



Department of **Primary Industries  
and Regional Development**

Department of **Water and  
Environmental Regulation**

# Carnarvon Flood Recovery 2021

## Industry consultation

To assist the Carnarvon Floodplain Management Working Group to understand the horticultural industry, property owners and community concerns, a consultation process was undertaken in July and August 2021.

Participants involved in the consultation acknowledged that the community of Carnarvon is established on a floodplain and recognised that properties are prone to flooding. The focus of comment was on what occurred during the 2021 floods and how impacts can be managed more effectively.

The consultation revealed issues and solutions for better management prior, during, and after flood events that will assist the Carnarvon horticultural industry, government and community stakeholders to manage future flood events.

Industry consultation – key issues raised	Working group response
<b>Flood management</b> <ul style="list-style-type: none"><li>• Has the new mitigation infrastructure changed the height and velocity of flooding from what was modelled?</li><li>• Are properties in Kingsford and North River Road now more impacted due to the new mitigation infrastructure?</li><li>• Does the current modelling include all private and public infrastructure?</li><li>• What is the official flood level and how does this relate to previous events?</li><li>• Is sand mining impacting the river flow?</li></ul>	<b>Undertake flood planning and mapping to increase understanding</b> <p>A greater understanding of the full range of expected flood events is required to support improved land use and land use planning, flood emergency response planning, infrastructure design, and community flood preparedness.</p> <p>Further flood planning and mapping investigations are required to understand how the public and private infrastructure may create localised impacts. The current floodplain model was developed 20 years ago and needs to account for changes that have recently occurred.</p>

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<ul style="list-style-type: none"> <li>• Breakout points failed to work in this flood. Could new breakouts upriver be reinvestigated to reduce flows into Carnarvon?</li> <li>• Is there a need for further mitigation infrastructure, such as a new levee to protect Kingsford and properties?</li> </ul>	<p><b>Recommendations 2.1 and 2.2</b> detail the technical investigations to be undertaken. Surveys and new models will be developed that will allow a greater understanding of how public and private structures are impacting flooding.</p> <p>The investigations will consider new mitigation infrastructure and works to manage flooding which includes a levee at Kingsford and breakouts further upstream. The studies will confirm the most flood prone areas.</p> <p><b>Recommendation 2.3</b> recognises the importance for all entities reporting on flood levels measurement to have consistent communication including how this relates to previous event. To assist understanding of flood levels <b>Recommendation 2.4</b> promotes gauging boards are erected along the river.</p>
Waterways management	Reduce impacts through waterways management
<ul style="list-style-type: none"> <li>• Floodways are heavily vegetated, have been dumped with rubbish and waste, and are being used for production and roadways. Whose responsibility is this?</li> <li>• We need management of floodways that have multiple owners, as neighbours have different approaches.</li> <li>• Flowlines and breakouts no longer in operation have been filled-in or silted-up. For example, Burnt Gully is full of debris and silt, so is not working.</li> <li>• Public and private ownership of floodways and management is unclear.</li> <li>• North River Road has been built-up and prevents water flowing away from floodways, as intended.</li> </ul>	<p>Remediation of riverbanks and floodways is vital to protect properties and livelihoods from future flooding and damage.</p> <p>A strong focus for the Working Group was to clarify ownership, location and management practices for floodways (<b>Recommendation 3.1</b>) to assist landholders.</p> <p>Management plans were identified as critical to reduce the vegetation, soil and rubbish in floodways. These management plans need to be coordinated with all landholders when in private ownership (<b>Recommendation 3.2</b>) or public (<b>Recommendation 3.3</b>).</p> <p>Where there is an unwillingness from private landholders to commit to a coordinated management approach for a floodway, the Working Group will identify options to respond (<b>Recommendation 3.4</b>).</p> <p>A source of funding to undertake the initial remediation and ongoing maintenance is needed. The development of a budget</p>

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<ul style="list-style-type: none"> <li>The riverbank is heavily eroded in areas and, without intervention, will soon start impacting properties.</li> </ul>	<p>(<b>Recommendation 3.6</b>) will assist in developing funding applications to undertake the works on public lands (<b>Recommendation 3.7</b>).</p> <p>The management plans may identify projects that could be undertaken by community groups (<b>Recommendation 3.5</b>).</p> <p>To understand the work required to remediate the riverbank, funding is required to develop a management plan (<b>Recommendation 3.8</b>).</p>
<p><b>Soil restoration program</b></p> <ul style="list-style-type: none"> <li>Will there be soil restoration programs for future flooding events, who will be eligible and how will this be delivered faster than in 2021?</li> <li>Where can growers access soil for future events, if the Government isn't going to support the community?</li> <li>Some producers are growing annual vegetable crops in flood prone areas. Why are they getting soil when they are undertaking poor practices that fail to protect the soil resource?</li> <li>Why weren't roads/tracks covered in the soil program?</li> <li>How do you afford to change practices to perennials? One grower identified they previously had perennials which were damaged in a flood/cyclone. Easier to go into annuals than invest in perennials where the payback [period] is much longer and [perennials] take time to reestablish.</li> <li>The value of all land has dropped due to flooding. This impacts all growers, with many unable to exit with dignity.</li> <li>Perception investors are unwilling to purchase land due to issues with flood mitigation.</li> </ul>	<p><b>Reduce loss through improved soil conservation and land management practices</b></p> <p>The cycle of soil loss due to flood events and subsequent Government supported soil restoration programs are unsustainable.</p> <p>To provide clarity on WA Government position for future soil restoration programs, a policy will be developed with industry (<b>Recommendation 4.4</b>).</p> <p>To transition industry to improve soil conservation and land management practices a development officer will be appointed (<b>Recommendation 4.1</b>).</p> <p>Contemporary farm management practice guidelines will be updated and published as a reference for all landholders (<b>Recommendation 4.2</b>).</p> <p>To manage risk to the farm business from flooding and other disruptions all growers are encouraged to participate in capacity building programs (<b>Recommendation 4.3</b>).</p> <p>To resolves concerns raised regarding value of horticulture properties, DPIRD will commission a review of what makes a region investable for irrigated cropping. Outcomes of the review will be provided to the local industry and the Working Group.</p>

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<p><b>Waste management</b></p> <ul style="list-style-type: none"> <li>• Chemical drums are laying around properties and being left in gullies. Other waste is being thrown into gullies and on Crown land.</li> <li>• Plastic that is used as a weed suppressor in crops is being incorporated into soil or being left in piles on, or adjacent to, properties.</li> <li>• General farm rubbish, such as pipes and stakes, is laying around sheds, making it susceptible to floodwaters.</li> </ul>	<p><b>Improve waste management</b></p> <p>The current level of waste and management by a minority of businesses in the Carnarvon horticultural area is unacceptable and affects the entire industry's social license to operate.</p> <p>Recommendations focus on improving waste management on horticultural properties through:</p> <ul style="list-style-type: none"> <li>• regular reminders to clean up <b>(5.1)</b></li> <li>• developing guidelines to clarify how waste and rubbish should be disposed <b>(5.2)</b></li> <li>• co-investment in programs to engage landholders and audit properties <b>(5.3)</b></li> <li>• compliance <b>(5.4)</b></li> <li>• managing waste on crown land <b>(5.5)</b></li> <li>• identifying opportunities to manage excess agricultural produce <b>(5.6)</b> and/or recycling <b>(5.7)</b>.</li> </ul>
<p><b>Land management</b></p> <ul style="list-style-type: none"> <li>• Structures have been approved without considering the flow of flood water. For example, the caravan park in Kingsford has been able to install a Colorbond fence that prevents water flowing through, creating a barrier to water and potentially creating erosive streams.</li> <li>• Natural and man-made structures have been installed that impact on neighbours. These include: <ul style="list-style-type: none"> <li>○ levees, driveways, and windbreaks</li> <li>○ bamboo, shrubs, or other natural hedgerows, and</li> <li>○ fences, both enclosed and open wire, which cause a buildup of soil.</li> </ul> </li> </ul>	<p><b>Establish a governance structure to promote a coordinated and long-term strategic approach to floodplain management</b></p> <p>Coordination of the roles, responsibilities and strategic intent of the relevant agencies could assist the horticultural industry to better prepare, mitigate, respond to, and recover from flood events. To deliver this coordinated long-term management of the floodplain, it is proposed (<b>Recommendation 1.1</b>) that the Working Group should continue.</p> <p>The roles and responsibilities of each entity need to be clearly defined; and the regulatory powers of each authority communicated to stakeholders. All parties, including growers must acknowledge</p>

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<ul style="list-style-type: none"> <li>• There is a lack of management of illegal and legal structures on properties that impact neighbours.</li> <li>• Who checks current and historical structures to ensure approvals were granted, or accommodation and buildings on properties are built to reflect town planning regulations?</li> <li>• Gullies on the western end on North River Road are still being used for annual production. New land was substituted on the northern side of the road however, this land was issued with new, separate titles and not joined to the existing title, so can be sold off as separate properties.</li> <li>• In the 1970s, growers moved from the western end of North River Road to McGlades Road. Could highly impacted properties be resumed or access new land?</li> <li>• Land was provided in about 2000 to remove unsuitable production land from production. Gullies on North River Road are now being used for annual production. Land blocks failed to be connected so can be sold as separate properties, and new owners are unfamiliar with the arrangement.</li> </ul>	<p>they are accountable for delivering on their responsibilities (<b>Recommendation 1.3</b>).</p> <p>The management of the floodplain is a shared responsibility, and no single stakeholder should be burdened with it.</p> <p>To resolve local issues between neighbours and Governments without compliance and regulation as the first step, the Working Group proposes to develop a conflict resolution pathway to assist mediation of on-farm issues between stakeholders. (<b>Recommendation 1.4</b>)</p>
Improving preparation for flooding and recovery	Establish a governance structure to promote a coordinated and long-term strategic approach to floodplain management
<ul style="list-style-type: none"> <li>• Growers are unable to access disaster relief assistance as many are protected by levees, so the total value of the damage is below thresholds for access to the Category C scheme.</li> <li>• Providing information in a range of languages.</li> <li>• Improved guidance [is required] on what will happen if there is a flood over summer. What can growers and the community expect?</li> </ul>	<p>Coordinated long-term management of the floodplain is proposed (<b>Recommendation 1.1</b>) through the continuation of the Working Group. The issues identified have been raised with DFES and relevant entities. The Working group will continue to represent growers to resolve these issues.</p> <p>Initiatives undertaken by the Working Group should link with the existing Local Emergency Consultative Committee (<b>Recommendation 1.2</b>).</p>

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<ul style="list-style-type: none"> <li>There is stress and anxiety about the next cyclone season, and assistance [is required] for the community to manage this proactively.</li> </ul>	<p>We are cognisant that growers feel vulnerable after 2021 flooding. The recommendations are to bring confidence to the horticultural industry that there will be a greater focus on long term management of the floodplain and a local mechanism for growers to bring their concerns to the Working group for resolution.</p>