

A SUCCESSFUL COLLABORATIVE STORY OF A BOATING CLUB IN ACHIEVING AN INNOVATIVE TREATMENT SOLUTION

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ABSTRACT

New Zealand has over 100 sailing clubs accommodating approximately half a million boats over 6 meters in length (Maritime NZ, 2018). Yachting, sailing, fishing and being on the water is part of the New Zealand culture. However, many yacht clubs and marinas across the country have been and are currently discharging effluents to the waterways via stormwater with limited or no treatment. These effluents come from different chemicals such as petroleum hydrocarbon, copper, zinc and lead, which are generated during the yearly boat maintenance process of water blasting, wet sanding, cleaning, painting and anti-fouling.

This abstract highlights the impacts from boat maintenance yards on the environment and explains the way in which Weiti Boating Club (WBC), a club located north-east of Auckland with over 300 members, managed to achieve a successful low-budget solution to treat effluents' loaded runoff from their boat yard. It recognises the success of club members in implementing a solution which was beyond what was required and for the benefit of future generations.

To uncover the key elements that made the implementation of the treatment system possible, members were interviewed. The goal of this paper is to present WBC's member's experience to inspire other organisations to recognise their impact on the environment, take full responsibility for their own impact, research potential effective solutions, manage budgets and work together towards the implementation of environmental projects. At a time, in which the environment is in such a fragile state, organisations need inspirational stories to make them believe that implementing environmental practices is possible, and drive for change.

Most sailors believe that their activity does not impact on the environment, as they use wind rather than fuel to power their boats. However, when looking at effluents from marinas this is not the case.

There are broadly two sources of contaminants: in-water and hardstand contaminants. According to the Auckland Regional Council Draft Marina Guidelines (2004) 5.5 grams of copper leach from an average moored 10m boat per day. A similar contaminant load comes from boat maintenance activities on land. Focusing at the boat yards, most

contaminants come from water blasting, as this process removes slime and the top layer of antifouling paints. Although today anti-fouling paints are slightly less toxic to the environment as they are no longer Tributyltin based, they are nevertheless still very high in copper, zinc and organic co-biocides. Additionally, water blasting averages about 700 litres of water per boat, across various marinas and boat sizes. The same anti-fouling paints are periodically removed from a boat hull by wet sanding. Hose running while sanding, with tight water use control, uses on average 2,000 liters of water per small boat (<15m) and more for larger boats. If Auckland has half a million boats, these loads are very large. Note however, that not all boats are maintained yearly, at WBC approximately 30% of the boats are not maintained yearly.

The background: The club knew for approximately 7 years that they needed to improve their stormwater/ tradewaste management from their boat yard. Acknowledging the importance of clean water, they knew their activity was impacting on the downstream environment of Weiti River and Ōkura (Karepiro Bay). So, they started to plan their budget to allow for a treatment system upgrade. They had volunteers on the Finance Sub Committee who managed their Long-Term Financial Fund where they allowed for a percentage of the club funds to be allocated to an environmental upgrade. Over the course of 7 years, solely through membership contributions and volunteers who donated their time, the club managed to raise just over \$200,000 for a combined stormwater and tradewaste treatment facility.

The issue: Due to compliance pressures from Auckland Council, the club was seeking to find a solution to add to their Environmental Management Plan. They were given specific requirements by the Council, but without any actual solutions.

The investigation: The club was left to do their own research and to come up with a plan. They started experimenting with a 'homegrown' sand filled drum system, but the site's mass loading and ongoing maintenance suggested they needed to seek out appropriate alternatives. So, they started looking at solutions that accommodated their low budget in both- implementation and maintenance, that would reduce discharges to compliance levels within a couple of years.

The initial stages of research for potential solutions took over 2.5 years. A working committee of 5 members volunteered to investigate other systems, such as conventional ones, which were adopted by other clubs. They visited different clubs across the North Island and found that traditional systems, such as sand filters appeared to be underperforming, and new systems were too costly. Even though sand filters were under performing, older members of the club were opting for this option, especially as they were less costly.

However, some driven members were looking for a solution with a higher standard, a solution that would fulfill the higher expectations from Council in the future and would completely manage their residues. So, after investigating all available options adopted by other clubs, WBC members realised that the solutions that fitted into the club's budget were underperforming and the solutions that were performing well were automated and too expensive.

The way forward: WBC members decided that their only solution was to design a new system that would work for their site and fit within their budget constraints. They opted for a combination of both washwater treatment solutions and stormwater proprietary devices.

The technology adopted was relatively simple, it used separate washwater treatment followed by stormwater treatment. The former involved water treatment chemicals with decanting and separation systems, and the latter involved proprietary devices above ground. The system was constructed and became operational in mid-2018. Technical information related to this project is intended to be released in 2020.

The obstacles: Different people tend to have different opinions, so when looking at WBC, or any boating club for that matter, this is no different. Although people are there for the same reasons - to sail, socialise and compete, they do not always have the same opinion on what needs to be done to the club and how budgets need to be spent. WBC managed to obtain agreements from the majority of members on the implementation of their innovative solution. They undertook a well detailed research on all systems available around the North Island and presented the findings to other members.

WBC found that through sending newsletters, holding AGMs and providing for social interactions in the form of events and gatherings played a very important part in engaging and informing members on the findings of the research. As sailing is quite an active sport, most of the members met during competitions, prizegiving's, barbecues, games nights, summer cruise racings and parties. However, older and less mobile members of the club were no longer as involved with the club. To get their involvement and participation, the club decided to create a morning tea for all older members on Wednesday mornings. This was a time in which they could meet with old friends to remember the good old days and feel the sense of belonging to the club. When decisions needed to be made, they were integrated and assisted in the process.

The success: The result of adding an outstanding treatment solution gave the club members a feeling of immense pride, especially since this year they celebrate their 50th anniversary. Apart from knowing now that they have minimized their impact on the environment, they also installed a system which became more user friendly.

They have achieved a Best Practicable Option Solution. Members no longer worry about how they are going to dispose of their waste, so boat maintenance became an easier process in their boat yard. They are encouraging others to look for a solution that works for them and if they cannot find the perfect solution, then they should look into building their own system.

WBC, did not opt for the cheapest, or the easiest solution, but they went for a solution that was right for them, which was the solution that was right for the environment.

The outcome: In summary, this study raised the issues associated with effluents from boating clubs. It found that a technological solution can achieve excellent outcomes, beyond what is legally required, but to achieve something novel requires strong community-led initiative.

An admirable example: WBC became an example of what can be achieved with a group of volunteers, as they:

- Recognised issues well in advance,
- Knew what needed to be achieved,
- Took responsibility for their own pollution,
- Planned their budget,
- Formed partnerships with designers and solution suppliers,
- Liaised with the Council,
- Investigated and extensively researched possible solutions,
- Presented solutions demonstrating the pros and cons,

- Educated people,
- Formed a team of driven workers and forward thinkers,
- Utilised peoples' skills,
- Invested in social events in which all members were in the same place and developed a sense of community, and
- Were brave enough to invest in an original solution that would set them up for success in the future.

KEYWORDS

Innovation, Collaboration, Success Story, Stormwater treatment, Boating Club, Effluents, Taking Responsibility, Beyond necessary, Mauri, Kaitiakitanga

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This project would have not been possible without WBC's desire to reduce their impact on the environment and protect the downstream waterbodies for tomorrows generation.

Tiakina te taiao mō āpōpō

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Ngā mihi nunui ki a koutou katoa.

PRESENTER PROFILE

Mariana Basilio is a Technical Stormwater Specialist at Stormwater360, New Zealand. She is an environmental advocate with experience in stormwater management, stream restoration and GIS. She has over 5 years professional experience in environmental consultancy in Auckland. She has been living in New Zealand for over 10 years, however she still has a different accent. She is originally from Brazil but also lived in Spain and Switzerland. Her passion for the environment started at age 13, when she was sailing in a polluted lagoon in São Paulo, Brazil as part of her training for the Brazilian Olympic Sailing Team.

In the presentation Mariana hopes to explain the importance of this project and the need to recognise successful stories. She hopes to provide the audience with a video in the form of an interview from members of WBC, or with the members themselves. The questions will be around the challenges, findings, processes and achievements of the project. Members will be sharing their experience and hopefully will inspire others to do beyond the minimum required.