

Bayu-Undan Gas Export Pipeline Production Cessation Environment Plan

Commercial Fisheries – Issues and Concerns

April 2019

The following table provides a summary of key concerns identified by ConocoPhillips relevant to commercial fisheries from the proposed Bayu-Undan Gas Export Pipeline (GEP) production cessation activities. The summary outlines the following potential impacts to commercial fishers:

- Impacts from the physical presence of vessels involved in the GEP production cessation activities at the KP380 worksite.
- Impacts from planned discharges from vessels during the production cessation activities at the KP380 worksite.
- Impacts from the unplanned introduction of Invasive Marine Species (IMS, i.e. marine pests).
- Impacts from an unplanned release of fuel from a vessel collision at the KP380 worksite.

The table addresses each key concern by providing relevant details of the activity, potential impacts arising from the activity or risk, an assessment of potential impacts to commercial fishers and a summary of the controls which will be applied to manage impacts/risks to As Low As Reasonably Practicable (ALARP).

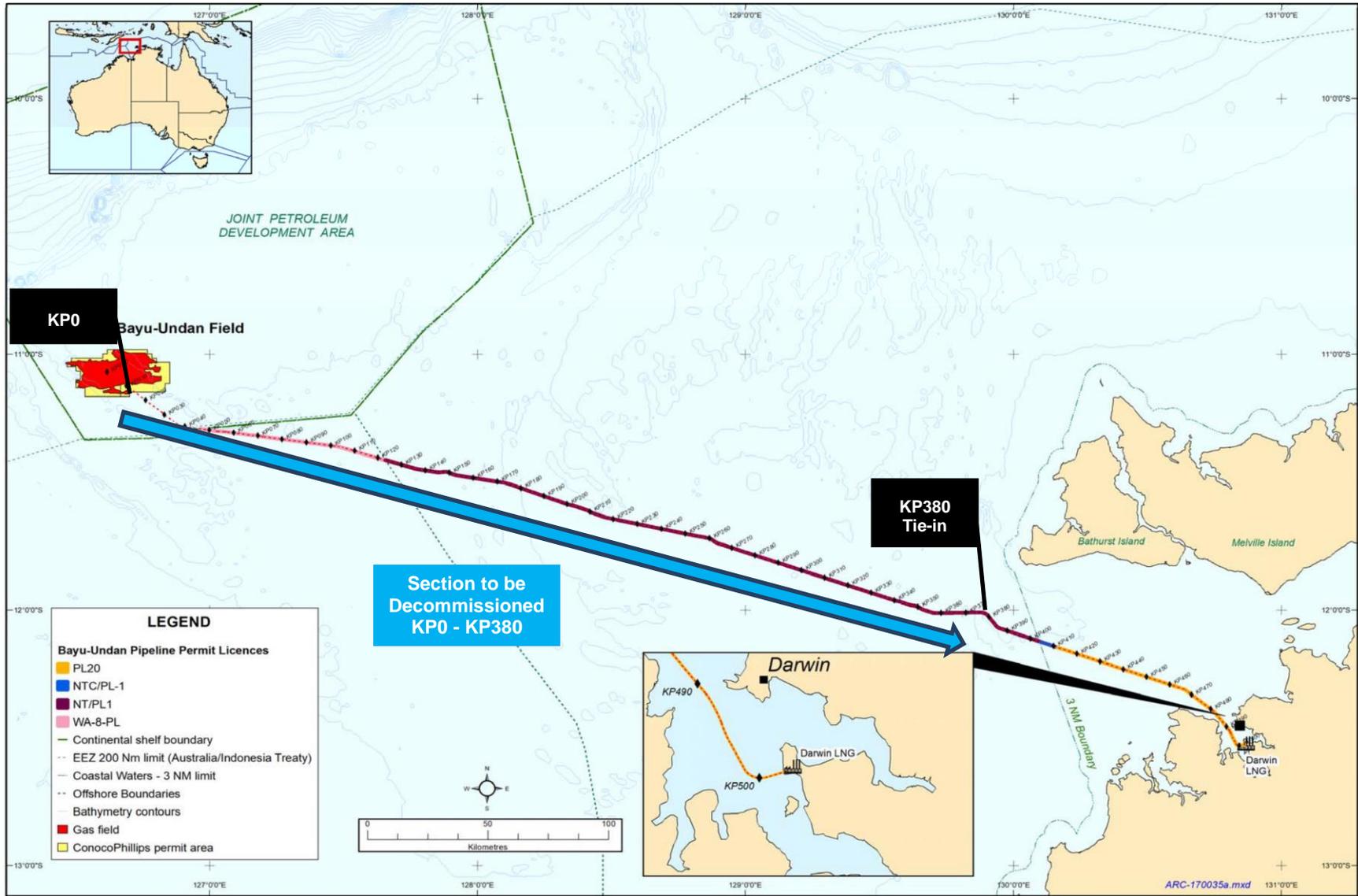


Figure 1 Section of Bayu-Undan GEP to be Decommissioned

Table-1: Summary of Potential Impacts to Commercial Fisheries from Bayu-Undan Gas Export Pipeline (GEP) Production Cessation Activities and Controls to Reduce Impacts/Risks to Acceptable and ALARP

Details of the Activity	Potential Impacts	Assessment of Potential Impacts	Controls to Prevent or Minimise Impact
<i>Impacts from the Physical Presence of Project Vessels</i>			
Impacts to commercial fishing from underwater noise and seabed disturbance generated by project vessels.			
<ul style="list-style-type: none"> • A number of vessels will be contracted to complete the GEP production cessation activities. Peak vessel activity in the operational area is expected to occur during subsea construction activities at the KP380 worksite. • The activities are expected to take between four-to-six weeks; during operations vessels will operate 24/7. • Vessels will use dynamic positioning (DP) systems to maintain station during isolation and cutting activities. 	<ul style="list-style-type: none"> • Localised and temporary disruption to marine fauna, including commercially important species of fish. 	<ul style="list-style-type: none"> • Given the relatively localised source of noise from vessels and short duration of activities, no significant impacts to the fish species targeted by commercial fishers are expected given the short duration and localised nature of any potential impacts. • The area of the marine environment influenced by underwater noise associated with the GEP production cessation activities at the KP380 worksite represents a very small proportion of the area available to be fished. 	<ol style="list-style-type: none"> 1. No controls are proposed to manage the risk of impacts from underwater noise generated by project vessels or the minor seabed disturbance caused by construction activities. The risk is considered ALARP in its uncontrolled state. 2. Subsea infrastructure will have anti-snagging design and protection to minimise the risk of damage, including loss of containment, and the associated disturbance to marine fauna.

Impacts from Planned Discharges

Impacts to water quality from routine discharges from project vessels during the GEP production cessation activities.

<ul style="list-style-type: none"> • During the GEP production cessation activities at the KP380 worksite, project vessels will routinely discharge small volumes of treated sewage, cooling water, putrescible waste, reverse osmosis brine, bilge and deck water. • The activities are expected to take between four-to-six weeks; during operations vessels will operate 24/7. • A number of vessels will be contracted to complete the GEP production cessation activities. Peak vessel activity in the operational area is expected to occur during subsea construction activities at the KP380 worksite. 	<ul style="list-style-type: none"> • Highly localised short-term impacts to water quality within proximity to project vessels, with no significant direct/indirect impacts to commercially important species. 	<ul style="list-style-type: none"> • Discharge of sewage and putrescible waste can cause eutrophication, where an increase in nutrients within the water column leads to a depletion of dissolved oxygen and an increase in phytoplankton (i.e. phytoplankton bloom). • Discharge of bilge, deck water, brine and cooling water can decrease local water quality and have toxic effects on marine fauna near the sea surface due to chemicals in the discharges. • Discharge of cooling water can lead to localised increase in water temperature around the discharge location. • Given the short duration of the GEP production cessation activities at the KP380 worksite, the minimal volumes which will be discharged from vessels and the low toxicity chemicals proposed to be used, impacts are expected to be restricted to localised short-term reductions in water quality with no significant impacts to protected or commercially important marine fauna. 	<ol style="list-style-type: none"> 1. Project vessels will be equipped and crewed in accordance with the <i>Navigation Act 2012</i> (as applicable for vessel size, type and class), including Marine Orders 91 (Marine Pollution Prevention – Oil), 95 (Marine Pollution Prevention – Garbage) and 96 (Marine Pollution Prevention – Sewage). 2. A chemical selection procedure will be applied to ensure selection preference of lowest toxicity chemicals to minimise the area influenced by planned discharges and significance of any impacts. 3. Offshore Vessel Inspection Database (OVID) inspections will be conducted to ensure all contracted vessels have International Maritime Organisation (IMO) approved treatment systems.
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Impacts from a Biosecurity Breach

Introduction of Invasive Marine Species (IMS), i.e. marine pests from project vessels during GEP production cessation activities.

<ul style="list-style-type: none"> • Water depths where the GEP is installed range from approximately 130 m (north-western section) to less than 50 m (south-eastern section). • A number of vessels will be contracted to complete the GEP production cessation activities. Peak vessel activity in the operational area is expected to occur during subsea construction activities at the KP380 worksite. Some vessels may be sourced from outside Australian waters. • Potential risk of introducing invasive marine species from vessel ballast water discharge and from biofouling on vessel hulls. 	<ul style="list-style-type: none"> • Loss or displacement of native marine species, or a reduction in species biodiversity and decline in ecosystem integrity which may result in direct and indirect impacts to ecosystems and commercial fisheries. 	<ul style="list-style-type: none"> • Vessels and equipment that are sourced from waters outside Australia have the potential to introduce IMS. IMS have the potential to influence marine ecosystems which can indirectly affect commercial fisheries. Potential impacts can include competition for resources (space and food) and changes to species composition resulting in altered community structures, increased predation on native species, introduction of pathogens, or a reduction of biodiversity which may directly or indirectly result in changes or declines to target populations. Direct impacts to commercial fishing may also arise from biofouling of fishing equipment. • Given the management controls that will be implemented throughout the production cessation activities the risk is considered low. 	<ol style="list-style-type: none"> 1. Ballast water discharges will comply with the requirements of the Australian Ballast Water Management Requirements, which implements the requirements of the <i>Biosecurity Act 2015</i> and the International Convention for the Control and Management of Ships' Ballast Water and Sediments (as appropriate for vessel class) 2. Vessels will have a suitable anti-fouling coating in accordance with the Protection of the Sea (Harmful Anti-fouling Systems) Act 2006 (as applicable for vessel size, type and class), including Marine Order 98. 3. Vessels will comply with the International Convention on the Control of Harmful Anti-fouling Systems on Ships (as appropriate to class) including vessels having a valid IAFS Certificate. 4. Vessels mobilising from outside Australia or from nearshore waters within Australia will be subject to an IMS risk assessment, the findings of which will determine if additional management measures are required prior to mobilisation, such as a hull inspection and cleaning as required.
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Impacts from Unplanned (Accidental) Discharges

Impacts from an unplanned release of diesel fuel from a vessel collision during GEP production cessation activities.

Note: there is a potential for smaller hydrocarbon/chemical spills to occur during the GEP production cessation activities, such as a spill during fuel transfer operations. The impacts from these spills will be significantly less than predicted for the worst-case scenario spill (described below), with no significant impacts to commercial fisheries. Therefore, these risks have been excluded from this summary table, however, they will be described in detail and managed within the Environment Plan.

<ul style="list-style-type: none"> • The maximum credible spill resulting from a vessel collision was identified as a complete rupture of a single tank resulting in the release of 700 m³ of marine diesel fuel. • Worst-case location for a vessel collision was determined to be at the KP380 worksite. . • The activities are expected to take between four-to-six weeks. During operations vessels will operate 24/7. • Most activities will involve one or two vessels. However more vessels may be required for certain activities which require a barge secured by several tugs. . 	<ul style="list-style-type: none"> • Long-term widespread impacts and loss of habitat or ecosystem, impacts to species population which may result in direct and indirect impacts to commercial fisheries. 	<ul style="list-style-type: none"> • Potential impacts based on dispersion modelling of a spill of 700 m³ of marine diesel fuel at the KP380 worksite may include: <ul style="list-style-type: none"> - Reductions in water quality. - Direct toxic or physiological effects on marine fauna, including corals, mammals, reptiles, birds and fish. - Low risk of hydrocarbon contact with shoals/banks, reefs and islands at concentrations that will result in adverse impacts. - Changes in biological communities because of the effects on key marine fauna. 	<ol style="list-style-type: none"> 1. Project vessels will be equipped and crewed in accordance with the <i>Navigation Act 2012</i> (as applicable for vessel size, type and class), including Marine Orders 21 (Safety of navigation and emergency procedures), 27 (Radio Equipment), 30 (Prevention of Collisions) and 71 (Masters and Deck Officers). 2. A dedicated Oil Pollution Emergency Plan (OPEP) will be prepared and implemented throughout GEP production cessation activities at the KP380 worksite. 3. All vessels will have a dedicated Ship Oil Pollution Prevention Plan (SOPEP). 4. Vessels using heavy fuel oil (HFO) or intermediate fuel oil (IFO) will not be included in production cessation activities at the KP380 worksite to minimise the impact of any spill to the marine environment.
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