



Capability Statement

Effluent Dilution Tracer Investigation

Client: Aquunion



REQUIREMENTS

- To provide an analysis of the current state of intake efficiencies in Romansbaai abalone farm in view of expansions of the farm.
- Understand the entrainment of effluent into the intake system since it provides information on efficiencies and potential impacts on entrained water quality, feeding and cleaning rates etc. at the farm.

WORK DONE

- The injection of Rhodamine-WT, a non-toxic fluorescent dye, into the outflow water of the farm and the subsequent detection of any entrained dye within the inflow waters.
- The study was run twice to coincide with different times on the tidal cycle and were conducted during calm conditions to represent a low energy and reduced mixing scenario which provided a conservative estimate of effluent entrainment.

- Collection of water samples to measure concentration of rhodamine and in-situ measurements of Rhodamine at intake using a CTD and fluorometer.

OUTCOMES:

Lwandle produced a report detailing the behavior of effluent entrainment from the farm outflow. Lwandle used background information on the oceanographic conditions in the area to predict the general travel behavior of the effluent. Provided an approximate dilution of effluent should it reach the intake structures.



“Investigating the entrainment of effluent in Romansbaai abalone farm using Rhodamine Dye”