





Prepared by: Queensland Parks and Wildlife Service, Department of the Environment, Tourism, Science and Innovation.

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### Queensland Crocodile Management Plan

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### Introduction

The Queensland Government, through the Department of the Environment, Tourism, Science and Innovation is delivering a comprehensive Estuarine crocodile (Crocodylus porosus) management safety program.

The Queensland Crocodile Management Plan (QCMP) provides the overarching framework for managing estuarine crocodiles to mitigate public safety risks. It is informed by extensive consultation with regional communities, key monitoring, population modelling, and research undertaken by the Queensland Government, including the ongoing Queensland Estuarine Crocodile Monitoring Program.

The first coordinated framework to manage estuarine crocodiles in impacted Local Government Areas was introduced in 2013. The current QCMP was developed in 2017, with no significant changes having been made to the plan in the ensuing period.

Estuarine crocodiles are an important part of Queensland's ecosystems but can pose significant dangers to humans. Because they present a much higher risk than freshwater crocodiles (Crocodylus johnstoni), the QCMP focuses exclusively on managing public safety risks associated with estuarine crocodiles.

The QCMP outlines how the Department will:

- identify risks posed by estuarine crocodiles in different parts of Queensland
- increase public safety through an evidence-based approach
- provide a consistent approach to estuarine crocodile management across the species' range that supports estuarine crocodile conservation, including how the Department will consistently respond to sightings.

Estuarine crocodiles are a protected species in Queensland, listed as a vulnerable species under the *Nature Conservation Act 1992* (Qld). They are also protected nationally under Commonwealth legislation and internationally under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). These arrangements affect how crocodiles are managed, farmed and traded.

The QCMP supports the Nature Conservation (Estuarine Crocodile) Conservation Plan 2018 (Qld), which is made under the Nature Conservation Act. Together these documents describe the strategic and statutory management framework designed to both reduce risks to public safety and protect estuarine crocodile populations in the wild.

The QCMP strikes the appropriate balance between managing the public safety risks that estuarine crocodiles may pose to humans and the conservation of the species.

### Estuarine crocodiles in Queensland

#### Habitat, distribution and behaviour

In Queensland, estuarine crocodiles are found throughout the Gulf of Carpentaria, Cape York Peninsula, Torres Strait, and along the east coast down to Rockhampton, which marks the southernmost population. Crocodiles are rarely present south of the Fitzroy River, and those that occur are considered vagrants.

Crocodiles are primarily found on or near the banks of a river, with 90% of the population located in areas less than 20 metres above sea level. They also inhabit tidal reaches of rivers and associated inlets and wetlands, as well as along beaches and offshore islands in the Great Barrier Reef and Torres Strait. Additionally, they occur in freshwater lagoons, rivers, and swamps up to hundreds of kilometres inland from the coast.

The estuarine crocodile population in Queensland is estimated to be between 20,000–30,000 non-hatchling animals. The crocodile population has grown slowly and there is no evidence of an expansion southward.

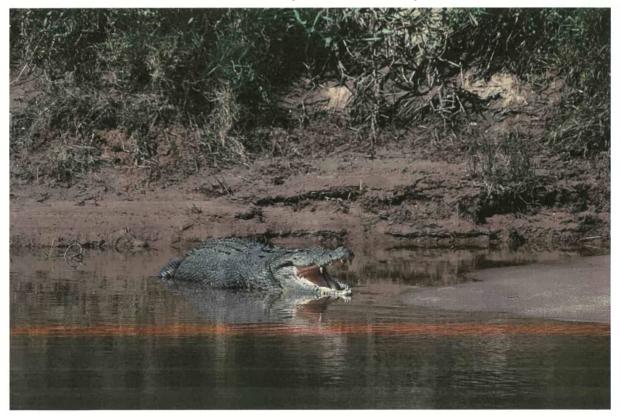
Estuarine crocodiles are capable of long-distance movements, up to several hundred kilometres, along the coast and up and down rivers. As a result, there is a possibility that crocodiles may be present in any water body (saltwater and freshwater) north from Gladstone, to the Northern Territory border.

Estuarine crocodiles are semi-aquatic, opportunistic, apex predators that feed on a wide range of prey. Juvenile estuarine crocodiles feed on invertebrates such as insects, crabs, prawns and shrimps. As they grow, so does their range of potential food items. At sizes of around two metres they begin to take an increasing number of vertebrates such as fish, frogs, birds, and rats.

An adult estuarine crocodile, which can reach lengths of over five metres, may prey on sea turtles, goannas, wallabies, cats, pigs, dogs, kangaroos, cattle, horses, buffalo, and other crocodiles.

Estuarine crocodiles are water's edge predators that will ambush anything that moves at or near the water's surface. They have very good eyesight, and a well-developed sense of smell which sometimes leads them long distances in search of prey. Their bodies are covered with dermal pressure sensors which can detect the smallest movement of animals or objects in the water.

In comparison, freshwater crocodiles rarely grow more than 2.5 metres long, have a much narrower snout, and their diet consists of smaller animals (including insects, fish, frogs, lizards, turtles, bats, birds). Because of their smaller size and preference for smaller prey they pose a lower risk to humans than estuarine crocodiles. Freshwater crocodile attacks on humans are very rare and are usually defensive in nature.



#### Risks to humans

#### Public safety is the key priority of the Queensland Government.

Public safety is the key priority of the Queensland Government, and appropriately mitigating risks posed by crocodiles is fundamental to the crocodile management program.

Estuarine crocodiles respond to movement. Anything that moves on or near the water's surface- including people-can attract their attention and may provoke an attack. While the likelihood of being attacked by a crocodile is relatively low, the consequences can be severe, particularly when large crocodiles are involved.

The recovery of the crocodile population since hunting was banned in the mid-1970s, along with the continuing growth of the human population in northern and far northern Queensland, means there is an ever-increasing likelihood of contact between people and crocodiles.

Most estuarine crocodile attacks, sightings and captures for management purposes occur on the populated east coast of Queensland, between Cooktown and Ingham, where higher human populations occur alongside crocodile populations. In crocodile habitat, attacks are more likely in waterways that are below 20 metres elevation, where 90% of the crocodile population lives.

While all crocodiles are potentially dangerous, some crocodiles can display dangerous behaviours around or towards humans.

Like for many hazards in the environment, the risk of crocodile attack can be minimised. In Queensland, the QCMP's focus is on the management of crocodiles through selective and targeted removal of crocodiles that pose the greatest risks to public safety. Other key strategies to significantly minimise the risks posed by crocodiles are:

- installation of warning signs by the Queensland Government
- delivery of an ongoing public safety education program and community engagement throughout areas of crocodile habitat
- scientific research on crocodiles and social research into attitudes, behaviours, and barriers to the uptake
  of behaviours that minimise the risk of attack, to inform community education
- monitoring the size and density of crocodile populations throughout crocodile habitat in Queensland and how these change over time
- community members taking personal responsibility for their safety and adopting behaviours that minimise
  the risk of attack.

It is important to note that removing crocodiles does not guarantee the safety of recreational users of waterways. No amount of crocodile removal can guarantee an area is crocodile free and make water based recreational activities completely safe. Crocodiles are a highly mobile species capable of travelling many kilometres in a day and could enter an area without necessarily being seen.

Between December 1985—October 2025, there were 35 non-fatal attacks and 15 fatal attacks by estuarine crocodiles on humans in Queensland.

#### A crocodile may be considered as a crocodile displaying dangerous behaviour when:

- It has attacked, is about to attack, or is behaving aggressively towards, a person
- Its location or behaviour, is a threat, or a potential threat, to the safety or wellbeing of humans
- It develops an association between humans and food availability
- It displays certain territorial behaviours.

### Be Crocwise safety education program

Be Crocwise is the Queensland Government's education and public safety program and forms a key part of its broader crocodile management strategy. Public safety education is considered the most effective way to influence safe behaviour in areas of crocodile habitat. Alongside management actions taken under the QCMP, the department delivers the long-running Be Crocwise program to help reduce risks and keep communities safe.

Information and resources on the Be Crocwise program is available on the Queensland Government website.

### First Nations involvement in removal of crocodiles

The department recognises that the estuarine crocodile is a culturally significant species that holds high cultural value for many First Nations peoples across Queensland. The QCMP aims to involve First Nations groups in guiding decisions around the potential declaration and or removal of problem crocodiles. Respectful collaboration with First Nations groups is a key component of problem crocodile management operations.

It should be noted that while the department values and remains committed to seeking First Nations input into crocodile management decisions, there may be circumstances when decisive action is needed to protect human life and mitigate risks to the broader community. In such cases, the need for urgent action may limit the extent of engagement with First Nations peoples that can be undertaken.

Most problem crocodile removals are conducted by wildlife rangers from the department or contractors to the department. In certain cases, these removals may be undertaken by or in collaboration with other trained entities, including Indigenous Land and Sea Rangers.



# Selective and targeted removal of crocodiles

The Department identifies problem crocodiles through a number of methods including proactive inspection and reports from the public.

The QCMP supports the Nature Conservation (Estuarine Crocodile) Conservation Plan 2018 (Qld), which is made under the Nature Conservation Act. The Conservation Plan sets out the circumstances under which a crocodile may be considered a *problem crocodile* and targeted for removal from the wild.

The circumstances for crocodile removal include where:

- the crocodile has attacked, is about to attack, or is behaving aggressively towards, a person
- the nature of the crocodile's location or behaviour makes the crocodile a threat, or a potential threat, to the safety or wellbeing of humans
- a crocodile has passed over, through or under a crocodile prevention barrier on land, on which aquaculture
  fisheries resources, stock, or a working dog normally lives and is, or is likely to become, a danger to the
  resources, stock or dog.

A crocodile larger than two metres in length may be considered a *large crocodile*. While most crocodiles can attack humans, *large crocodiles* are more capable of injuring or killing people. Most attacks are carried out by crocodiles larger than two metres.

In summary, animal location, animal behaviour and animal size are the key considerations to determine if a crocodile is a *problem crocodile*.

*Problem crocodiles* are captured through either direct capture (e.g. from a boat) or indirect capture, (e.g. traps), depending on the circumstances.

In addition to responsive removal of problem crocodiles, to further increase public safety, the potential for using semi-permanent trap at high-risk locations will be tested as a means of reducing potential human-crocodile interactions.

# Crocodile rehoming

Generally, estuarine crocodiles removed from the wild are rehomed in zoos or crocodile farms. However, in limited circumstances, it may be more humane for the animal to be humanely euthanised, such as where they would need to be transported long distances to a farm or zoo over rough roads.

The government remains committed to continuing to rehome problem crocodiles in preference to other options, and mainly for breeding or display for educational purposes to educate the public about crocodile safety. Consultation with relevant representatives of the crocodile farming and zoological industries will continue regarding their capacity and willingness to accept crocodiles removed from the wild.

Crocodiles that are rehomed in crocodile farms must be humanely treated in accordance with the Australian Code of Practice on the Humane Treatment of Wild and Farmed Australian Crocodiles (the Australian Code). All crocodile farming licences issued under the NC Act include a condition requiring compliance with the Australian Code, which includes a range of welfare requirements. Inhumane treatment of crocodiles inconsistent with the requirements of the Australian Code may be subject to compliance action under the NC Act and the *Animal Protection and Care Act 2001*.

# **Crocodile management zones**

Queensland's crocodile management under the QCMP is based on a system of management zones. Different parts of the state fall within different zones, which are determined by the overall level of risk to public safety.

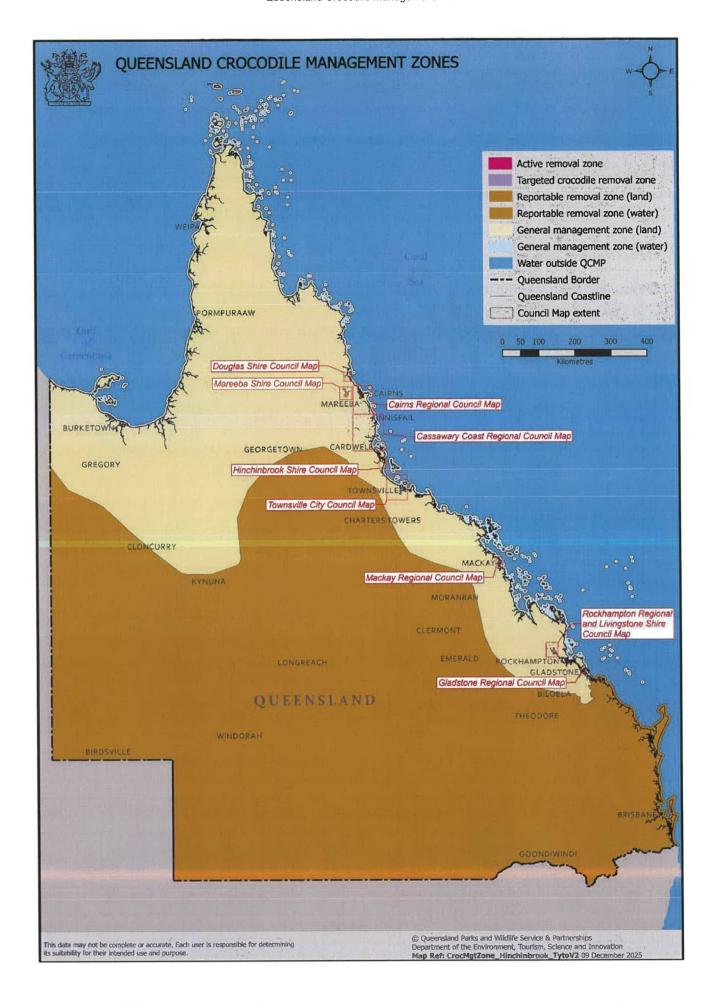
When assessing risk, the department considers factors such as the size of the human population in the area, the size and composition of the crocodile population, and the practicality of various management options. The criteria for identifying a problem crocodile are tailored to each zone to reflect these differing risk factors.

Boundaries for each crocodile management zone are determined by the department's Chief Executive, based on scientific evidence and advice, and taking into account consultation with stakeholders. The aim is to minimise risks to public safety while ensuring the conservation of crocodiles in the wild.

The *crocodile management zones* have been consolidated and simplified from the 2017 version of the QCMP. Each part of Queensland is now classified into one of four zones:

- Active Removal Zone (AR zone)
- Targeted Crocodile Removal Zone (TCR zone)
- General Management Zone (GM zone)
- Reportable Removal Zone (RR zone).

The updated crocodile management zones for Queensland are shown in the map. Additional zone maps for other areas which provide more detail are available in Appendix B. All updated crocodile zone maps are available on the Queensland Government website.



### **Active Removal Zone (AR zone)**

Active Removal Zones (AR zone) apply to areas where the risk of human–crocodile interaction is high due to the significant number of people living in these areas and high likelihood of crocodiles entering the area from surrounding crocodile habitat.

Management in this zone seeks to significantly reduce the number of estuarine crocodiles near large urban areas and other high use areas.

In AR zones, **all estuarine crocodiles**, regardless of size or behaviour are targeted for removal. The management approach can involve a combination of permanent, regularly monitored traps in some creeks, and patrolling to detect and target crocodiles for removal. Crocodiles are also targeted for removal if a sighting is received from the public. In some instances, physical barriers (generally existing barriers such as weirs) prevent crocodiles entering the area. All crocodiles reported to have passed these barriers are targeted for immediate removal.

Through these practices the risk of crocodile attack may be mitigated to a significant extent but cannot be removed entirely. At any given time, there may be undetected crocodiles within the zone, known crocodiles yet to be removed, or new crocodiles entering the zone. Even when a crocodile has been removed, it leaves a vacated territory for another crocodile to fill.

### Targeted Crocodile Removal Zone (TCR zone)

Targeted Crocodile Removal Zones (TCR zone) apply to areas near urban centres and popular leisure sites where the risk of human—crocodile interaction is relatively high. These zones are frequented by large numbers of people and frequented by estuarine crocodiles. *Large crocodiles* are often likely to be living in or moving through this zone.

Management in this zone involves targeting the removal of all *large crocodiles* and any *crocodile displaying dangerous behaviour* (following a problem crocodile determination).

Crocodiles identified on beaches are generally transient which makes removal of these animals unmanageable unless the animal can be identified as a resident of a waterway located within this zone.

It is not possible, nor the intent of management, to make this zone free of crocodiles. Crocodiles will be present and the chance of attack from a crocodile remains. The removal of a *large crocodile* or *crocodile displaying dangerous behaviour* may reduce the likelihood of a crocodile attack but also leaves a vacated territory for another crocodile to fill.

### Reportable Removal Zone (RR zone)

Reportable Removal Zones apply to areas outside typical estuarine crocodile habitat, where the risk of human-crocodile interaction is very low. Crocodiles are rarely found in these zones, but 'vagrant' crocodiles may occasionally appear, often following major flood events.

The Department is committed to managing these areas to keep them free from crocodiles. If a crocodile is confirmed within an RR Zone, it will be targeted for removal to maintain public safety.

### General Management Zone (GM zone)

General Management Zones (GM zone) apply to all areas of Queensland's identified crocodile habitat not designated as an AR zone, TCR zone or RR zone.

In this zone, the risk of human—crocodile interaction is variable due to the range of habitats and varying numbers of people found within this zone. Typically, estuarine crocodile habitat in this zone is not located near large urban centres. Large crocodiles or crocodiles displaying dangerous behaviour may be living within this zone.

Management in this zone involves community education regarding appropriate risk minimisation behaviours and removing crocodiles displaying dangerous behaviour (following a problem crocodile determination). Importantly, the animal's location, behaviour and size are the key considerations to determine if a crocodile is considered a problem crocodile in the general management zone.

The removal of crocodiles displaying dangerous behaviour from this zone reduces the likelihood of attacks from individual crocodiles. However, the chance of a crocodile attack remains, particularly in areas of high-quality crocodile habitat.

#### Scientific research

Recent genetic research on estuarine crocodiles in Queensland shows that, although these animals are highly mobile and capable of swimming quite long distances, they tend not to move as far across their range as had been thought. This lack of dispersal has led to the identification of six distinct sub-populations within the state.

Research shows more than 90% of crocodiles in Queensland stay within 50 kilometres of where they hatched and there is limited dispersal between recognised sub-populations. This research suggests public safety benefits from specific management actions are likely to be local.

To support other crocodile risk mitigation strategies and management measures, the department is progressing a range of scientific trials of other risk mitigation approaches including digital video detection and 'eDNA'. The department is also exploring other innovations to detect the presence of crocodiles in waterways in Queensland.

'Aversive' conditioning (such as hazing) trials will also be undertaken, using different techniques that aim to increase the crocodiles wariness of human activity, which may be valuable in some instances to reduce the likelihood of human-crocodile interactions.

These trials will be closely evaluated to determine the effectiveness of this form of management in improving public safety.

These scientific studies are delivering on the department's commitment to researching and understanding the most effective ways to prevent crocodile attacks and enable coexistence with crocodiles.

The Proserpine River contains the highest density of large crocodiles in Queensland. To better understand both the environmental conditions and population dynamics at play, the department is also engaging in several research projects focusing on the estuarine crocodile population within this system and the surrounding area.

Tracking data is being analysed currently against surface water and coastal currents to determine the likelihood of crocodiles impacting on any tourism locations nearby and better understand movement dynamics within the river system.

In combination with state-wide genetic and localised oceanographic studies, tracking data from the Proserpine river systems will help to gain a clearer understanding of how crocodiles move around within this region.

# Other management practices

Management practices including egg harvesting, culling and wild crocodile harvesting are not considered practical management solutions to protect public safety under this plan.

The Conservation Plan includes provisions to authorise the sustainable harvesting of estuarine crocodile eggs under a harvesting licence, should certain conditions be met. However, modelling suggests that, due to the density dependant nature of the species and naturally high rates of egg mortality, wild egg harvesting would not be an effective population management tool for the species in Queensland. Wild harvest of estuarine crocodile eggs has consistently been proven to have no detrimental impact on crocodile populations in both Queensland and the Northern Territory.

While egg harvesting may be commercially viable in specific circumstances and when undertaken by particular operators, an Independent Evaluation of the Queensland Estuarine Crocodile Management Program in 2021 noted that commercial harvesting of estuarine crocodile eggs in Queensland is 'unlikely to be commercially viable at any substantial scale because of their distribution and relatively low density of nests, the long freight transport distances involved, and the costs associated with locating nests, egg collection and transport'.

Widespread commercial harvesting of crocodiles for their skins was common practice in Queensland up until the mid-1970s, when protection measures were introduced. The wild population to that point had been reduced to the extent that it was no longer commercially viable to continue harvesting – sometimes referred to as being 'commercially extinct'.

Culling to reduce crocodile populations is viewed as unacceptable by large portions of the community along with the tourism industry which profits from tourists being able to observe crocodiles in the wild. Large-scale culling would also lead to a false sense of safety in and around waterways in areas of crocodile habitat. The risk of crocodile attacks would remain, as crocodiles are a highly mobile species capable of travelling many kilometres in a day. No amount of crocodile removal can guarantee that all crocodiles have been removed from an area and make it completely safe to swim in areas of crocodile habitat. Adopting appropriate risk mitigating safety behaviours remain the most important contribution the community can make to public safety.

Harvesting wild crocodile skins is also no longer commercially viable. The imperfections accrued naturally by animals in the wild compromise the value of the skins to the point where they do not meet strict industry quality standards. The Independent Evaluation of the Queensland Estuarine Crocodile Management Program undertaken in 2021 also noted that any attempt to use commercial wild harvesting of crocodiles to reduce the risk of crocodile attacks would be ineffective.

# Listening to community feedback

### Plan review, feedback and updates

Listening to Queensland communities is central to keeping the QCMP relevant and effective.

Each year, a four-week public consultation period will provide an opportunity for residents, stakeholders, and local organisations to request changes or seek a review of crocodile management zones. As new verified risks are identified, changes to the location and/or boundaries of the crocodile management zones will be considered as required, ensuring changes are not limited to the mandatory five-year review cycle.

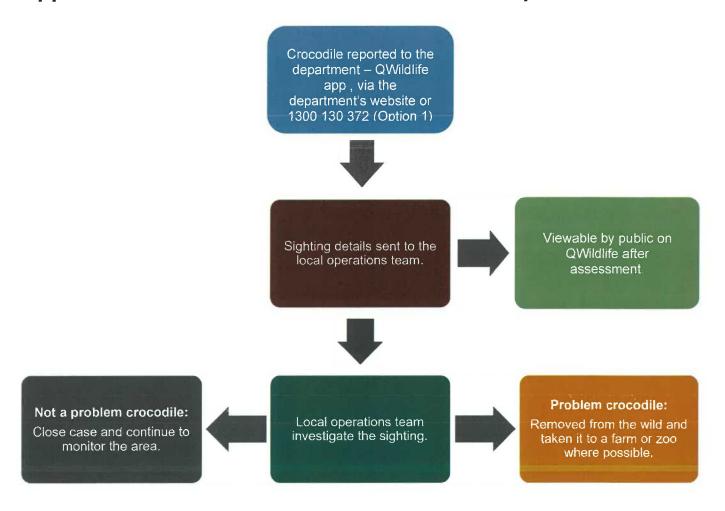
In addition to annual consultation period, the QCMP will be reviewed every five years to ensure it remains fit for purpose and reflects the latest science, monitoring data, and community expectations.

It is not proposed for the QCMP to be rewritten should there be changes to legislation and administrative arrangements that do not materially affect the operation of the plan, unless the Chief Executive determines that a new plan is required.

In making decisions about amending a crocodile management zone map, the Chief Executive may consider matters relevant to both public safety and the conservation of crocodiles.

Definitions	
Problem crocodile determination	The process by which crocodile sightings/reports are assessed by the chief executive of the agency administering the <i>Nature Conservation Act 1992</i> to determine if the crocodile should be declared a problem crocodile and targeted for removal from the wild (this process is outlined in Appendix A).  While this determination is being made sightings are publicly reported on the QWildlife App as 'sighting under investigation'.
Conservation Plan	The Nature Conservation (Estuarine Crocodile) Conservation Plan 2018.
Crocodile habitat	The coastal areas from the Boyne River near Gladstone to the northern tip of Queensland and west to the Northern Territory border. It can stretch some hundreds of kilometres inland from the coast, while also encompassing many coastal islands.
Crocodile	An animal of the species Crocodylus porosus or Crocodylus johnstoni.
Crocodile management zones	Areas defined by maps referred to in the 'Crocodile management zone' section of this QCMP.
Crocodile displaying dangerous behaviour	A crocodile that has attacked, is about to attack, or is behaving aggressively towards, a person; or a crocodile the Chief Executive of the agency administering the <i>Nature Conservation Act 1992</i> reasonably believes, due to its location or behaviour, is a threat, or a potential threat, to the safety or wellbeing of humans.
Estuarine crocodile	An animal of the species Crocodylus porosus.
Large crocodile	A crocodile that is two metres or greater in length.
NC Act	The Nature Conservation Act 1992
Non-hatchling	Crocodiles greater than 0.6 metres total length (i.e. juvenile and adult animals).
Problem crocodile	A crocodile designated for removal from the wild because of the risk it poses due to its size, behaviour or location or a combination of these characteristics.  (See section 5 of the Conservation Plan for a full definition)
QCMP	The Queensland Crocodile Management Plan.

# Appendix A: Problem crocodile determination procedure



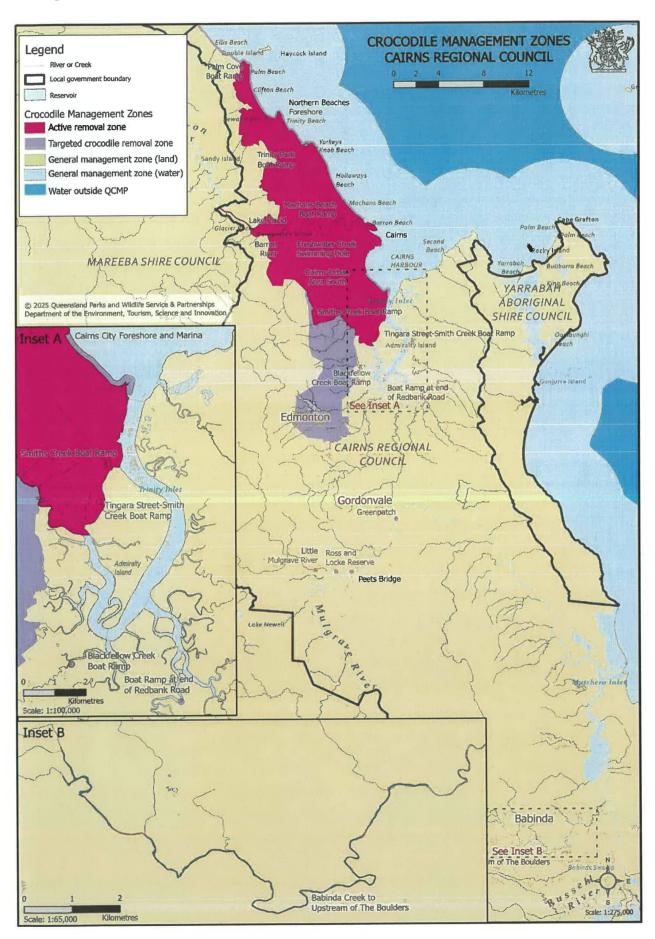
# Appendix B: Crocodile management zones maps for Queensland

Following consultation on the draft QCMP in 2024, further refinements were made to several crocodile management zones to reflect community feedback and enhance public safety.

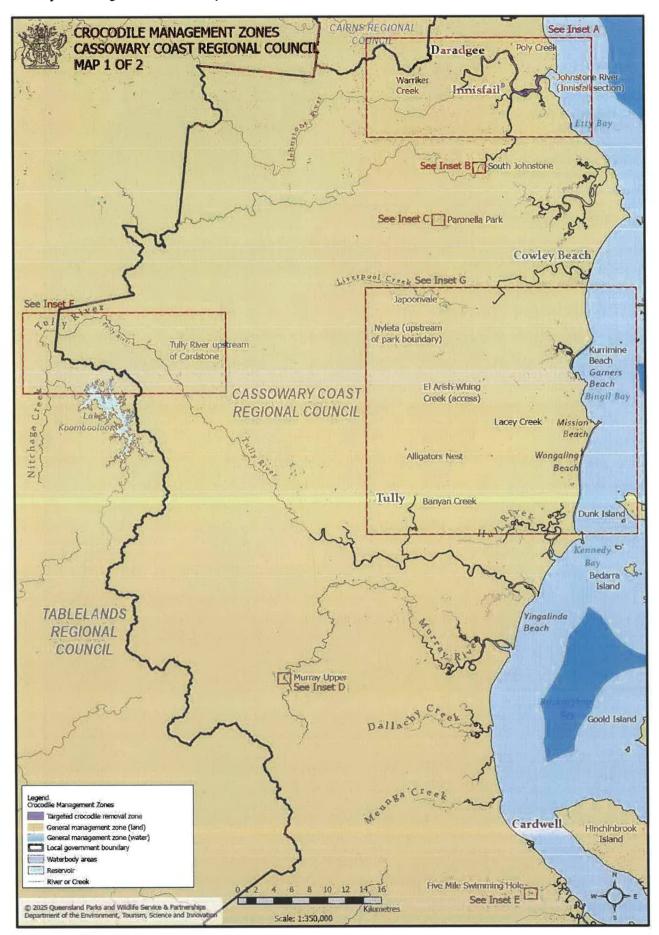
#### These include:

- Cairns Regional Council area Three new Targeted crocodile removal zones added in the Mulgrave River, including Greenpatch, Peets Bridge, and the Little Mulgrave River.
- Cassowary Coast Regional Council area Re-zoning of Warrina Lakes Community Parklands to become a Targeted crocodile removal zone.
- **Hinchinbrook Shire Council area** Re-zoning of the two front ponds of the Tyto Wetlands to become an Active removal zone.
- Mareeba Shire Council area Re-zoning of Southedge Dam (Lake Mitchell) to become a Reportable removal zone.

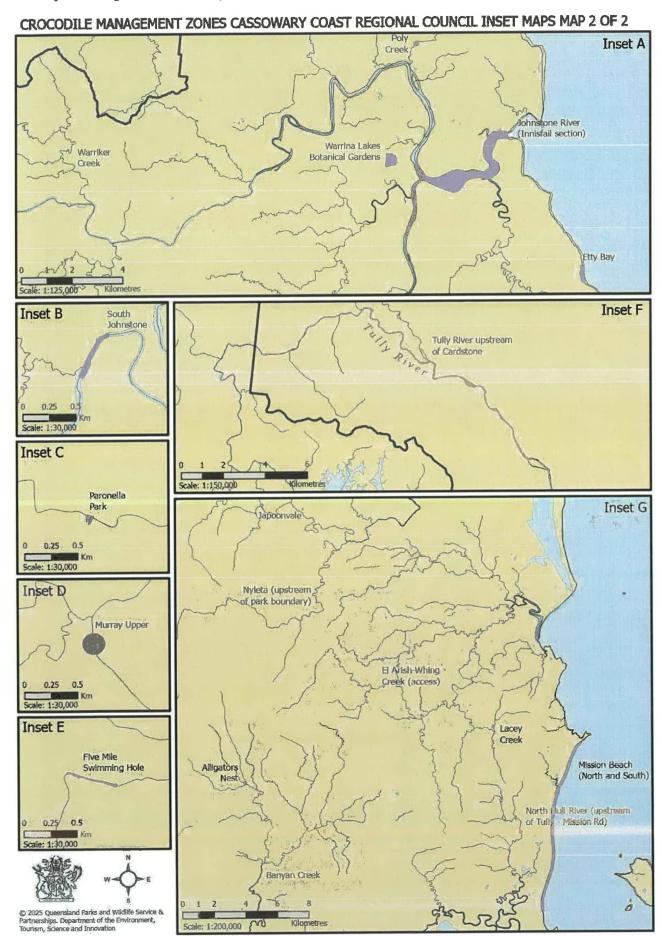
### Cairns Regional Council map



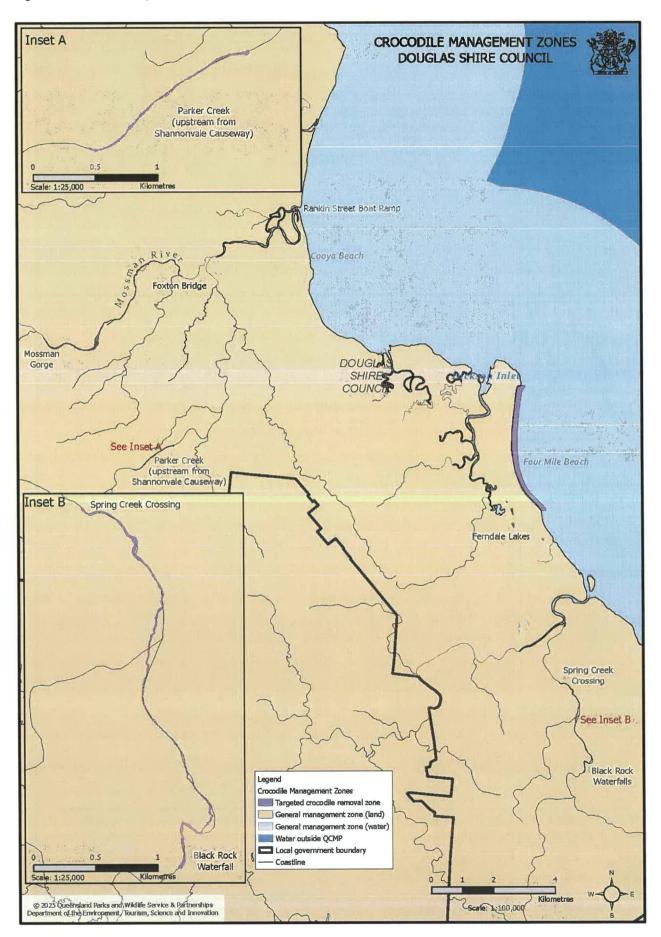
### Cassowary Coast Regional Council (map 1 of 2)



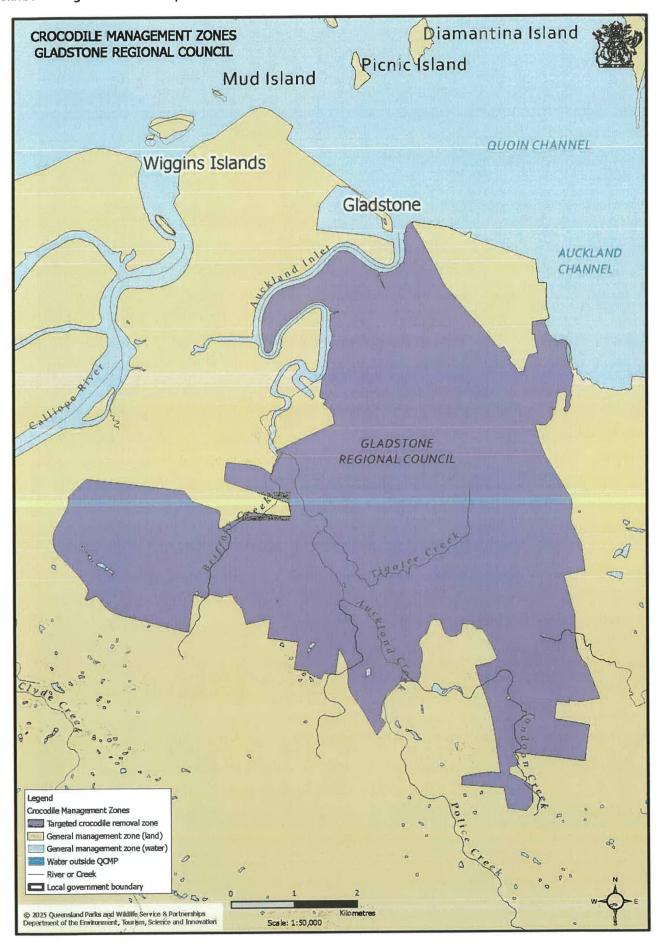
### Cassowary Coast Regional Council (map 2 of 2)



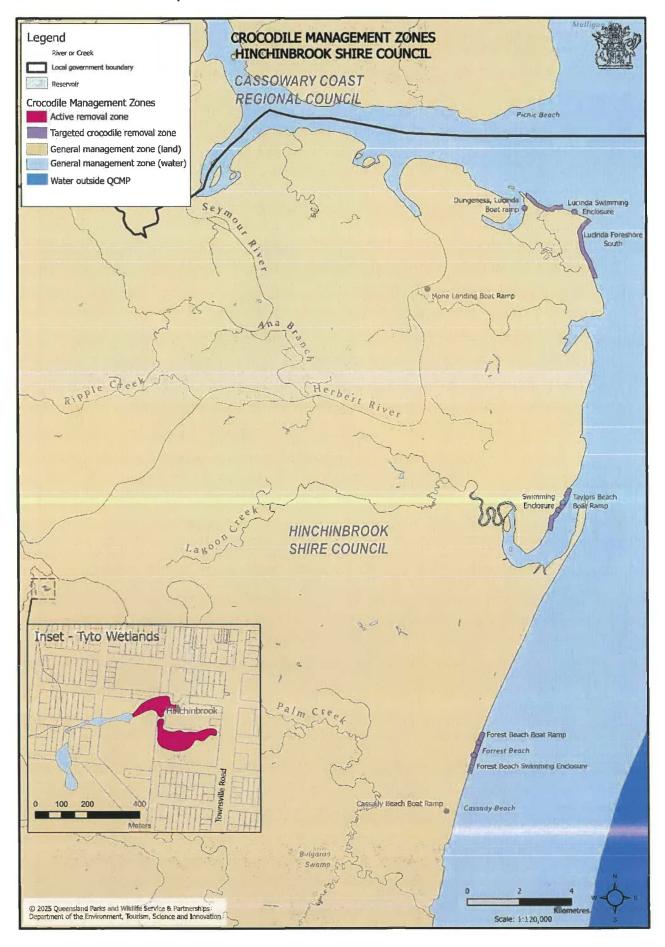
### **Douglas Shire Council map**



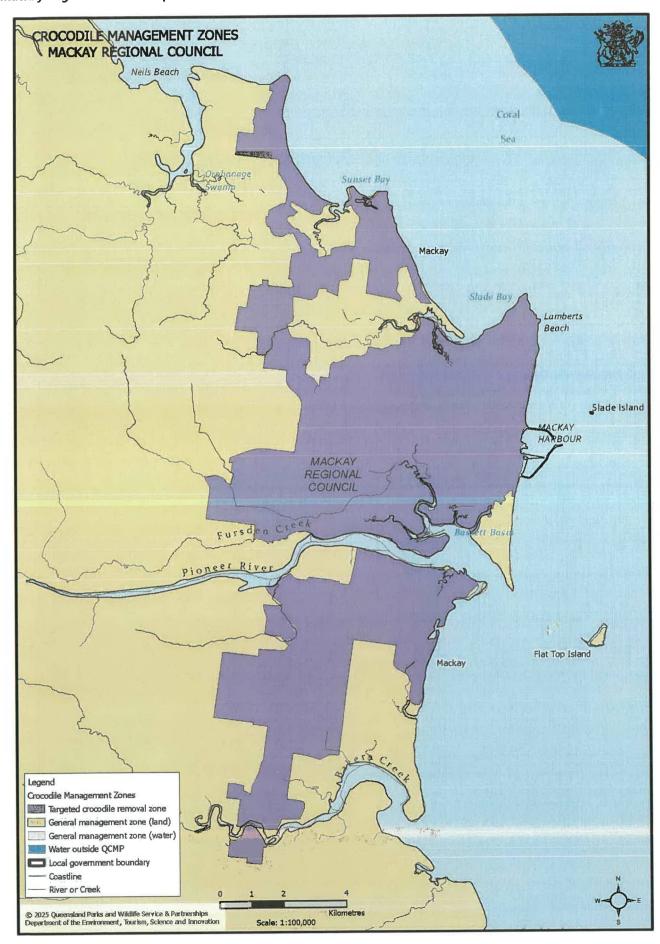
### **Gladstone Regional Council map**



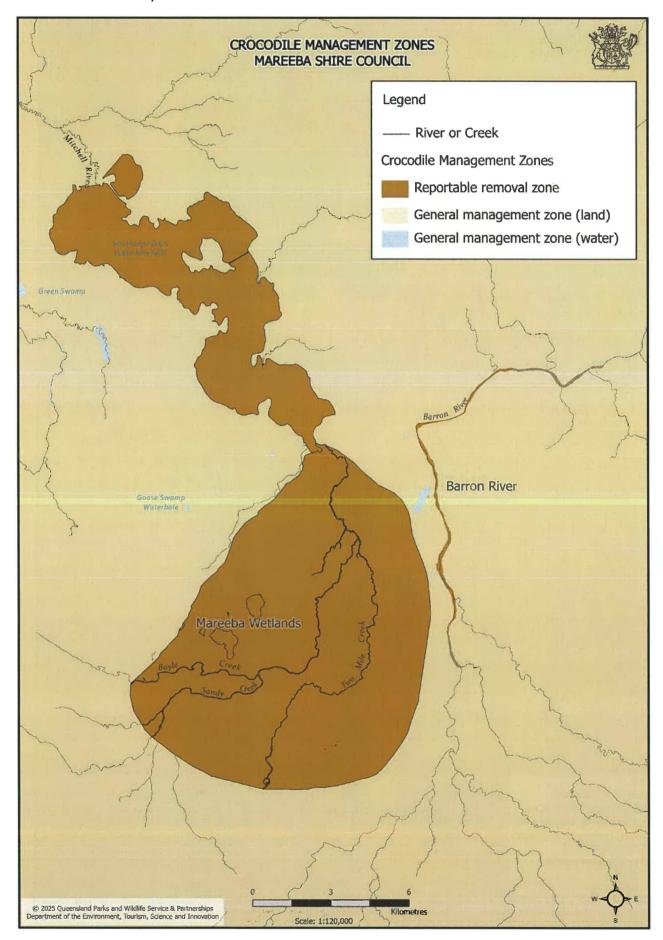
### **Hinchinbrook Shire Council map**



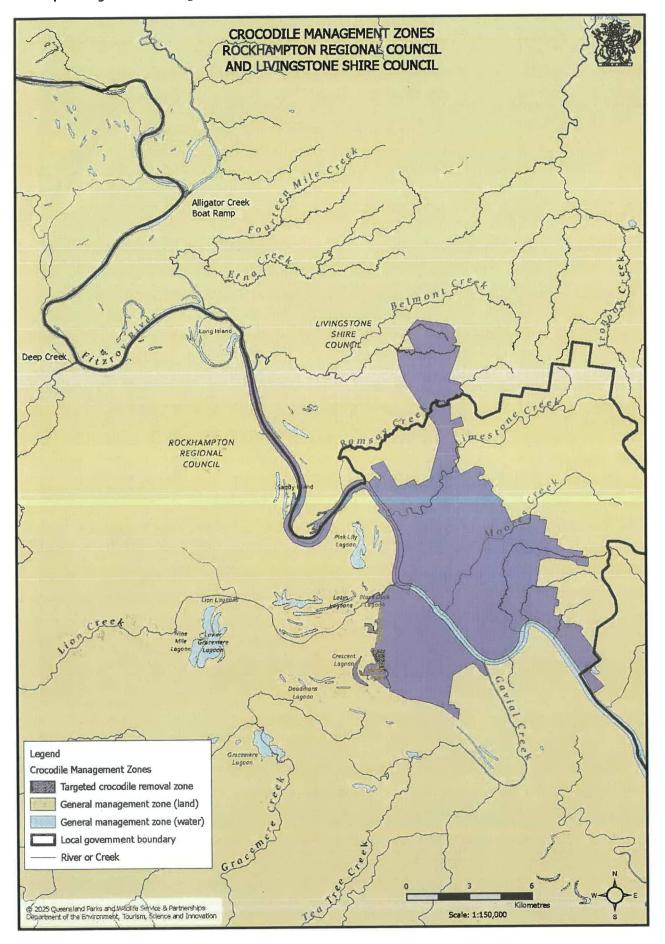
### Mackay Regional Council map



### Mareeba Shire Council map



### Rockhampton Regional and Livingston Shire Council map



### **Townsville City Council map**

