Environment Protection Authority

Hunter River Salinity Trading Scheme

Performance Report 2019–20

Published by:
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ISBN 978 1 922447 46 3
EPA 2021P2824
February 2021

What is the Hunter River Salinity Trading Scheme?

The Hunter River Salinity Trading Scheme (the scheme) involves a system of salt credits that industries can buy and trade. Industries use these credits to discharge their salty water into the Hunter River, but only when the river contains adequate fresh water to dilute the salt and maintain water quality. The scheme therefore balances the amount of salt that industry can directly discharge with the background level of salt in the river.

River flow is measured at a series of monitoring points along the river. When flows are low, no discharges are allowed. During periods of high flow, limited discharge can occur; but only if the industry has sufficient salt credits. When flood flows occur, discharges are allowed up to an agreed salinity target. For the purposes of the scheme, the river is divided into three sectors: Upper (upstream of Denman), Middle (from Denman to the river's junction with Glennies Creek) and Lower (from Glennies Creek to Singleton). Salinity targets are set for each sector.

Salinity is measured by determining the electrical conductivity (EC) of water. EC estimates the amount of total dissolved salts in the water and is measured in micro Siemens per centimetre (µS/cm). Seawater has an EC of around 55,000µS/cm. Drinking-quality water can range between 600µS/cm and 1200µS/cm.

The scheme is operated by WaterNSW under a service agreement with the NSW Environment Protection Authority (EPA), and is guided by the Hunter River Salinity Trading Scheme Operations Committee. The committee includes representatives from industry, the community and NSW Government.

What is the purpose of the scheme?

The scheme has been designed to balance the water-quality needs of agricultural users with the discharge needs of mines and power stations. Overall, salinity is kept to an appropriate level by only allowing discharges during high flow or flood events and balancing the amount of salt that industry can discharge against the background salt levels in the river.

The Hunter River contains high levels of salt as a result of run-off and infiltration, weathering of the geological strata, saline groundwater inflows and a range of anthropogenic sources, such as mining, land clearing and agriculture.

The scheme monitors salt levels in the river to ensure that mines and power stations only discharge when salinity levels are appropriately low. By balancing the amount of salt that can discharge against background salt levels in the river, the scheme helps to manage the impact of these discharges on the health of the river and ensures that the water is suitable for local primary producers to use for irrigation purposes.

How did the scheme perform in 2019–20?

There were no discharges of saline water from industry into the Hunter River in 2019–20.

There were 18 opportunities for industries in the Lower sector to discharge, during four flow events: 12–16 and 20–24 February, and 6–10 and 13–15 April 2020.

There were 13 opportunities for industries in the Middle sector to discharge, during four flow events: 14–15 and 20–24 February, and 7–10 and 13–15 April 2020.

There were two opportunities for industries in the Upper sector to discharge, on 20 and 22 February 2020. These fell during one flow event.

However, no industries chose to discharge at any of these times.

During periods of low flow, the Hunter River experienced periods of elevated levels of salinity. This was a result of naturally salty surface water and groundwater flow and was not related to industry discharges.

The EPA investigated and issued a formal warning to a mine for two discharges of saline water from the premises not in accordance with the Protection of the Environment Operations (Hunter River Salinity Trading) Regulation 2002. These discharges were caused by pipeline breaks. The discharged water did not enter the Hunter River.

The EPA investigated and issued an official caution for an unauthorised discharge of saline water into a tributary of the Hunter River from a mine premises in May 2020.

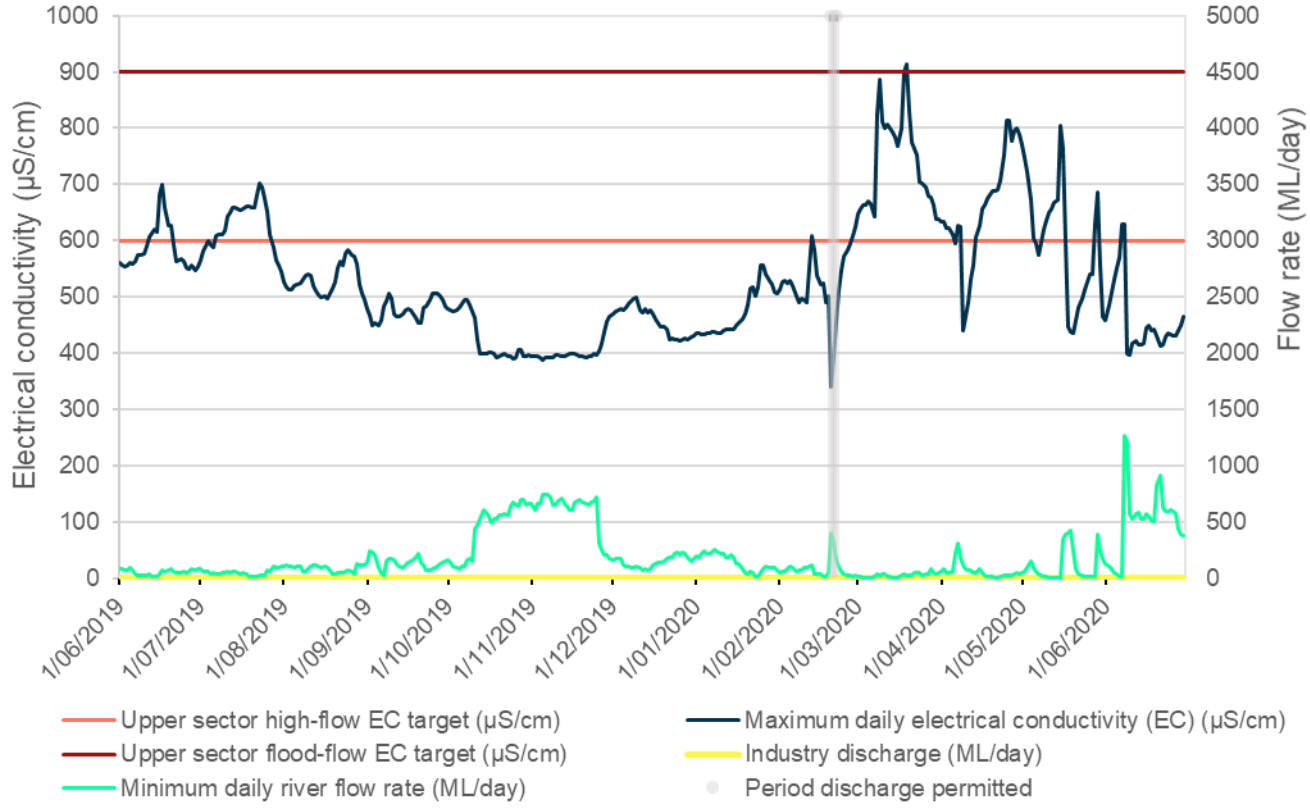
How did the scheme perform during industry discharge events?

Below is a summary of salinity and flow information in the Upper, Middle and Lower sectors of the Hunter River from July 2019 to June 2020. Salinity results are compared with the established salinity targets that have been set for the three sectors of the Hunter River.

Upper sector: Hunter River upstream of Denman

The salinity target for the Upper sector is 600µS/cm during high flows (shown in Figure 1, below, as an orange line) and 900µS/cm during flood flows (shown in Figure 1 as a dark red line). There were two discharge opportunities permitted by the scheme in the Upper sector, during one event from 20 to 22 February 2020. The Upper sector target was not exceeded during the discharge opportunities permitted by the scheme in 2019–20.

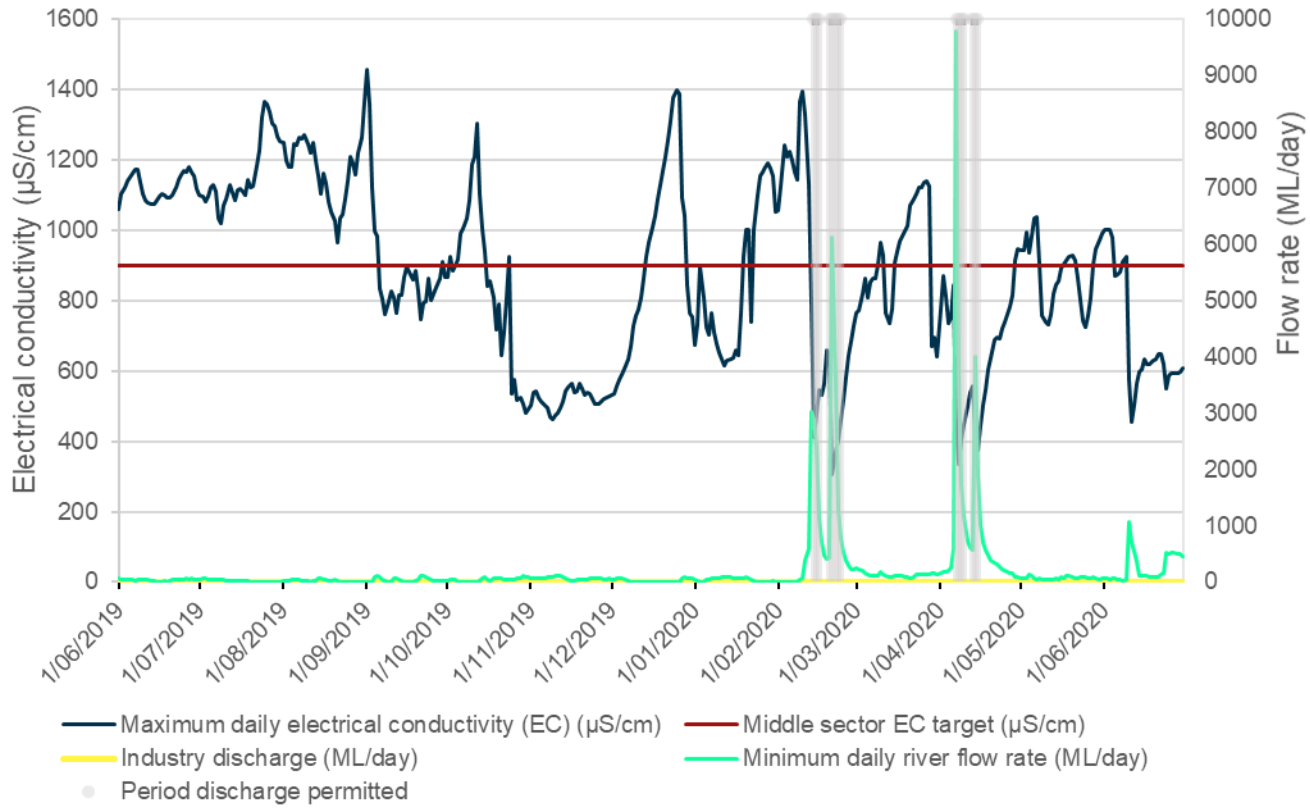
Figure 1 Maximum salinity and minimum flow: Hunter River at Denman



Middle sector: From Denman to the junction of the Hunter River and Glennies Creek

The salinity target for the Middle sector is 900µS/cm (shown in Figure 2 as a dark red line). There were 15 discharge opportunities for industries in the Middle sector to discharge, during four events: 14–15 February, 20–24 February, 7–10 April and 13–15 April 2020. The Middle sector target was not exceeded during the discharge opportunities permitted by the scheme in 2019–20.

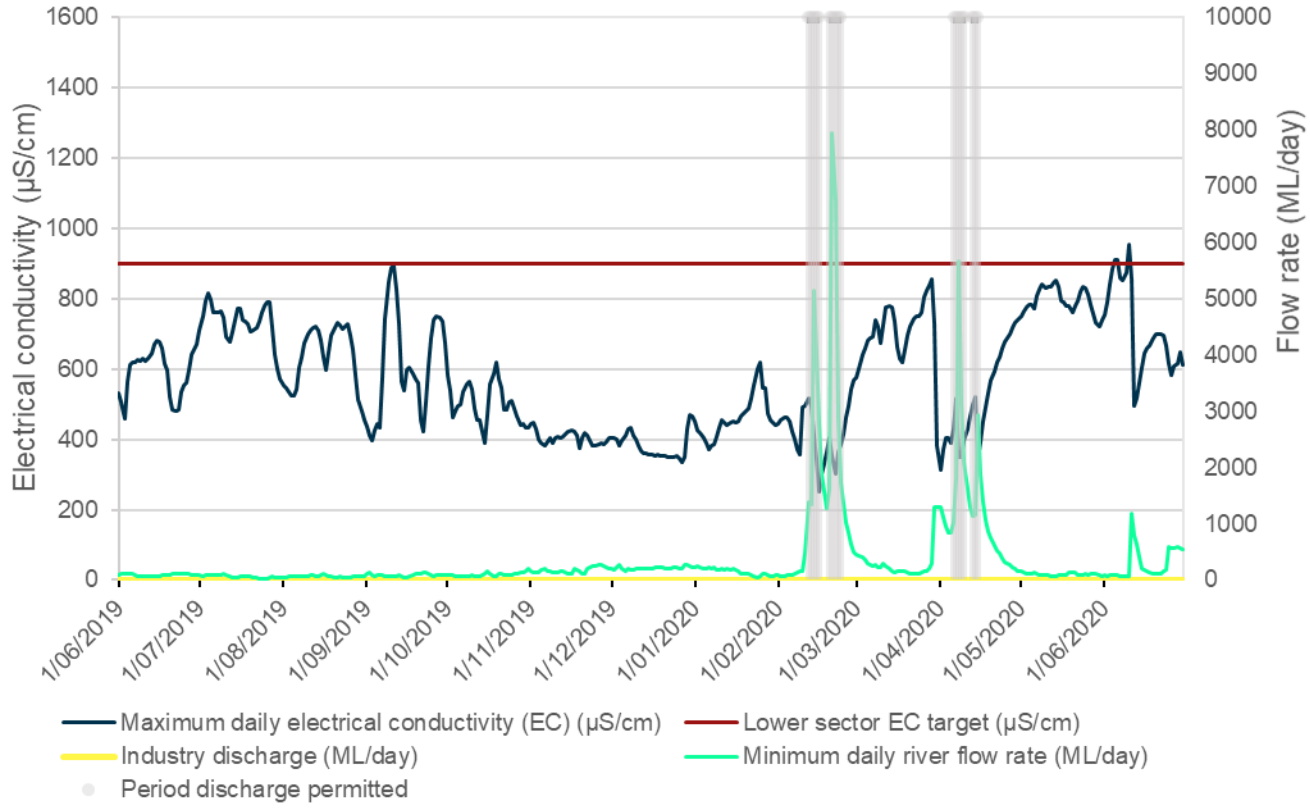
Figure 2 Maximum salinity and minimum flow: Hunter River upstream of Glennies Creek



Lower sector: From Glennies Creek to Singleton

The salinity target for the Lower sector is 900µS/cm (shown in Figure 3 as a dark red line). There were 18 discharge opportunities for industry in the Lower sector, during four events: 12–16 February, 20–24 February, 6–10 April and 13–15 April 2020. The Lower sector target was not exceeded during the discharge opportunities permitted by the scheme in 2019–20.

Figure 3 Maximum salinity and minimum flow: Hunter River at Singleton

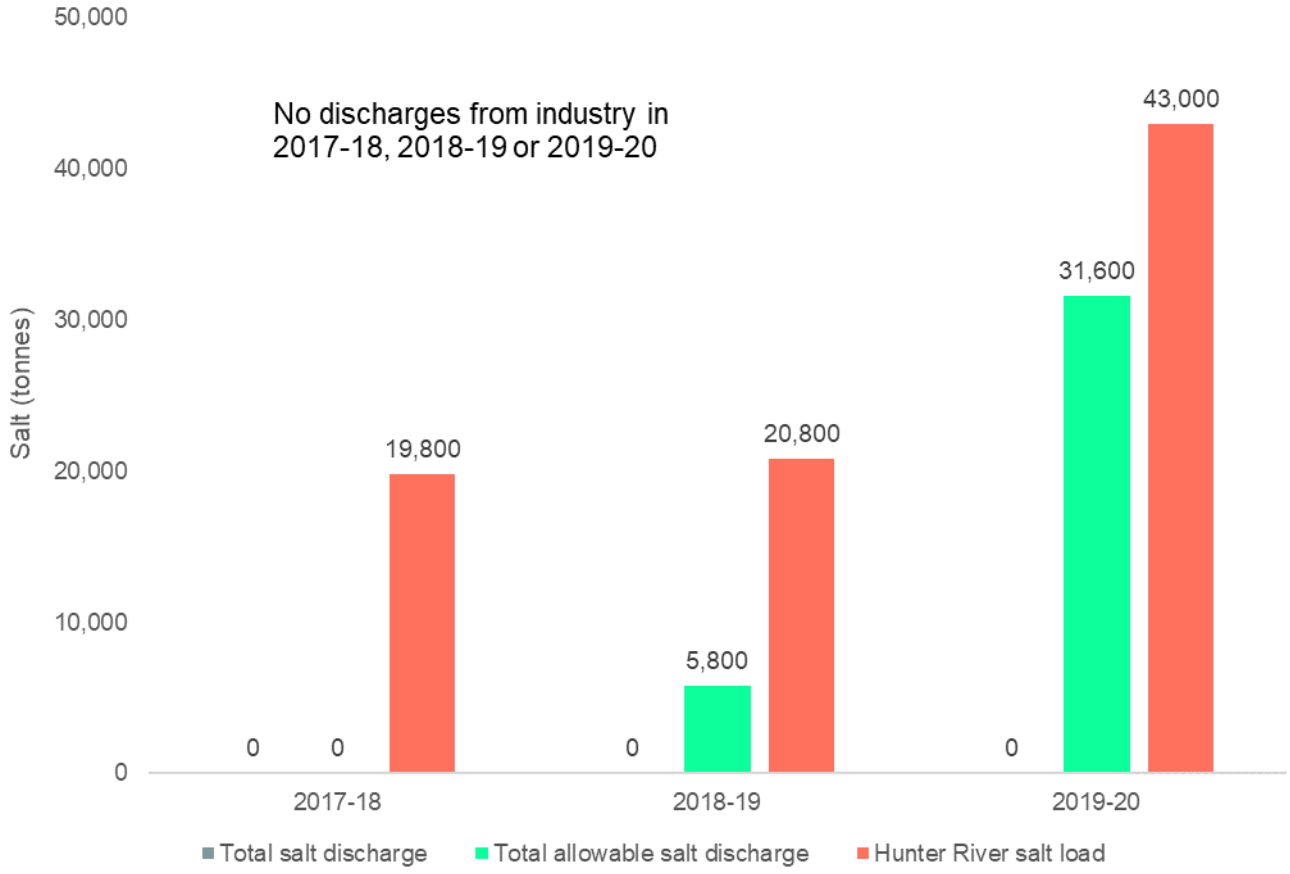


Scheme discharge as a proportion of the total allowable discharge and salt load passing through Singleton

The total salt load passing through Singleton during 2019–20 was 43,000 tonnes, well up on the 2018–19 figure of 20,800 tonnes. This increase in salt load was due to the increased flows in the Hunter River.

Industry was permitted to discharge a total of 31,587 tonnes of salt in 2019–20. However, no industries discharged, so Figure 4 shows ‘0’ for total discharge.

Figure 4 Industry discharge compared with total allowable discharge and total salt load passing through Singleton during 2019–20



Further information

For further information on the operation of the scheme:

- visit www.epa.nsw.gov.au/licensing/hrsts/. This page links to information on river flow and EC conditions in the Hunter River
- telephone (02) 4908 6800
- email hunter.region@epa.nsw.gov.au.