

# Pittwater Community Alliance

30/5/2026

## Submission re Draft Hawkesbury-Nepean River System Coastal Management Program (HNRS CMP) and Pittwater Waterway Strategy



Pittwater facing north towards Lion Island

### 1. Introduction & Context

We welcome the opportunity to provide feedback on the Draft Hawkesbury-Nepean River System Coastal Management Program (HNRS CMP).<sup>1</sup> The Hawkesbury-Nepean and Pittwater estuarine systems are far more than mere geographic features or functional maritime corridors; they represent a spectacular visual and ecological masterpiece where dramatic sandstone cliffs, dense native bushland, and pristine deep-water bays converge. This unique "bush-meets-water" landscape forms a sanctuary of profound natural beauty and cultural significance, cherished by locals, celebrated by Sydney-siders, and holding immense potential to captivate interstate and international visitors as a premier global eco-tourism destination.

We hold this priceless natural asset in trust. It is our collective ecological duty to ensure that we do not merely preserve the status quo of a degrading system, but actively improve and restore it. To ensure that current and future generations can swim in crystal-clear waters, fish in healthy ecosystems, and experience the unbroken, tranquil horizons of these waterways, our management strategies must be visionary, uncompromising, and deeply proactive.

Currently, this fragile network faces a complex, compounding matrix of modern operational pressures that threaten its long-term viability. Managing such a multi-faceted estuarine network requires an adaptable, lifecycle-driven strategy that addresses the full spectrum of waterway management. The challenges we must confront span far beyond a single vector:

- **Derelict Infrastructure & Vessel Abandonment:** The systemic hazard posed by "mooring minders" and End-of-Life Vessels (ELVs) that hoard public space, avoid regulatory compliance, and risk catastrophic chemical spills.
- **Point-Source & Diffuse Pollution:** The environmental degradation caused by permanently stationary, un-serviced houseboats illegally discharging effluent, paired with toxic heavy metal and biocide run-off from legacy, uncontained intertidal slipways.
- **Spatial & Visual Gridlock:** The threat of "wall-to-wall" wet-berth marina expansions that permanently scar public channels and destroy natural visual canvases, necessitating a shift toward high-density, land-backed dry stacking.
- **Emerging Green Technologies:** The critical need to future-proof our maritime infrastructure to safely accommodate the green-energy transition to electric propulsion and mitigate the acute environmental and thermal risks of lithium-ion battery failures.
- **Ecological & Acoustic Depletion:** The loss of vital seagrass meadows and the escalation of underwater noise pollution, which can be directly countered by establishing biogenic water-filtration programs and dedicated eco-acoustic sanctuaries.

While Transport for NSW (TfNSW) has stepped up enforcement via its updated Moorings Action Plan (MAP)<sup>2</sup> and recent amendments to the *Marine Safety Act*,<sup>3</sup> a truly resilient 10-year CMP strategy cannot rely on reactive cleanups or fragmented oversight. It must successfully bridge the gap between high-level strategic planning and "on-ground" operational realities.

This submission outlines robust support for existing council initiatives, identifies critical infrastructure and regulatory omissions, presents world-best international operational models, and proposes actionable, eco-centric enhancements. By implementing these rigorous controls, Council will safeguard the waterway's health, clarity, and peace—transforming the Hawkesbury-Nepean and Pittwater systems into a world-class maritime precinct that honours its natural heritage while cleanly navigating the future.

## 2. Waterway Safety & Ecosystem Protection: Managing End-of-Life Vessels (ELVs)

### Current Framework Alignment

The *Pittwater Waterway Strategy*<sup>4</sup> explicitly identifies "mooring minders" as a key management challenge. To address this, the Draft CMP includes a Marine Compliance & Education Campaign (Action S4.CMP.E)<sup>1</sup> designed to engage boat operators and marina managers regarding sustainable operational practices.

### Case Study: The December 2024 Church Point Fuel Spill

The environmental and financial risks posed by inadequate vessel management were vividly illustrated on Thursday, 5 December 2024.

- **Prolonged Disrepair:** A 37ft timber Griffin cruiser, which had been purchased as a long-term project boat and repaired only as finances allowed, had been left in a visible state of disrepair for a significant period 100m offshore from Church Point near The Quays Marina.
- **Active Pollution:** The vessel began taking on water on Wednesday evening and completely submerged by Thursday morning, releasing a strong smell of diesel as fuel leaked directly from its tanks into the waterway.
- **Regulatory Lag & Private Intervention:** While the NSW Environment Protection Authority (EPA) was notified, statutory procedures to locate owners and enforce compliance through state authorities can often take weeks. A localised ecological crisis threatening nearby marine life and mangroves was only averted because staff from The Quays Marina immediately deployed containment booms.
- **Emergency Salvage:** Local commercial operators, including Broken Bay Lighterage and Mooring Services and Broken Bay Diving Services, cancelled their scheduled work to assist. Divers strapped the sunken cruiser to a crane to lift it from the bottom. The marina willingly fronted the initial salvage costs to prevent the slick from spreading further up the bay. The vessel was ultimately pumped out, hoisted, and trucked to the Kimbriki tip for disposal. The owner was ultimately left responsible for a hefty salvage bill for a boat destined for scrap.

### Identified Gaps & Strategic Omissions

While Action S4.CMP.E focuses on education, the current draft lacks a Specific "End-of-Life Vessel" (ELV) Removal Program. There is no dedicated, line-item municipal budget or regional processing facility identified for the disposal of abandoned or derelict vessels within Pittwater.<sup>5</sup>

### 3. World Best Practices in Vessel Lifecycle Management

Global maritime jurisdictions facing similar crises have realised that the problem cannot be solved simply by issuing fines; authorities must provide a viable, structured path for owners to responsibly dispose of a vessels. The final HNRS CMP should advocate for and incorporate the following international operational models:

#### A. Extended Producer Responsibility (EPR) – The French Model

France established APER, a groundbreaking national eco-agency specifically for recycling recreational boats.<sup>6</sup> **APER** (Association pour la Plaisance Éco-Responsable), enables end-of-life rcraft (including dinghies and yachts up to 24 meters) to be dismantled **entirely free**, owner are responsible for transporting the vessel to one of their 50+ approved dismantling facilities across France.

- **Mechanism:** The programme is funded by a small eco-tax built into the purchase price of new boat sales, alongside a percentage of annual regional navigation dues.
- **Outcome:** Boat owners can drop off their ELVs at approved dismantling centres entirely for free. Because the financial barrier to responsible disposal was removed, abandonment rates plummeted across French waterways.

#### B. Vessel Turn-In Programmes (VTIP) – The US West Coast

States like Washington, Oregon, and California utilise proactive "Vessel Turn-In" schemes.<sup>7</sup>

- **Mechanism:** Salvaging a sunken wreck from the seabed can cost taxpayers anywhere from US\$20,000 to over US\$50,000. Under a VTIP, the state allows struggling owners to surrender at-risk, failing vessels to public authorities voluntarily with zero penalties or disposal costs.
- **Outcome:** It is exponentially cheaper for public funds to crush a floating boat at a controlled dock than to recover a sunken hazard from the seafloor.

#### C. Continuous Chain of Title & Owner Liability

In Canada and parts of the United States, strict vessel titling laws mirror the automotive industry.<sup>5</sup>

- **Mechanism:** Owners cannot simply "walk away" from a boat or sell it via an untraceable cash deal without registering the transfer.
- **Outcome:** If an abandoned boat is discovered, the last registered owner remains legally and financially liable for all disposal costs, entirely eliminating the "ghost owner" phenomenon.

#### D. Industrial Fibreglass (GRP) Co-Processing

Disposing of Glass Reinforced Plastic (GRP) is a massive hurdle because it does not decay in landfills.<sup>8</sup>

- **Mechanism:** European initiatives, such as the Boatcycle Project, successfully demonstrated that crushed GRP hulls can be integrated into cement kilns.
- **Outcome:** The resin acts as an energy source, and the glass fibres replace raw silica in the cement mixture, achieving a zero-landfill waste pipeline for composite hulls.

## 4. Actionable Steps to Clear Hawkesbury-Nepean & Pittwater Waterways

To clean up local waterways, a combined approach of stricter mooring accountability and realistic disposal options must be integrated into the CMP:

- **Step 1: Enforce "Use-It-or-Lose-It" Mooring Conditions:** Many mooring licences are retained simply because owners park a cheap, unseaworthy "minder" boat on the swing berth to fulfill the basic requirements of the licence. Council must push to tighten TfNSW mooring contract terms<sup>2</sup> to require vessels to pass a mandatory annual seaworthiness and mobility audit. If a vessel cannot safely navigate under its own power or pass a basic hull integrity check, the owner should lose the swing mooring, immediately freeing up spaces for active boaters on local waitlists.
- **Step 2: Establish a NSW "No-Fault" Vessel Disposal Scheme:** The primary driver of boat abandonment on the Hawkesbury-Nepean and Pittwater is the prohibitive cost of commercial crane hire, transport, and tipping fees. The CMP should advocate for a minor annual levy on all NSW maritime registrations to fund a dedicated ELV disposal fund,<sup>5</sup> running regular "amnesty windows" where owners can surrender failing boats to designated local commercial marinas or regional collection hubs for free destruction.
- **Step 3: Utilise Streamlined Legal Definitions:** Historically, maritime officers faced weeks or months of legal red tape trying to seize a vessel before it permanently sank. TfNSW must fully leverage recent legislative updates to the *Maritime Safety Amendment Act 2024*.<sup>9</sup> By utilising a clear, streamlined legal definition of an ELV, authorities can fast-track the seizure of high-risk "mooring minders" and significantly shorten mandatory notice periods from months to just a few weeks.
- **Step 4: Develop a Regional Marine Dismantling Hub:** The CMP should establish a localised, specialised dismantling facility accessible to the Hawkesbury-Nepean and Pittwater regions. By partnering with local industrial waste processors, Council can pilot fibreglass crushing and co-processing recycling,<sup>8</sup> keeping toxic legacy hulls out of domestic landfills and away from sensitive local mangroves and seagrass beds.

## 5. Addressing Permanently Moored Houseboats & Waste Infrastructure Gaps

### Current Framework Alignment

Diffuse source pollution from static maritime vessels remains a significant management hurdle across the Hawkesbury-Nepean and Pittwater estuarine systems.<sup>10</sup> The draft strategy prioritises environmental indicators, yet it currently lacks an active operational framework to manage the specific bacterial and chemical risks associated with houseboats used as permanent residential or long-term squatter outposts.<sup>11</sup>

### Identified Gaps & Strategic Omissions

- **The "Stationary Squatter" Loophole:** A growing number of houseboats remain permanently moored or anchored at a single geographic location indefinitely. Because these vessels are effectively immobile, they cannot or do not navigate to land-based pump-out facilities. This leads directly to the illegal, covert discharge of both black water (sewage) and grey water (sullage from sinks/showers) into fragile, low-flow containment zones.<sup>12</sup>
- **Friction-Heavy Sanitation Infrastructure:** Existing public land-based flush-out facilities are plagued by accessibility issues, spatial deficits, and frequent maintenance downtime. Furthermore, public wharves and boat ramps completely lack adequate maritime-specific rubbish disposal capacity, forcing boaters to either transport wet waste long distances or discard domestic rubbish directly into the waterway.<sup>13</sup>

### Recommendations for the Final CMP:

To eliminate point-source ecological degradation from stationary houseboats and bridge the waste disposal infrastructure deficit, Council must incorporate the following stringent best practices:

- **Enforce a Mobility Mandate and Houseboat Ban:** Introduce local waterways regulations and advocate for TfNSW mooring contract terms that explicitly ban houseboats from remaining stationary at a single un-serviced mooring or anchorage point for more than 28 consecutive days. All houseboats must undergo mandatory annual propulsion audits to prove they are seaworthy and capable of navigating under their own power to service infrastructure. Failure to comply must result in immediate mooring permit revocation.
- **Mandate Dual-Tank Containment (Zero-Discharge Zones):** Declare the Hawkesbury-Nepean and Pittwater systems as comprehensive Zero-Discharge Zones. Houseboats must be legally required to possess fully sealed containment tanks for *both* black and grey water. Environmental and maritime officers must be authorised to physically seal overboard bypass valves and conduct mandatory, periodic dye-testing of onboard plumbing.
- **Deploy Floating, Solar-Powered Pump-Out Pontoons:** To completely remove the logistical friction of moving large houseboats through shallow or high-traffic channels, Council should partner with TfNSW to anchor automated, solar-powered floating pump-out pontoons in

deep-water, high-congestion sectors (e.g., Berowra Waters, Wisemans Ferry, and Refuge Bay).

- **Establish Subsidised Mobile Pump-Out Barges:** For approved, legacy long-term vessels, introduce a council-subsidised, scheduled mobile pump-out barge service. Houseboats would be placed on a mandatory fortnightly or monthly pump-out ledger, where a commercial collection vessel extracts effluent directly from their mooring point, eliminating the excuse of navigation constraints.
- **Instate Smart Catchment Barriers and Circular Plastic Mandates:** To dramatically improve baseline water clarity and prevent consumer litter from defacing tourist corridors, deploy automated, sensor-driven Gross Pollutant Traps (GPTs) at critical urban creek mouths. Additionally, legislate all marine-facing commercial entities, public wharfs, and commercial charter operations within Pittwater and the Hawkesbury-Nepean as "Single-Use Plastic Free Marine Precincts."<sup>14</sup>
- **Construct "Integrated Waterway Waste Hubs":** Upgrade all major public wharves, boat ramps, and high-density overnight anchorages (e.g., The Basin/Coasters Retreat) with secure, high-capacity, wildlife-proof marine waste facilities. These hubs must feature:
  - Heavy-duty general waste bins and co-mingled recycling chambers.
  - Dedicated hazardous waste disposal points for maritime specific chemical waste (bilge oils, batteries, and fuel filters).
  - Smart app or fob-access systems linked to TfNSW vessel registrations paired with targeted CCTV monitoring to prevent illegal land-based commercial dumping.

## 6. Sustainable Waterway Capacity & Visual Amenity Preservation: Expanding Storage via Dry Stacking

### Current Framework Alignment

The community has voiced overwhelming opposition to the structural expansion of conventional floating wet-berths, which threaten to create "wall-to-wall / shore-to-shore" marina configurations across southern Pittwater's pristine visual corridors and public channels. The Draft CMP emphasises the importance of balancing physical capacity demands with estuarine preservation,<sup>1</sup> yet it requires a concrete roadmap to accommodate the increasing regional boat population without physically encroaching further onto public waters.

### Identified Gaps & Strategic Omissions

While the strategy correctly targets the removal of "mooring minders" to free up existing spaces, it lacks a dedicated policy framework to foster high-density, land-backed storage alternatives. Without a coordinated strategy to incentivise land-based solutions like dry-stack facility construction and smart mooring reconfigurations, pressure will inevitably mount to build larger floating marinas,

which degrade benthic habitats, block panoramic coastal / estuary vistas, and constrict safe navigation channels.

## Recommendations for the Final CMP:

To maximise vessel capacity sustainably while protecting the aquatic environment from visual and physical gridlock, Council must advocate for and integrate the following capacity-optimisation frameworks:

- **Promote and Subsidise Land-Backed Dry Stack Infrastructure:** Establish local environmental planning code amendments that actively encourage the development of indoor or outdoor vertical dry stack rack facilities on existing commercial marina footprints (mirroring the operational model of Akuna Bay Marina).<sup>15</sup> Dry stack configurations store boats two-to-four high in multi-tier vertical grids using heavy-duty, marine-grade negative forklifts. This offers clear environmental and structural benefits:
  1. It increases boat capacity by up to 14% per square meter of footprint without expanding the marina's physical seaward perimeter.<sup>15</sup>
  2. Because vessels are stored out of the water when not in use, it entirely eliminates the requirement for toxic biocide anti-fouling paints, significantly reducing the chemical load on the waterway.<sup>16</sup>
- **Protect the Natural Visual Canvas to Drive Premium Eco-Tourism:** Restricting wet-berth sprawl via vertical dry stacking directly preserves the unbroken, bush-meets-water sightlines that make the lower Hawkesbury and Pittwater a high-value drawcard for local, Sydney-wide, interstate, and international nature-based travelers.<sup>17</sup> Moving storage landward shifts the waterway's identity from a cluttered urban parking lot back to a pristine wilderness estuary.
- **Optimise Mooring Density using Adaptive EFM Spatial Modelling:** Work with TfNSW to restructure traditional single-point chain mooring fields into high-density, smart-grid configurations utilising low-clearance Environmentally Friendly Moorings (EFMs). While traditional slack-chain systems require wide, swept swing circles that clear extensive areas, advanced elastomeric or neutrally buoyant EFM designs restrict horizontal vessel displacement under mild-to-moderate conditions while safely dampening extreme peak tension loads. This allows for tighter, mathematically modelled mooring fields that increase active boat capacity while simultaneously allowing critical benthic recovery.<sup>18</sup>
- **Incentivise Digital Slip-Sharing Applications:** Mandate or subsidise a regional digital platform for Pittwater and the Hawkesbury-Nepean. Commercial marinas can utilise real-time sensors to track when permanent wet-berth holders vacate their slips for short-term coastal cruising. These underutilised windows can then be automatically listed on a public registry for transient or short-term visitor bookings, maximising current asset utilisation and bypassing the need for physical infrastructure expansion.
- **Incorporate Vertical Small-Craft Racks at Public Foreshores:** Expand the dinghy storage frameworks into centralised, highly uniform vertical rack structures for recreational kayaks, tenders, and small personal watercraft at all municipal wharves. Stacking smaller

recreational vessels vertically prevents shoreline erosion, eliminates unregulated foreshore clutter, and ensures all active boaters retain easy entry points to the water.

## 7. Slipway Environmental Modernisation: Mitigating Toxic Run-off and Heavy Metal Pollution

### Current Framework Alignment

The Draft CMP rightly emphasises the minimisation of priority chemical contaminants and heavy metals within the estuarine environment.<sup>1</sup> However, historical and currently operating slipways, shipyards, and ad-hoc private launching rails represent highly concentrated vectors for toxic point-source run-off into the Pittwater and Hawkesbury-Nepean systems.<sup>19</sup>

### Identified Gaps & Strategic Omissions

Traditional rail-style slipways and uncontained hardstands permit bio-fouling debris, microplastics from fiberglass sanding, micro-particles of toxic paints, and heavy metals (primarily copper, zinc, and tin from anti-fouling coatings) to be washed directly into the intertidal zone via stormwater or tidal flushing.<sup>20</sup> The current draft provides high-level educational solutions but fails to mandate structural containment infrastructure or outline a clear strategy for phasing out uncontained intertidal slipway structures.

### Recommendations for the Final CMP:

To eliminate the discharge of maintenance debris and biocides into high-value marine ecosystems, the final CMP must incorporate the following engineering and regulatory mandates:

- **Mandate Transition from Rail Slipways to Bunded Hardstands:** Phase out or enforce the immediate modification of traditional, uncontained intertidal rail slipways. Council must require commercial and private operators to transition toward land-backed travel-lifts, straddle carriers, or dry-docking cradles. All hull cleaning, high-pressure washing, scraping, and painting must take place exclusively on a completely sealed, impermeable, bunded hardstand pad decoupled from tidal influences.
- **Implement Closed-Loop Water Treatment and Recycling:** Mandate that 100% of wash-down and stormwater run-off generated on slipway surfaces be collected via dedicated interceptor channels. This harvested wastewater must pass through a strict, multi-stage treatment train consisting of:
  1. A gross pollutant/grit trap to capture paint flakes, fiberglass particles, and bio-fouling organisms.
  2. An oil-water separator to isolate hydrocarbons and bilge elements.
  3. An advanced filtration system (utilising activated carbon or ion-exchange technology) designed to specifically strip out dissolved heavy metals like copper and zinc.<sup>21</sup> Treated water must be retained for closed-loop reuse on-site or discharged exclusively via a registered Sydney Water trade waste agreement—never into the waterway.

- **Enforce Source-Capture Controls (Vacuum-Shrouding):** Legislate a strict code of practice requiring all hull maintenance work (sanding, grinding, abrasive blasting) to utilise tool-mounted vacuum containment shrouds. This captures hazardous, chemical-laden anti-fouling dust directly at the source, preventing particulates from settling on the slipway apron where they can be scattered by the wind or washed away by rainwater.
- **Conduct Regional Slipway Audits and Eliminate Non-Compliant Facilities:** Partner with the NSW EPA to execute a comprehensive environmental audit of all commercial, club-owned, and private residential slipway infrastructures across Pittwater and the Hawkesbury-Nepean. Facilities failing to meet the minimum standards established in the *NSW EPA Marinas and Slipways Guidelines* must be given strict rectification timelines or face permanent closure and decommissioning.<sup>22</sup>

## 8. Future-Proofing for Electric Propulsion and Lithium-Ion Battery Marine Safety

### Current Framework Alignment

The global transition toward alternative energy and alternative propulsion systems in the automotive sector is actively migrating into the recreational marine landscape. While the Draft CMP details chemical threats to the estuarine ecosystem,<sup>1</sup> it remains completely silent on the unique regulatory, structural, and public safety challenges presented by the imminent wave of Electric Recreational Vessels (ERVs) and retrofitted marine Lithium-Ion Battery Energy Storage Systems (BESS).<sup>23</sup>

### Identified Gaps & Strategic Omissions

Lithium-ion battery failures onboard marine vessels present catastrophic environmental and fire safety risks due to the unique mechanics of thermal runaway—an un-arrestable, self-heating exothermic reaction that can exceed temperatures of 1000°C.<sup>24</sup> Unlike road-going electric vehicles, an ignited or off-gassing vessel cannot easily be pulled over. It releases toxic, highly flammable compounds (including gaseous hydrofluoric acid) and features a severe rate of re-ignition, making thermal runaway almost impossible to arrest with standard onboard extinguishing kits.<sup>25</sup> If a vessel burns out and sinks, its concentrated load of burnt polymers, plasticisers, and raw heavy metals is deposited directly into vulnerable benthic habitats.

Currently, the Pittwater and Hawkesbury-Nepean waterways face systemic vulnerabilities including:

- **Unregulated Battery System Retrofits:** A lack of enforcement against uncertified home-built or grey-market battery retrofits that bypass strict Australian marine safety standards.<sup>26</sup>

- **Inadequate Shore Charging Protection:** Standard public and private dock power points do not feature communication capabilities to actively monitor alternative energy vessel charge cycles.
- **Absence of Containment/Quarantine Fields:** Marinas possess no structural protocols to isolate a vessel showing thermal warning signs before a fire jumps ship to destroy entire lines of neighbouring vessels.

## Recommendations for the Final CMP:

To shield the regional ecology from the compounding risk of lithium-ion thermal runaway events, the final CMP must incorporate the following forward-looking guidelines:

- **Mandate Compliance with Maritime Electrical Standards:** Lobby TfNSW to require that any alternative energy vessel moored, anchored, or berthed within the regional boundaries prove strict adherence to **AS/NZS 3004.2** (electrical installations in recreational craft) and **AS IEC 62619** cell certifications.<sup>27</sup> All multi-cell installations must possess an integrated, smart Battery Management System (BMS) capable of executing automated load/charge disconnections and transmitting visual and audible warning alarms to the helm. The CMP should strongly advocate for the implementation of stable Lithium Iron Phosphate (LFP) chemistry over more volatile cobalt-based chemistries for all permanent house and propulsion installations.
- **Incorporate Fire-Isolated "Quarantine Berths" at Marina Hubs:** Require all commercial marinas and key municipal public wharves to establish a designated, deep-water "Quarantine Berth" at their outer perimeters. These fields must feature automated thermal sensor cameras and be stocked with specialised, high-temperature marine fire blankets and floating water-deluge containment curtains capable of enveloping an off-gassing hull to absorb heat and prevent toxic chemical run-off from bleeding into adjacent seagrass meadows.
- **Install Smart Shore-Power Networks:** Transition public wharves and boat ramp infrastructure toward smart shore connection systems (such as Australian-manufactured ESHORE compliance interfaces). These systems continuously monitor grid-to-vessel line insulation resistance, automatically shutting off current delivery if an over-voltage or over-temperature anomaly is registered.<sup>28</sup>
- **Deploy Marine-Specific Suppression Agents to First Responders:** Partner with Fire and Rescue NSW (FRNSW) and Marine Rescue NSW to pre-position specialised lithium fire suppression assets (such as aqueous encapsulation agents like F-500) at strategically dispersed depots like Church Point, Cowan Creek, and Wisemans Ferry to ensure emergency forces possess the chemical means to combat marine thermal runaway.
- **Ban Unattended Boat Hull Charging of Portable E-Toys:** Legislate an enforceable local rule banning the unsupervised charging of high-volatility recreational lithium devices (such as e-foils, electric surfboards, and cordless maintenance tools) inside boat cabins or hulls while attached to swing moorings. Council should subsidise the rollout of secure, fire-rated, land-backed charging lockers at major boat ramps and public marina forecourts to move high-risk charging cycles entirely onshore.

## 9. Marina Infrastructure Safety, Structural Compliance, and Risk Mitigation

### Current Framework Alignment

The Draft CMP addresses public structural repairs but presents a critical policy vacuum regarding the standardisation of mandatory safety compliance audits across commercial, club-owned, and public marina envelopes. High-density wet berths, fuelling berths, and tidal pedestrian gangways represent complex, high-risk convergence zones under modern work health and safety (WHS) metrics.<sup>1</sup>

### Identified Gaps & Strategic Omissions

Waterways throughout Pittwater and the Hawkesbury-Nepean system are subject to aggressive micro-climates, fluctuating tidal dynamics, and shifting salinity gradients. Critical systemic safety hazards—specifically **Electrical Shock Drowning (ESD)** caused by low-voltage AC stray-current leaks in brackish waters, structural pontoon failures under severe storm surges, and unmonitored commercial fuel lines—are dangerously under-regulated. The framework contains no operational mechanism to mandate safety updates or audit the integrity of private marina installations.

### Recommendations for the Final CMP:

- **Mandate Full Compliance with AS 3962:2020 (Marina Design):** Enforce a mandatory local rule requiring all operators of floating pontoon arrays, gangways, and fixed berthing structures to undergo an independent, biennial structural audit to ensure compliance with **AS 3962:2020** structural standards. Facilities must provide audited proof of structural load capacity under peak storm event modelling, gangway surface profile slip-resistance, handrail security, and wheelchair-accessible edge barriers.<sup>29</sup>
- **Enforce Electrical Safety and ESD Prevention via AS/NZS 3004.1:** Eradicate the hidden risk of Electrical Shock Drowning by requiring all low-voltage AC low-shore distribution points to strictly meet **AS/NZS 3004.1:2014** codes.<sup>30</sup> All marine supply pedestals must be outfitted with highly sensitive, fast-tripping Residual Current Devices (RCDs). Marinas must be mandated to install real-time, continuous underwater stray-current monitoring probes to automatically flag live electrical grounding leaks from berthed vessel hulls before current gradients pose an active hazard to public users or marine staff.<sup>31</sup>
- **Integrate Fail-Safe Bunkering Controls:** Impose mandatory dual-isolation hydraulic valves on all marine fuelling infrastructure. In the event of line pressure disruption, hull impact, or severe shift due to weather, fuel transfer lines must automatically seal at both the landward reservoir and the dockside delivery point. All fuel berths must be equipped with localised emergency marine response stations stocked with commercial containment booms and chemical absorbents.

- **Tie Seabed Leases to Clean Marinas and Gold Anchor Certification:** Advocate to state leasing authorities to condition the extension or execution of any commercial public seabed lease on the operator attaining a minimum 3-Star Global Gold Anchor ranking or International Clean Marina environmental safety compliance badge.<sup>32</sup> This embeds structured, third-party certified requirements for fire drill regularity, emergency safety ladders, evening lighting metrics, and structured maritime hazard containment.

## 10. Water Quality, Water Clarity, Eco-Acoustic Sanctuaries, & Seagrass Protection

### Current Framework Alignment

Careel Bay, Cowan Creek, and their surrounding sub-catchments are correctly prioritised as major ecological focal zones within the draft plans:<sup>1</sup>

- **Action S5.NBC.A:** Proposes the naturalisation of Careel Creek, replacing degraded concrete channels with native vegetation to naturally filter urban pollutants.
- **Action S5.NBC.B:** Schedules an upgrade of the Careel Bay litter trap to a modern design to improve gross pollutant and waste capture.
- **Action S5.NBC.C:** Initiates an investigation into Water Sensitive Urban Design (WSUD) solutions within the Careel Creek drainage catchment to manage run-off quality.
- **Seagrass Protections:** The strategy acknowledges that vital seagrass beds are under constant threat from traditional mooring apparatuses, noting extensive historical "seagrass scarring" from heavy chain moorings (notably at Palm Beach Wharf) and emphasising the critical need to protect endangered *Posidonia australis* populations.

### Identified Gaps & Strategic Omissions

Despite identifying the destructive impact of chain moorings on endangered seagrass, the draft plan does not explicitly fund a large-scale program to subsidise the transition from traditional chain moorings to Environmentally Friendly Moorings (EFMs) for private licensees. Furthermore, the framework treats water quality purely as an engineering input, omitting the immense biological filtration capacity of native bivalves to improve water clarity, and failing to mitigate the underwater noise pollution that disrupts marine life and detracts from the tranquil wilderness aesthetic highly sought after by modern eco-tourists.

## Recommendations for the Final CMP:

- **Eradicate Noise Pollution via Eco-Acoustic Sanctuaries:** Marine combustion engines generate significant low-frequency underwater acoustic pollution that disrupts native marine fauna and degrades the serene wilderness experience sought by passive recreational users (kayakers, paddleboarders, and bushwalkers). By transforming high-value conservation zones like The Basin, Lovett Bay, and Careel Bay into dedicated **Eco-Acoustic Sanctuaries**, Council can restrict combustion-engine propulsion in favour of electric-only or manual craft.<sup>29</sup> This directly protects the tranquil, premium identity of the region, significantly increasing its competitive appeal for international nature-based eco-tourists.
- **Launch Biogenic Water-Clarity Programs via Shellfish and Reef Reforestation:** Water clarity across the lower Hawkesbury and Pittwater is continually impacted by suspended sediment and micro-algal blooms driven by urban catchment run-off. To naturally scrub the water column, the CMP should establish a large-scale **Native Oyster Reef Restoration and Crayweed/Posidonia Reforestation Initiative**. Re-establishing native Angasi oyster reefs provides powerful biogenic filtration—with a single adult oyster capable of filtering up to 100–200 litres of water per day—dramatically improving water clarity, stabilising benthic substrates, and revitalising local marine biodiversity for premier dive and snorkel tourism.<sup>30,31</sup>
- **Fund Private Environmentally Friendly Moorings (EFM) Subsidies:** Introduce direct financial incentives or fee-reductions for mooring licensees who volunteer to transition to EFMs, accelerating seagrass regrowth across Palm Beach and Careel Bay.
- **Scale Up "Living Seawalls":** Expand the scope of Action S3.CMP.C (eco-friendly seawall features) by implementing a comprehensive, large-scale program. The CMP should establish local planning codes that encourage or require private seawalls in Clareville or Newport to be retrofitted with 3D-printed habitat panels that mimic natural rocky reefs to support marine biodiversity.

## 11. Navigational Channels, Excessive Silting, & Climate Resilience

### Current Framework Alignment

The CMP<sup>1</sup> rightly addresses the escalating impacts of climate change, tidal dynamics, and shifting sediments across the waterway:

- **Action S6.NBC.D:** Proposes a feasibility investigation into channel maintenance works within Careel Creek and Careel Bay to remove accumulated sediment and debris obstructing safe navigation and natural water flow.

- **Action S6.NBC.J:** Establishes a Pittwater dredging and beach nourishment feasibility investigation to secure long-term sand sources and maintenance strategies.
- **Action S6.NBC.K:** Funds a comprehensive Pittwater Wave Climate Study to resolve a critical data gap regarding how offshore swell energy penetrates the estuarine system.
- **Coastal Protection Works (CPW):** Identifies targeted structural protection works for Station Beach, Sand Point, Clareville, and Great Mackerel Beach to enhance resilience against shoreline erosion and recession.

## Identified Gaps & Strategic Omissions

While public assets are well-accounted for, there is a distinct lack of structural adaptation projects or clear guidelines for private residential properties in the Southern Pittwater arm. While Action S2.NBC.C proposes vital tidal gauges to monitor inundation, the strategy remains largely observational rather than protective for low-lying private holdings in this sector compared to public lands at Bobbin Head or Great Mackerel Beach.

## Recommendations for the Final CMP:

- **Develop Private Property Adaptation Blueprints:** Utilise the data gathered from the Wave Climate Study (Action S6.NBC.K) to supply southern Pittwater residential landowners with clear, Council-approved engineering toolkits for private property flood mitigation and structural adaptation.

# 12. Waterway Access & Inclusive Infrastructure

## Current Framework Alignment

Maintaining safe, equitable physical access to the waterway is vital for the community, and the plan targets several deteriorating assets:

- **Action S7.NBC.B:** Schedules significant structural upgrades to the Sand Point Lane boat ramp to rectify severe cracking and structural undermining.
- **Action S7.NBC.A:** Allocates funding for essential repair and maintenance works across a network of public wharfs, including Great Mackerel Beach, Currawong, Coasters Retreat, Lovett Bay, Church Point, and Scotland Island.
- **Dinghy Storage Frameworks:** Aligned with the *Great Mackerel Beach Foreshore Master Plan*,<sup>32</sup> the CMP outlines the installation of structured dinghy racks to eliminate chaotic, on-ground foreshore storage, which currently accelerates localised shoreline erosion.

## Recommendations for the Final CMP:

- **Maximize Boating Infrastructure Grants:** Ensure Council actively coordinates with state authorities to secure recurring funding via the NSW Government's Boating Infrastructure for Communities Grants Program to offset the cost of these boat ramps, wharves, and dinghy rack expansions.
- **Implement All-Abilities Aquatic Connectivity:** Expand the "all-abilities access" principles currently proposed for Ocean Beach across all major public wharfs and tidal pools in the Pittwater area, transforming the region into a world-class, fully inclusive maritime precinct.
- **Centralise Storage Registries:** Formally integrate a transparent, localised online dinghy rack application and vacancy database on Council's website, ensuring mooring holders can easily secure storage space at the foreshore location closest to their marine berth.
- **Preserve and Eco-Modernise Working Waterfront Slipways:** Address the severe state-wide decline of vessel-slipping facilities caused by waterfront land being rezoned for residential apartments. Introduce strict local environmental planning protections within the CMP framework to preserve commercial slipping, marine washing, and maintenance infrastructure, while simultaneously requiring these preserved facilities to modernise via the zero-discharge containment protocols outlined in Section 7.<sup>21</sup><sup>22</sup>

## 13. Strategic "Ideal World" Vision for Pittwater

Drawing from established successes in global smart harbours (such as Sydney Harbour's Standardise the Standards initiative and European ecological engineering networks),<sup>33</sup> Pittwater and the lower Hawkesbury should be optimised through a comprehensive, world-class environmental and spatial blueprint. By transitioning away from obsolete, reactive maritime management, Council can realise an "Ideal World" model where technological integration, biogenic infrastructure, and terrestrial-centric vessel storage converge to eliminate pollution, maximise public utility, and preserve natural beauty.

This vision is realised through six interconnected pillars:

### A. Circular Lifecycle & Proactive Vessel Management

- **A Zero-Ghost-Owner Registry:** Transition local vessel registration tracking to a mandatory continuous chain-of-title system mirror-imaged on the automotive framework, legally binding the last registered owner to financial liability for disposal and preventing vessel abandonment.<sup>5</sup>
- **Regional Marine Eco-Dismantling Pipeline:** Establish a dedicated local marine processing facility using European industrial co-processing frameworks. Here, decommissioned composite and Glass Reinforced Plastic (GRP) hulls are structurally crushed and integrated

into regional cement kilns, entirely diverting legacy toxic materials away from domestic landfills, local mangroves, and intertidal saltmarshes.<sup>8</sup>

## B. Zero-Berth Expansions & High-Density Dry Storage

- **Vertical Land-Backed Dry Stacking:** Legislate strict limits on the geographic footprint of floating wet-berth extensions to prevent "wall-to-wall / shore-to-shore" marina gridlock and protect panoramic public views. Provide local environmental planning code incentives to build multi-tier, land-backed vertical dry stack storage warehouses utilising high-efficiency negative forklift systems. This increases regional vessel storage density by up to 14% per square meter while pulling hulls out of the water to completely eliminate the requirement for toxic anti-fouling biocide coatings.<sup>15,16</sup>
- **Smart-Grid EFM Swarms:** Replace traditional slack-chain swing moorings with a highly condensed, mathematically modelled grid layout of low-clearance Environmentally Friendly Moorings (EFMs). By deploying elastomeric or neutrally buoyant tether components that restrict horizontal vessel displacement without dragging along the seafloor, active boat capacity can be expanded while ensuring broad-scale regrowth of endangered benthic *Posidonia australis* meadows.<sup>18</sup>
- **Peer-to-Peer Slip Sharing:** Introduce a centralised digital platform utilising real-time berth sensors. When permanent wet-berth holders vacate their slips for short-term coastal cruising, the platform automatically opens those windows for transient visitor bookings, optimising current infrastructure and bypassing the need for physical seaward expansions.

## C. Closed-Loop, Eco-Engineered Slipways

- **Decoupled Maintenance Pads:** Complete the phase-out of uncontained intertidal rail slipways. Mandate that all commercial maintenance operations utilise land-backed travel-lifts or dry cradles operating exclusively over completely sealed, banded hardstands separated from tidal influence.<sup>22</sup>
- **Zero-Discharge Treatment Trains:** Implement a code of practice where 100% of slipway wash-down water and heavy-metal stormwater run-off is intercepted and passed through specialised on-site treatment systems. Grit filtration, oil-water separation, and ion-exchange media strip out microscopic paint debris, microplastics, hydrocarbons, and dissolved copper and zinc, ensuring zero chemical particulates enter the marine ecosystem.<sup>21</sup>
- **Source-Capture Vacuum Shrouds:** Enforce the mandatory use of tool-mounted vacuum containment shrouds for all shipwright activities (sanding, grinding, blasting) to isolate hazardous anti-fouling dust directly at the cutting face, eliminating airborne and ground-level chemical drift.

## D. Lithium-Safe & Fire-Resilient Smart Shore Infrastructure

- **Fire-Isolated Quarantine Fields:** Incorporate perimeter "Quarantine Berths" at every major commercial marina hub and prominent municipal public wharf. These deep-water berths must feature automated thermal imaging cameras, specialised high-temperature marine fire

blankets, and floating water-deluge containment curtains capable of isolating and enveloping a vessel experiencing lithium-ion thermal runaway, preventing fire spread and absorbing toxic chemical off-gassing away from fragile benthic habitats.<sup>24,25</sup>

- **Smart Shore-Power Charging Networks:** Modernise public and private dock networks with smart shore connection interfaces. These units continuously monitor line insulation resistance and thermal thresholds, executing instant, automated safety cut-offs the moment an over-voltage or over-temperature charge anomaly is detected onboard an electric recreational craft.<sup>28</sup>
- **Foreshore Battery Charging Lockers:** Eradicate fire risks within moored vessel hulls by introducing local regulations that ban the unattended charging of portable consumer water toys (e-foils, electric surfboards, cordless maintenance equipment) onboard vessels attached to swing moorings. Install secure, fire-rated, land-backed smart charging lockers at major public wharves and boat ramp forecourts to move high-risk charging cycles entirely onshore.

## E. Seamless Sanitation Grids & Zero-Discharge Precincts

- **De-Frictioned Effluent Pump-Out Networks:** Eliminate the logistical barriers that drive illegal dumping from houseboats by providing a seamless sanitation grid. This incorporates grid-connected land facilities, deep-water automated floating pump-out pontoons anchored in high-density corridors (such as Berowra Waters and Refuge Bay), and council-subsidised mobile pump-out barges that extract waste directly from vessels on a mandatory fortnightly schedule.<sup>12</sup>
- **Single-Use Plastic Free Precincts:** Declare all commercial maritime operators, charter vessels, and public wharves within Pittwater and the Hawkesbury-Nepean as unified single-use plastic free zones, backed by automated, sensor-driven Gross Pollutant Traps (GPTs) at stormwater outfalls to dramatically boost water clarity and visual purity.<sup>14</sup>
- **Smart Marine Waste Hubs:** Upgrade public foreshores with app-access, wildlife-proof waste depots featuring general waste containment, co-mingled recycling, and specialised hazardous disposal vaults for marine oils and electronics, monitored by CCTV to halt land-based illegal commercial dumping.

## F. Biogenic Water Purification & Eco-Acoustic Sanctuaries

- **Biogenic Filtration Networks:** Address historical declines in water clarity by re-establishing extinct *Ostrea angasi* (Native Flat Oyster) reefs and seafloor crayweed forests. Cultivating wild bivalve networks creates powerful biological filtration systems—with each adult oyster clearing 100 to 200 litres of water daily—naturally stripping suspended sediment and micro-algal blooms to restore crystal-clear water column purity.<sup>30,31</sup>
- **Eco-Acoustic Sanctuaries:** Eradicate low-frequency underwater noise pollution across ecologically critical, shallow conservation pockets like Careel Bay, Lovett Bay, and The Basin by designating them as combustion-free zones. Restricting propulsion inside these boundaries to manual or electric craft creates peaceful marine soundscapes that protect

vulnerable local fauna while maximizing the tranquil wilderness appeal for high-value global eco-tourists.<sup>29</sup>

- **Comprehensive Living Seawalls:** Institutionalise local planning codes that mandate all new or retrofitted private and public seawalls in Newport, Clareville, and the lower Hawkesbury incorporate 3D-printed, texture-mapped habitat panels. These biomimetic structures mirror natural rocky reef shelves, providing immediate micro-refugia for native intertidal species and significantly elevating localised marine biodiversity.<sup>33</sup>

## 14. Conclusion

The Draft HNRS CMP establishes a commendable foundation, but its ultimate translation into a resilient, multi-generational success depends on transitioning from high-level observation to actionable, unyielding local frameworks. The structural and environmental vulnerabilities of the Hawkesbury-Nepean and Pittwater systems can no longer be managed reactively. As the December 2024 Church Point fuel spill vividly demonstrated, relying on the spontaneous financial goodwill of private operators is an unsustainable strategy for safeguarding public ecosystems from failing maritime infrastructure.

To transform these iconic waterways into a world-class, ecologically pristine, and technologically future-proof maritime precinct, the final Coastal Management Program must adopt the comprehensive, lifecycle-driven requirements outlined in this submission. Council's final strategy must codify:

- **Proactive Vessel Lifecycle Management:** Eliminating "ghost owners" through continuous automotive-style titling laws, establishing a NSW "No-Fault" Vessel Disposal Scheme, and implementing an industrial GRP co-processing pipeline to systematically purge the waterways of dilapidated mooring minders and at-risk End-of-Life Vessels (ELVs).
- **Definite Houseboat Mobility and Sanitation Mandates:** Declaring total Zero-Discharge Zones that require full containment of both black and grey water, enforcing a strict 28-day single-location residency ban, and removing compliance friction through decentralised networks of floating pump-out pontoons, smart waste hubs, and council-subsidised mobile pump-out barges.
- **Terrestrial-Centric Spatial Solutions:** Banning the expansion of wall-to wall / shore-to-shore floating wet-berths marinas to preserve the unbroken, natural visual canvas that drives premium eco-tourism. This is achieved by actively incentivising vertical land-backed dry stack facilities (as proven at Akuna Bay Marina) and maximising current mooring density via smart-grid Environmentally Friendly Moorings (EFMs).
- **Closed-Loop Slipway Modernisation:** Phasing out uncontained intertidal rail slipways in favour of banded hardstands operating multi-stage treatment trains (grit interception, oil-water separation, and heavy metal ion-exchange), paired with mandatory source-capture


vacuum shrouds to isolate toxic anti-fouling dust and microplastics from entering the intertidal column.

- **Next-Generation Electric and Lithium Fire Safety:** Future-proofing regional docks against the green-energy transition by mandating AS/NZS 3004.2 and AS IEC 62619 compliance, building automated, fire-isolated perimeter "Quarantine Berths" at marina hubs to manage thermal runaway, installing smart shore-power charging networks, and providing fire-rated onshore charging lockers for portable marine e-toys.
- **Biogenic Restoration and Tranquil Soundscapes:** Actively driving water clarity and ecosystem health through the broad-scale restoration of wild *Ostrea angasi* oyster reefs and macroalgal forests, while simultaneously establishing combustion-engine-free "Eco-Acoustic Sanctuaries" to eliminate low-frequency underwater noise pollution in sensitive conservation zones.
- **Inclusive Access and Climate Adaptation:** Securing state-backed maritime grants to deploy all-abilities aquatic connectivity across all key public wharves, protecting commercial waterfront slipways from residential rezoning, and supplying southern Pittwater landowners with clear, council-approved engineering toolkits for private property flood mitigation and wave-climate adaptation.

By embedding these rigorous engineering, digital, and biological solutions into the final 10-year CMP framework, Northern Beaches Council will move beyond standard environmental preservation. Council have a distinct opportunity to actively restore the water quality, acoustic clarity, and unmatched visual majesty of the Hawkesbury-Nepean and Pittwater systems. In doing so, Council will deliver a visionary blueprint that protects our fragile marine ecology while welcoming local, national, and international visitors to experience a world-class natural sanctuary for generations to come.

On behalf of the Pittwater Community Alliance (PCA) members we wish to acknowledge the extensive effort from one of its members, who regularly attends the PCA waterways review meetings with Northern Beaches Council, Glenn Moore who was assisted by his daughter Lucille Moore in putting this submission together.

Yours sincerely,



Gavin Butler

Chairman

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