NSW EPA

Hunter River Salinity Trading Scheme: 2011–12 performance

What is the Hunter Salinity Trading Scheme?

The Hunter River Salinity Trading Scheme (HRSTS) involves a system of salt credits which industries can buy and trade in. They can use these credits to discharge their by-product salty water into the Hunter River when the river contains enough fresh water to dilute the salt and maintain water quality. The HRSTS allows industries, such as agriculture, mining and electricity generators, to operate side by side and share the use of the river while maintaining an appropriate level of water quality and freshness.

River flow is measured at a series of monitoring points along the river. When flows are low, no discharges are allowed; when flows are high, limited discharges are allowed using salt credits; and when flood flows occur, unlimited salt discharges are allowed to an agreed salinity goal.

The scheme is administered by the NSW Environment Protection Authority and guided by an operations committee that includes representatives from the State Government, industry and the community.

What is the purpose of the Hunter River Salinity Trading Scheme?

The HRSTS has been designed to balance the need for good water quality in the Hunter River with the discharge needs of industry.

The Hunter River naturally contains high levels of salt as a result of salty groundwater inflows and the HRSTS monitors these levels to ensure that industry discharge only occurs when natural salinity levels are appropriately low. Discharges are only allowed during high flows or floods. By balancing the amount of salt that industry can discharge with the naturally occurring salt in the river, the scheme improves the health of the river and the surrounding environment and ensures that the water is suitable for local primary producers to use for irrigation purposes.

How did the Hunter River Salinity Trading Scheme perform in 2011–12?

During 2011–12, HRSTS participants had up to 11 opportunities to discharge saline water. Floods in November 2011 and March 2012 provided all sectors with opportunities to discharge saline water.

The HRSTS has established salinity goals to be maintained in the upper, middle and lower sectors of the Hunter River. The goal was marginally exceeded twice in the middle sector and once in the lower sector, due to unexpected salt contribution from localised rainfall flushing salty water from the tributaries of Hunter River, which was not accounted for by the salinity model used to predict discharge opportunities. The maximum salinity recorded was 1100 µS/cm. Exceedances were not attributable to any failure by industry to comply with the requirements of the HRSTS.

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 microSiemens per centimetre (µS/cm). Saltwater has an EC of around 55,000 µS/cm. Drinking quality water usually has an EC of between 600 and 1200 µS/cm.

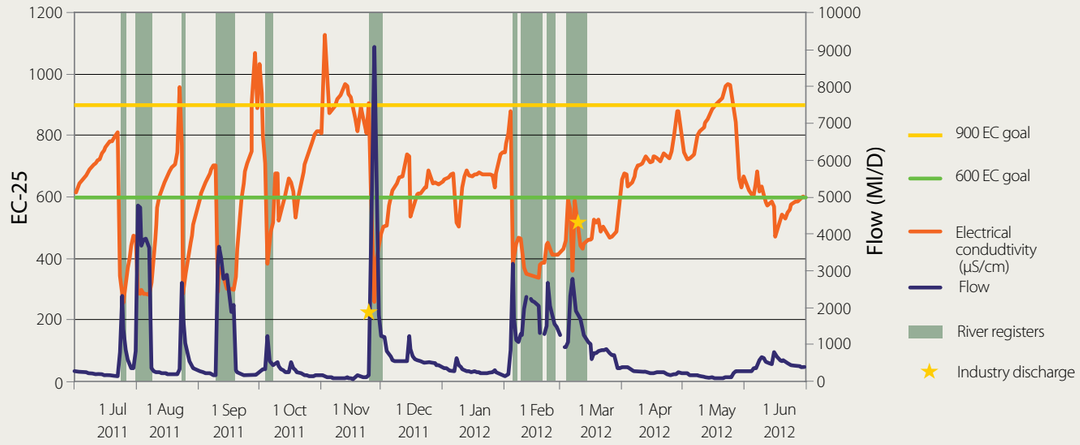
The Hunter River contains naturally high levels of salinity that can peak above the HRSTS high flow salinity goal as demonstrated in the graphs below. These high levels are due to natural salty groundwater flows, not to industry discharges.

Below are summaries of salinity in the upper, middle and lower sectors of Hunter River over the year.

Upper sector – Hunter River upstream of Denman

The salinity goal for the upper sector is 600µS/cm during high flows (shown below as a solid green line) and 900µS/cm during floods (shown below as a solid gold line). The exceedances shown below are not related to any discharge from the coal mining or power generation industries but are due to natural salty groundwater inflow to the Hunter River.

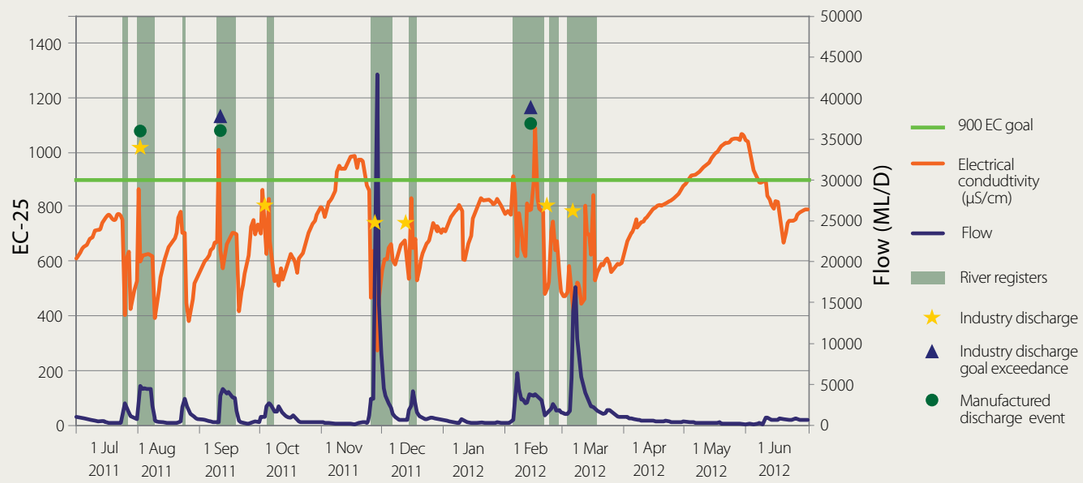
Hunter River at Denman



Middle sector – from Denman to the junction of Hunter River and Glennies Creek

The salinity goal for the middle sector is 900µS/cm and is shown below as a solid green line. Exceedances that occur outside periods of discharge are not related to any discharge from the coal mining or power generation industries, but are due to natural salty groundwater flow.

Hunter River upstream of Glennies Creek



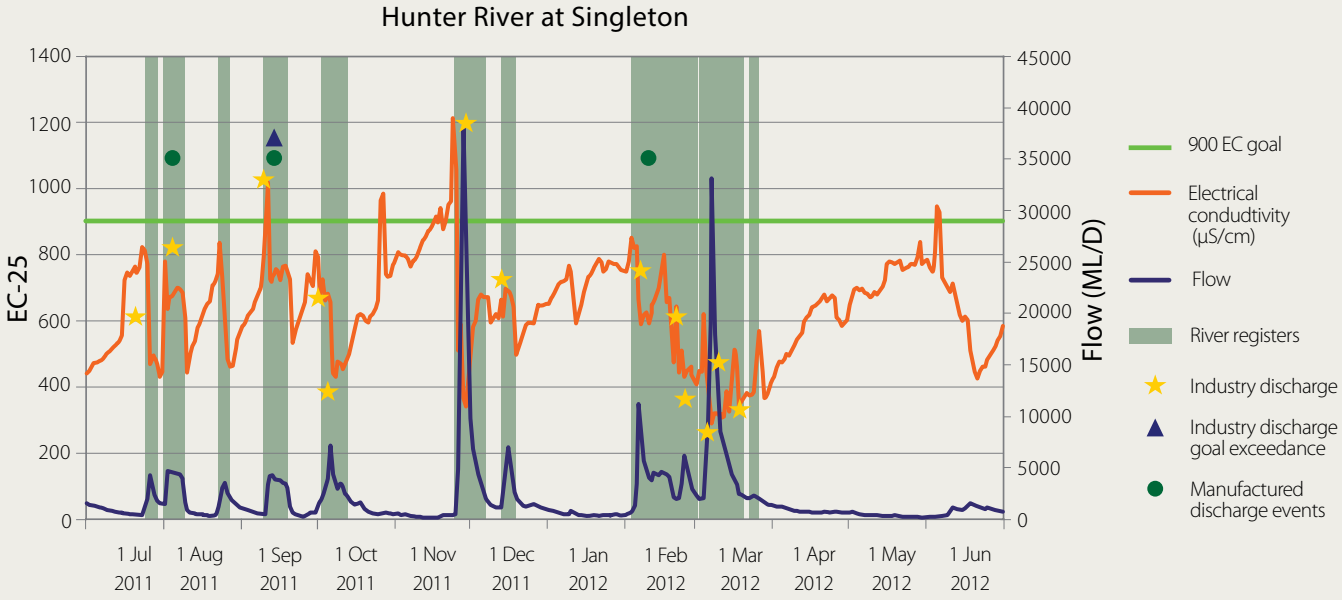
The manufactured discharge events shown on the graph indicate discharge opportunities under the HRSTS which were created by Macquarie Generation ordering releases of fresh water from Glenbawn Dam. During these events, Macquarie Generation was the only industry discharging saline water and, on each occasion, held sufficient credits to authorise the amount of salt discharged.

The two exceedances of the 900 EC goal that occurred during these events are shown by blue triangles. These exceedances resulted from unexpected salt from minor tributaries of the Hunter River due to local rainfall. This salt was not accounted for by the salinity model used to predict discharge opportunities under the HRSTS.

Lower sector from junction of Hunter River and Glennies Creek to Singleton

The salinity goal for the lower sector is 900µS/cm and is shown below as a solid green line. The elevated salinity levels which occur outside discharge events are not related to any discharge from the coal mining or power generation industries but are due to natural salty groundwater inflow to the Hunter River.

One salinity exceedance is highlighted by a blue triangle and represents the same exceedance as in the middle sector discussed above.



Salinity model improvements

The salinity model used to predict flow and salinity condition in the catchment and inform the operation of the HRSTS has been upgraded. The revised model is being implemented and further refined as understanding is increased of ways in which a natural and highly variable river system operates.

More information

More information on the operation of the HRSTS can be obtained from www.epa.nsw.gov.au/licensing/hrsts/index.htm. Follow the links from this web page for information on river flow and electrical conductivity conditions in the Hunter River.

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

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