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Proposed Action: AGL Gas Import Jetty

Project EPBC #2018/8298

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Westernport and Peninsula Protection Council (WPPC) is a not for profit volunteer environment group formed in 1971. WPPC is very concerned about the proposed AGL gas importation project at Crib Point. It is likely that it will threaten Westernport Bay’s fragile environment and high natural values.

The installation and operation of the Floating Storage and Regasification Unit (FSRU) constitutes an ‘action’ within the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act).

WPPC was one of the first community groups to be consulted by AGL about the Crib Point Proposal. We also attended AGL’s information events and read their scientific reports that talked, among other things about the chlorine dissipating within metres of the ship, these reports minimised other threats as well. AGL’s scientific reports made the threat to Westernport seem minor. Since then a report **by Australian Marine Ecology Review of EES Referral for AGL Floating storage and regassification Unit in Westernport funded by VNPA,** has reviewed their ecological reports and found them seriously lacking, including on chlorine dispersal. The Australian Marine Ecology Report has been extensively quoted in this submission. I have never read something so damning. Now knowing AGL’s reputation for bad environmental management (that is also outlined in this submission) this report makes sense. As a graduate in Environmental science I also feel concerned about the state of science in Australia at present.

 It is vital that proper science is exercised by the Federal government to determine whether this proposal is going to threaten Westernport Bay. WPPC believe that it is likely.

**Western Port** is a complex embayment with an area of approximately 680 km2, of which two-fifths (an estimated 270 km2) consists of highly channelised intertidal mudflats. The bay connects to Bass Straight through two entrances of unequal size and includes two major islands that effectively creates a complex channel network for tidal flow.

The proposed installation would be at Crib Point in North Arm of Western Port. Western Port is a tidally flushed embayment with a high diversity of biotopes. The location has extensive wetland and littoral habitats, including extensive areas of saltmarsh, mangroves, littoral seagrass and littoral mudflats. These habitats are vulnerable to disturbance and are important for shorebirds and the whole bay is listed as a Ramsar site. The subtidal habitats are generally structured by tidally-influenced sediment channels and plains, however the sublittoral biotopes are also relatively diverse and include types and species that only occur within Western Port. Western Port has many natural values of high conservation and ecosystem services value. This is partially reflected in the various conservation listings of species, communities, marine protected areas and special management areas. The project has the potential for hazards with the risks of bay-wide and ecosystem-level impacts.

**Ramsar-listed wetland (Westernport Bay)**

Westernport Bay is an internationally listed ecosystem, recognised under the Ramsar Convention as a unique tidal bay and wetland with important ecological values. It also has a UNESCO biosphere reserve designation.

It is home to many threatened species listed under the EPBC Act such as Southern Right Whale; Humpback Whale; Far Eastern Curlew; Fairy Tern; Orange-bellied Parrot; Swift Parrot; Great White Shark; Australian Grayling; and coastal saltmarsh. There are deep concerns over the threats to the habitat and welfare of these species caused by the construction and operation of the FSRU.

There are marine impacts associated with this project which are likely to have a significant impact on Westernport Bay, including:

1. Ramsar-listed wetlands (Westernport Bay), including fish stocks, migratory birds and whales;
2. Listed threatened species and communities including critically endangered Far Eastern Curlews, vulnerable Fairy Terns, endangered Southern Right Whales and vulnerable Humpback Whales. These Whales have been present in Westernport in record numbers in recent seasons;
3. Listed migratory species, including 35 species of migratory waders. Many of these species are endangered.
4. Important species such as lamp shells, that are present in this immediate area and were only know in the fossil records before they were found alive in Westernport Bay.
5. Fished species such as Southern Calamari, gummy shark, and whiting species. This specific area Woolley’s Cove is important for Southern Calamari, and is probably a Southern Calamari breeding ground. The fact is Woolleys Beach cove is undoubtabley a very important part of Westernport Bay ecologically. It has relatively low turbidity and it hosts seagrass, mangroves and the ancient lamp-shell beds. These lamp shells qualify for listing and were only know from fossil records when they were found alive in Westernport Bay. It is a well-know spot for fishing, because of its seagrass and mangroves. The youtube link below show Southern Calamari being fished in the cove. It is probably an important breeding are for them as they breed in near shore areas, and that it will face significant threat.

 <https://www.youtube.com/watch?v=Y-WfUnqPCLc&feature=share>

The scientific Report Dr Cory Green **Patterns of connectivity and population structure of the Southern calamari Sepioteuthis Australia in Southern Australia**. While this publication suggests that Sepioteuthesis Australia “may regularly disperse between populations tens to hundreds of kilometres away” it found that Westernport was relatively poorly connected to other sites (....) and formed its own clade (...) suggesting that there is some isolation from other sites.”

 This means two things, their gentetics could be wiped out if this area is destroyed and that the niche they fill in the environment may remain unfilled, threatening other species, because Westernport doesn’t recruit much larval squid from other areas.

**Description of the proposal**

AGL Wholesale Gas proposes to install a floating gas storage and regassification unit (FSRU) at Crib Point. The operation involves delivery of liquid natural gas (LNG) to the unit via vessels approximately once a week. The LNG is stored in cold liquid form in the FSRU and is re-gassified on demand and delivered via a pipeline connected to the FSRU. The gas is produced by passing the LNG through a heat exchanger, using ambient seawater for the gas exchange. A flow-through system is used, with seawater drawn in through intakes on the side of the vessel, passed through the heat exchanger which decreases its temperature and the is proposed to be discharged through a 6- port outlet/jet system along both sides of the hull. The discharge will be reduced to three effective ports when delivery vessels berthed alongside. The discharge jets provide momentum for initial dilution to approximately 20:1 and temperature 0.3 degrees below ambient. The effluent has momentum and higher density, leading to a benthic trajectory with seabed disturbance and occasional pooling at slack water. The effluent would then be dispersed by tidal currents well to the north and south of Crib Point.

The heat exchanger is protected from biofouling by dosing the seawater with free chlorine (produced by electrolysis) and bromine (produced from the free chlorine), both of which act as biocides and rapidly degrade into secondary compounds. Residual free chlorine and bromide and the secondary products are discharged in the cooled effluent and dispersed in the initial dilution and tidal current processes.

The operation also includes activities that incur various noise, light, vibration, visual and other disturbances.

**The potential impacts of the project are of such concern that they require a determination that the project is a controlled action and a full assessment is undertaken.**

We are opposed to an increase in shipping because of the threat of shipping to the whole Bay. These threats include marine pests, grounding, explosions, chemical and oil spills (the gas ships are run on gas but have engine oil.)

 Given the scale of this project and the sensitive environment it is located in, we urge you to declare the project a controlled action within the meaning of the EPBC Act and require a full assessment of the FSRU.

We outline our areas of concern below.

1. The discharge of up to 450,000,000 litres per day of chlorinated water, this changes into other chemicals in the presence of seawater that is seven degrees below ambient temperature into Westernport Bay;
2. The destruction of small marine life, plankton and Larva sucked up and entrained in the heat exchanger;
3. The possible introduction of marine pests (such as Undaria and the Northern Pacific Sea Star);
4. The significant increase in shipping through Westernport Bay, increasing the incidence of vessel strikes with marine mammals and marine noise, fuel spills grounding and explosions and the impact this may have on marine life.

**Edmunds M (2018) Review of EES Referral for AGL Floating Storage and Regassification Unit in Western Port. Report to Victorian National Parks Association and Environment Victoria. Australian Marine Ecology Report No. 561. Melbourne.**

* + 1. **No Systematic Approach** The referral document did not implement any systematic framework for identifying, documenting and addressing all potential impact effects and responses. This has lead to considerable gaps in the information provided, with serious implications for misleading and bias by omission. Of particular concern was the arbitrary, biased selection of only a few potential impact effects for consideration and only some ecosystem components. This is bias by omission and all components should have been considered and the level of consideration governed by evidence and good reasoning. Just some of the systematic-related omissions include:

• Arbitrary spatial limiting of considerations to just a small area near Crib Point, despite evidence within the Referral and elsewhere that values, dispersal and impact effects need to be considered over a larger area;

 • Partial ecosystem concept model, excluding key components and not consistent with extant models for Western Port;

 • Lack of identification and mapping of key natural assets, particularly subtidal biotopes – the only focus was on listed species, including irrelevant listed species such as turtles and whales;

• Lack of consideration of fish, habitat requirements, movement routes and fisheries;

• No consideration of the environmental drivers and sensitivities of the natural assets;

• Selective bias to consider only three activity pressures (entrainment, chlorine and temperature), even when other pressures were identified in the Referral (noise, visual disturbance, sediment bed scouring).

 • No consideration of some catastrophic bay-wide risks (explosions, oils spills, chemical spills, ship grounding, Undaria from Port Phillip Bay).

• No consideration of combined or cumulative impacts for a proper ecosystem-based impact appraisal – the cumulative impact assessment actively rejected consideration of any combined impacts outside the project. The lack of a systematic assessment framework has lead to inconsistent, contrary conclusions and statements of the Referral.

**3.2.2 Lack of Evidence from Contemporary Sources** The Referral is notably lacking in any review of contemporary ecological literature, studies and data. At a general level, habitat and biotope mapping in recent years is not included and there is there have been considerable advancements in knowledge of key ecosystem components and processes in Western Port. The Referral does not reference any substantive ecological work done in Western Port in the last ten years. The Referral does not provide any indication that the extent of available knowledge was sought, nor does it systematically consider knowledge gaps that require filling by specific field surveys. An example of the lack of research and synthesis of extant information is the ecological concept model used by the Referral. This is provided without any reference to the range of existing models in the literature. Moreover, it is provided without any evidence or rationale at all. It is inconsistent with existing ecosystem concept models for Western Port. The Referral model is highly deficient (e.g. birds, tidal mudflats and current dispersal are not included). Similarly, the lack of review has meant key ecosystem assets and features were not identified and assessed. The Referral claims that AGL has adequate experience and expertise in the implementation of the FSRU, however no pertinent knowledge is brought forward into the Referral. There is no appraisal of the risks and risk management from elsewhere. There is no appraisal of the environmental monitoring from elsewhere, the findings and how that relates to this project. It is expected that there are other projects elsewhere that could have informed the environmental considerations of this proposal.

The Referral does not consider case studies and monitoring from other FSRU installations or similar activities, such as cooling and desalination water discharges. This is particularly relevant for understanding the impacts of releases of secondary toxic products, such as organochlorines and organobromines resulting from the use of chlorine as a biocide. This issue is not addressed in the Referral, but is evident from even the most cursory literature review. There are other issues that would be well informed by a review of other cases.

**3.2.3 Selective Assessment of Threats and Pressures** The referral is heavily biased in its consideration of potential threats and pressures. There is an arbitrary, biased selection of the pressures that were assessed and not all of the limited number of pressures identified were assessed in detail. For example, noise was identified, but only assessed for human populated areas, but not for birds or the underwater environments. Similarly, visual disturbance was assessed for human impacts, but visual, light and vibration disturbances were not assessed for obvious key ecosystem features such as shore birds or migrating fish, squid or mammals past the facility. The modelling in the referral indicated seabed scouring from density flows will occur – the biological impacts arising from this were ignored. It was stated such impacts would be within Port limits, implying further consideration was not necessary, but the Port limits do not provide a licence to arbitrarily damage important ecosystem components and environmental health. The modelling indicated the (obvious) pressure that effluent from the FSRU will be dispersed considerable distances with tidal currents. The implications of this was not addressed. The Referral was spatially blinkered did not consider chronic toxicant impacts. There is potential for chronic, long-term, irreversible ecosystem impacts in the release of contaminants and toxicants, particularly those that can bioaccumulate and magnify up the food chain, but also those that may pool or concentrate in a particular habitat or environmental sink. Although the Referral considers the fate of free chlorine, it ignores the secondary chemical products that arise from reactions of chlorine in seawater. Secondary products are also toxic, including various types of organochlorines and organobromines depending on the seawater quality at the time of free chlorine formation. Some of these, such as bromoform, disperse widely before dissipation and, while most are not thought to biomagnify up the food chain, some do. Given the consequences observed from accumulation of organochlorine pesticides in the marine environment, particularly for birds, mammals and apex predators in general, the appraisal of chemical releases by the FSRU must be taken seriously. The referral avoids consideration of potential large scale, bay-wide and catastrophic risks and impacts. It does consider marine pests in the context of listed species, but in a cursory way. There is no systematic consideration of what such threats could be and how to provide confidence that they managed to an acceptable level. Potential catastrophic events include increased shipping leading to increased risks of oil spills, groundings and marine pests. The facility presents a pathway for catastrophic explosion, contaminant release and marine pest translocation. There have been catastrophic explosions, oil spills, chemical spills and marine pest releases elsewhere

– all such events have happened in the Bass Strait region even. These are very real threats and the Referral should have addressed them directly and comprehensively. Other pressures that should have been considered include (but not limited to): barriers to migration; substratum disturbances and removal; sediment resuspension and water clarity/sedimentation; and other substance releases;

**3.2.4 Selective Spatial Assessment** The referral is heavily biased in its spatial consideration of potential threats and pressures. There is a persistent restriction in the evaluation to just the Crib Point area. This is despite the Referral noting that tidal currents connect the activity area to the wider ecosystem components. The area of spatial assessment is, however, inconsistent and contrary throughout the Referral. Some listed species, such as blue whale and turtles, are considered at subcontinent scales, the Flora and Fauna assessment does at least highlight that shorebirds connect the whole embayment, but sensitive vegetation and marine biotopes are not generally considered beyond the vicinity of the jetty (for the few components actually considered). There is a notable discord between the Referral form submission and the technical appendices. The Referral claims, without evidence, that jetty environs are ecologically and environmentally isolated from the shore and littoral habitats, based on the distance alone. The appendices note that these habits are in fact connected, by at least tidal currents and by noise. A cursory literature review would have revealed many other ecological linkages between these two areas. The assumed spatial segregation in the Referral form was used to eliminate consideration of impacts from the FSRU operation and near-shore features and components. This was unsubstantiated information and highly misleading.

 A credible ecological impact assessment requires the identification and mapping of the key components. The components include those needed to maintain ecosystem functioning, natural assets and features of particularly high value and species and components that would be particularly sensitive to one or more of the suite of pressures from the activity. The Referral excludes the identification of such key ecosystem components, features and assets, with the exception of listed species in the protected matters report and the flora and fauna report. There is no systematic review or discussion of key features for consideration, let alone any identification of sensitive receptors. There was no survey work to observe, document and map existing conditions in the North Arm area, so there was no potential to discover important assets.

Examples of exclusion of important features of high conservation value includes consideration of lamp shell beds, Magellania flavescens. This is an unusual brachiopod shell and in Victoria, their distribution is restricted to the channels of Western Port. Recent mapping work by DELWP in Western Port indicated lamp shell beds are uncommon and patchy in distribution. Although not listed, they fulfil the criteria for listing and impacts on lampshell biotopes would be cause for concern. The Referral notes the presence of lampshell bed at the Jetty at Crib Point, but fails to recognise the significance, establish the distribution in the potential area of impact, or indeed assess any form of impacts on them. With respect to exclusion of features important to ecosystem functioning, examples include the lack of consideration of loss of epibiotic biotopes on fish foraging, sheltering and movement. Following from this, there is no assessment of impacts on any species of fishes, including valuable fished species such as snapper, King George Whiting and calamari. Such species frequent and move through the area, and rely on certain types of seabed features. It was noted the consultation process did not involve fishing and fishery stakeholders and contemporary scientific studies were not reviewed. Western Port has substantial littoral sediment habitats, including saltmarsh, mangroves, sediment flats, and seagrass. These areas have high production rates through sediment microalgae (microphytobenthos), organic input, infauna and bird interactions. There are both top-down and bottom-up trophic effects between wading birds and infauna and the whole littoral ecosystem is intrinsically linked with the sublittoral ecosystem. Such processes and linkages were not raised as features and values for impact assessment.

In general, the Referral overly-simplified (dumbed-down) the nature of ecosystem components and processes. For example, ‘sediment epibiota’ was used to represent a wide range of biotopes, which could potentially include sponge clumps, Caulerpa seaweed beds, seagrass beds, octocoral beds, seapen beds or ascidian clumps (the Referral had no specific inventory). Each of these biotope types have different ecosystem functional properties, susceptibility to impacts and ecosystem services. The oversimplification was also reflected in the Referral ecological concept model. 3.2.6 Limited Ecological Impact Prediction The limitation of coverage of both pressures and ecological features severely restricted the scope of impact predictions and implications. The predictions indicated that plankton would be affected in some way by entrainment and there would be impacts on seabed biota where the effluent plume pooled. The spatial extent and magnitude of impact responses on these biota and ecosystem components was not described. The spatial confinement of the Referral assessment also had a direct

limitation on the prediction of impacts and determining ecological implications of the FSRU operation. Ideally, cumulative and whole ecosystem impacts should be considered. This can be done by combining the set of pressures related to the project with pressures from other human activity and natural environmental drivers. The cumulative impact appendix of the Referral did the opposite, openly rejecting the consideration of ecosystem-wide cumulative, synergistic or threshold impact effects. This included rejecting consideration of associated works around the Crib Point Jetty, in the same habitat and space as the FSRU operation, works which are required for the FSRU operation to occur. There were no clear statements of biological impact prediction types, magnitudes and locations. There are clear claims that biological components would not be impacted, however they are often contradicted by other portions of the Referral. An example is noted above where the Referral form claims nearshore habitats could not be impact because of the distance of the jetty, but is contradicted by the appendix documents. Other confounding statements occur, such as circular references in the case of bird impacts. The protected matter appendix report defers impacts on birds to the flora and fauna report, which in tern defers bird impacts back to the protected matters report.

**3.2.7 Knowledge Gaps** The confidence of impact predictions and the completeness of relevant knowledge are important considerations as to whether the Referral should trigger an EES. As discussed in above sections, the Referral provided no synthesis of the contemporary status of knowledge and impact predictions were restricted to a select few impact effects (pressures). The Referral appendices flag the need for further investigations (such as noise on birds, entrainment on plankton and baseline monitoring surveys), but there is also a considerable omission of information not identified in the Referral. These omissions pertain to information on key impact pressures, specific ecosystem features and assets, consideration of susceptibility and biological impact responses and predictions. Contemporary biological information was not used and there was no attempt to examine and compare other case studies. There should be further effort to provide a comprehensive ecological impact assessment to inform the decision-making process. The Referral defers the collection of some information as part of baseline monitoring, however this would prohibit informed decisions and adequate monitoring design – field surveys should be implemented beforehand.

The Westernport and Peninsula Protection Council (WPPC) commissioned a study by New Economics Advisory Service of the Australian Conservation Foundation (ACF). It is on our website Estimating the value of ecosystem services of Westernport Bay ACF 2014.

<http://vnpa.org.au/admin/library/attachments/PDFs/Reports/rpt-ecosystem_service_value_westernportBay.pdf>

 The ACF based its study on a study conducted in 2006 by Costanza et al., which calculated estimates for ecosystem service benefits using annual values per acre per ecosystem type.

 The ACF study estimated that Westernport Bay generates ecosystem services valued at between $205 million and $2.6 billion per year. The specific values include commercial fishing ($50 thousand per year) recreational fishing ($46 million per year). Tourism from Philip Island alone added approximately $393 million per year to the study. Since this report was published Tourism Victoria release estimate of **Phillip Island Tourism is worth up to 1.9 billion to the economy per year.**

**So already we need to take away $393 million and add 1.9 billion, and add more for the tourisim from the rest of the Westernport coast.**

[1] <http://www.business.vic.gov.au/__data/assets/pdf_file/0005/1679693/Value-of-Tourism-to-Victoria-summary-2016-17.pdf>

**Since this report the value of carbon sequestration that seagrass and mangroves provide is proven to be much greater than previously thought.**

**The Victorian government is considering collecting Blue Carbon Credits to fund the management of Westernport Bay.**

**The Distribution and Abundance of ‘Blue Carbon’ within Port Phillip and Westernport** A report for the Port Phillip & Westernport Catchment Management Authority Commissioned by Emmaline Froggatt February 2015 Authors: Paul Carnell, Carolyn Ewers, Ellen Rochelmeyer, Richard Zavalas, Bruce Hawke. The above report states that:

The Port Phillip and Westernport catchment contains a significant portion of the blue carbon ecosystems present across Victoria. And many other vegetated coastal habitat locations are under threat from anthropogenic influences. The saltmarsh and mangroves at Hastings were among the highest sediment carbon stocks within the catchment. Yet, saltmarsh, mangroves, and seagrass at Hastings are potentially under threat from the planned Port of Hastings development. While the project is in the planning and approval phase, any proposal to remove or negatively impact these vegetated coastal habitats (and thus their carbon stocks) should be taken into account before proceeding.

Therefore our estimation of the value of Westernport Bay looks like it needs to be multiplied by 4! 8 billion per year.

***The commissioner of Environmental sustainability is doing some economic valuation of Westernport Bay currently.***

 **Oil Spills**

WPPC and VNPA have commissioned consultants to model the effects of a relatively small oil spill from a ship in Western Port. The modelling did not study a major accident involving a spill from an oil tanker, but rather focused on the effects of a smaller spill of transport fuels (there have been 27 similar spills in 43 years in Australia).

The work, which was backed up by truthing out on The Bay, found oil would spread widely and quickly and in some conditions reach protected areas within hours.

The report called:  Quantative assessment of exposure risks due to oil spills from shipping in Westernport Bay:

 <http://vnpa.org.au/admin/library/attachments/Reports/rpt-wportspillrisks.pdf>  108 pages long

 extensive [shipping oil spill modelling](http://vnpa.org.au/wp-content/uploads/2017/02/Pr-HS-Media-backgrounder-Western-Port-shipping-spill.pdf) which shows the complexities and trends in movement in Westernport Bay (which is unlike other bays), in addition to the impacts on [birds](http://vnpa.org.au/wp-content/uploads/2017/02/Pr-HS-Media-Backgrounder-Oil-spill-impacts-on-Western-Port-bird-species-10042014.pdf), [mangroves, and seagrass.](http://vnpa.org.au/wp-content/uploads/2017/02/Pr-HS-Media-backgrounder-Western-Port-seagrass-mangrove-saltmarsh-10042014.pdf)

See the media backgrounder summary, 4 pages.

<http://vnpa.org.au/admin/library/attachments/PDFs/media%20backgrounders/bgr-wport-shipping-spill.pdf>

The Age article at the time

<http://www.theage.com.au/victoria/penguins-face-serious-risk-if-oil-spill-occurs-20130901-2syu5.html>

## While we know shorebirds get oiled, they can move, whereas penguins are tied to their colony.

## Each penguin is worth $30,000 (old figure) to tourism but this is not their only worth,

## The main point of this oil spill study is ...New research finds Hastings port expansion plan an oil spill disaster in the making.Massive development plans for Victoria’s Westernport Bay will expose the area’s globally significant marine and coastal wetlands to potentially huge damage from oil spills, new research shows.    The findings have sparked calls for the Federal Government to launch an immediate environmental assessment of the Victorian Government’s port expansion plans under national conservation laws.The new research found that even relatively small amounts of oil spilled from shipping traffic in Westernport could reach local shorelines within minutes and high conservation areas within less than six hours.We aren’t talking about oil tankers, but rather heavy fuel oil and diesel spills from container ships and port support vessels.The research modelled six credible oil spill scenarios based on 27 previous oil spill accidents across Australia since 1970. Computer modelling tracked the spills over a two-week period from two locations within Westernport Bay. The modelling shows Phillip Island Nature Park is vulnerable to oil spill contamination, and French Island Marine National Park is also at high risk of exposure. It also highlighted the fact that once oil is in the water, it will be hard to stop.Both these parks and many other parts of the bay are home to key roosting, feeding and breeding habitats for waterbirds including annual migrants that breed in Russia, China, Japan and Alaska, spending the summer months feeding in the bay.  The report was commissioned in response to the Victorian Government’s proposal to expand the Port of Hastings into an international container port, increasing shipping traffic from under 100 ships a year to more than 3000. Such an increase in shipping is likely to heighten the risk of oil spill.

Mr. P McGrath, Chief Executive of AMSA, stated at Spillcon 94:"other than in exceptional circumstances, current technology does not exist to prevent weather driven oil from an inshore incident coming ashore on the coastline."Westernport consists of narrow, tidal waterways around two islands, so that a ship must always be within 2 to 5 km of a coastline.  Much of the time there is bad weather, so current technology does not exist to save Westernport from a moderate or major spill. A moderate (say 550 tonnes!)  or major (10,000 tonnes) spill would be catastrophic, and once deposited more damage would be caused by attempted removal.

"What is the risk of a major oil spill?" [[6]](https://docs.google.com/viewer?url=file%3A%2F%2F%2FC%3A%2FDocuments%2520and%2520Settings%2Fuser%2FMy%2520Documents%2FPort%2520Hastings%2520dot%2520points.doc%23_ftn7). To quote ANAO:  "As AMSA says, 'It is only a matter of time'.  The remarks made in the second and third paragraphs of this section are all especially relevant to Westernport: …."Oil may be ingested by marine and animal life and the toxic chemicals in oil, and dispersants used to treat the oil, can have a significant ecological impact.  This is a particular problem in mangroves, seagrass, and reef areas where it is difficult to remove the oil."….."Spilled oil can have a serious economic impact on coastal activities such as tourism and the fishing industry."

Also relevant to Westernport Bay in the ANAO report is the observation[[7]](https://docs.google.com/viewer?url=file%3A%2F%2F%2FC%3A%2FDocuments%2520and%2520Settings%2Fuser%2FMy%2520Documents%2FPort%2520Hastings%2520dot%2520points.doc%23_ftn8) that:…."The National Plan Review identified that swift currents and high tidal velocities severely limit the opportunity for physical response (use of booms and skimmers) throughout Torres Strait and Northern Territory waters." These conditions also apply in Westernport, where tides run at up to 5 knots along the narrow arms of the bay. These conditions render the use of booms largely ineffective. The alternative response tool pointed to in the audit for Torres Strait and Northern Territory, namely dispersant, should also be regarded as generally unacceptable in Westernport, due to its toxicity. Thus the two principal oil-spill response tools will be generally unavailable in Westernport.

**Birds**

Impact of proposed Port of Hastings expansion on the birdlife of Westernport.

<http://vnpa.org.au/admin/library/attachments/PDFs/media%20backgrounders/bgr-oilspill-wport-birdspecies.pdf>

• The potential for a single oil spill to have serious short and long-term impacts on migratory shorebird populations in Westernport is of great concern. The bay is one of the most important shorebird sites in Victoria, shorebirds are under considerable existing pressure throughout their range and their populations are known to be declining.

 • Typically penguins are the birds most affected by oil spills. Little Penguins are at high risk of oiling and subsequent death from oil spills at McHaffies Reef. Phillip Island Penguins are worth approx $30,000 each.

 • Seabirds foraging in the waters of Lower North Arm would be at high risk of oiling from spills at either Long Island Point jetty or McHaffies Reef. It is likely that large numbers of these birds would die. Large numbers of swans and ducks would also be at high risk of partial oiling. Hooded Plover on the northern beaches of Phillip Island are also susceptible to oil spills, particularly from spills at McHaffies Reef.

 • Vessel-generated waves can impact on the productivity of seagrass beds and erode shorelines, impacting on foraging resources for birds such as swans, ducks and shorebirds.

• Land reclamation, dredging and the disposal of dredge spoil are likely to impact on the productivity of seagrass beds and benthic fauna, which would then impact on foraging resources for aquatic birds, such as waterfowl and fishers. The current risk of oil spill impacts was identified as a major threat at sites along the western coastline of French Island, at Hastings and Long Reef in 2011. The 270km2 of intertidal mudflats of Westernport Bay that provide foraging resources for thousands of shorebirds and waterbirds are at high risk of extensive, long-term contamination from any oil spill. Westernport is a site of international significance for aquatic birds and listed under the Ramsar Convention and other international bird treaties. Its extensive intertidal mudflats and wetlands regularly support more than 10,000 migratory shorebirds and 10,000 waterfowl, including 32 bird species listed under the Environment.

The report also finds waves generated by ships can have an impact on the productivity of seagrass beds and erode shorelines, which are again crucial for swans, ducks and shorebirds to forage. Also, reclaiming land and dredging is likely to affect seagrass beds.

**Seagrass**

The second report, by marine ecologist Dr Hugh Kirkman, studied the potential risks to the bay's seagrass, mangroves and saltmarsh communities. If a minor oil spill occurred all three could be damaged, depending on weather and tidal conditions. Mangroves are highly susceptible, and could be killed by spilt oil within weeks

 Impact of proposed  Hastings port expansion on seagrass Mangroves and saltmarsh. Kirkman 2014

 Summarized: <http://vnpa.org.au/admin/library/attachments/PDFs/media%20backgrounders/bgr-wport-seagrass-mangrove-saltmarsh.pdf>

Westernport seagrass beds suffered die-off of up to two-thirds of the entire area in 1981-90. The main reason for this die-off was turbidity caused by suspended sediments. The recovery from catastrophe is progressing, but has taken decades.

The mangroves and seagrass beds are excellent absorbers of CO2. They are threatened by pollution from agricultural chemicals (pesticides and nutrients) and sediments causing epiphyte growth that smothers the seagrass. Microalgal growth blocks out light, preventing photosynthesis which eventually produces hydrogen sulphide and further prevents vegetation growth.
      Suspended sediments threaten seagrass and other life forms by seriously reducing sunlight, adding nutrients that stimulate algae growth, and reduce oxygen levels threatening eutrophication. [[3]](https://docs.google.com/viewer?url=file%3A%2F%2F%2FC%3A%2FDocuments%2520and%2520Settings%2Fuser%2FMy%2520Documents%2FPort%2520Hastings%2520dot%2520points.doc%23_ftn3)
       Seagrass habitat is crucial in driving fisheries production, contributing to %90 of the total nutrition of key fisheries target species.[[4]](https://docs.google.com/viewer?url=file%3A%2F%2F%2FC%3A%2FDocuments%2520and%2520Settings%2Fuser%2FMy%2520Documents%2FPort%2520Hastings%2520dot%2520points.doc%23_ftn4)

    The roots of Seagrass and mangroves stabilise the sediments and provide oxygen, and where they have died back at the north of The Bay crabs and shell-fish dig air holes- providing oxygen to the muddy bottom of Westernport Bay. These crabs and shell-fish live off plant matter brought to them on the tides.

   The health of the benthos (bottom of The Bay) is crucial for absorbing the nutrients entering the water column from Shipping, stormwater or suspended sediments. Nutrients that are in excess create potentially toxic algae blooms and lower oxygen levels threatening eutrophication. [3](https://docs.google.com/viewer?url=file%3A%2F%2F%2FC%3A%2FDocuments%2520and%2520Settings%2Fuser%2FMy%2520Documents%2FPort%2520Hastings%2520dot%2520points.doc%23_ftn5)

Recent Melbourne Water Westernport Seminars also highlighted the importance of seagrass and the benthic organisms that they support in Westernport Bay.

Perran Cook and Jeff Ross Presented Nutrient transformations on intertidal flats of Western Port Bay for the Monash University Water Studies Centre for Melbourne Water. They explained that the benthic organisms in the mud flats provide the oxygenated sites where nutrient transformation occurs: specifically nitrogen, is converted from nitrogen in the water to harmless nitrogen gas. It pointed out that Westernport Bay has a nitrogen balance at present.

 How does de-nitrification and nitrogen fixation compare to N loads for the whole Bay?

1. Assuming the area of Northern Western Port is 70 km2 and scaling up the rates measured in this study (~10 g N m-2 y-1), then the annual rate of denitrification is ~700 tonnes N per year
2. This compares to an estimated annual average load of 600 tonnes per year to Western Port
3. Using literature measurements of N2 fixation rates, the whole bay fixes ~200 tonnes of N per year. Bay is roughly in balance!

The key finding of another report done by Melbourne Water and Monash Uni. Preliminary assessment of water quality requirements of seagrasses in Western Port

was the importance of Total Suspended Solids (TSS) and/or light availability for seagrass distribution with the higher the TSS value, the more sparse the seagrass.

 **Tidal movements mean oil spills, marine pest larvae, and dredge spoil would not stay confined to the port area.** Western Port is a massive tidal wetland, about 40 per cent of, which is dry twice a day. Through the middle of the seagrass-covered mudflats runs the shipping channel, which surges with the tidal flows bringing the waters of the port into contact with the sensitive ecosystem. The water moves on each tide a distance of 10 to 20 kilometres and, over weeks, circulates around French Island - a giant washing machine. Based on observations of water movements, in The Shapiro Study, Professor Jon Hinwoodand his colleagues designed a model that predicted how a polluting material. For example, the cloud of fine particles of silt produced by dredging - would spread around the whole bay within a few weeks. The inevitable polluting effects of port development and port operation - anywhere in the bay would in a short time affect the whole bay.

    **Marine Pests**An increase in shipping means an increase in the threat of marine pests. Westernport Bay had 7 species of marine pest in 1997, none of them major marine pests. Corio Bay in Port Phillip and Derwent River Hobart are two bays that are used buy Woodchip Ships from Japan where the Northern Pacific Seastars originate. Northern Pacific Sea stars in Port Phillip Bay have been identified as a contributor to the dramatic loss of commercial fish stocks in Port Phillip Bay. In the last ten years or so fish stocks in the middle of the Bay, where these creatures dominate, have fallen by 20% (conservatively) [[5]](https://docs.google.com/viewer?url=file%3A%2F%2F%2FC%3A%2FDocuments%2520and%2520Settings%2Fuser%2FMy%2520Documents%2FPort%2520Hastings%2520dot%2520points.doc%23_ftn6) No sane person would propose a dry bulk facility for Westernport Bay.

We have an obligation under **Rio** to foster **intergenerational equity**.

**The Environmental History of the energy company AGL** is relevant for consideration under 136 (4), 143 (3), 144 (3) and 145 (3), of the EPBC Act and the safety risks associated with the FSRU being moored at Crib Point Jetty that could pollute Westernport Bay.

The unsatisfactory management and compliance with environmental laws are listed as follows are listed as follows:

 On September 24, 2018, AGL was fined a record of almost $3 million by the Victorian Essential Services Commission (VESC) for “failing to offset its emission levels” just a week after the Regulator threatened to kick the gas retailer out of Victoria . AGL’s Executive for Wholesale Markets, Richard Wrightson, apologised and said “…it was an oversight.”

On September 17, 2018, the VESC threatened to revoke AGL’s licence to sell gas and electricity unless it provides correct customer complaints data by end of October.

VESC has told AGL “…to get its house in order…” after it was revealed that the energy retailer’s data on performance, customer complaints, hardship levels and customers debt was inaccurate - forcing the Australian Energy Regulator to pull the past financial year’s statistics from its website The VESC has given AGL one month to provide correct data - warning AGL if it fails, “the commission will immediately initiate a review of whether AGL has the technical capacity to operate in accordance with its licence to operate in Victoria” (at the time of writing AGL’s licence to operate is under a cloud). VESC Chairman Ron Ben-David said “…it is extraordinary to think that AGL, the biggest retailer in the State, can’t even tell us how many customers it has.” AGL’s chief customer officer Melissa Reynolds confirmed the inaccuracies and said “…we apologise unreservedly.” These above mentioned matters show AGL’s complete disregard for rules, regulations and the law and join a long list of recorded crimes and illegal practices carried out by AGL since 2003 resulting in $7 million worth of fines, which does not seem to worry them one iota. The illegal practices and fines are as follows (see the website links in blue for further information):

 • 24 Sept 2018 AGL receives $2.99 million fine from Victoria’s Essential Services Commission for failing to surrender the correct number of Energy Efficiency Certificates (EEC) under energy efficiency regulations. https://www.afr.com/business/energy/gas/agl-energy-slapped-with-3m-fine-over-energy-efficiency-failure-20180923- h15rdw

• 17 Sept 2018 AGL may lose licence to sell gas and electricity in Victoria due to incorrect data submitted to the Victorian Essential Services Commission regarding customer numbers, customer complaints, hardship levels and debts. https://www.theage.com.au/business/consumer-affairs/get-your-house-in-order-victorian-regulator-puts-agl-on-noticeover-dodgy-data-20180917-p5046s.html • 11 Sept 2018 AGL fails to provide accurate data to the Australian Energy Regulator on customer numbers, customer complaints and hardship programs. <https://www.smh.com.au/business/consumer-affairs/agl-admits-giving-dodgy-complaints-data-to-energy-regulator20180911-p502zg.html>

• 29 May 2018 $15,000 for slurry overflow from ash dam infrastructure at Liddell Power Station. https://www.epa.nsw.gov.au/news/media-releases/2018/epamedia180529 • 16 May 2018 $10,000 for failing to collect data on two gas wells as part of the Camden Gas Project. https://www.macarthuradvertiser.com.au/story/5405549/agl-fined-for-camden-gas-project-breach/ • 7 Feb 2018 $60,000 for failing to inform customers that their fixed term retail contracts were due to end and not allow enough time to negotiate improved terms or change suppliers. <https://www.canstarblue.com.au/electricity/agl-fined-contract-end/>

 • 11 Jan 2017 $124,000 for failing to declare political donations it made to NSW political parties. <https://www.theguardian.com/australia-news/2017/jan/12/agl-fined-124000-failing-declare-political-donations>

 • 8 Jan 2016 $30,000 for sulphuric acid pollution into Tinkers creek at Bayswater Power Station (NSW). <https://www.singletonargus.com.au/story/3652676/epa-fines-macquarie-agl-for-water-pollution/>

 • 11 May 2015 $40,000 for disconnecting customers in hardship programs or payment plans. [http://www.abc.net.au/news/2015-05-11/agl-fined-40,000-for-disconnecting-sa-customers-in-hardship/6459892](http://www.abc.net.au/news/2015-05-11/agl-fined-40%2C000-for-disconnecting-sa-customers-in-hardship/6459892)

 • 1 May 2015 $1.5 million for misleading customers about price rises and discounts in fixed contracts. https://www.choice.com.au/shopping/consumer-rights-and-advice/your-rights/articles/agl-fined-for-misleadingmarketing-010515 • 9 Mar 2015 $15,000 for methane gas leak at Spring Farm in NSW. <https://www.insidewaste.com.au/general/news/1002311/agl-fined-usd15-methane-scare>

• 19 Dec 2013 $1,500 for briefly exceeding the Nitrogen Oxide licence limit at Rosalind Park Gas Plant. <https://www.agl.com.au/about-agl/media-centre/asx-and-media-releases/2013/dec/agl-fined-by-epa-for-minorbreaches>

• 8 Aug 2013 $150,000 for environmental project due to failure to comply with environment licence. http://agl2014.sustainability-report.com.au/how-we-operate/legislative-compliance • 21 May 2013 $1.56 million for using illegal door-to-door sales tactics. <http://www.abc.net.au/news/2013-05-21/agl-fined-over-illegal-door-to-door-sales-tactics/4703112>

• 8 July 2005 $325,000 for gas explosion at Kogarah shopping centre in 1995 killing two people. <http://workplaceohs.com.au/hazards/hazardous-chemicals/cases/agl-fined-325-000-for-gas-explosions-which-killedtwo>

• 13 Aug 2003 $100,000 over the electrocution of a Melbourne carpenter in 1999. https://www.theage.com.au/articles/2003/08/13/1060588438402.html?from=storyrhs On September 26, 2018 the AGL General Meeting of Shareholders took place in Melbourne. Present was the entire AGL Board including the Chairperson Graeme Hunt, I was also present and at question time asked about their terrible performance in regards to negligent, misleading and deceptive behaviour, failing to offset its emission levels and the supply of dodgy data to the Australian Energy Regulator, as mentioned above. In answer to the question, all Chairperson Hunt could say was to acknowledge what had been said and add “…while not apologising for past poor performance we (AGL) need to do better”. (this can be viewed on AGL-AGM webcast 1hr 8 minutes in). It is my contention that enough is enough! AGL over the last 15 years have been fined $7 million by the courts and told to get their act into gear each time and that has just not happened. If they can’t do it in that period of time, they will never do it. They must not be allowed to operate their proposed floating gas factory (FSRU) at Crib Point. With AGL’s record, it would be an accident waiting to happen and that would be disastrous for our Crib Point community and the Westernport Bay environment.

Risks of the FSRU in Relation to the Environment There are a number of ways an accident could happen on the FSRU that could see the Westernport marine environment and the community put in danger- they are as follows;

• A malfunction in the regasification unit that could see excess quantities of chlorine introduced into the LNG heating system and pumped through the outlet pipe into Bay.

• There is a greater risk of fire on board the FSRU due to 40 personal operating aboard the FSRU 24/7, causing a human error risk. It must be taken into account that the FSRU is a floating gas producing factory that could be permanently moored at Crib Point for up to 20 years and is open to the elements and human error. It is not a fixed, on land, fenced protected installation which is a much safer process.

• A fire on board the ship that could see pollutions flow into the bay caused by excess water from fire hoses used to put out any fire or cracks in hulls caused by the heat of the fire or an explosion.

• The FSRU could be determined as a terrorist target and if sunk, by same, would severely damage the environment and if an explosion occurred severely impact on the Crib Point Community.

• An FSRU from time to time will be subject “freak winds” and if the mooring lines were to break, as was the case on January 13, 2016 when the Spirit of Tasmania broke all its mooring lines whilst tied to the Port of Melbourne pier due to a freak wind (100klm per hour). If that happened the FSRU would be on the nearby mud-banks in no time - possibly tipping and causing widespread pollution. This scenario would be much worse if an LNG Tanker was moored alongside the FSRU while unloading LNG.

By Karri Giles, with contributions from Chris Chandler, Rodney Knowles and other reports apologies for lack of references.

WPPC