

WP 3 Energy Efficient Harbour Towage and Pilotage

A case study by European Maritime Pilots Association

1. Practice 1: Active involvement of pilots in the planning of port initiatives

In conjunction with the European Tug Owners Association, we created a video issuing guidelines for energy efficient harbour towage. The aim of the video was to look at three distinct fields where we think gains can be made in emission reduction.

These three fields are;

- 1) Planning
- 2) Communication
- 3) Cooperation

1. Specific goals

The primary objective of the project was to foster enhanced collaboration among a diverse group of stakeholders, including pilots, port authorities, tugboat operators, crew members, and other key players within the port community. By promoting closer cooperation and communication, the initiative aimed to refine and optimise the procedures that govern the safe and efficient movement of vessels in and out of the port. This collaborative effort was designed not only to streamline operations but also to reduce energy consumption and emissions, contributing to a more sustainable maritime industry.

2. Direct impact of the practice

The direct impact of this initiative is challenging to quantify due to its broad scope and the various factors involved. Nevertheless, as we distribute guidelines to our members and widely circulate this informative video, we aim to foster a positive influence on their work practices. By inspiring individuals to consider more efficient methods of operation, we believe this initiative will play a crucial role in advancing sustainability efforts. Emphasising efficiency not only reduces resource consumption but also promotes a culture of mindful and responsible work habits that benefit both the environment and the maritime industry stakeholders.

3. Place of implementation

This video was widely shared among the members of ETA and EMPA, generating significant engagement across various social media platforms. As a result, it reached countless individuals not only within European countries but also in our neighbouring countries. The impact of this outreach was substantial, as it engaged thousands of viewers and sparked conversations online, nationally, and locally on the topic of energy efficient harbour towage and pilotage.

4. Start and end date or duration of the pilot project

This video was shared in October 2023 and is still available on our website and social media channels.

Context and description

A. Description of the practice

Planning

The pilot, the ship's master, and the tug operator collaboratively assess the requirements for the towage operation, determining the appropriate number and size of tugs based on factors such as the vessel's dimensions, weight, and prevailing environmental conditions. Together, they develop a comprehensive towing plan that outlines specific points along the route where the vessel will reduce its speed, where the tugs will secure their lines, and how the tugs will be used during the manoeuvre. This detailed plan ensures that all parties involved share a unified understanding of the operation, fostering effective communication and coordination throughout the process to ensure a safe and efficient towage manoeuvre.

Communication

By effectively communicating all relevant facts and parameters in advance, it becomes feasible to develop a comprehensive and actionable plan. Key factors to consider include weather conditions, which can greatly impact operations; berth availability, ensuring that the necessary docking space is available; tidal patterns, as they influence the timing and safety of ship movements; and anticipated traffic within the port. Additionally, the availability of tugs and pilots is crucial, as these resources are essential for safe navigation and docking. Finally, it is important to take into account the scheduled commencement of cargo operations, as this affects overall timelines and

resource allocation. By addressing all these elements, we can ensure a smooth and efficient operation.

Ship movements are inherently dynamic, and heavily influenced by various external factors, including changing weather and tidal conditions. These elements can significantly impact manoeuvrability and safety. To navigate these challenges effectively, it is essential to establish clear and precise communication between key parties, including the pilot, tug captains, and port authority (VTS). This collaborative approach ensures that all parties are aware of real-time conditions and can coordinate their efforts to promote not only safety but also the efficient use of resources and power during vessel operations. Communication protocols and thorough briefings can further mitigate risks, ensuring that every movement is executed smoothly and safely.

Cooperation

To optimise the efficiency of port operations and promote environmental sustainability, it is essential for pilotage authorities, tug operators, and port authorities to convene on a regular basis. These collaborative meetings should focus on establishing, reviewing, and refining best practices that address both operational effectiveness and environmental sustainability.

Energy conservation and emissions reduction extend beyond the scope of harbour towage. By fostering proactive cooperation with ship agents and cargo shippers/receivers vessels can be informed well in advance of predicted berth availability, port authorities can encourage ships to adjust their speeds. This approach allows vessels to adjust to eco speed, reducing the need for travelling at full speed and enabling them to arrive at the ports in time for berthing while significantly minimising fuel consumption.

By implementing these strategies, stakeholders can contribute to a more sustainable maritime industry, enhancing both the economic and environmental performance of port operations.

B. Driving factor behind the adoption of the green practice

The initiative launched by EMPA and ETA stems from a deep commitment to environmental and social responsibility. We firmly believe that passively waiting for technological advancements to address emission reduction is insufficient. Instead, we are taking proactive steps to implement meaningful changes today. Our goal is to create a sustainable framework that not only mitigates our ecological footprint but also inspires others to participate actively in this critical endeavour.

C. Stakeholders involved

This initiative targets key stakeholders within the maritime industry, specifically pilots, tug operators, and individuals responsible for the coordination of ship operations and movements, including ship owners, agents, and shippers. Our primary objective is to actively engage pilots and tug operators, as well as those who oversee and organise ship movements, in discussions and practices geared towards environmental sustainability.

However, we aim to take a more comprehensive approach by inviting all professionals in the maritime sector to reflect on their operational practices and the associated environmental impacts. We encourage each participant to examine how they can implement strategies to reduce their ecological footprint, ultimately fostering a culture of environmental responsibility through behavioural change throughout the industry.

Implementation

A. Description of the adopted practice

Covered in context and description section.

B. Technologies used (if applicable)

We are looking specifically at behavioural change and utilising current communication methods between industry stakeholders.

C. Competencies required

No special training is required at this moment. However, we are optimistic that the Greenport Alliance project will bring attention to the necessary training requirements in our field. We anticipate that it will lead to the development of comprehensive training courses designed to address the gaps in our current knowledge and practices. These courses will not only build upon what we have already accomplished but also equip participants with the skills needed to enhance our collective efforts and drive future gains in emission reduction.

Collected data

A. Before implementation

- No data analysed

B. After implementation:

- No data analysed

. Economic and environmental analysis (*If the information is accessible*)

A. Initial investment required

No data

B. Key savings or economic impact

No data

C. Contribution to environmental goals

We aim to inspire our members and all industry stakeholders to consider emissions when planning ship movements. By fostering awareness and encouraging individuals to thoughtfully reflect on their actions in advance, we can achieve positive outcomes. It is essential for everyone to recognise that every time they operate a ship, tug, or pilot boat engine, they contribute to overall emissions.

While keeping maritime safety as the main objective, we can mitigate this impact by focusing on optimising movement strategies that are both efficient and intentional. This includes minimising unnecessary trips and ensuring that all manoeuvres are executed smoothly and purposefully. By adopting a more refined approach to our operations, we can collectively help reduce our carbon footprint while maintaining the effectiveness of our maritime activities. We aim to inspire our members to take emissions into account when planning ship movements by fostering awareness and encouraging individuals to reflect thoughtfully on their actions.

. Conclusions

A. Success of the green practices

It is difficult to gain the success of this project to date as we have no data. The fact that this initiative has been widely discussed among members of EMPA, ETA, and other

industry stakeholders shows that we have at least gotten people to think in a sustainable way.

B. Lessons learned:

- Both positive and negative comments received.
- Greenport Alliance project will aid in identifying training needs
- Behavioural change is not easy, with climate change becoming more of a political argument than a scientific discussion.

C. Next steps

Continue collaborating with the Greenport Alliance project to thoroughly assess and identify existing gaps in training within the maritime sector. Our objective is to develop a comprehensive training curriculum that not only addresses these deficiencies but also significantly contributes to the advancement of the maritime industry. This curriculum will emphasise sustainable practices, equipping maritime professionals with the knowledge and skills necessary to operate more efficiently and responsibly. By fostering a culture of continuous learning and innovation, we aim to enhance workforce capabilities while promoting environmental stewardship in our industry.

One specific area we would like to explore as part of the Greenport Alliance Project involves conducting a detailed study on a cohort of pilots utilising simulators designed for ship handling. This research aims to delve into the behavioural manoeuvring characteristics exhibited by each pilot, allowing for a detailed analysis of their individual ship-handling styles and decision-making processes. Additionally, the study will focus on identifying and documenting the practices adopted by pilots who are recognised for their energy-efficient ship handling techniques. By understanding these practices, we hope to establish best practices that can then be added to the curricula, shared widely, ultimately contributing to more sustainable pilotage operations, which is one of the main goals of the Green Port Alliance Project.



7. Annexes



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- Here is a link to the video titled: **ETA EMPA Recommendations for Energy Efficient Harbour Towage** <https://www.youtube.com/watch?v=y1yba1AOL1E>
we have also attached a copy of the accompanying presentation.