Swan Canning Estuary Water Quality Monitoring Project

Weekly Water Quality Report

Lower Swan Canning Estuary to Upper Swan Estuary

29 December 2021

Prepared by

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Department of **Biodiversity, Conservation and Attractions**

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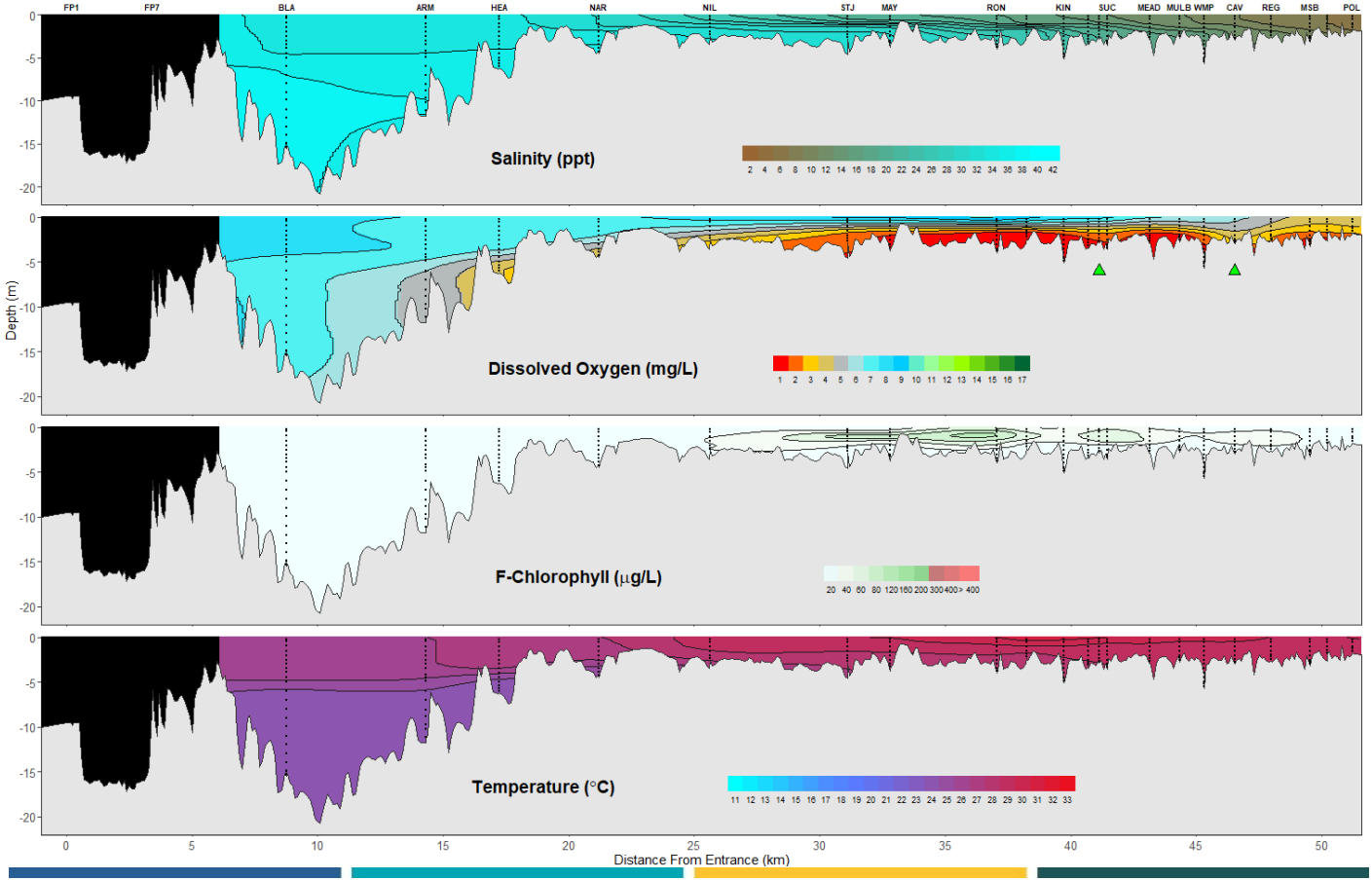
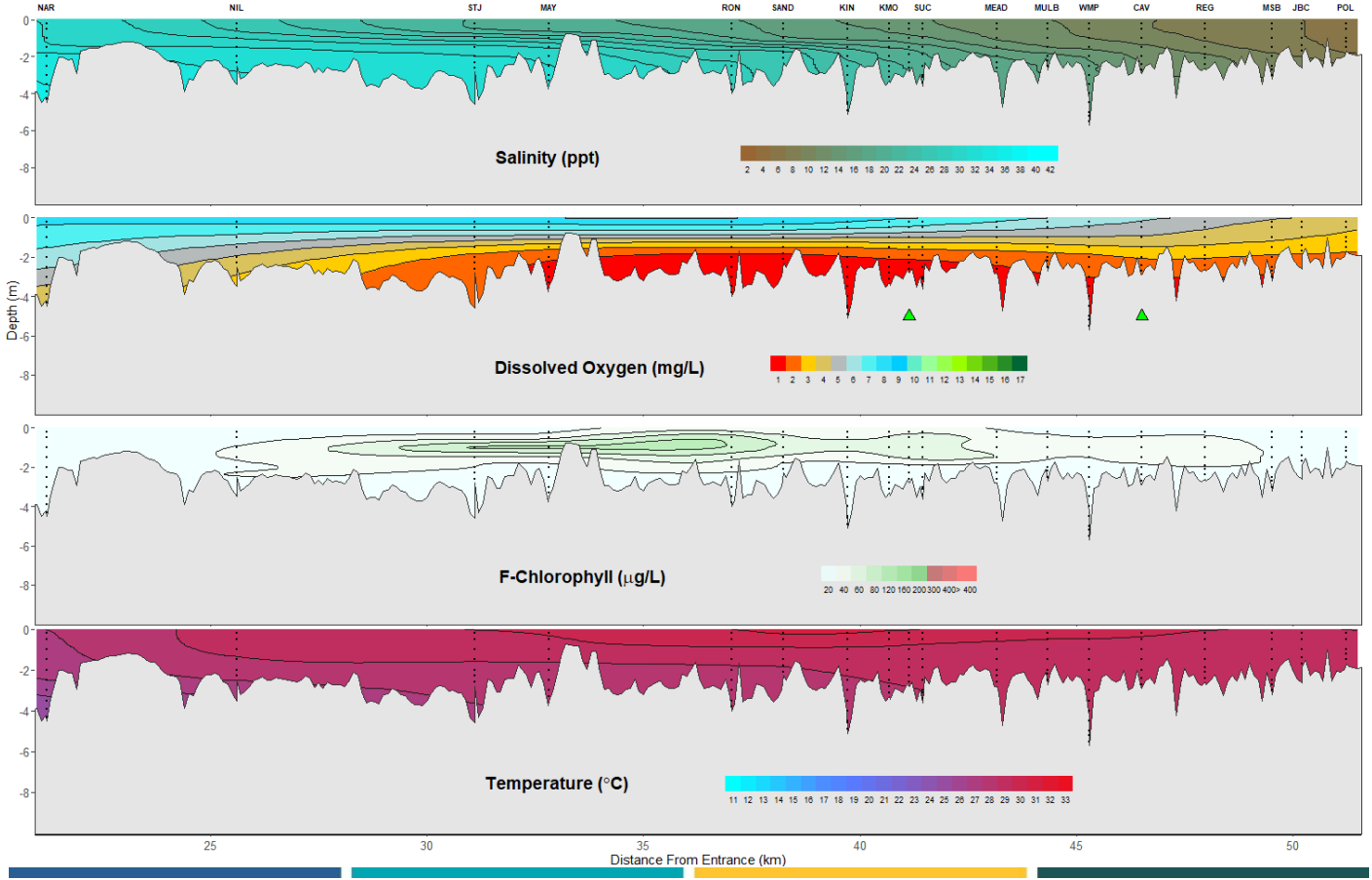
Swan Canning Estuary- Water Quality Profiles – 29 December 2021



Middle and Upper Swan Estuary- Water Quality Profiles – 29 December 2021



Date: 29 December 2021 (NB: Monitoring delayed due to public holidays on 27-28 December 2021).

Weather & tide conditions: Conditions were clear with a variable breeze of up to 5 knots. The predicted tides at Barrack St were 0.66 m at 7:34 am (low tide) and 1.06 m at 8:00 pm (high tide). Perth recorded no rainfall during the week prior to sampling (Bureau of Meteorology).

Oxygenation: The Guildford and Caversham oxygenation plants were both triggered to provide oxygen during the 24 hours prior to sampling.

Lower Swan Canning Estuary (BLA to NAR): The Lower Swan Canning Estuary was saline, surface waters were oxygenated or well oxygenated and bottom waters were low in oxygen between HEA and NAR. Chlorophyll fluorescence was low throughout this zone. Water temperature ranged from 23.1 to 26.8 °C.

Middle Swan Estuary (NIL to RON): The Middle Swan Estuary was brackish over saline at NIL and brackish from STJ to RON. Surface waters were well oxygenated and bottom waters were low in oxygen at NIL, hypoxic from STJ to MAY and anoxic at RON. Chlorophyll fluorescence was low at NIL and moderate between STJ and RON indicating higher microalgal activity in that area. Water temperature ranged from 27.2 to 29.7 °C.

Upper Swan Estuary (SAND to POL): The Upper Swan Estuary was brackish over saline at SAND and brackish from KIN to POL. Surface waters were oxygenated or well oxygenated between SAND and REG and low in oxygen from MSB to POL. Bottom waters were low in oxygen at VIT, hypoxic at SUC and REG and anoxic between SAND and KMO, from MEAD to WMP and at MSB. Chlorophyll fluorescence was moderate between VIT and SUC indicating higher microalgal activity in that area. Water temperature ranged from 27.6 to 30.3 °C.

NB: Profile plots are visual interpolations of measured parameters only. Detailed data are available at wir.water.wa.gov.au.

Oxygenation Plant Operational Status:
- Operating for part or all of the 24 hours prior to sampling
- Operable but not triggered to operate in the 24 hours prior to sampling
- Inoperable for part or all of the 24 hours prior to sampling

Definitions:
Salinity – fresh <5, brackish 5-25, saline 25-35, hypersaline >35
Dissolved oxygen – well oxygenated >6 mg L^{-1}, oxygenated >4-6 mg L^{-1}, low oxygen >2-4 mg L^{-1}, hypoxic 0.5-2 mg L^{-1}, anoxic <0.5 mg L^{-1}
Chlorophyll fluorescence (summer): low < 50 µg L^{-1}, moderate 50-150 µg L^{-1}, high 150-400 µg L^{-1}, extreme > 400 µg L^{-1}

Recommended reference: Department of Biodiversity, Conservation and Attractions 2021. *Swan Canning Estuary water quality profile report, Lower Swan Canning Estuary to Upper Swan Estuary 29 December 2021.* Rivers and Estuaries Science (https://www.dpaw.wa.gov.au/management/swan-canning-riverpark)