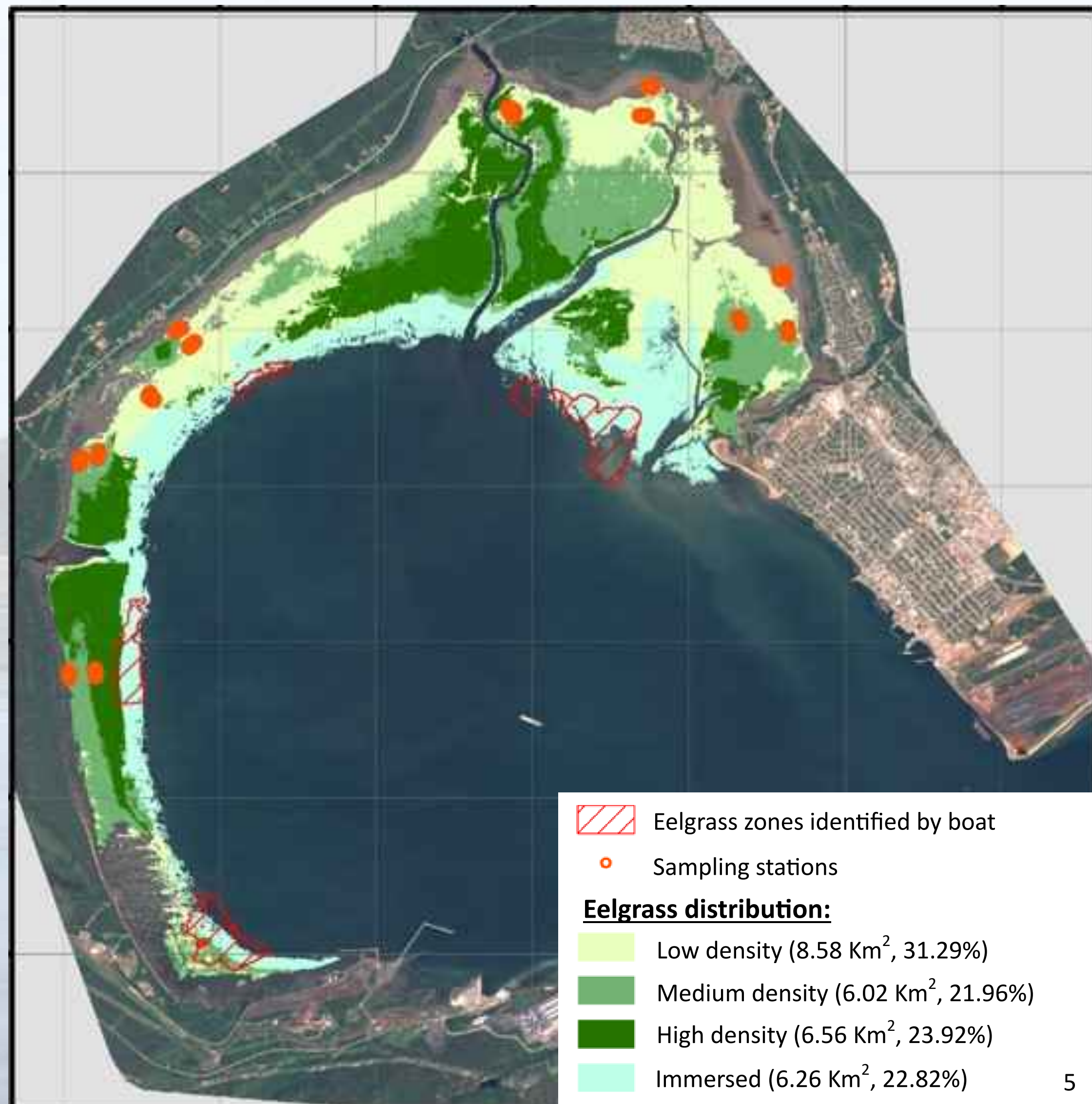


Environmental Observatory for the bay of Sept-Îles

CHARACTERIZATION OF EELGRASS BEDS

The objective of this study was to characterize continuous and discontinuous eelgrass beds in terms of distribution, population variables (abundance, characteristics), and productivity. The study was designed to document the current status of eelgrass beds with a view to setting up a local monitoring program to quickly detect possible disturbances and allow proper management of this important ecosystem.



FINDINGS

The mapping process produced the following results:

- The total area covered by eelgrass beds in the Bay of Sept-Îles was 27.42 km²
- Area of low-density beds: 8.56 km² (31.29%)
- Area of average-density beds: 6.02 km² (21.96%)
- Area of high-density beds: 6.56 km² (23.92%)
- Area of immersed beds: 6.26 km² (22.82%)

RECOMMENDATIONS

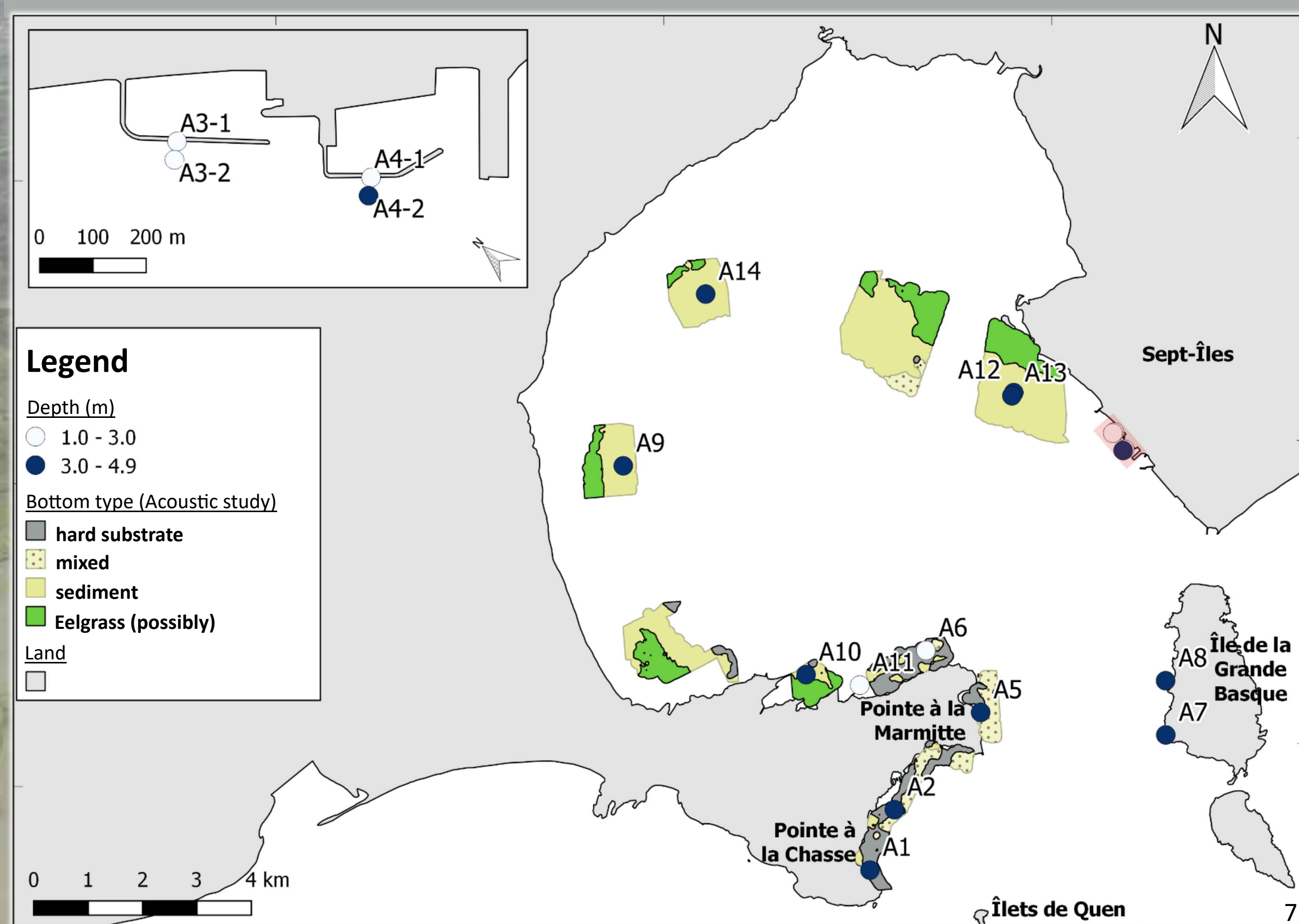
1. As ice has little or no impact on eelgrass root systems, other disturbances, whether related to local human activity or to resource availability, could have affected the ability of eelgrass to store energy in its root system. In addition to hydrodynamic exposure, potential disturbances include less favorable light conditions due to suspended sediments, sediment deposits, or metal uptake in eelgrass. It is recommended to conduct a study on the overall effect of disturbances on eelgrass beds in the Bay of Sept-Îles.
2. Further study of disturbances at the various sites would help in drawing conclusions about the causes of variations in abundance and processes between sites.
3. The benthic fauna associated with eelgrass beds deserves further study.
4. Monitoring of eelgrass beds should regularly track sediments, water properties, and sources of disturbances at the sites during the high light season.
5. Local stakeholders should be consulted to encourage them to join forces and limit study impacts on the ecosystem. This would ensure proper management of the critical eelgrass ecosystem in the Bay of Sept-Îles.



OVERVIEW OF THE MACROALGAE COMMUNITY IN THE SUBTIDAL ZONE

A sampling campaign was conducted at natural and artificial sites in the Bay of Sept-Îles and along the coastline outside the bay to 1) assess the diversity of the macroalgal community in the subtidal zone, 2) estimate the biomass and geographic distribution of the macroalgal species found, and 3) evaluate the availability of appropriate substrates for macroalgae.

A maximum of 14 sampling sites were chosen.



FINDINGS

The overall algal community in the Bay of Sept-Îles and along the nearby coastline represents a small subset of the macroalgae commonly found in the Gulf of St. Lawrence. Of the 27 species identified, 6 were Chlorophyta (green algae), 13 were Rhodophyta (red algae), and 8 were Ochrophyta (brown algae).

RECOMMENDATIONS

1. In the event that future coastal development results in an increase in artificial structures in the bay, careful planning and consideration of possible biological consequences is recommended. More specifically, any increase in hard substrates will lead to further colonization by algae, and given the significant commercial activity in the Port of Sept-Îles, an increased risk of introducing invasive species.
2. Actively encouraging the growth of desirable native species such as *Saccharina* sp. and *Agarum clathratum* as soon as construction of marine structures starts could minimize potential colonization and propagation of invasive algae.
3. Special attention should be paid to any significant increase in algal biomass production in the bay. Monitoring is recommended because although algae's current contribution to organic matter in the bay's ecosystem is likely to be negligible, it is difficult to predict the impact if that contribution increases.
4. Special attention should also be paid to increases in hard substrate that could favor invertebrate grazers such as the green sea urchin. The effects of herbivore-algal interactions could threaten the algal community in the bay and undermine objectives set for current and future ecological projects, such as increasing the presence of kelp using artificial reefs. This possibility should be taken into consideration when planning development projects.

PHOTO CREDIT

^{1, 2, 6} and ⁸ Kim Aubut Demers / ³ Julie Carrière
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FINANCIAL PARTNERS

