



# NOOSA RIVER ESTUARY

**Seagrass Distribution Study 2021**

*Report prepared by Ecological Service Professionals*

# Noosa Seagrass Report Summary

## Seagrass as habitat

Seagrass meadows provide food and shelter for a diverse range of marine fauna. They also support benthic macroinvertebrate communities, which in turn provide food for many larger, commercially and recreationally important species of crustacean, mollusc and finfish.

## Current seagrass extent

The Noosa River estuary is dominated by soft sedimentary habitats including extensive intertidal sand and mud flats, with several seagrass meadows occurring in the lower estuary.

The seagrass meadows are dominated by Long Eelgrass (*Zostera muelleri sub sp. capricorni*) with occasional sparse patches of *Halophila ovalis*. *Z. muelleri* meadow are predominantly found in dense, but patchy, beds along the main channel and around several small islands.

## Seagrass decline

Since 1989, the Noosa River estuary has lost 80 percent of its seagrass and is showing no signs of recovery (see Table 1). In 1989, seagrass covered 337.4 hectares of Noosa estuary. By 2006, this coverage had fallen to just 53.7 ha.

The largest seagrass declines have been in the main channel, Lake Weyba and Lake Cooroibah.

Studies in 2009 and 2020 confirmed that despite some minor seasonal fluctuations, Noosa's seagrass meadows have not recovered. In other parts of Queensland, including the southeast, *Zostera*-dominated seagrass meadows typically recover quickly from significant losses, often within a few years. The lack of seagrass recovery in Noosa is therefore alarming.

## What caused the seagrass loss

Storms and flooding most likely caused the major loss of seagrass in the Noosa River estuary. The big question today is: **What is preventing the recovery of the Noosa River estuary's seagrass meadows?**

## Why seagrass changes

Seagrasses are highly sensitive to changes in environmental conditions and declines in water quality (particularly high levels of suspended sediment in the water) and are therefore considered indicators of environmental stress or degradation.

As a result, the spatial distribution of seagrass can be highly dynamic, with large interannual changes in the extent of seagrass habitats and community structure resulting from natural disturbances. These natural disturbances however, do not typically result in a net loss of seagrass coverage over time.

## What is next for Noosa's seagrass

Because of their importance for estuarine ecosystems, the precise drivers for the decline and lack of recovery of the Noosa River Estuary seagrass meadows need urgent investigation. Better understanding of the Noosa River system would advise river managers, who could advocate for resources to enable research and recovery action.

## Final comment from the expert

"Recovery from impacts such as flooding in other similar seagrass meadows has occurred within a few years. This is not the case in Noosa."

**Simon Walker** (Director and Principal Ecologist – Ecological Service Professionals)

## Full report

Walker SJ, Hayes M, Watson E, Goodwin S & Thorburn L. 2021. *Current and historical distribution of seagrass in the Noosa Estuary*. Report prepared for The Nature Conservancy, September 2021. 37pp.

Table 1. Results of the Seagrass mapping comparison from 1987 to 2020.

Reach	Area (m <sup>2</sup> ) of Seagrass					Change 1989 to 2020 (%)
	1987	1989	2006	2009	2020	
Lake Cooroibah	NA	229,624	71,323	61,672	0	-100
Noosa River – Tewantin	106,651	134,541	39,360	36,731	28,540	-79
Lake Doonella	495,772	457,164	127,158	363,764	318,129	-30
Noosa River – Goat Island	93,865	105,247	28,831	23,539	9,313	-91
Weyba Creek	NA	647,065	270,366	239,551	205,510	-68
Lake Weyba	NA	1,800,445	0	0	20	-100
<b>Total Seagrass Area (m<sup>2</sup>) Noosa Estuary</b>	<b>NA</b>	<b>3,374,086</b>	<b>537,038</b>	<b>725,258</b>	<b>561,512</b>	<b>-83</b>
<b>Total Seagrass Area (Ha) Noosa Estuary</b>	<b>NA</b>	<b>337.4</b>	<b>53.7</b>	<b>72.5</b>	<b>56.1</b>	<b>-83</b>