. Respondents emphasise the need to combine legal instruments, scientific research, and expert involvement, and some call for even stricter measures, including the restriction or prohibition of activities within seagrass habitats. The data clearly show that as awareness increases, support for measures also increases, as does willingness to participate in public consultations.

Respondents identify increasing awareness as a key priority. Educational programmes and targeted communication campaigns are indicated as the most effective instruments, complemented by legislative measures, incentives for the fisheries and maritime sector, and active involvement of local communities. The response profile shows that public understanding of EIA remains limited and concentrated within a narrow circle of experts, while inland areas display a higher average level of awareness due to the concentration of institutional and expert capacity.

The topic of seagrasses remains largely unfamiliar, but not uninteresting, which creates a favourable basis for future information and educational efforts. The public perceives the insufficient consideration of seagrasses in EIA not as an isolated omission, but as a systemic problem related to knowledge deficits, incomplete regulatory frameworks, and limited capacity in practice. At the same time, more than three quarters of respondents believe that politicians and senior public officials do not have sufficient knowledge on the topic, which highlights the need for targeted training and more active involvement of the expert community in decision-making processes.

In conclusion, the results demonstrate the presence of a significant information deficit and highlight the need to combine institutional strengthening with targeted information and educational initiatives for more effective protection of seagrasses in the Black Sea. Enhanced cooperation with expert communities and competent institutions is recommended to improve the regulatory framework and strategic planning, along with the development of focused communication and educational campaigns aimed at coastal communities and local stakeholders who interact with these habitats on a daily basis but are often not familiar with their full ecological and economic significance.