Hunter River Salinity Trading Scheme

2017–18 Performance

NSW EPA

www.epa.nsw.gov.au

More information about the Hunter River Salinity Trading Scheme

More information on the operation of the Hunter River Salinity Trading Scheme (HRSTS) can be obtained online from the EPA at www.epa.nsw.gov.au/licensing/hrsts/ and from the NSW Department of Primary Industry – Water at waterinfo.nsw.gov.au/hunter/trading.shtml.

Follow the links from these webpages for information on river flow and electrical conductivity conditions in the Hunter River.

For more information on the operations of the HRSTS, telephone (02) 4908 6800 or email hrsts@epa.nsw.gov.au.

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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. The river is divided into three sectors for the purposes of the scheme, with salinity targets set for each sector.

The scheme is operated by WaterNSW under a service agreement with the NSW Environment Protection Authority (EPA) 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 2017–18?

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). Sea water has an EC of around 55,000µS/cm. Drinking-quality water can range between 600µS/cm and 1200µS/cm.

During periods of low flow, the Hunter River may experience periods of elevated levels of salinity, as demonstrated in the graphs below. This is a result of naturally salty surface water and groundwater flow and is not related to industry discharges. There were no discharges from industry into the Hunter River in the 2017–18 period.

How did the scheme perform during industry discharge events?

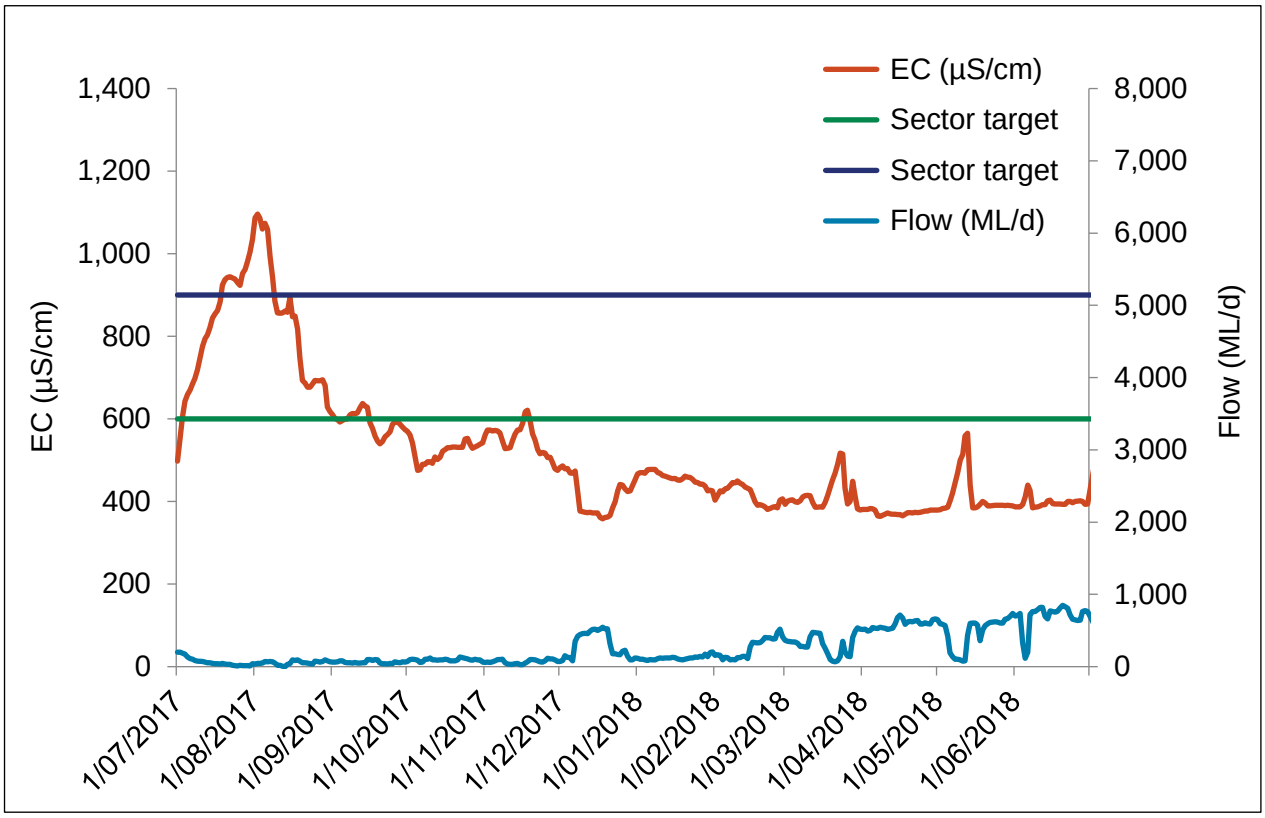
During 2017–18, the scheme prevented saline water from being discharged from EPA licensed activities.

Provided below is a summary of salinity and flow information in the Upper, Middle and Lower sectors of the Hunter River over the year. 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 Graph 1, below, as a green line) and 900µS/cm during flood flows (shown in Graph 1 as a dark blue line). The scheme prevented industry in the Upper Sector from discharging saline water between July 2017 and June 2018.

In June 2017, there was a period of elevated flows in the river. These flows would have recharged the river banks with water. As flow levels fell in July 2017, water would have seeped back from the river banks. This water would have contained dissolved salts from the river banks. This is likely to be the cause of the EC spike during July and August 2017.



Graph 1 **Maximum salinity and minimum flow: Hunter River at Denman**

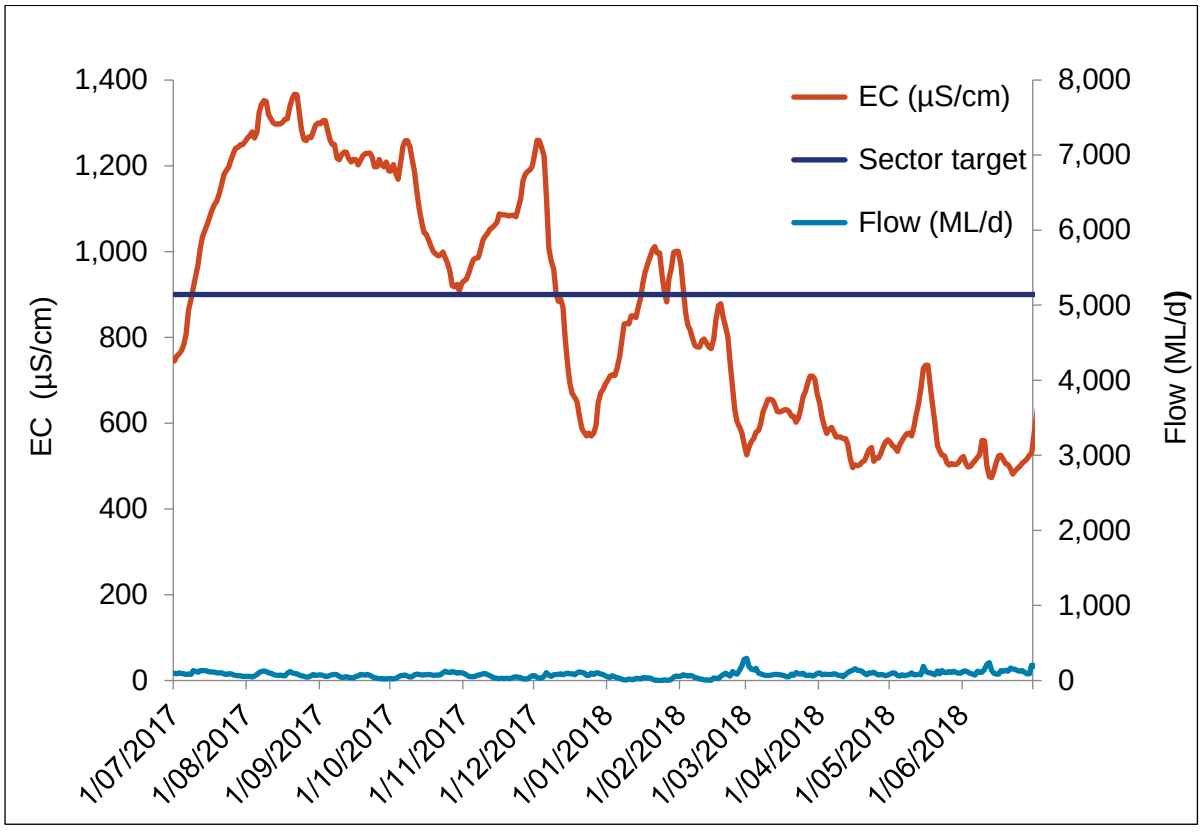
Middle Sector: From Denman to the junction of the Hunter River and Glennies Creek

The salinity target for the Middle Sector is 900µS/cm and is shown in Graph 2 (below) as a dark blue line.

The scheme prevented industry in the Middle Sector from discharging saline water between July 2017 and June 2018.

Spikes in EC occurred when river flows in Denman dropped from 600ML/d to under 100ML/d. Consequently, groundwater with high EC entered the river, causing an increase in EC in the Hunter River. The drop in EC in late December occurred as flows in Denman increased from previous 100ML/d to over 500ML/d.

Spikes in EC are not only due to direct contributions from groundwater but also inflows from tributaries such as the Goulburn and Wybong Rivers. These rivers have saline catchments that contribute water with high EC whenever the flows in the Hunter River drop substantially. This is due to the catchment run-off and groundwater seepage rather than any unauthorised discharges from EPA-licensed activities.

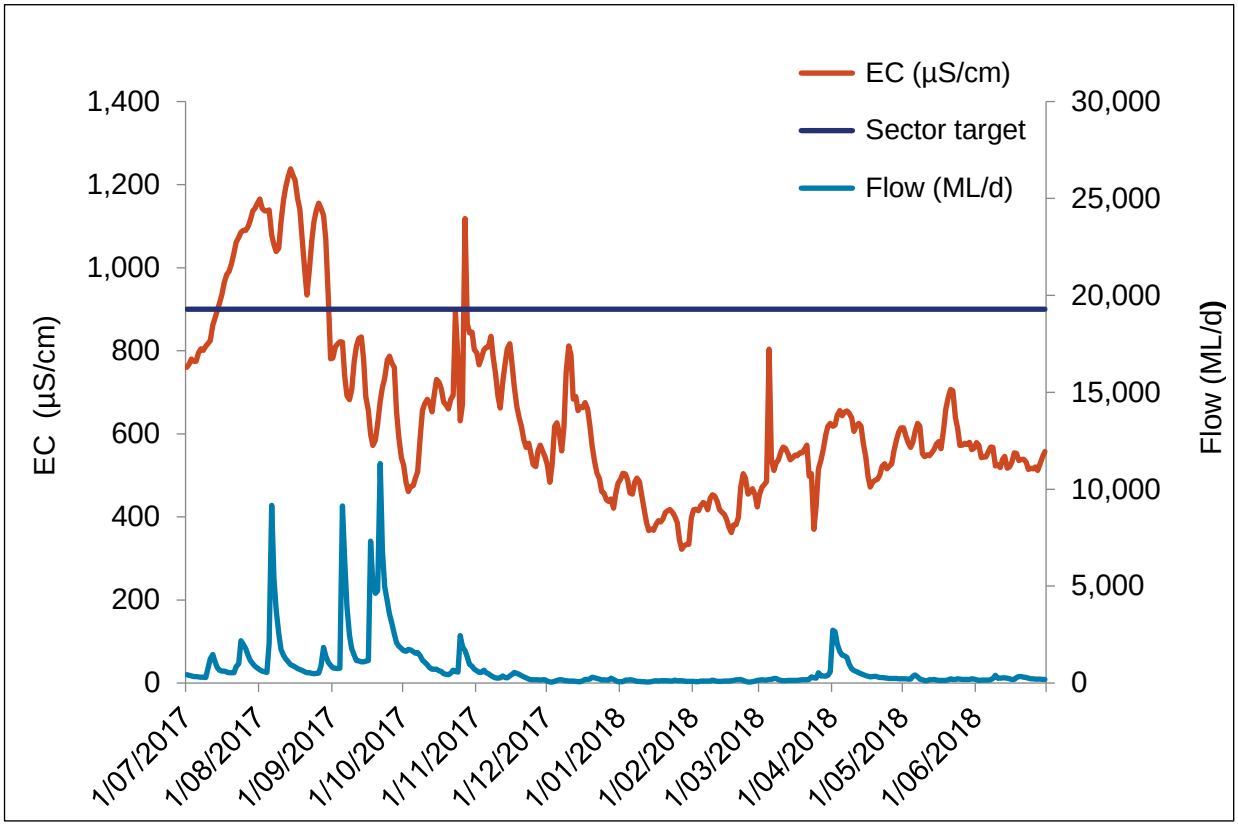


Graph 2 Maximum salinity and minimum flow: Hunter River upstream of Glennies Creek

Lower Sector: From the junction of the Hunter River and Glennies Creek to Singleton

The salinity target for the Lower Sector is 900µS/cm, which is shown as a dark blue line in Graph 3 (below).

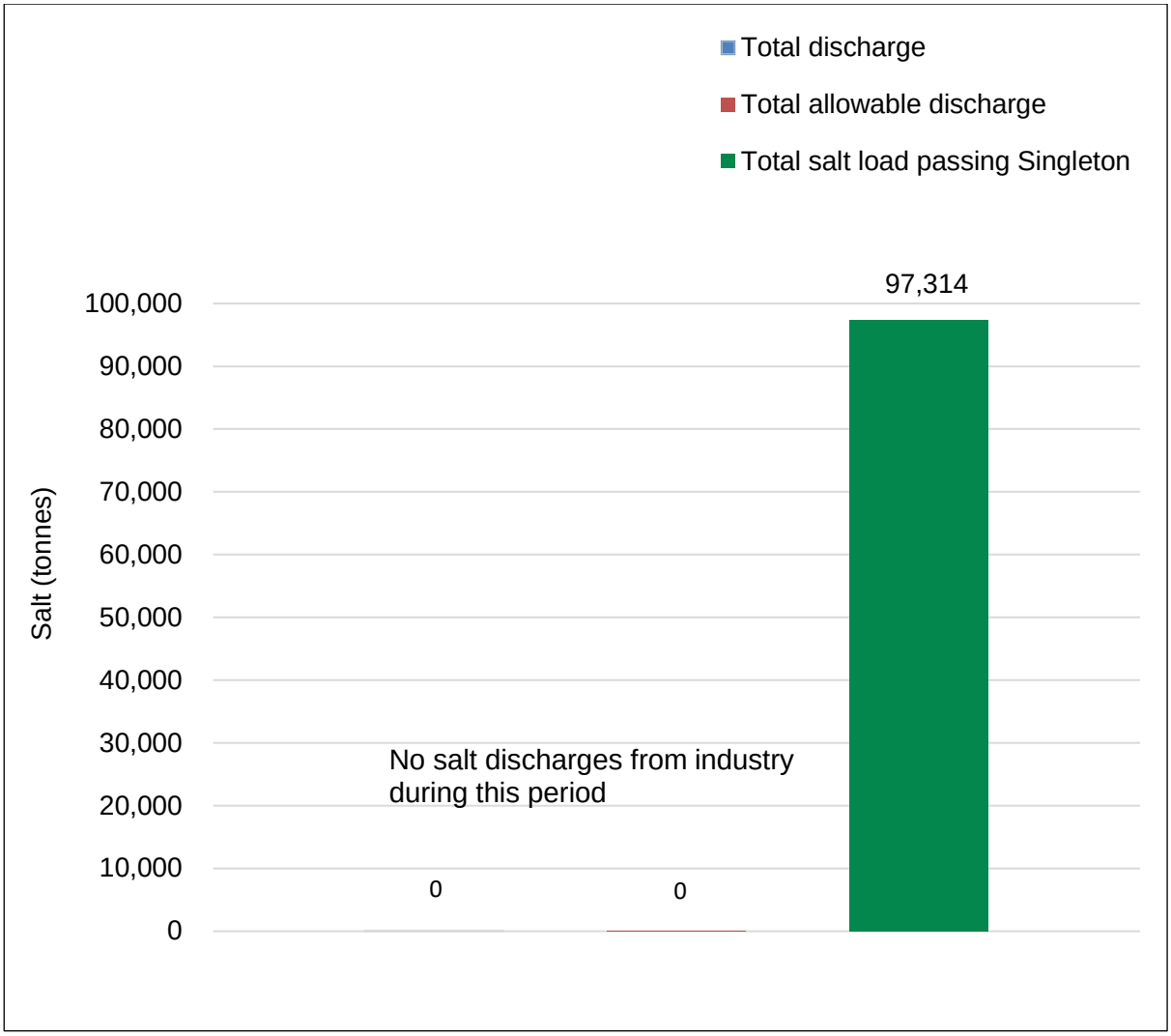
The scheme prevented industry in the Lower Sector from discharging saline water between July 2017 and June 2018 .



Graph 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

No discharge was permitted by the scheme during 2017–18. The total salt load passing through Singleton during 2017–18 was 97,314 tonnes. There were no industry discharges during this period, so Graph 4 (below) shows ‘0’ for total discharge and ‘0’ for total allowable discharge.



Graph 4 Industry discharge compared with total allowable discharge and total salt load passing through Singleton during 2017–18

Further information

Further information on the operation of the scheme can be obtained online from the EPA at www.epa.nsw.gov.au/licensing/hrsts/ and from the NSW Department of Primary Industry – Water at waterinfo.nsw.gov.au/hunter/trading.shtml

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