SEAWATER

Seawater Heat Exchanger Case Study Cape Town, South Africa

Hydropath treatment reduced marine growth in a seawater line feeding Heat Exchanger 4, cutting maintenance, improving flow and reducing downtime during a 6-month trial.

6 mo	2 wk	No	200mm
Trial Duration	Biofouling Discharge	New Sea Life in Pipe	Treated Pipeline Diameter

⇄ BEFORE & AFTER

BEFORE

- ✕ Barnacles and mussels narrowed pipe bore
- ✕ Strainers blocked and downtime increased
- ✕ Periodic jetting needed to clear lines

AFTER

- ✓ Large biofoul discharge after two weeks
- ✓ No new sea life formed in treated line
- ✓ Higher flow improved exchanger efficiency

BEFORE

Line before trial started

AFTER

Line condition after six months

OVERVIEW

The Victoria & Alfred Waterfront in Cape Town uses seawater from Table Bay Harbor for its heat exchangers. Marine life, including biofilm, scale, barnacles and mussels, passed through the filter packs and established within the pipelines, reducing effective diameter, blocking strainers and increasing downtime. Periodic jetting was needed to clear obstructed lines. The trial focused on Heat Exchanger 4, where one of two 200mm lines was treated to assess whether Hydropath technology could reduce fouling and improve efficiency.

CHALLENGE

Marine growth in the seawater lines caused blockages, downtime and ongoing jetting to keep the heat exchanger system operating.

- Biofilm, barnacles and mussels established inside pipelines
- Pipe diameter reduction led to strainer blockages
- Periodic jetting was needed to clear obstructed lines
- Downtime and maintenance burden increased

SOLUTION

1x *Hydro*FLOW® i Custom unit was installed in November 2023 on one of two 200mm pipelines feeding Heat Exchanger 4, between the heat exchanger and the seawater pump and filter packs.

UNIT INSTALLED
1x *Hydro*FLOW® i Custom

INSTALLATION POINT
One 200mm line feeding Heat Exchanger 4

INSTALL DATE
November 2023

TRIAL DURATION
6-month trial

INSTALLATION
I Custom on 200mm line

SITE
Biofouling before trial

SITE
Mussels at intake filter

RESULTS

Two-Week Biofoul Release
Large amounts of sea life and mussel chunks were discharged after two weeks.

No New Sea Life
No new sea life formed within the treated pipeline during the trial.

Less Filter Fouling
After the initial discharge, minimal sea life was found in the filters.

Continuous Operation
The unit ran continuously throughout the trial period, which was unusual.

Improved Efficiency
Higher flows improved the operating efficiency of the heat exchanger.

Reduced Manpower Cost
Maintenance demand dropped, reducing labour requirements and cost.

KEY TAKEAWAY

Summary

At the Victoria & Alfred Waterfront, Hydropath technology was trialled on a 200mm seawater line feeding Heat Exchanger 4. Over 6 months, the treated line discharged heavy biofoul in the first two weeks, then showed no new sea life growth, minimal filter fouling and improved flow. The unit ran continuously, reducing downtime, maintenance demand and manpower cost.

6 mo	2 wk	No
TRIAL DURATION	BIOFOUL DISCHARGE	NEW SEA LIFE IN PIPE

🖼️ ADDITIONAL PHOTO EVIDENCE

BEFORE

Heavy biofouling inside seawater intake pipe

AFTER

Mussels discharged and collected at intake filter

MONITORING

Camera inspection of internal pipe condition