



SYDNEY COASTAL COUNCILS GROUP INC.

councils **caring for the coastal environment**

# SUBMISSION

## Hawkesbury Shelf Marine Bioregion Assessment

April 2016

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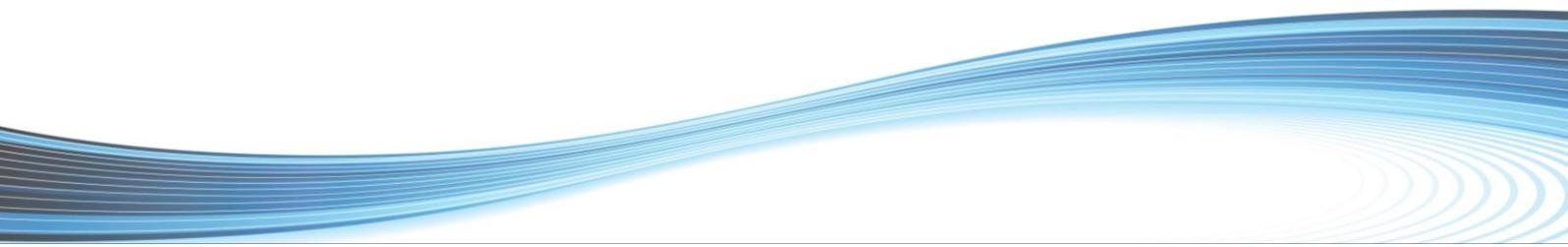
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## Introduction

Established in 1989, the Sydney Coastal Councils Group (SCCG) is a co-operative organisation with twenty-five years' experience in leading sustainable coastal management. The SCCG currently comprises fourteen Member Councils who represent nearly 1.3 million Sydneysiders. SCCG is the peak NSW ROC representing coastal councils and is the third largest ROC in NSW based on population (Gooding, 2012).

The *Sydney Coastal Councils Group Strategic Plan 2015 – 2019* sets out three guiding principles which encapsulate the core ambitions of the SCCG:

1. Restore, protect and enhance the coastal environment, its associated ecosystems, ecological and physical processes and biodiversity.
2. Facilitate the sustainable use of coastal resources, now and in the future.
3. Promote adaptive, integrated and participatory management of the coast.

The SCCG welcomes the opportunity to contribute to the Hawkesbury Shelf Marine Bioregion Assessment.

This submission includes:

- 1. General comments**
- 2. Missing elements from proposed Management Initiatives**
- 3. Comments on the proposed Management Initiatives 1 - 8**

### 1. General comments

The SCCG supports the NSW Government and Marine Estate Management Authority's efforts to enhance and conserve the environmental, social and economic values of the Hawkesbury Shelf Marine Bioregion. The bioregion assessment process is an excellent opportunity to establish greater integration of effort across state government agencies and local governments.

Many of the proposed management initiatives are good starting points, and some are actions that are already underway. While it is obviously important to continue actions that are already working to protect the environmental values of the bioregion, the assessment process should also be used as a chance to seek, develop and encourage innovative solutions to the priority stressors and threats.

All management initiatives and the bioregion assessment as a whole should support and uphold the concept of Ecologically Sustainable Development (ESD) as defined in Section 6(2) of the *Protection of the Environment Administration Act 1991* and supported by over 60 pieces of NSW legislation (EDO NSW, n.d.).

The bioregion assessment is also an opportunity to address the inadequacies of the current system of aquatic reserves and the marine components of national parks in the Hawkesbury Shelf marine bioregion, when considered against the internationally recognised conservation planning principles of comprehensiveness, adequacy and representativeness (CAR principles).

The SCCG agrees with the Assessment's findings that the current system:

- “• is not **comprehensive**, with only one per cent of the bioregion represented in 10 aquatic reserves and the Bouddi National Park marine extension
- is not **adequate**, due to the small size of reserves (individually and in total area), the small number of no-take reserves, the boundaries of the reserves, which often cut across continuous habitat features, the compliance challenges caused by complex rules and resourcing, and potential impacts of external threats.
- is not **representative**, as it does not include examples of coastal lakes, deep rocky reefs, deep sandy seabed, and it includes only small areas of habitats such as shallow rocky reefs, rocky shores, estuarine reefs and some seagrass species” (page 33, Discussion Paper).

There is significant community support for protected areas, as demonstrated by the Marine Estate Community Survey conducted as part of the Hawkesbury Shelf Bioregion Assessment process which found “a majority of the community (67%) agreeing that some areas of the Marine Estate should be protected, even if it means recreational and commercial fishing is excluded” (page 7) (Sweeny Research, 2014).

The bioregion assessment is an ideal opportunity to achieve what could be a world's best practice mix of use, partial or restricted-use and fully protected (no-take) areas across the Hawkesbury Shelf to ensure the long-term sustainability of the bioregion. This process should be informed by the best available scientific and geographic information as well as a meaningful process of community consultation.

## 2. Missing elements

The SCCG acknowledges that the *Hawkesbury Shelf Marine Bioregion Assessment: Suggested management initiatives Discussion Paper* (NSW Marine Estate Management Authority, 2016a) (hereafter referred to as the *Discussion Paper*) is, by necessity, an abbreviated document that presents a summary of a large store of additional information and work housed in the background documents and additional databases. However, the SCCG wishes to draw your attention to the following important items that are either not mentioned or not given sufficient consideration in the *Discussion Paper*.

## **Integration with Coastal Management Reforms**

The yet-to-be-finalised process of reforming coastal management and planning for NSW is described in Table 3 on page 16 of the *Discussion Paper*. However, apart from noting that the Coastal Reforms are underway, the links between the Coastal Reforms and the Hawkesbury Shelf Marine Bioregion Assessment are not clearly articulated. Both processes are considering the future of a number of shared coastal assets and there is considerable potential for conflicting priorities and overlaps arising from each process.

## **Cumulative impacts**

The *Hawkesbury Shelf Environmental Background Report* (NSW Marine Estate Management Authority, 2016b) (hereafter referred to as the *Background Report*) identifies the difficulties of addressing cumulative threats via a threat and risk assessment (TARA) framework. However the *Discussion Paper* does not articulate how the cumulative impacts of multiple stressors, or of multiple instances of the same stressor, will be addressed. Given increasing pressures on the coastal zone and the losses of biodiversity to date, it is critically important that a process for accounting for, mitigating and preventing cumulative impacts on environmental values is built into the bioregion assessment and management policies for this region. Cumulative impacts may be particularly relevant to Initiatives 1. *Water quality*; 2. *On-ground works (e.g. foreshore and catchment development, dredging, extraction etc.)*; 3. *Shipping and fishing*; 5. *Boating infrastructure*; 7. *Accessibility* and 8. *Land use planning*; but cumulative impacts should also be considered across all initiatives and the bioregion assessment process as a whole.

## **Implementation, roles and responsibilities**

Acknowledging that the *Discussion Paper* is a summary document, there is still a significant lack of detail on the implementation of the Management Initiatives, i.e. who will implement them; where and when they will be implemented; and how much funding is required to carry them out.

We understand that the costs of some activities have been estimated as part of the development process of this document, as indicated by the statement "new government funding required" in some sections of Table 4 (pages 18-21). However it is difficult to comment on the feasibility and practicality of the proposed management initiatives in the absence of at least some indication of roles, responsibilities, timing, geographic priorities and required funding. We look forward to receiving an opportunity to comment on these additional details in due course.

Further, the *Discussion Paper* does not clearly articulate the roles and responsibilities of the state agencies and local governments within the Hawkesbury Shelf Bioregion. It is recognised that the majority of the responsibilities of managing the marine estate relate to activities outside local councils' jurisdictions. To ensure successful

implementation of most management initiatives will require partnerships with local governments, and we look forward to finding out how these will be developed.

SCCG Member Councils are concerned that local councils should not be faced with additional enforcement or financial burdens as a result of this bioregion assessment.

### **International trade and biosecurity**

The threats and opportunities of international trade through the major ports within the bioregion are only considered to a very limited extent under *Initiative 3. Marine research to address shipping and fishing knowledge gaps*. International ships are a major potential source of new species and diseases that may be hugely detrimental to aquatic or terrestrial ecosystems or to human health. Although international trade and biosecurity largely fall under Commonwealth Government legislation and control, there are sufficiently large environmental, social and economic threats associated with these matters to warrant their consideration as part of the state-run bioregion assessment.

### **Offshore exploration and mining**

Mining is mentioned as an “*emerging threat*” to the bioregion on page 11 of the *Discussion Paper*. The Background Report states that “*There is virtually no mining or exploration activity occurring in the continental shelf portion of the marine estate at present*” (page 202) but identifies “*two extractive activities, however, that have potential to develop in the Hawkesbury bioregion - offshore sand extraction to provide sands for building and beach nourishment, and oil/gas production*”.

The SCCG recognises the potential implications of sand mining on coastal morphology, biodiversity and water quality. The SCCG appreciates the potential community amenity benefits of offshore sand extraction for the purposes of beach nourishment thereby maintaining social values that are a public good, if conducted under strict environmental controls. However, the SCCG opposes the extraction of offshore sands for commercial and / or industrial purposes.

Offshore oil, coal and gas mining has the potential to have major, even catastrophic impacts on coastal and marine ecosystems and their associated economic, social and environmental values. The SCCG recommends a ban on oil and gas exploration and mining within the Hawkesbury Shelf Marine Bioregion to prevent this potential threat from becoming an actual threat.

### **Migratory species**

Australia has international obligations to conserve areas important to migratory species of shorebird under international conventions to which we are a signatory (the China-Australia Migratory Bird Agreement, Japan-Australia Migratory Bird Agreement and the Republic of Korea Migratory Bird Agreement, or CAMBA, JAMBA and ROKAMBA). The coastal zone of the Hawkesbury Shelf Marine Bioregion

contains internationally important areas for migratory shorebirds (e.g. Towra Point Nature Reserve, Kooragang Wetlands, among others) and this is a critical bioregion for securing their protection. The *Discussion Paper* only mentions shorebirds once, under *Initiative 2.3 Marine wildlife incident planning and guideline implementation*. The SCCG recommends that additional consideration is given to the conservation of important shorebird roosting and feeding habitat and the protection of these areas from development and disturbance by humans either on foot, in boats or in vehicles.

### **By-catch**

There are no management initiatives that address the stressor of by-catch, even though it is recognised as a stressor related to three priority threats (recreation and tourism, recreational fishing and commercial fishing). The SCCG suggests that *Initiative 4. Spatial management* can help to address this stressor, by reducing the threat of harvesting of both target and non-target species in protected areas, but further recommend that additional initiatives should be considered to further reduce this stressor.

### **Coastal Zone Management Plans and associated studies**

Considerable time, effort and resources have gone into developing local Coastal Zone Management Plans by state and local governments. In the case of Sydney Harbour, a [Coastal Zone Management Plan Scoping Study](#) has been recently prepared for SCCG (GHD, 2015) (Appendix A). The SCCG recommends reviewing and drawing on the recommendations of these plans and the Sydney Harbour Scoping Study as key resources in the development of management initiatives for the Hawkesbury Shelf and other marine bioregions in NSW.

### **Blue/green carbon capture and storage**

The importance of both aquatic ("blue") and terrestrial ("green") protected areas for not only the conservation of biodiversity but also the capture and storage of carbon is an emerging concept that should be considered under the bioregion assessment. The [SCCG Salty Communities Program](#) is an example of how grants-based incentives can be used to promote blue or green carbon capture (Sydney Coastal Councils Group, 2016). This concept may apply to a number of the proposed management initiatives, e.g. 2. *On-ground works*; 3. *Marine research*; 4. *Spatial management*.

### 3. Comments on proposed Management Initiatives

#### Initiative 1: Improving water quality and reducing marine litter

Page No.	Item	Comments or Questions	Recommendations
22	<p><b>1.1 Reducing litter and marine debris</b></p> <p><i>"The objective of this initiative is to reduce litter and marine debris in the bioregion."</i></p>	<p>The SCCG is supportive of this initiative, with the caveat that the focus should not be entirely on litter and debris at the expense of mediating less visible pollutants and contaminants.</p>	<p>The SCCG recommends the establishment of a Container Deposit Scheme to help reduce the volume of land-based litter entering waterways. Refer to the joint submission from four Sydney regional organisations of councils to the NSW Container Deposit Scheme Discussion Paper (Cooks River Alliance, 2016).</p> <p>It is also recommended that problem of litter is addressed at the source, not just at end-of-pipe. This should include education, enforcement, infrastructure, effective catchment management and mandatory targets/ programs for manufacturers and retailers to reduce litter in production and packaging stages.</p>
22	<p><i>"The initiative includes: collecting data to understand the sources of marine debris and litter and their impacts"</i></p>	<p>Councils, community groups and volunteers currently do fantastic work in removing huge volumes of litter from beaches and waterways. Their efforts should be recognised and supported.</p>	<p>The SCCG suggests building on the existing data sources on the volume and types of litter found on beaches and in waterways. For example, the Australian Marine Debris Database compiled by the Australian Marine Debris Initiative, the successful Harbour Care and Harbour Keepers programs, Clean Up Australia Day, the Keep Australia Beautiful Litter Index, Council litter audits, and other volunteer litter clean-up programs.</p>

Page No.	Item	Comments or Questions	Recommendations
22	<i>"targeted grant funding to install trash catching racks on stormwater infrastructure"</i>	It should be noted that most councils already have trash racks or gross pollutant traps (GPTs) in place to catch large litter items and that these are only one of a number of existing tools for improving stormwater quality. The ongoing maintenance costs of trash racks and some other stormwater infrastructure items are potentially a concern for councils.	Targeted funding is required to assist local councils with the ongoing maintenance as well as the installation of stormwater infrastructure, including, but not limited to, trash racks, bioretention swales, rain gardens, artificial wetlands, porous pavements and roads etc. Options for funding sediment and contaminant controls and capture devices should also be included in any funding program. Additionally, funding for research and development of more efficient, lower-maintenance mechanisms for trapping or otherwise reducing litter in waterways is recommended.
23	<i>"integration of water sensitive urban design into coastal developments"</i>	The SCCG supports this initiative and further recommends that water sensitive urban design (WSUD) should be a mandatory part of all new coastal and estuarine developments. (Note: this policy probably fits better under <i>Initiative 1.2 Reducing water pollution from catchment runoff.</i> )	Water sensitive urban design should be a mandatory part of all new coastal and estuarine developments. This could be achieved, for example, via additional requirements for stormwater quality management under the NSW BASIX program, or a mandatory provision in the standard LEP for all local councils, and/or a State Environmental Planning Policy specific to WSUD. Incentives and resources are required to assist local councils to retro-fit WSUD designs and devices to already developed areas.
23	<i>"exploring opportunities: – to support research into the feasibility of removing micro-plastics from the bioregion – for a behaviour change campaign to prevent the impacts of micro-plastics on marine biodiversity in the bioregion – to work with industry and other agencies to further research impacts of micro-plastics on wildlife"</i>	The SCCG supports this initiative. The SCCG also supports the Commonwealth Government's plans to implement a ban in law on microbeads if the voluntary phase out does not effectively result in a widespread ban (Australian Government Department of the Environment, 2016); and supports the Commonwealth and the State working together on these issues. MEMA's Marine Estate Expert Knowledge Panel has a role to play in providing the State Government with scientific and policy information that can also assist with the national initiatives to quantify, reduce and remediate the impacts of all plastic wastes.	

Page No.	Item	Comments or Questions	Recommendations
23	<i>“expanding the ‘Tangler Bin’ program to reduce fishing debris at popular coastal fishing spots in the bioregion”</i>	While the idea behind the TAngler bin is sound, some councils have had problems with the design, vandalism and maintenance issues with a resulting increase in maintenance costs to councils.	More research should be done on the design and effectiveness of the TAngler bin before installing more widely.
23	<i>“educating recreational fishers and boaters on the importance of disposing bait bags, fishing tackle and waste appropriately — by expanding the existing coastal Local Land Services recreational fishing and boating environmental education program”</i>	The SCCG supports this initiative and all initiatives to educate the general public, including but not limited to recreational fishers and boaters, on the importance of responsible disposal of litter and recyclables. For example, fishing gear debris is a significant issue in the bioregion, particularly Sydney Harbour. In addition to education, better monitoring and enforcement of fines is needed to create behavioural change.	The SCCG recommends an increase in the monitoring and enforcement of anti-litter laws to enhance the effect of litter education campaigns.
	Additional recommendation		A regionally coordinated approach to stormwater management could help to improve stormwater quality outcomes, for example joint GPT maintenance contracts facilitated through Regional Organisations of Councils (as developed by the Southern Sydney Regional Organisation of Councils). Improved transparency of stormwater management measures, overflows, pollution events and operational activities (e.g. GPT cleaning) is recommended, for example via a website similar to the Beachwatch model that would allow all stakeholders and the community to access data on the water quality of recreational swimming and fishing areas.
	Additional recommendation		The SCCG recommends that Roads and Maritime Services are required and resourced to play a larger role in managing water quality within Sydney Harbour, particularly addressing the problem of litter. The RMS Sydney Harbour Environmental Services used to operate in other Sydney estuaries and it should be re-established as a matter of priority in these waterways (NSW Government Roads and Maritime Services, 2014).

Page No.	Item	Comments or Questions	Recommendations
	Additional recommendation	The existing uses of Sydney Harbour are numerous, and the management of the Harbour is multi-layered, with a large number of agencies and government departments playing a role in its governance (approximately nine Commonwealth Government agencies, 17 State Government agencies spread across 13 departments, nine Local Governments and two corporations). As no single agency has sole responsibility for the Harbour, management has historically often been piecemeal.	A single management agency or body for Sydney Harbour, and/or an agreed Sydney Harbour Coastal Zone Management Plan, is recommended to ensure consistency and cooperation across all Commonwealth, State and Local Government agencies who own or manage land or assets within Sydney Harbour.
23	<b>1.2 Reducing water pollution from catchment runoff</b> <i>"The objective of this initiative is to reduce land-based water pollution from catchment runoff in the bioregion. Relevant environmental stressors include impacts from nutrient enrichment, agricultural chemicals, land management, salts, groundwater pollution, micro-plastics, and boat-based contamination."</i>	The SCCG is supportive of this initiative to improve water quality and reduce water pollution from catchment runoff. However, it should be noted and acknowledged that not all water pollution comes from land-based sources. Large cruise ships, tankers and smaller vessels are also important sources of water pollution. These are poorly monitored and the regulations relating to vessel wastewater discharge and ballast water release etc. are poorly enforced.	Regular, consistent water monitoring to detect illegal discharges of wastewater or other pollutants within Sydney Harbour and other important shipping areas is required. Ballast water release should be closely monitored for both pollutants and possible invasive species or pathogens. Information on water quality obtained through the regular monitoring should be made immediately available to the councils managing recreational swimming or fishing areas within that water body.
23	<i>"The initiative proposes a set of actions to improve water quality, including: raising awareness through community feedback mechanisms (e.g. report cards) for all estuaries and coastal marine bioregions"</i>		The SCCG supports this initiative, but further recommends that the report cards or other feedback mechanisms report not just on water quality and pollution levels, but also on the level of implementation of management intervention efforts underway in each region. This initiative should build on and not duplicate the existing State of the Beaches reporting program.

Page No.	Item	Comments or Questions	Recommendations
23	<i>"ensuring water quality is addressed in State, Regional and Local Plans under the new Strategic Planning Framework"</i>		<p>The SCCG supports this initiative but further recommends that quantifiable water quality improvement targets are set in State, Regional and Local Plans to improve the accountability of local and state authorities in achieving these targets.</p> <p>Again, the SCCG recommends building on and expanding, rather than duplicating, the State of the Beaches and Beachwatch monitoring programs. Improved water quality outcomes should be achievable without creating additional layers of reporting.</p>
23	<i>"updating the NSW Government's Best-Practice Management of Water Supply and Sewerage Framework (published in 2007) to include water sensitive urban design requirements"</i>		<p>The SCCG supports this initiative and further recommends that the operating and pollution licenses of Sydney Water and other water authorities within the bioregion are reviewed, and ambitious targets for water quality improvement are set via the licensing process. Refer to Appendix B: SCCG submission to the Review of Sydney Water Corporation's Sewage Treatment Environment Protection Licenses for more detail (Sydney Coastal Councils Group, 2015).</p>
23	<i>"developing an urban stormwater management framework to help managers assess the likelihood of poor environmental outcomes and where the greatest benefit would arise from stormwater treatment"</i>	<p>There are some existing resources that may already supply this need. For example, the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) from the Australian Government's eWater organisation, which can <i>"model a wide range of treatment devices to find the best way to capture and reuse stormwater runoff, remove its contaminants, and reduce the frequency of runoff. MUSIC helps you to evaluate these treatment devices until the best combination of cost, hydrology and water quality improvement is achieved"</i> (eWater, 2012).</p>	<p>The SCCG broadly supports this initiative, and recommends drawing and building on existing tools and resources.</p> <p>It has been many years since NSW had the benefit of the NSW Stormwater Trust (NSW Government Office of Environment &amp; Heritage, 2011). The SCCG recommends a review of the outcomes of the NSW Stormwater Trust to identify present-day gaps, and the re-establishment of the Trust or a similar body to support improvements to stormwater management across the state through education programs, grants schemes, and the development of guidelines/capacity building tools for land/stormwater managers.</p> <p>Theoretical frameworks or models are best supported by real world data. Resourcing councils via grants or other funding schemes to complete comprehensive stormwater quality testing throughout their networks to identify water pollution 'hotspots' is also recommended.</p>

Page No.	Item	Comments or Questions	Recommendations
23	<i>"reviewing pollution sources (including land management practices) that lead to diffuse water pollution, then assessing and implementing management works that will be of greatest benefit, for least cost"</i>	Much research has already been done in this area.	Resources and support for management works to reduce the impact of diffuse water pollution are required across all levels of government and industry.  Improved regulation of industries and land management practices that lead to diffuse water pollution are required to reduce the pollutants entering waterways at their source.
23	<i>"researching ways to more efficiently identify the risks posed by pollutants as they are transported downstream to estuaries and then coastal waters" "supporting extension and delivery of best-practice farm management to reduce nutrient and chemical runoff and acid and deoxygenated water discharges"</i>	The SCCG supports these initiatives.	In addition, the SCCG recommends research into, and better controls over, the accumulation and remediation of heavy metals in sediments, filter feeders and pelagic fish, and the possible implications on human health.

Page No.	Item	Comments or Questions	Recommendations
23	<i>"researching the value of and options for capturing and reusing stormwater from catchment runoff"</i>	<p>In a water-stressed country such as Australia, there is considerable value to be gained from capturing and reusing stormwater. There is already a body of research into options for the capture and reuse of stormwater and there are considerable opportunities to roll out construction and implementation of these existing techniques across the bioregion.</p> <p>While the SCCG is supportive of investment in the research and development of additional, innovative options for capturing and reusing stormwater, or in solutions to related challenges such as saltwater intrusion and maintenance requirements, this should be in addition to investing in implementation of existing known methods and devices.</p>	<p>The SCCG supports investment not just in the research and development of innovative stormwater capture and reuse but also recommends investing in developing solutions to related challenges such as saltwater intrusion and management requirements.</p> <p>Any investment in research should be in addition to financing the implementation of existing stormwater capture and reuse systems.</p> <p>The SCCG suggests that this initiative seek to collaborate with the national Cooperative Research Centre for Water Sensitive Cities, which is already delivering research and on-ground initiatives in this area.</p>
23	<i>"engaging with local councils on best practice urban stormwater measures"</i>	<p>Local councils are well placed to share knowledge on best practice urban stormwater measures.</p>	<p>The SCCG is supportive of this initiative but again stresses the need for funding and resources to achieve improved stormwater management, not just "engagement".</p> <p>The SCCG recommends that a dedicated entity similar to the previous NSW Stormwater Trust be established to ensure state wide effort and coordination on stormwater management.</p>
23	<i>"finalising the review and implementation of the recommendations of: – the NSW Diffuse Source Water Pollution Strategy – the Lower Hawkesbury Nutrient Management Strategy."</i>		<p>The SCCG supports this initiative and further recommends reviewing existing Estuary Management Plans and Coastal Zone Management Plans to audit the levels of implementation; and drawing on the recommendations of the Sydney Harbour Coastal Zone Management Plan Scoping Study (GHD, 2015).</p>

Page No.	Item	Comments or Questions	Recommendations
	Additional recommendation	<p>The <i>Discussion Paper</i> identifies sources of diffuse water pollution for additional research and investment, but does not include an initiative to improve point source pollution, particularly point source sewer pollution. There are still three cliff face sewer outfalls where raw, untreated sewage is discharged into the sea at Vaucluse and Diamond Bay. The deepwater ocean sewer outfalls off North Head, Bondi and Malabar receive (at best) only primary treatment. This waste water contains industrial waste and heavy metals as well as human effluent. This is a matter of considerable concern to SCCG Member Councils and many members of the community. Through the bioregion assessment process, MEMA can play a key role in driving the necessary State Government policy changes and investment to achieve improved sewage treatment and water quality outcomes.</p>	<p>The SCCG recommends that this initiative include regulatory requirements to improve the treatment of sewage prior to release. See also our recommendation above to review Sydney Water's pollution licenses and to set some ambitious targets for water quality improvement via the licensing process.</p> <p>Improving the treatment and disposal of sewage is absolutely essential to improving water quality in the bioregion and should be one of the highest priorities of this Management Initiative. Key actions for implementation should include:</p> <ul style="list-style-type: none"> <li>- Resourcing the repair of leaks in the public and private sewer networks</li> <li>- Upgrading all sewage treatment plants in the bioregion to at least secondary treatment by 2030</li> <li>- Re-directing the Vaucluse and Diamond Bay cliff-face raw sewer outlets to a sewage treatment plant and preventing any further discharge of raw, untreated sewage into the ocean or any other waterway.</li> </ul>

### **Initiative 1: additional recommendations**

Currently, water management in Sydney is fragmented and different agencies are responsible for different elements of the water cycle. The SCCG strongly recommends developing an Integrated Water Management strategy for managing all facets of the water cycle – ground and surface water, drinking water supply, sewers and stormwater.

The sewer and stormwater infrastructure in the Greater Sydney region is aging and, in many places, in desperate need of maintenance and upgrades. There are similar problems within the private sewer network in Sydney. Inspections of private sewers conducted by Sydney Water over 10 years ago found that more than half of the private sewers investigated had defects, and around 40% had illegal stormwater connections to the sewers. The SCCG recommends significant investment to improving stormwater and sewer infrastructure in the Greater Sydney region; and recommends research into the infrastructure improvement needs of the other major urban centres within the bioregion.

The SCCG would like to give advance notice of the upcoming publication of the results of a study commissioned by the SCCG into sewer overflow management in the Sydney region. This report and an associated Actions Plan will make a number of recommendations for improved management of the stormwater and sewer systems, focusing on governance, systems performance and communications, with the aim of achieving better water quality in Sydney waterways. Copies of these documents will be forwarded to the Marine Estate Management Authority on release.

## Initiative 2: On-ground works for healthy coastal habitats and wildlife

Page No.	Item	Comments or Questions	Recommendations
24	<p><i>"Healthy coastal habitats and wildlife assemblages are valued for their biodiversity values and because they underpin the many uses and activities that generate social and economic benefits from the marine estate."</i></p> <p><i>"The objective of this initiative is to deal with 'legacy' impacts on coastal habitats, including wetlands, by repairing or rehabilitating affected environmental assets."</i></p>	<p>The SCCG strongly supports the objective of addressing legacy issues of habitat destruction and degradation and sees this as a strength of this initiative. However the SCCG stresses that we must also avoid building negative legacy issues for the future, through improved regulation and environmental impact assessment of coastal development, not a reduction of "red tape" as suggested in other proposed initiatives.</p> <p>It is further essential to recognise that it is more cost-effective to protect existing natural areas in good condition than it is to rehabilitate degraded areas, and existing natural habitats should be highly valued accordingly.</p> <p>In addition, this and all management initiatives for the Hawkesbury Shelf Bioregion should actively seek opportunities for habitat rehabilitation and for allowing the potential 'migration' of habitat areas under climate change, as sea levels rise and there are changes to temperatures, rainfall and other climatic conditions.</p>	<p>The SCCG recommends improving and strengthening the environmental impact assessment (EIA) requirements for all coastal and marine development, exploration and extraction activities, to avoid creating negative legacy issues for the future. In particular, EIAs must start to track and consider the cumulative impacts of multiple developments and other approved activities on the environment via mechanisms such as strategic assessments of multiple developments, load limits for pollution, etc.</p> <p>The SCCG recommends not only the repair of 'legacy' damage to natural coastal and marine habitats but to also actively seek opportunities to expand or allow natural systems to 'migrate' to new areas as the region experiences the challenges of climate change, including sea level rise and changes to temperatures, rainfall and other climatic conditions. This will be of particular importance when assessing applications for developing greenfields coastal sites and for new hard infrastructure such as sea walls.</p>
24	<p><i>What are the priority threats and stressors?</i></p>	<p>Stormwater pollution should be included in the list of Threats/Activities and Stressors on page 24.</p>	
25	<p><i>"The initiative includes: rehabilitating tidal coastal wetlands by opening floodgates in non-flood periods to allow tidal inundation and fish passage and other rehabilitation and protection activities"</i></p>		<p>The SCCG generally supports this proposal but recommends assessment on a case-by-case basis to ensure any existing habitat values are identified and appropriately managed if the hydrologic regimes are changed.</p>

Page No.	Item	Comments or Questions	Recommendations
25	<p><i>"The initiative includes: identifying development offset sites for the rehabilitation of coastal wetlands in the bioregion using methodology being developed as part of the NSW Government biodiversity reforms"</i></p>	<p>This proposal is extremely concerning.</p> <p>There is already substantial scientific concern about the extensive use of biodiversity offsets to allow development and destruction of terrestrial habitats around Australia and the extremely questionable resulting outcomes for biodiversity (e.g. Maron, et al., 2012).</p> <p>Between 60 percent (NSW Government Office of Environment &amp; Heritage, 2013) and 75 percent (NSW Government Department of Primary Industries, n.d. (a)) of coastal wetlands in NSW have already been destroyed or degraded since European arrival. The approval of the destruction or modification of more wetland habitats cannot be adequately compensated by the rehabilitation of wetland offset sites.</p> <p><b>Q2.1 What evidence is there that offsets can adequately protect and improve coastal wetlands or other coastal and marine habitats?</b></p>	<p>Biodiversity offsets must not be used to enable inappropriate development, extraction or use of coastal wetlands or other coastal or marine environments.</p> <p>This is particularly important in the coastal zone in NSW where most areas are already populated. The existing and growing population and development stressors will be further exacerbated by the effects of a changing climate.</p>
25	<p><i>"The initiative includes: providing grants to improve aquatic biodiversity and stimulate community involvement in marine estate habitat rehabilitation projects"</i></p>	<p>This is a strength of this initiative and is supported by the SCCG. However we stress again that we must prevent the creation of new legacy issues for the future by inappropriate development or use of the coastal region.</p>	<p>While SCCG supports the re-establishment of crayweed (<i>Phyllospora comosa</i>), the restoration of oyster reefs and other suggested management activities listed on page 25, we recommend that this be expanded to also include the re-establishment or rehabilitation of seagrass beds, saltmarsh, wetlands, snags and other important coastal, estuarine and marine habitats and habitat elements that have been extensively lost or degraded by human activity in the bioregion. For example, supporting projects to re-naturalise concrete stormwater channels, the re-creation of intertidal habitats, saltmarsh, wetlands etc.</p>

Page No.	Item	Comments or Questions	Recommendations
25	<p><i>"The initiative includes: undertaking 'green engineering' projects to ensure coastal development such as seawalls, jetties, marinas and other infrastructure is environmentally friendly."</i></p>	<p>This initiative is supported by the SCCG.</p>	<p>The SCCG recommends that every new item of approved coastal, estuarine or marine infrastructure be required to incorporate 'green engineering' for environmental outcomes as a mandatory condition on approval.</p> <p>Technical guidance should be made available to developers and councils on what constitutes 'green engineering', how to achieve it in new developments, how to retro-fit it to existing infrastructure and the likely maintenance requirements. Currently available guidance tools such as the Environmentally Friendly Seawalls guide (NSW Government Office of Environment &amp; Heritage, 2012) could be built on and expanded.</p> <p>The SCCG recommends that the replacement of all swing moorings with less harmful mooring devices ("seagrass friendly moorings") within the next 5-10 years should be an additional objective under this initiative.</p>

Page No.	Item	Comments or Questions	Recommendations
25	<p><b>2.2 Urban Mangrove Management Policy</b></p> <p><i>"The objective of this initiative is to develop a policy that provides a balance between maintaining public safety, amenity and waterway views and the environmental benefits provided by mangrove habitats. Mangroves provide important habitat for fish, crabs, birds and other animals.... Mangroves also help maintain water quality..., and they play a vital role in protecting foreshores from storm surges and wind and wave conditions."</i></p>	<p>Mangrove communities are extremely important, as recognised in the <i>Discussion Paper</i> and various other NSW government technical and policy documents (e.g. NSW DPI , 2008). Their usefulness and status is further recognised by their protection as marine vegetation under the <i>Fisheries Management Act 1994</i>.</p> <p>This section of the <i>Discussion Paper</i> goes on to conflate different issues relating to mangrove management, some relating to the challenge of managing the environmental benefits of mangroves and other habitats (for example, where mangroves have expanded into saltmarsh areas), and some relating purely to the maintenance of human amenity, access and views. These are different matters requiring different management responses and it is not appropriate to respond to them all via the same policy mechanism.</p>	<p>Balancing the environmental benefits of mangroves and other habitats, for example where mangroves have expanded into saltmarsh areas, should be managed entirely separately from issues relating to human amenity, access and particularly views.</p>
25	<p><i>"In some areas, there has been a historical decline of mangroves due to clearing or reclamation and changes in water flow from waterfront developments. Mangroves are sometimes illegally removed to maintain or improve water views or private access to waterways."</i></p>	<p>It is an extremely poor policy response to weaken legislation purely because that legislation is sometimes violated and/or is difficult to enforce. The historical and ongoing removal or damage to mangroves are additional reasons to protect existing and new areas of mangroves, not a justification for allowing additional damage. It is concerning and disappointing that MEMA would recommend a management initiative that is inconsistent with the provisions of the current <i>Fisheries Management Act 1994</i>.</p>	<p>The protection of mangroves, seagrass and other marine vegetation under the <i>Fisheries Management Act 1994</i> should be adequately enforced, not weakened.</p>

Page No.	Item	Comments or Questions	Recommendations
25	<p><i>"In other areas, mangrove communities are expanding due to the build-up of sediments from catchment clearing, development and stormwater runoff. The expansion of mangroves can affect other environmental assets, such as endangered saltmarsh communities, and create maintenance problems for essential public infrastructure such as stormwater systems and boating facilities."</i></p>	<p>Systematic and ongoing monitoring of mangrove, saltmarsh (and seagrass) communities has not occurred (NSW Environment Protection Agency , 2015). While mangroves have been observed to be expanding in some estuaries in recent years, the extent of historical mangrove community destruction and loss state-wide is only very broadly estimated at somewhere between 30 – 70%. This is a substantial gap in the information being relied on to formulate this policy.</p> <p>It is important to acknowledge that the sedimentation of estuaries is a natural process, and the colonisation of areas of built up sediment by mangroves and other vegetation is a natural response. Mangroves in fact play an important role in mitigating the effects of waterway siltation by filtering the sediments from runoff and improving water quality (as mentioned in the <i>Discussion Paper</i>).</p> <p>Human activity is escalating the process of sedimentation by allowing development and insufficiently controlling sediments upstream. This is best addressed by improving development and sediment controls upstream and preventing additional sediment from entering the waterway(s), rather than trying to address the results of sedimentation where they manifest downstream.</p> <p>It should also be noted that the expansion of mangroves in some areas is likely to be driven by changes in climate as well as increased sedimentation. The colonisation by native vegetation of new areas in response to a changing climate is a process that should be supported and protected as a critical tool for maintaining the bioregion's resilience to climate change, not penalised just because parts of the estuary may look different now or in the future when viewed through the narrow lens of human aesthetics.</p>	<p>The colonisation by native vegetation of new areas in response to a changing climate is a process that should be generally supported and protected as a critical tool for maintaining the bioregion's resilience to climate change. If the expansion of mangroves is at the expense of other diverse and desirable natural habitats such as saltmarsh, these situations should be managed by public authorities (e.g. OEH) on a case by case basis while taking other factors into consideration, such as the ability or otherwise of the saltmarsh to transgress inland depending on limiting factors such as existing urban development.</p> <p>If any changes are made to the current protected status of mangroves under the <i>Fisheries Management Act 1994</i> by the final policy, any subsequent changes in mangrove extent must be closely monitored and publicly reported for each estuary and for the state.</p>

Page No.	Item	Comments or Questions	Recommendations
26	<p>"The policy aims to allow foreshore property owners and managers to:</p> <ul style="list-style-type: none"> <li>• selectively trim or remove fringing mangrove trees, where there is a public benefit, under a maintenance permit or code of practice; the aim is to protect and retain valuable mangrove habitats while reducing red tape</li> <li>• ensure their management of mangroves is in compliance with NSW State laws</li> <li>• lawfully trim mangroves in urban areas to retain or regain access to, and views of, waterways."</li> </ul>	<p>The SCCG does not support the proposal to allow private property owners and managers the legal right to "selectively trim or remove fringing mangrove trees". Some of the key weaknesses of this proposed initiative are discussed below.</p> <p>There is a very real risk that this policy will become the equivalent of the <i>10/50 Vegetation Clearing Code of Practice for New South Wales</i>, which in its early iterations resulted in considerable clearing of trees and native vegetation for non-fire-related purposes, including to allow development, reduce leaf-fall and improve access to views (Lee, 2014; Rapana, 2014).</p> <p>There is also a considerable risk of conflict and equity issues if some landholders are permitted to trim or remove mangroves and others are denied. Further, allowing the trimming of mangroves to retain or regain views sets a very concerning precedent that may encourage land owners or residents to illegally trim other vegetation to improve views. The SCCG therefore does not support the proposal to allow trimming or removal of mangroves for the purpose of maintaining or improving views.</p> <p>There may be room for allowing the selective trimming or small-scale removal of individual mangroves on <i>public</i> land where the land manager (e.g. the local council or National Parks and Wildlife Service) can provide evidence that a Mangrove Management Plan will provide environmental benefits or is required for reasons of safety. Social benefits alone should not be considered sufficient to allow the trimming or removal of mangroves. These circumstances should, as recommended above, be considered entirely separately from the issues surrounding illegal clearing or damage of mangroves to improve views.</p>	<p>The trimming of mangroves to improve or regain views should not be allowed as part of the Hawkesbury Shelf Marine Bioregion Assessment or as part of NSW policy or legislation.</p> <p>The managers of public land may be given approval to manage mangroves by selective thinning, trimming or removal of individual trees if they can provide evidence of environmental <i>and</i> safety, or purely environmental, benefits from the approach. Purely social benefits from managing mangroves must not be allowed to outweigh the environmental benefits of retaining and protecting mangroves.</p>

Page No.	Item	Comments or Questions	Recommendations
26	<p><b>2.3 Marine Wildlife Incident Planning and Guideline Implementation</b></p> <p><i>"The objective of this initiative is to reduce unacceptable marine wildlife disturbance in the bioregion."</i></p>	The SCCG is supportive of this initiative.	The SCCG recommends drawing on the substantial body of literature on citizen science techniques for engaging the public and obtaining useful and robust information. Multiple methods are required to achieve the best possible response from different sectors and age brackets of the community – e.g. the use of traditional and social media, online or mobile phone applications, targeted surveys to specific user groups, etc.
26	Additional recommendation	This initiative appears to refer specifically to human / wildlife interactions.	This initiative could usefully be expanded to include research into and guidelines for managing the interactions between introduced species and wildlife. For example, the impacts of domestic, stray and feral cats on the little penguin colony at Manly; all feral predators (including cats, foxes, dogs, and rats) on ground nesting seabirds and shorebirds; the impact of dog walkers disturbing shorebirds etc.

### Initiative 3: Marine research to address shipping and fishing knowledge gaps

Page No.	Item	Comments or Questions	Recommendations
27-28	<p><i>"The objective of this initiative is to better understand aspects of shipping, and commercial and recreational fisheries that generate moderate and high risks"</i></p> <p><i>"Components of the initiative include research:</i></p> <ul style="list-style-type: none"> <li><i>• into the impact of anchoring activities on deep water habitats and wildlife disturbance from noise in the two main offshore anchorages..."</i></li> </ul>	<p>The SCCG is generally supportive of the proposed actions listed under this initiative, particularly (but not limited to) efforts to reduce or eliminate the ecological impacts of anchorage.</p>	<p>Management Initiative 3 should include a commitment to not just research the impacts of fishing and shipping on habitats and wildlife but, importantly, to work with the relevant industries to develop, test and implement alternative options for reducing and eliminating these impacts (e.g. options for permanent environmental friendly [seagrass friendly] moorings to replace swing moorings).</p> <p>This initiative should also include a further commitment that the results from all research funded or supported under this initiative will be made publicly available, and readily shared with other researches in Australia and internationally via appropriate publications or other fora or on request.</p> <p>The research should not exclude or discount the impacts of anchoring, noise and other impacts associated with shipping and fishing from other ports such as Botany Bay.</p> <p>There is no mention in the <i>Discussion Paper</i> of the impacts of the release of ballast water or vessel wastewater discharge, or the other potential threats of international shipping, which should also be incorporated into this initiative.</p> <p>This initiative should draw on the body of existing research on these issues, for example: (NSW Government Department of Primary Industries, n.d. (b)), (GHD, 2013), (University of Wollongong, 2015).</p>
28	<p><i>"research... into sediment re-suspension and associated impacts on environmental assets in the lower Hunter in the south arm swing basin where vessels turn"</i></p>		<p>This initiative should be expanded to also investigate the health risks associated with heavy metal contaminants in Sydney harbour sediments (Montoya, 2015).</p>

Page No.	Item	Comments or Questions	Recommendations
28	<i>"research...into the effectiveness of novel mitigation measures and technologies aimed at reducing by-catch or non-target mortality in marine wildlife from both commercial and recreational fisheries."</i>	The SCCG is supportive of this initiative.	As well as research into existing and/or novel 'environmentally-friendlier' fishing gear and equipment (e.g. degradable fishing line and bait bags; circle hooks, etc.), this initiative should also include an education program for fishers in the use and benefits of the equipment and incentives to adopt better, lower-impact gear.
	Additional recommendation	There are a number of knowledge gaps relating to impacts on the bioregion, not necessarily directly related to shipping or fishing.	This initiative could be usefully expanded to supporting research into other key knowledge gaps, in particular research into likely climate change impacts on temperate marine environments.

#### Initiative 4: Spatial management for biodiversity conservation and use sharing

Page No.	Item	Comments or Questions	Recommendations
29-34	<p><b>“What are the community benefits associated with biodiversity?”</b>  <i>The NSW community values protection of the marine estate, with 82 per cent of respondents to the Marine Estate Community Survey indicating the importance of maintaining the abundance and diversity of marine life in the marine estate.”</i></p>	<p>The SCCG strongly supports Management Initiative 4 and sees this initiative as one of the key strengths of the Hawkesbury Shelf Marine Bioregion Assessment as a whole, if it is sufficiently implemented.</p> <p>The <i>Discussion Paper</i> provides an excellent summary of the numerous economic and social values of “<i>thriving habitats and the diverse and unique ecology of the marine estate</i>”, including supporting both extractive and non-extractive industries, and supporting recreational and social enjoyment of the coastal and marine environments. The SCCG thinks it important that the intrinsic right of all species and ecosystems to exist, and the responsibility of the human race to ensure their continued existence, is also acknowledged and supported by the Hawkesbury Shelf Marine Bioregion Assessment process and any resulting management initiatives or policies.</p>	<p>It is noted that commercial fishing has been left out of the list of Threats/Activities and Stressors on page 29, while recreational fishing has been included. Both recreational and commercial fishing are threats to marine biodiversity and both should be included in this list and addressed by this management initiative.</p>

Page No.	Item	Comments or Questions	Recommendations
29	<p><i>The objective of this initiative is to enhance the conservation of marine biodiversity through the use of spatial management to address key stressors identified through the TARA. This initiative would involve one, or a combination, of the following options:</i></p> <ol style="list-style-type: none"> <li><i>1. a network of targeted marine protected areas comprising sanctuary zones in existing aquatic reserves or additions and extensions to the existing system of aquatic reserves</i></li> <li><i>2. a large-scale multi-use marine park similar to those that exist in other bioregions</i></li> <li><i>3. spatial closures to address stressors from particular activities, such as closures to boating to provide refuge areas for marine mammals and reduce risks associated with vessel strike, or closures to certain fishing gear to reduce impacts on threatened and protected species.</i></li> </ol>	<p>The Marine Estate Community Survey conducted as part of the Hawkesbury Shelf Bioregion Assessment process showed significant support for protected areas, "with a majority of the community (67%) agreeing that some areas of the Marine Estate should be protected, even if it means recreational and commercial fishing is excluded" (page 7) (Sweeny Research, 2014).</p>	<p>The SCCG strongly supports all three management options listed for Management Initiative 4 and recommends adopting a combination of all three.</p> <p>The SCCG recommends that the best available scientific information and community consultation be used to create an appropriate mix of use, reduced or partial-use, and non-use (fully protected or no-take) areas across the Hawkesbury Shelf Marine Bioregion. This should include a Comprehensive, Adequate and Representative network of fully protected areas for adequate protection of the full suite of environmental values within the bioregion.</p>

Page No.	Item	Comments or Questions	Recommendations
30-34	<b>Pre-identified sites</b>	<p>For sites within the bioregion that already have some level of protection, it should be acknowledged that establishing this protected status has usually resulted from considerable efforts from the community and scientists, often over a period of many years. These hard-won achievements should not be undone. Retaining existing protections will always be politically easier and cheaper than creating new ones, while reducing existing protections will create more community uncertainty and distress.</p> <p>The SCCG strongly supports the retention and proposed increased protection for all 15 pre-identified sites listed on page 31 of the <i>Discussion Paper</i>.</p> <p>The SCCG is disappointed that the Sydney Harbour Intertidal Protected Areas (NSW Government Department of Primary Industries, n.d. (c)) are not included in this list for consideration for increased protection and improved management.</p>	<p>Within the suite of use, reduced or partial use and non-use (fully protected or no-take) areas across the entire Hawkesbury Shelf Bioregion recommended by the SCCG (see above), all existing protected areas within the bioregion including, but not limited to, the 15 pre-identified sites and the Sydney Harbour Intertidal Protected Area should:</p> <ul style="list-style-type: none"> <li>- maintain at least their existing legal protections</li> <li>- have management plans prepared for those sites that don't yet have them (see additional recommendation below), and</li> <li>- be considered for additional protection to fully protected ("no-take") status, particularly if this will help achieve CAR status across the bioregion or where it is expressly requested by the local community.</li> </ul> <p>A significant proportion of the 15 pre-identified sites should be examined for increased protection status to fully protected.</p>
30-34	<b>Pre-identified sites (cont.)</b>	<p>There is a lack of consistency in the terminology and management of existing Intertidal Protected Areas (IPAs) and Aquatic Reserves (ARs). One of the ARs is fully protected ("no-take", i.e. Cabbage Tree Bay Aquatic Reserve), while many are "partial-take" etc. This can create uncertainty within the community as to what actions are permitted in each area.</p>	<p>The SCCG recommends increased efforts to communicate the implications of different zones with different levels of protection and exclusions, to reduce user conflict and improve community acceptance and ownership of protected areas. Specifying the degree of protection or the allowable activities in the title of the zone may be one way to improve community understanding (e.g. 'Cabbage Tree Bay Fully Protected Aquatic Reserve'); or achieving consistency by making all 'Aquatic Reserves' into fully-protected (no-take) zones, and assigning a different categorisation to partial-take zones.</p>

Page No.	Item	Comments or Questions	Recommendations
30-34	<b>Pre-identified sites (cont.)</b>	<p>Very few of the 15 pre-identified sites have management plans in place, despite the fact that some of them were declared as protected areas over three decades ago.</p> <p>In the early 2000s, the SCCG led a process of drafting operational agreements to establish principles for partnership between the Department of Primary Industries (DPI) and certain SCCG Member Councils for the Aquatic Reserves within those council boundaries. We understand that some of these are still active (e.g. the Operational Agreement between DPI and Randwick City Council) but may not have been fully implemented or supported, due in part to under-resourcing of Fisheries Enforcement Officers.</p>	<p>Management plans, including operational agreements with neighbouring or associated land managers (e.g. local councils), must be prepared by the NSW Government (OEH/DPI Fisheries) in consultation with local councils, and their implementation sufficiently resourced, as a matter of urgency for all Aquatic Reserves and Intertidal Protected Areas in the bioregion.</p>
32	<b>The key threats to the environmental benefits of the 15 pre-identified sites</b>	<p>The inconsistency in the levels of protection for ARs and IPAs is exacerbated by a grossly insufficient level of enforcement of any of these restrictions. <i>The lack of sufficient enforcement of areas with protected status is probably the greatest single threat to these existing protected sites.</i></p> <p>Information on the degree of enforcement activity currently operating within the bioregion and how it has changed in recent years was sought from the NSW Department of Primary Industries (Fisheries) but not received in time to inform this submission. However based on information received from SCCG Member Councils, it is clear that at present there are insufficient Fisheries Enforcement Officers across the bioregion to adequately police protected areas. This is a key weakness of this management initiative that must be addressed.</p>	<p>The SCCG recommends a substantial investment in increased policing and enforcing of protected areas to prevent and punish illegal harvesting from these areas.</p> <p>Increased enforcement should be backed up by increased community education on the importance of protected areas to reduce the incidence of illegal behaviour via improved understanding and community ownership.</p>

Page No.	Item	Comments or Questions	Recommendations
33-34	<p><b>How adequate is the level of protection of the 15 pre-identified sites and additional 44 sites?</b></p>	<p>The SCCG concurs with the Assessment's findings that the current system of Aquatic Reserves and the marine components of National Parks in the Hawkesbury Shelf Marine Bioregion is not comprehensive, adequate or representative (CAR).</p> <p>Further, while community consultation is essential to any process of determining a CAR network of marine and coastal protected areas, community consultation alone will not achieve CAR outcomes. The NSW Government has considerable mapping data on habitat types for the NSW coastline which can and should be used to prepare a proposed network of marine and coastal protected areas that achieves CAR principles. Ideally, a suite of say three alternative options for the network should be prepared for community consultation, but at the very least, a 'best' or 'preferred' network of fully- and partially- protected areas should be released for community consultation, with sufficient explanation of the scientific justification for the selection of preferred and alternative sites.</p> <p>The approach taken by the Assessment to date of seeking community consultation without providing any indication of what the outcomes of the spatial management initiative might look like results in increased uncertainty and doubt in multiple sectors of the community, including those who are both for and against fully-protected areas.</p> <p>Further, while the approach taken by the Assessment to date of asking the community to nominate areas of value for additional protection is useful and laudable, it should not replace a scientifically robust process for selecting sufficient zones for protection to achieve an overall CAR network across the bioregion.</p>	<p>The SCCG strongly recommends that MEMA prepare a map of multiple zones with different management restrictions across the Hawkesbury Shelf Marine Bioregion, including a proposed CAR network of fully-protected and partially-protected areas, using the best available scientific and geographic knowledge of the bioregion at this point in time. Further, the SCCG recommends that MEMA prepare a number of alternative options for achieving CAR representation in fully-protected areas with alternative sites to allow the community to comment on multiple options and the zones of least conflict to be selected for full protection.</p>

Page No.	Item	Comments or Questions	Recommendations
29-34	Additional uses for spatial management planning		The SCCG recommends that spatial management planning should also be used to help define priority areas for financial investment in management actions.
29-34	Additional uses for spatial management planning	The Hawkesbury Shelf Bioregion Assessment is an opportunity to better marry land use planning and development assessment to marine and coastal planning processes.	The links between this Bioregion Assessment and the Coastal Management Reform processes and draft policies needs to be much more clearly articulated.
42	Additional threats that can be addressed by this management initiative	Table 6 on page 42 is a matrix identifying which priority stressors and threats can be addressed by each suggested management initiative. This table does not completely capture all of the stressors that <i>Initiative 4: Spatial management</i> could address.	The SCCG suggests that spatial management planning can also be used to address and manage the impacts of by-catch (by removing both target and non-target fishing pressure in protected zones); bank erosion and sediment resuspension/disturbance (by, for example, determining appropriate zones for different types of shipping and mooring); shading (by influencing the type of marine and coastal infrastructure that can be constructed); and water pollution (by influencing what uses of the marine, coastal and estuarine habitats are permitted in different zones); and that this should be reflected in a revised iteration of Table 6.

### Initiative 5: Improving boating infrastructure

Page No.	Item	Comments or Questions	Recommendations
35	<i>"This suggested initiative aims to address the stressors of limited access infrastructure and over-regulation."</i>	The SCCG challenges the statement that "over-regulation" is a key stressor or threat to either the environment or the social and economic benefits of boating, and further challenges this as a rationale for reducing regulation. No justification is given in the <i>Discussion Paper</i> , or the associated <i>Frequently Asked Questions</i> document, or the <i>Social and economic background information report on the NSW marine estate</i> for this assertion. Nor is any evidence provided in any of these three documents that existing regulation is preventing or reducing the enjoyment of recreational boating.	The assertion that over-regulation is a key stressor or threat to either the environment, or the social and economic benefits of boating, must either be backed up with evidence or removed from this management initiative and associated policies.
35-36	<b>5.1 Boat storage strategies</b>	There are already almost 26,500 mooring sites in NSW, and the desire for boat storage is an increasing trend as documented in the <i>Social and economic background information report on the NSW marine estate</i> (Vanderkooi Consulting, 2015). Marinas, moorings and jetties are all associated with a range of social and environmental issues – foreshore management, equitable coastal access, water quality, habitat destruction etc. In addition, every private mooring takes away a small area of a public asset (the waterway).	<p>The SCCG recommends that MEMA explore innovative solutions to any existing or future competition for use of boating infrastructure. Options that could be explored might include increased mooring fees for owners that don't use their boats; time-share schemes for boats and/or moorings, or a car share-style scheme for boats; incentives to allow increased public access to private marinas in public waters, etc.</p> <p>As a matter of priority, the NSW Government must determine an appropriate 'carrying capacity' for moorings, jetties and marinas in each public waterway. A state-wide policy on the management of boat storage and associated industries (cleaning, repair etc.) is required. In addition, management decisions and carrying capacities must be considered individually for local waters in consultation with associated land managers (e.g. local councils) and the local community.</p>

Page No.	Item	Comments or Questions	Recommendations
35-36	<p><b>5.1 Boat storage strategies</b>  <i>"The objective of this initiative is to look at opportunities and constraints to meet increasing demand for boat storage in the region."</i></p>		<p>The SCCG recommends examining the boat storage strategies and policies adopted by various local councils, e.g. Manly Council and Woollahra Council.</p> <p>Any boat storage strategie(s) should include, at a minimum, the objectives:</p> <ul style="list-style-type: none"> <li>- to prevent the further alienation of public open space through inappropriate and ad-hoc storage of dinghies, boats and other personal watercraft;</li> <li>- to ensure that the potential for environmental harm from boat storage is minimised by, among other actions, the removal of abandoned, derelict or illegally stored water craft</li> <li>- no further swing moorings to be approved and existing swing moorings to be gradually phased out and replaced with more environmentally-friendly options in the next 5-10 years.</li> </ul>

Page No.	Item	Comments or Questions	Recommendations
37	<p><b>5.2 Reducing red tape for low-risk boating infrastructure.</b></p> <p><i>“The objective of this initiative is to reduce red tape for boating infrastructure in the marine estate. The stressors it aims to address include limited access to land-water interface infrastructure and inefficient or over regulation.”</i></p>	<p>The SCCG has multiple concerns with this statement. Firstly, no definition is provided for either “red tape” or what constitutes “low-risk boating infrastructure”.</p> <p>Secondly, as raised above, no justification is given for the claim that existing regulation is preventing or reducing either the provision of boating infrastructure, or the enjoyment of recreational boating. The <i>Social and economic background information report on the NSW marine estate</i> lists “Over-regulation or increased compliance costs” as a potential threat to the benefits of recreational boating (Table 23, page 64) but does not include any mention of the impact of regulation on the provision of access and storage infrastructure.</p> <p><b>Q5.1 What is intended to be covered by the term “low-risk boating infrastructure”?</b></p> <p><b>Q5.2 How will provisions for “reducing red tape” (taking into account SCCG recommendations for maintaining and improving environmental impact assessments, see right) relate to and/or impact on existing council assessment processes?</b></p>	<p>The SCCG recommends a full review of the existing regulation and development assessment processes for marinas, moorings, boat ramps, jetties and other boating infrastructure, taking into consideration the carrying capacity of a given waterway, predictions for future growth of recreational boating, new technologies etc., before deciding on any policies to reduce the existing regulation of boating infrastructure.</p> <p>In particular, environmental impact assessment procedures for boating infrastructure are vital to safeguard the environmental, social and economic values of biodiverse and healthy coastal, estuarine and marine ecosystems, and should be maintained and improved, not reduced.</p>

### Initiative 6: Reducing user conflicts in Pittwater

Page No.	Item	Comments or Questions	Recommendations
38	<i>"The objective of this initiative is to reduce resource-use conflict between commercial fishing and other user groups in Pittwater."</i>	<p>The SCCG queries why Pittwater is the only waterway singled out for focus under this initiative. User conflict is a significant and ongoing problem across the entire bioregion, not just in Pittwater (indeed it is likely to be an issue across the state). SCCG supports addressing user conflict across the entire bioregion and NSW, including but not limited to, the Pittwater region.</p> <p>Further, the sole focus on the conflict between commercial fishing and other user groups is not supported, as user conflict is a much broader matter. Conflict exists to varying extents between a range of different users, including commercial and recreational fishers, but also between water craft users (jet skis, sailboards, kayaks, powerboats etc.) and swimmers, and between spear fishers and swimmers. There is also conflict between the environmental values and the human uses of the coastal environments, for example bank erosion caused by vessel use; mooring and anchor damage to seagrasses; and disturbance of migratory shorebirds by powerboats, dog walkers, beach four wheel drivers etc. User conflict is also not restricted to on-water situations but extends to issues of over-crowding and parking on land. Further, this is a constantly evolving matter as demographics and recreational interests change – consider for example the rise in popularity over the past decade of recreations such as ocean swim competitions, stand-up paddleboards and personal training or 'boot camp' exercise programs on beaches.</p>	<p>The SCCG recommends that this initiative be replaced with an initiative to 'reduce and address user conflict issues across the bioregion', preferably incorporating an action to develop a state-wide policy for managing user conflict. The policy should be flexible enough to cope with changing uses of the marine, coastal and estuarine environments over time.</p>

#### **Additional Recommendation: Commercial Fishing**

Commercial fishing has been progressively excluded from many of the main water bodies of the Hawkesbury Shelf Bioregion in recent years, including parts of Sydney Harbour, the Hunter River, Botany Bay and Lake Macquarie. These exclusions have resulted from various drivers, including buy outs, conflicts with recreational fishers or pollution.

The SCCG recommends a review into whether the best overall environmental and social outcomes are gained by excluding commercial fishing in so many coastal waters, with consideration of the resulting impacts of concentrating commercial fishing effort in the remaining areas accessible to them (e.g. the Hawkesbury River) and/or a potential increase in seafood imports from countries with lower environmental and health regulatory standards.

## Initiative 7: Improving accessibility

Page No.	Item	Comments or Questions	Recommendations
39	<p><i>"The objective of this initiative is to identify and address opportunities to improve access availability in the bioregion. The stressors it aims to address are limited access infrastructure and over-regulation."</i></p>	<p>The SCCG is strongly supportive initiatives to maintain and improve sensitive and appropriate public access to the coast. However we challenge the assertion that "over-regulation" is a stressor that is negatively impacting public, disabled or Aboriginal access to coastal areas. No evidence to support this assertion is provided in the <i>Discussion Paper</i> or in the <i>Social and economic background information report on the NSW marine estate</i>. In direct contrast to this statement, the current <i>State Environmental Planning Policy No 71 – Coastal Protection</i> is an important piece of regulation that (among other things) aims to prevent <i>"the impeding or diminishing, to any extent, of the physical, land-based right of access of the public to or along the coastal foreshore"</i> (currently under review and likely to be replaced as part of the NSW Government's Coastal Management Reforms process).</p> <p><b>Q7.1 What evidence is there that "over-regulation" is a stressor currently preventing or likely to prevent access by Aboriginal groups, the disabled community or the general public to the coast?</b></p> <p><b>Q7.2 Which agency, if any, is involved in assessing and monitoring the degree of accessibility of the coastline and coastal infrastructure to Aboriginal groups, the disabled community and the general public?</b></p>	<p>The assertion that over-regulation is a key stressor preventing or likely to prevent access to the coast by the disabled community, Aboriginal groups or the general public, must either be backed up with evidence or removed from this management initiative and associated policies.</p>

Page No.	Item	Comments or Questions	Recommendations
39	<p>“Many access issues such as boating infrastructure, coastal land use planning and spatial management that provide for use sharing and access to the marine estate are dealt with in other suggested initiatives in this discussion paper. The TARA identified that disabled access to several islands in the bioregion and Sydney Harbour was limited as a result of insufficient infrastructure, and this is a primary focus of this initiative.”</p>	<p>The SCCG does not agree that improving the accessibility of the coastal and marine ecosystems has as yet been sufficiently dealt with by the other suggested management initiatives of the <i>Discussion Paper</i>.</p> <p>The biggest threats to maintaining or improving access to the coast are a legacy of poor land use planning decisions of the past; the pressures of current and future developments, driven by a growing population and increasing density in coastal areas; and the effects of climate change, particularly sea level rise. All of these factors may contribute to further reduction of public access to coastal areas. These threats could alternatively or additionally be considered under <i>Management Initiative 8: Land use planning for coasts and waterways</i>, but access is not currently mentioned under Initiative 8 in the <i>Discussion Paper</i>. This is a key weakness of both Initiative 7 and 8.</p>	<p>Maintaining and improving public access to the coast, that is appropriate and sensitive to the natural environment, must remain a key objective of any policies or management initiatives to arise from the bioregion assessment.</p>

Page No.	Item	Comments or Questions	Recommendations
39	<p><b>7.1 Assessment of existing public disabled access</b>  <i>"The initiative would involve an assessment of existing public disabled access to islands in the bioregion....  ...aim to identify opportunities to improve access and prioritise locations for consideration via existing funding programs.... This includes an assessment of land-side infrastructure that connects to wharves (e.g. footpaths, steps, ablution blocks etc.) that also need to be accessible."</i></p>	<p><b>Q7.3 Given that "the TARA identified that disabled access to several islands in the bioregion and Sydney Harbour was limited" (p39), please clarify why Sydney Harbour (and other coastal areas) might not be incorporated to this proposed assessment?</b></p> <p>It should be acknowledged that many coastal councils, often in partnership with the NSW Government, have implemented excellent initiatives to increase disabled ("barrier-free") access to the coast, including access ramps and other specialised infrastructure.</p>	<p>The SCCG supports initiatives to increase barrier-free access to coastal areas, and recommends that the assessment of required infrastructure to improve this access be extended to include additional waterside locations such as beaches, lakesides and harbours.</p> <p>The SCCG further recommends exploring and building on a number of different options for improving barrier-free access to coastal areas, including both temporary (e.g. roll out mats over sand; fat tyre wheelchairs for hire) and permanent mechanisms (e.g. access ramps; boardwalks; Braille signs; mechanical lifts into water or boats). The relative costs of maintaining each option and whose responsibility it will be to maintain the infrastructure must also be considered. Additional funding mechanisms to provide and maintain the infrastructure is recommended.</p>
40	<p><b>7.2 Further engaging with Aboriginal communities on access for cultural purposes</b></p>	<p>The SCCG supports initiatives to involve Aboriginal communities in planning for and sustainably managing the coastal and marine estate.</p> <p>The SCCG also supports initiatives to improve broader community understanding of and engagement with Aboriginal culture, history and practices.</p>	<p>Options for appropriately regulated eco-tourism opportunities should be explored as a mechanism for improving community understanding of Aboriginal cultures, and providing alternative economic development opportunities for Aboriginal communities.</p>

### **Initiative 7: additional recommendations**

Initiative 7 would benefit from a broader focus on improving accessibility for the community as a whole, taking into account the diverse range of uses and values that people experience from the coast. Different user groups want different things – ideally, the bioregion assessment should aim to provide a suite of accessibility options, e.g. by walking, cycling, motor vehicle or water vehicle.

A legacy of poor land use planning decisions in the past has restricted public access to the coast in many places. For example, there are private dwellings and golf courses built next to shorelines and cliff faces in Sydney, and private dwellings with fences extending right up to the waterline on the banks of Lake Macquarie. Private wharves and marinas are further examples of the restriction of public access and use of a public asset by the construction of privately-owned infrastructure.

The SCCG recommends researching innovative mechanisms for addressing this legacy, for example exploring incentives for encouraging the shared use of private wharves, marinas and jetties.

Given this legacy, it is even more critical that existing public access to the coast be maintained by regulating land use and development. However, access should also be appropriate – it should be managed to limit impacts on natural ecosystems and wildlife. The SCCG recommends adding “Inappropriate access by people, vehicles and water vessels” as a key stressor to the list on page 39.

The SCCG recommends that this initiative also strive to increase the connectivity of the coastline, both for public access and for improved gene sharing and movement of biodiversity.

Further, as sea levels rise and extreme weather events such as storm surges increase in frequency, shoreline areas and infrastructure will be lost or heavily impacted. The SCCG recommends that the likely impacts of climate change, particularly sea level rise, are factored in when considering future access needs. Adequate coastal development set backs are essential for protecting access, infrastructure and biodiversity under a changing climate.

### Initiative 8: Land use planning for coasts and waterways

Page No.	Item	Comments or Questions	Recommendations
41	<p><i>“The Marine Estate Community Survey and Hawkesbury Shelf engagement identified that the most important benefits provided by the marine estate to the NSW community are:</i></p> <ul style="list-style-type: none"> <li><i>• clean waters supporting a unique and abundant marine life</i></li> <li><i>• natural beauty and a safe place for people and communities to socialise and lead an active healthy lifestyle</i></li> <li><i>• the income provided for locals through various industries, particularly tourism and seafood related industries.”</i></li> </ul>	<p>Three items are listed as <i>“the most important benefits provided by the marine estate to the NSW community”</i> but it is not made clear in the <i>Discussion Paper</i> how the only management or policy intervention proposed under this initiative, to review three ‘catchment based’ State Environmental Planning Policies (SEPPs), will protect or maintain these key benefits.</p> <p>The benefit of clean waters and abundant marine life are, perhaps, better addressed under Initiatives 1 and 4.</p> <p>However, one of the best ways to achieve the protection of natural beauty and coastal amenity is by appropriate land use planning (this proposed initiative), but there is no mention in the <i>Discussion Paper</i> of how natural beauty will be maintained (e.g. by regulating and limiting development on headlands, maintaining bushland areas, coastal setbacks etc.), either in this or any other initiative. This is a key weakness of this initiative.</p>	<p>The SCCG recommends incorporating protections for natural beauty through appropriate land use planning into this management initiative.</p>

Page No.	Item	Comments or Questions	Recommendations
41	<p>Priority stressors: over-regulation</p> <p><i>"The NSW Department of Planning and Environment proposes to look for opportunities to reduce red tape as part of this review."</i></p>	<p>Again, the SCCG challenges the assertion that "over-regulation" is a stressor that is negatively impacting on the environmental or social values of the coast. Again, no evidence or justification is provided to support this assertion, in either the <i>Discussion Paper</i> or any supporting documents, as far as we can determine.</p> <p>The SCCG believes that regulation of land use planning for coasts and waterways is essential for the protection of coastal and marine biodiversity and the maintenance and enhancement of social enjoyment and economic benefits of the marine and coastal estate.</p> <p>The SCCG again stresses that we must also avoid building negative legacy issues for the future. Regulation and in particular, environmental impact assessment requirements for coastal and marine development, should be strengthened and improved, rather than the pursuit of a reduction of "red tape" as stated in this proposed initiative.</p>	<p>The SCCG recommends strengthening and improving regulation and environmental impact assessment requirements for all coastal and marine development, exploration and extraction activities to avoid creating negative legacy issues for the future.</p>
41	<p><i>"The objective of this initiative is to update, streamline and enhance the SEPPs in NSW."</i></p>	<p>This is a process, not an objective.</p>	<p>The objective of this initiative should be replaced with something along the lines of:  "to use land use planning policies to protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast".</p>

Page No.	Item	Comments or Questions	Recommendations
41	<p>“A number of SEPPs relate directly to the Hawkesbury Shelf marine bioregion, in particular:</p> <ul style="list-style-type: none"> <li>• Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005</li> <li>• Greater Metropolitan Regional Environmental Plan No 2—Georges River Catchment</li> <li>• Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River.”</li> </ul> <p>“The proposed review of the SEPPs would provide an opportunity to consider some of the threats to environmental assets and social and economic benefits identified in the TARA that are specific to those catchments within the bioregion.”</p>		<p>A review of the land use planning policies for the land adjacent to and impacting on the Hawkesbury Shelf Marine Bioregion should not be restricted to these three catchments but should incorporate all major catchments adjacent to and impacting on the bioregion.</p>
42	<p>Additional threats that can be addressed by this management initiative</p>	<p>Table 6 on page 42 is a matrix identifying which priority stressors and threats can be addressed by each suggested management initiative. This table does not completely capture all of the stressors that <i>Initiative 8: Land use planning for coasts and waterways</i> could address, if optimally implemented.</p>	<p>The SCCG suggests that appropriate land use planning can also contribute to managing the impacts of altered flow patterns; bank erosion; groundwater pollution; and wildlife disturbance. It should be noted that poor land use planning can, conversely, contribute to each of these stressors.</p>

## Conclusion

The SCCG is grateful for this opportunity to provide comment to the Hawkesbury Shelf Marine Bioregion Assessment process.

SCCG Member Councils share a commitment to the sustainable management of the NSW coastal environment, and the protection and enhancement of its associated ecosystems, ecological and physical processes and biodiversity.

The SCCG formally requests that all questions and recommendations presented in this submission are considered, and that specific feedback is provided via a publicly available analysis report detailing all submissions received and the Management Authority's responses to each point.

We are keen to continue our involvement in the bioregion assessment process and in particular look forward to providing comment on a future stage when more detail can be provided on the roles, responsibilities and costings of implementation of the final management initiatives.

## References

- Australian Government Department of the Environment. (2016). 'Federal Government strengthens efforts to tackle plastic waste' Media Release 29 February 2016. Retrieved from The Hon. Greg Hunt MP Media Releases: <https://www.environment.gov.au/minister/hunt/2016/mr20160229a.html>, 26.04.16.
- Cooks River Alliance. (2016). *Submission on the NSW Container Deposit Scheme Discussion Paper*. Retrieved from Sydney Coastal Councils Group/Submissions: [http://sydneycoastalcouncils.com.au/sites/default/files/Joint\\_ROC\\_submission\\_Container\\_discussion\\_paper.pdf](http://sydneycoastalcouncils.com.au/sites/default/files/Joint_ROC_submission_Container_discussion_paper.pdf), 12.04.16.
- EDO NSW. (n.d.). *What is ecologically sustainable development?* Retrieved from Environmental Defenders Office NSW: [http://www.edonsw.org.au/hys\\_what\\_is\\_ecologically\\_sustainable\\_development](http://www.edonsw.org.au/hys_what_is_ecologically_sustainable_development), 26.04.16.
- eWater. (2012). *MUSIC overview*. Retrieved from eWater: an Australian Government owned not-for-profit: <http://ewater.org.au/products/music/music-overview/>, 18.04.16.
- GHD. (2013). *Ship anchorage management in the Great Barrier Reef World Heritage Area: Synthesis report, July 2013. Commissioned by the Department of Sustainability, Environment, Water, Population and Communities and the Great Barrier Reef Marine Park Authority*. Retrieved from Australian Government Department of the Environment: <http://www.environment.gov.au/resource/ship-anchorage-management-great-barrier-reef-world-heritage-area-synthesis-report-july-2013>, 18.04.16.
- GHD. (2015). *Sydney Harbour Coastal Zone Management Plan Scoping Study prepared for the Sydney Coastal Councils Group*. Retrieved from Sydney Coastal Councils Group: [http://www.sydneycoastalcouncils.com.au/sydney\\_harbour\\_czmp](http://www.sydneycoastalcouncils.com.au/sydney_harbour_czmp), 18.04.16.
- Gooding, A. (2012). *A Comparative Analysis of Regional Organisations of Councils in NSW and Western Australia*. Australian Centre of Excellence for Local Government, University of Technology, Sydney.
- Lee, V. (2014). Mosman Council submission to the NSW Rural Fire Service re: Review of 10/50 Vegetation Clearing Rule. Mosman Council, Mosman NSW.
- Maron, M., Hobbs, R., Moilanen, A., Matthews, J., Christie, K., Gardner, T., . . . McAlpine, C. (2012). Faustian bargains? Restoration realities in the context of biodiversity offset policies. *Biological Conservation Vol 155*, 141-148.
- Montoya, D. (2015). *Pollution in Sydney Harbour: sewage, toxic chemicals and microplastics*. NSW Parliamentary Research Service Briefing Paper No 03/2015 . Retrieved from Parliament NSW: [http://www.parliament.nsw.gov.au/prod/parlment/publications.nsf/0/14EBAE23F46BE9B2CA257E0A00188305/\\$File/Pollution%20in%20Sydney%20Harbour.pdf](http://www.parliament.nsw.gov.au/prod/parlment/publications.nsf/0/14EBAE23F46BE9B2CA257E0A00188305/$File/Pollution%20in%20Sydney%20Harbour.pdf), 18.04.16.

- NSW DPI . (2008). *Primefact 746: Mangroves*. Retrieved from NSW Department of Primary Industries:  
[http://www.dpi.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0020/236234/mangroves.pdf](http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/236234/mangroves.pdf), 18.04.16.
- NSW Environment Protection Agency . (2015). *Coastal, Estuarine and Marine Ecosystems*. Retrieved from New South Wales State of the Environment 2015 :  
<http://www.epa.nsw.gov.au/resources/soe/150817-soe-20-coastal-estuarine-marine-ecosystems.pdf>, 18.04.16.
- NSW Government Department of Primary Industries. (n.d. (a)). *Status of aquatic habitats*. Retrieved from Department of Primary Industries Fishing and Aquaculture: <http://www.dpi.nsw.gov.au/content/fisheries/habitat/aquatic-habitats/status>, 27.04.16.
- NSW Government Department of Primary Industries. (n.d. (b)). *Traditional boat moorings in sensitive habitats (and associated research papers)*. Retrieved from NSW Government Department of Primary Industries Fishing and Aquaculture/ Habitat Management:  
<http://www.dpi.nsw.gov.au/content/fisheries/habitat/threats/traditional-boat-moorings-in-sensitive-habitats>, 18.04.16.
- NSW Government Department of Primary Industries. (n.d. (c)). *Sydney Harbour - Port Jackson*. Retrieved from Department of Primary Industries Fishing and Aquaculture / Recreational saltwater location closures:  
<http://www.dpi.nsw.gov.au/fisheries/info/closures/rec-sw-loc/central-coast-index/sydney-harbour-port-jackson>, 12.04.16.
- NSW Government Office of Environment & Heritage. (2011). *About the Stormwater Trust*. Retrieved from Office of Environment & Heritage Stormwater:  
<http://www.environment.nsw.gov.au/stormwater/usp/abouttrust.htm>, 26.04.16.
- NSW Government Office of Environment & Heritage. (2012). *Environmentally Friendly Seawalls: A Guide to Improving the Environmental Value of Seawalls and Seawall-lined Foreshores in Estuaries*. Published by Office of Environment & Heritage on behalf of Sydney Metropolitan Catchment Management Authority. Retrieved from NSW Office of Environment & Heritage:  
<http://www.environment.nsw.gov.au/resources/estuaries/pubs/090328-Seawall-Guide-2012-Reprint.pdf>, 18.04.16.
- NSW Government Office of Environment & Heritage. (2013). *Threats to wetlands*. Retrieved from Office of Environment & Heritage / Water / Wetlands:  
<http://www.environment.nsw.gov.au/wetlands/ThreatsToWetlands.htm>, 27.04.16.
- NSW Government Roads and Maritime Services. (2014). *Sydney Harbour environmental services*. Retrieved from Roads and Maritime Services:  
<http://www.rms.nsw.gov.au/about/environment/sustainability/sydney-harbour.html>, 26.04.16.

- NSW Marine Estate Management Authority. (2016a). *Hawkesbury Shelf Marine Bioregion Assessment: Suggested management initiatives Discussion Paper*. Retrieved from NSW Marine Estate/Hawkesbury Shelf marine bioregion assessment/Have your say: [http://www.marine.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0009/595044/hawkesbury-shelf-discussion-paper.pdf](http://www.marine.nsw.gov.au/__data/assets/pdf_file/0009/595044/hawkesbury-shelf-discussion-paper.pdf), 12.04.16.
- NSW Marine Estate Management Authority. (2016b). *Hawkesbury Shelf marine bioregion assessment – Hawkesbury Environmental background report*. Retrieved from NSW Marine Estate: [http://www.marine.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0007/594871/hawkesbury-environmental-background-report.pdf](http://www.marine.nsw.gov.au/__data/assets/pdf_file/0007/594871/hawkesbury-environmental-background-report.pdf), 12.04.16.
- Rapana, J. (2014). *10/50 laws reigned in after NSW RFS concedes widespread abuse*. Retrieved from Daily Telegraph News Local website: <http://www.dailytelegraph.com.au/newslocal/north-shore/1050-laws-reigned-in-after-nsw-rfs-concedes-widespread-abuse/news-story/0528e182bc3d573a60d50b4948cc7615>, 18.04.16.
- Sweeny Research. (2014). *Marine Estate Community Survey Final Report*. Retrieved from NSW Marine Estate: [http://www.marine.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0005/531518/marine-estate-community-survey-report-executive-summary.pdf](http://www.marine.nsw.gov.au/__data/assets/pdf_file/0005/531518/marine-estate-community-survey-report-executive-summary.pdf), 12.04.16.
- Sydney Coastal Councils Group. (2015). *Submission to the Review of Sydney Water Corporation's Sewage Treatment Environment Protection Licences May 2015*. Retrieved from Sydney Coastal Councils Group Submissions: <http://sydneycoastalcouncils.com.au/sites/default/files/SCCG-Submission-on-Sydney-Water-Sewage-Treatment-Environmental-Operating-Licences.pdf>, 26.04.16.
- Sydney Coastal Councils Group. (2016). *Sydney's Salty Communities – Turning the Tide on Blue-Green Carbon*. Retrieved from Sydney Coastal Councils Group: [http://www.sydneycoastalcouncils.com.au/salty\\_communities](http://www.sydneycoastalcouncils.com.au/salty_communities), 26.04.16.
- University of Wollongong. (2015). *First-of-its-kind study investigates environmental damage caused by deep sea anchors: media release*. Retrieved from University of Wollongong Australia: <http://media.uow.edu.au/releases/UOW201770.html>, 18.04.16.
- Vanderkooi Consulting. (2015). *Social and economic background information report on the NSW marine estate*. Retrieved from NSW Marine Estate / Hawkesbury Shelf marine bioregion assessment: Have your say: [http://www.marine.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0010/594217/Social-and-economic-background-report-on-the-NSW-marine-estate.pdf](http://www.marine.nsw.gov.au/__data/assets/pdf_file/0010/594217/Social-and-economic-background-report-on-the-NSW-marine-estate.pdf), 27.04.16.

## **Appendix A: Sydney Harbour Coastal Zone Management Plan Scoping Study**

N.B. Additional documents and information on the Sydney Harbour Coastal Zone Management Plan Scoping Study are available from:

[http://www.sydneycoastalcouncils.com.au/Sydney\\_Harbour\\_CZMP](http://www.sydneycoastalcouncils.com.au/Sydney_Harbour_CZMP)

**Appendix B: Sydney Coastal Councils Group Submission to the Review of Sydney Water Corporation's Sewage Treatment Environment Protection Licenses**



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