

# Brine Velocity and Discharge Measurements for Efficient Salt Production

ONNSLOW, AUSTRALIA

## Project Challenges

The Shark Bay Salt Field was built in the late 1990's and began shipment of salt in 2001. Weather conditions in Onslow, Western Australia are favorable to solar marine salt operations, where annual evaporation is very high. This high evaporation ensures an efficient production capacity of solar marine salt.

The salt field was built by enclosing a vast natural flat area facing the Indian Ocean with sea wall levees. This topographical feature allows the salt field to manage the brine flow efficiently.

The salt field encompasses an area of 220 square kilometres, of which 87 square kilometres are occupied by closely interconnected operational ponds. Sea water is pumped into the first evaporation pond, and the brine flows through most of the evaporation ponds by gravity. To efficiently manage the ponds, velocity and flow measurements need to be taken regularly so as to optimise salt production.

## Solution

Robert Lund, Technical Services Superintendent, has used the Global Water Flow Probe for over two years as a simple and effective instrument to understand the velocity and discharge flowing between the ponds he manages.

## Result

Spot water velocity measurements are easily and safely taken at the facility using the Global Water Flow Probe. The deployment pole with measurement gradations is able to extend to 4.2metres (FP211) enabling measurement of water velocity in deep sections as well as in areas with difficult access.



Salt Evaporation Pond at Shark Bay Salt



Rapid crystallization poses a measurement challenge





Water Velocity Measurement in Hypersaline Discharge



Hypersaline Discharge Channel

CASE STUDY XA00181

### About the Global Water Flow Probe

The Flow Probe by **Global Water, a Xylem brand** is a highly accurate water velocity instrument for measuring flows in open channels and partially filled pipes. The water velocity probe consists of a protected water turbo prop positive displacement sensor coupled with an expandable probe handle ending in a digital readout display. The water flow meter incorporates true velocity averaging for the most accurate flow measurements. The Flow Probe is ideal for storm water runoff studies, sewer flow measurements, measuring flows in rivers and streams, and monitoring water velocity in ditches and canals.



LCD Display



Turboprop



Fin Accessory



Probe with Swivel

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