H-ADCP for SeaUrchin™ Turbine

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Key Features of the SeaUrchin™ Project

Unique

Compared with other turbines

Innovative

Design solutions, design methods and project approach

Scalable

Australian technology for a very large world market

Introduction

Previous Trials

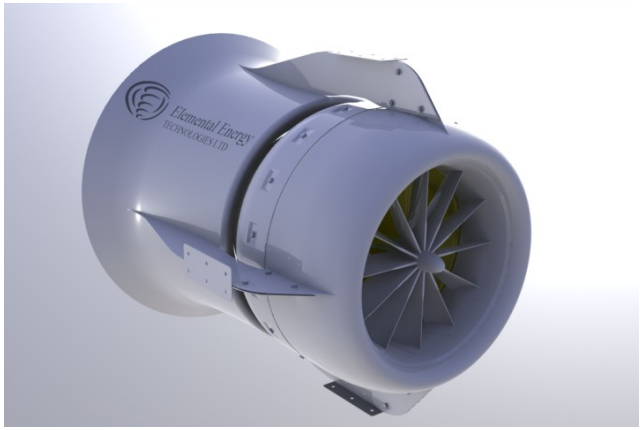
Georges River 7/11/11

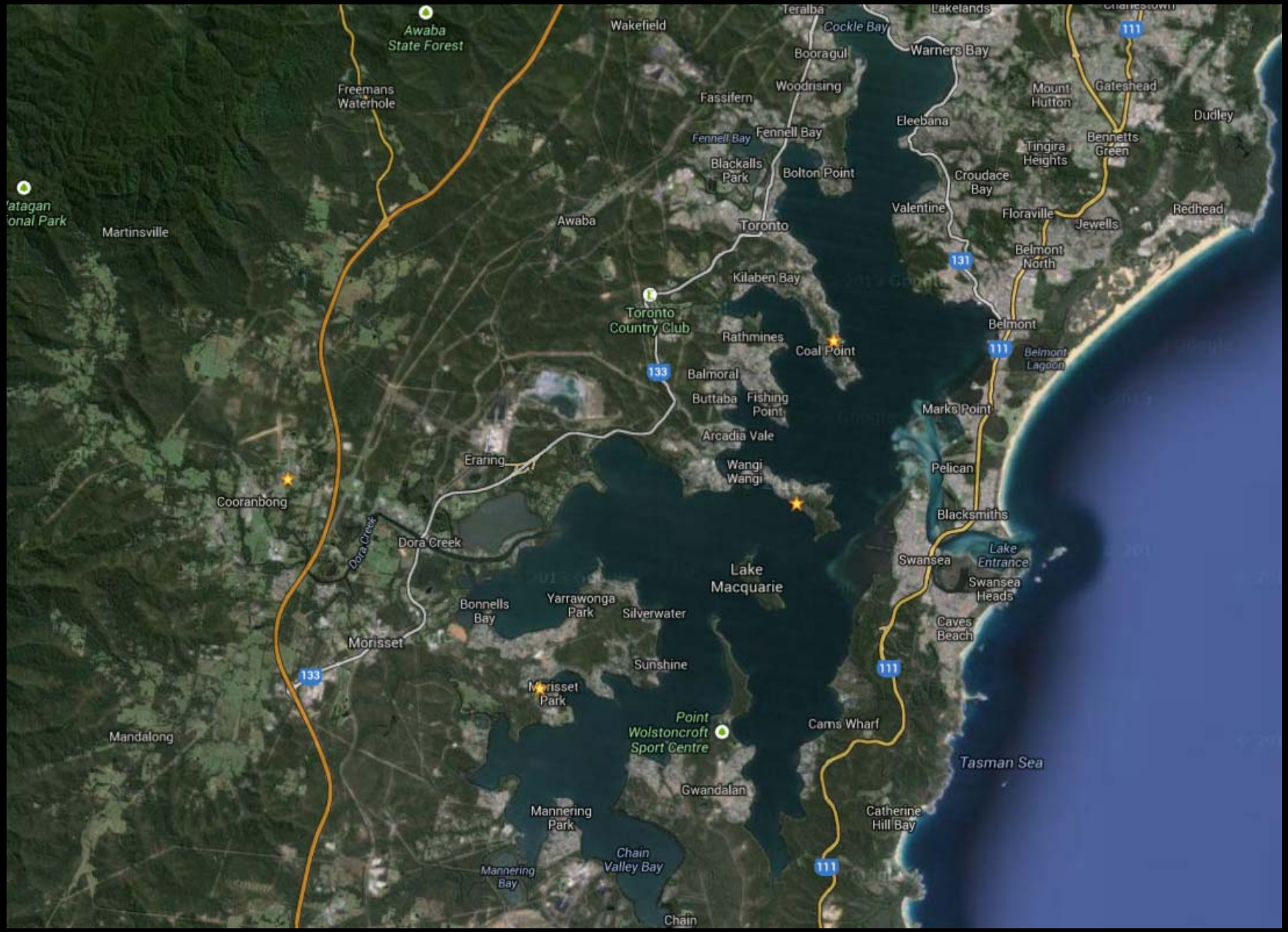
- Barge mounted
- Short runs <5min
- Single point flow sensors
- Low accuracy
- Difficult to interface

Endurance Trial

Testing the SeaUrchin™ Turbine

- Trial for 3 months
- Demonstration site
- Hosting of visits by potential investors/media
- Generation at various flow rates
- Preliminary endurance performance
- Improve data collection
- Better flow sensor





Greater Lake Macquarie Area

Trial Planning

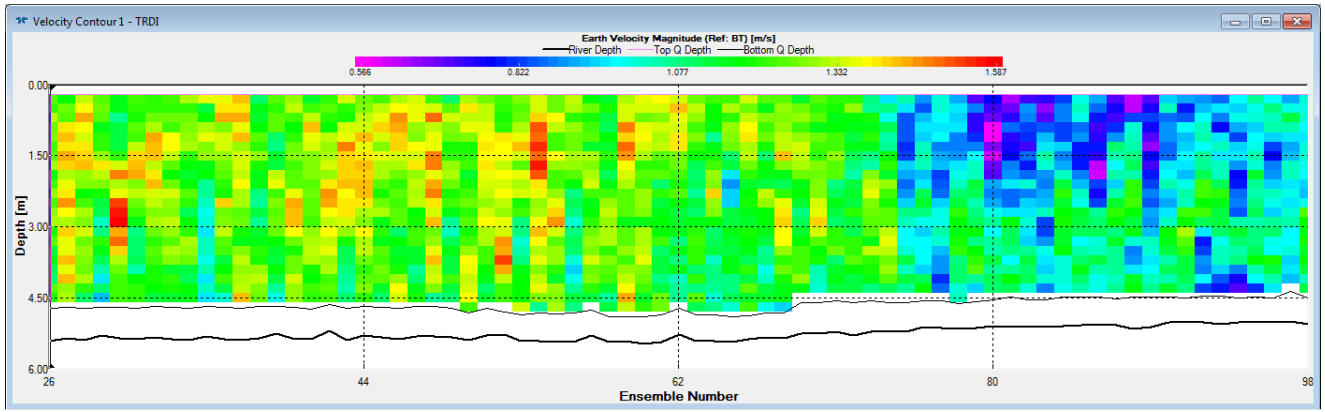
Eraring power station

- Inlet channel
- Proximity
- Continuous flow
- Existing structures
- Secure

Trial Planning

Preliminary Survey

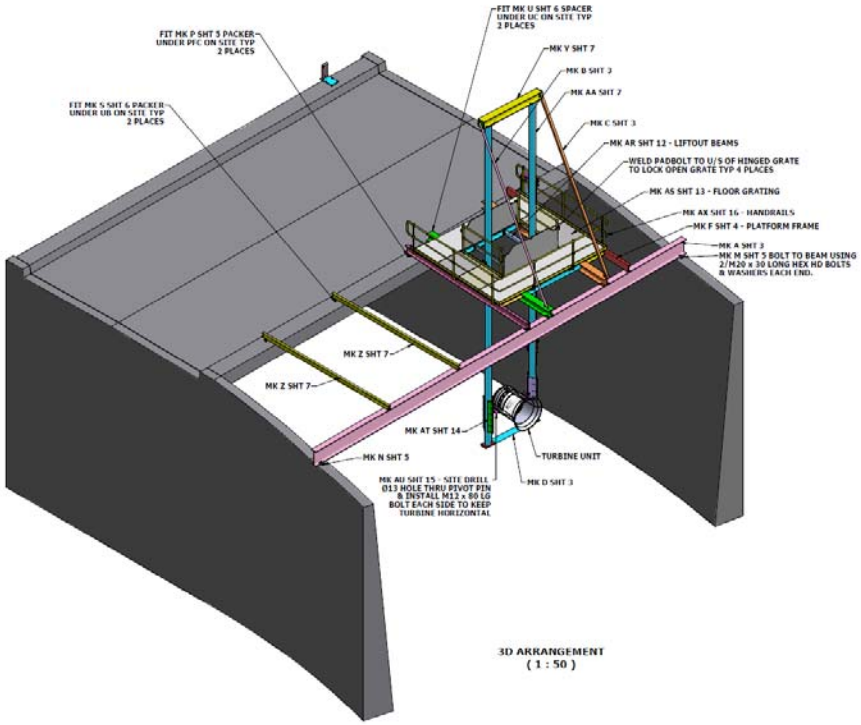
- StreamPro ADCP
- Simple deployment
- Determine optimal position in flow



Trial Design

Eraring Installation

- Suspended platform
- Turbine height adjustment
- Inspections



Flow Sensor

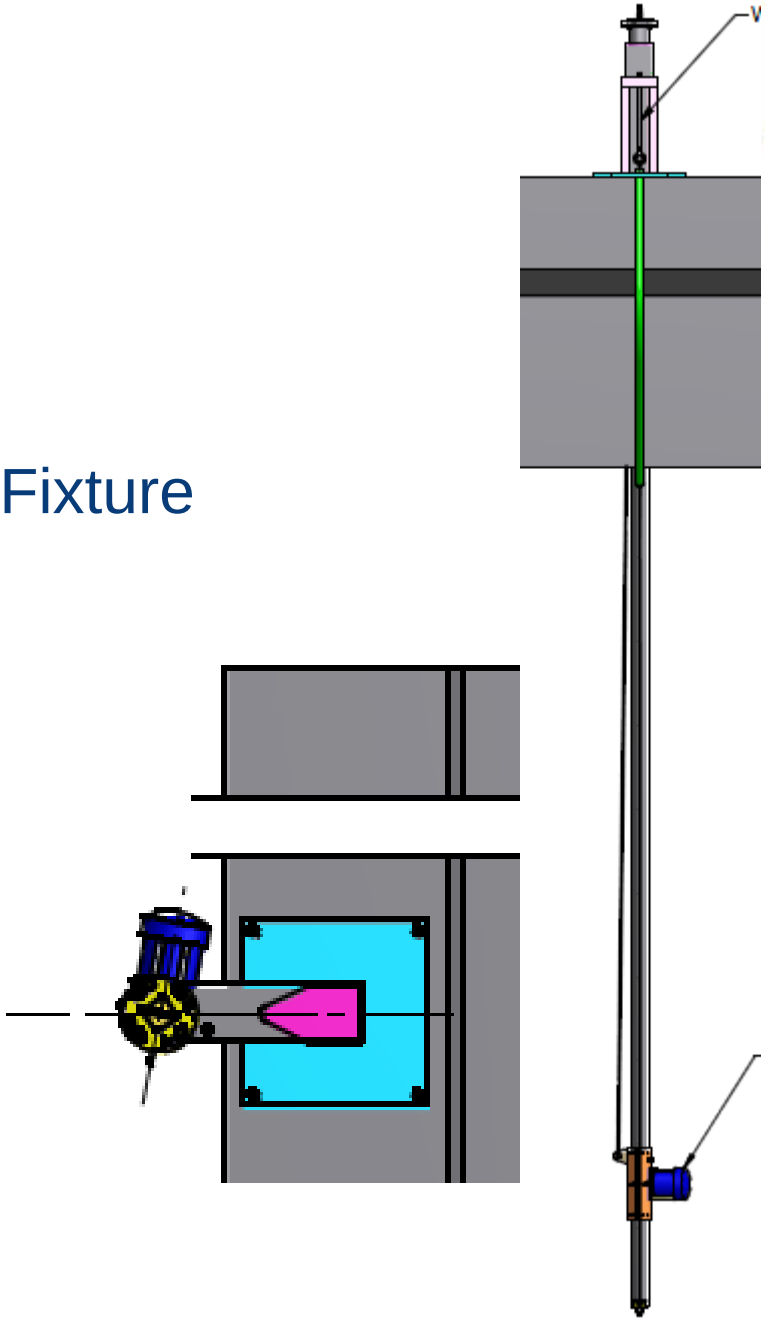
Selection Criteria

- Improve accuracy
- Interface
- Reliable
- Robust
- Complete profile
- ChannelMaster

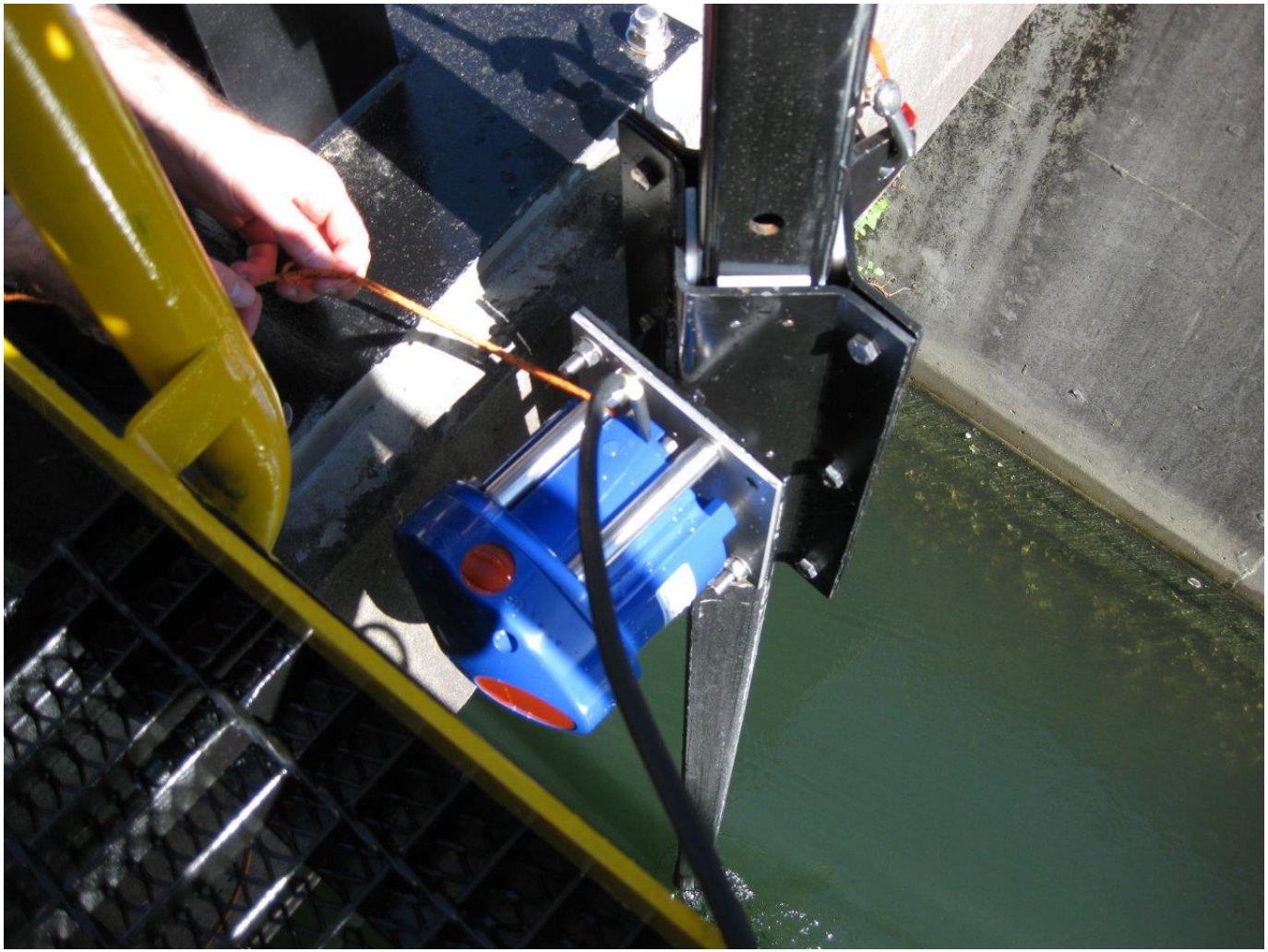
Trial Design

ChannelMaster Fixture

- Maintenance



ChannelMaster



ChannelMaster Fixture

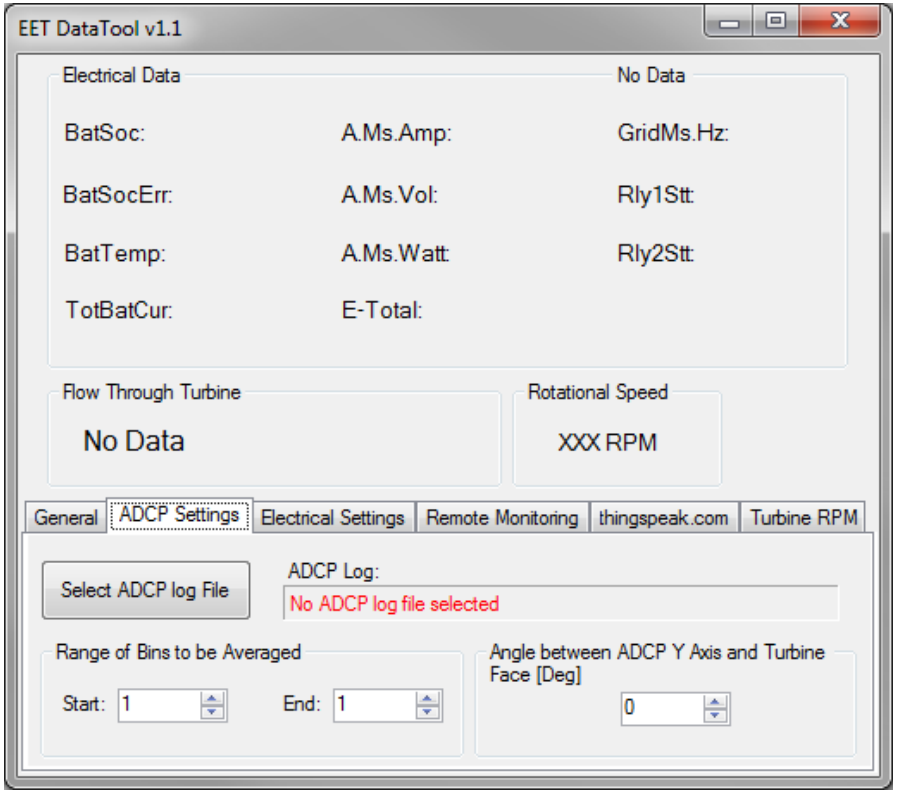
Data Requirements

Telemetry

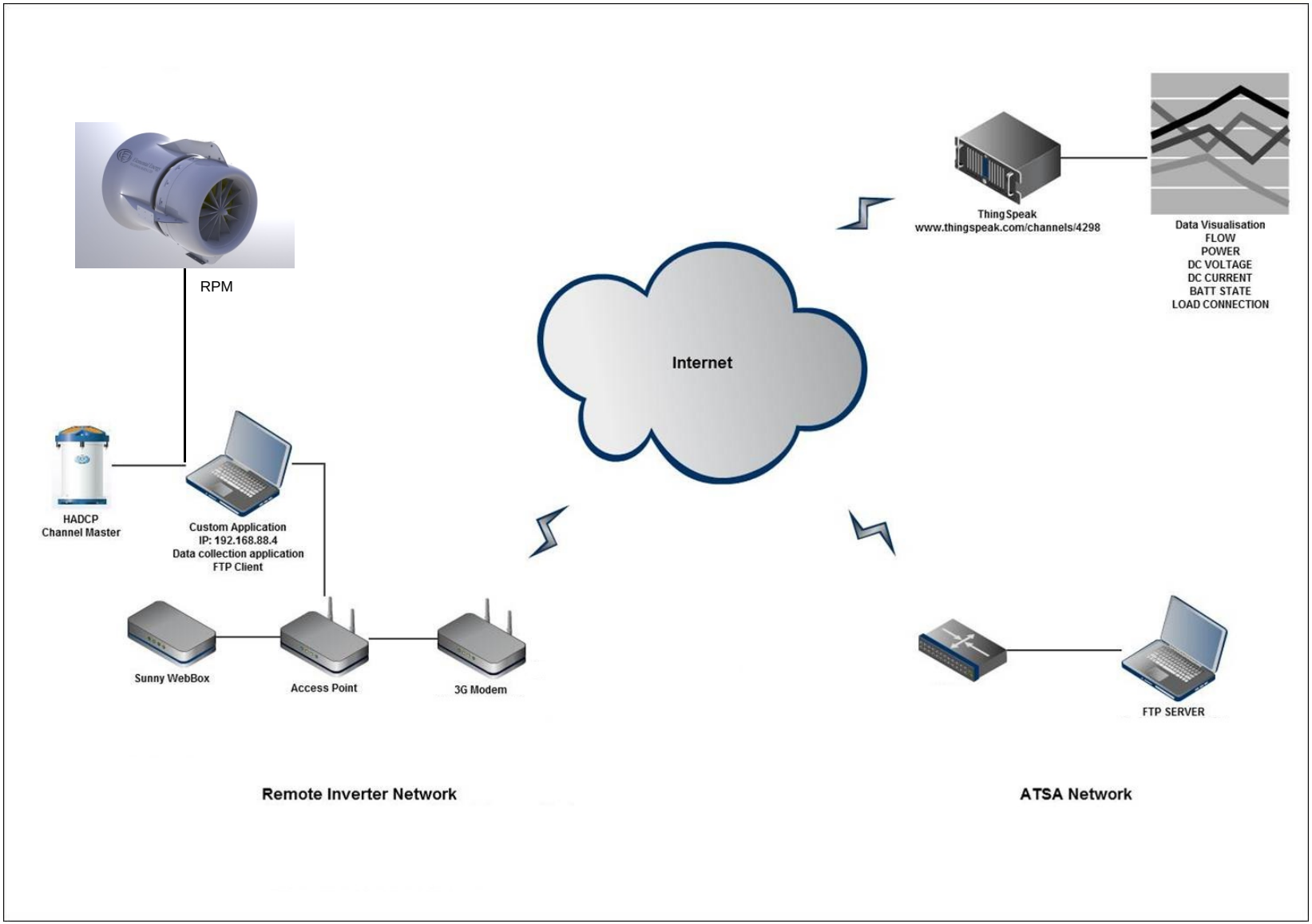
- 3G Modem
- Netbook
- Remote Desktop

Custom Application

- Decodes PD0 data
- Averages selected bins
- Gathers inverter & RPM data
- Uploads to web



Network Diagram

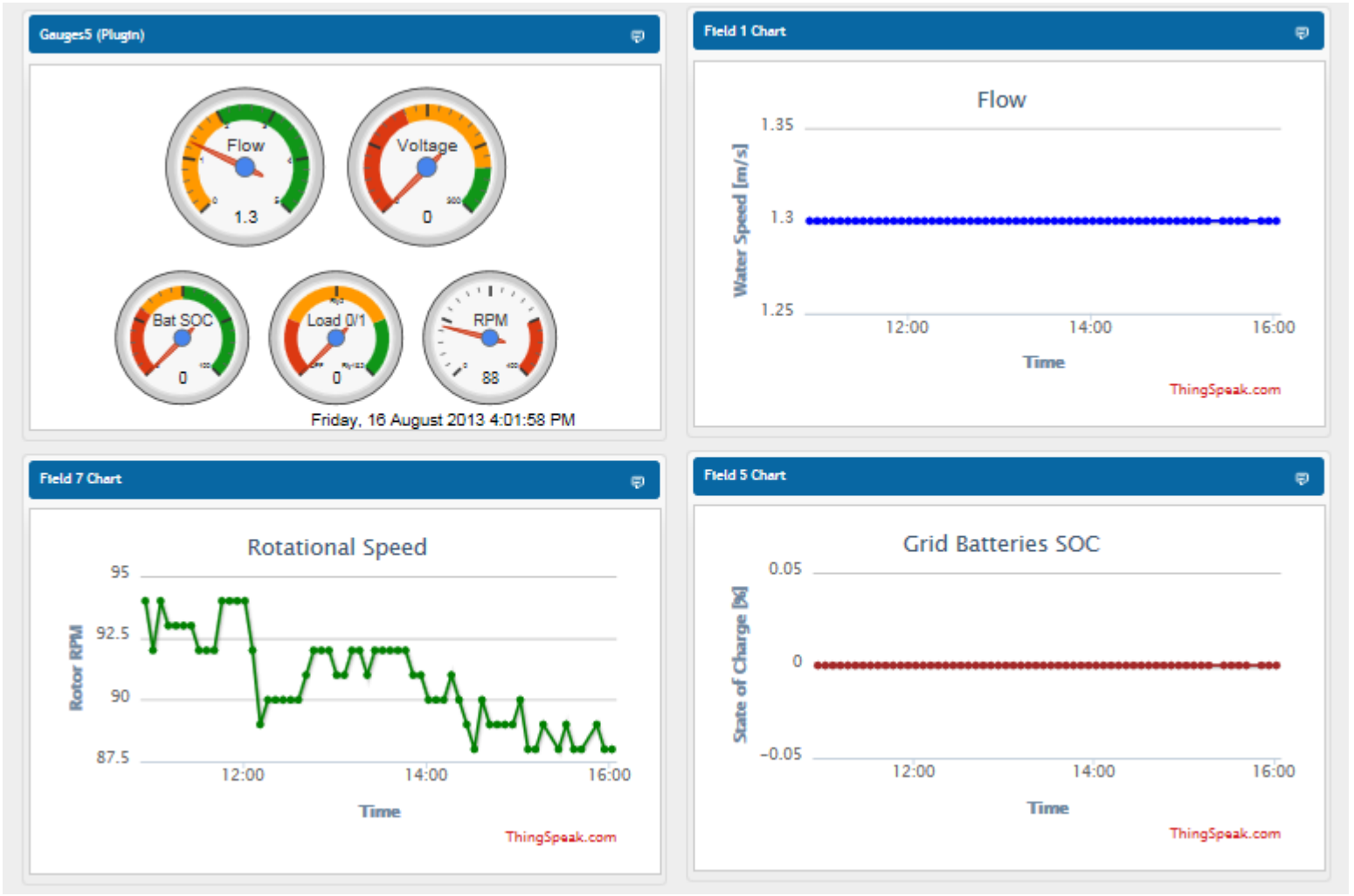


Data Visualisation

"the internet of things"

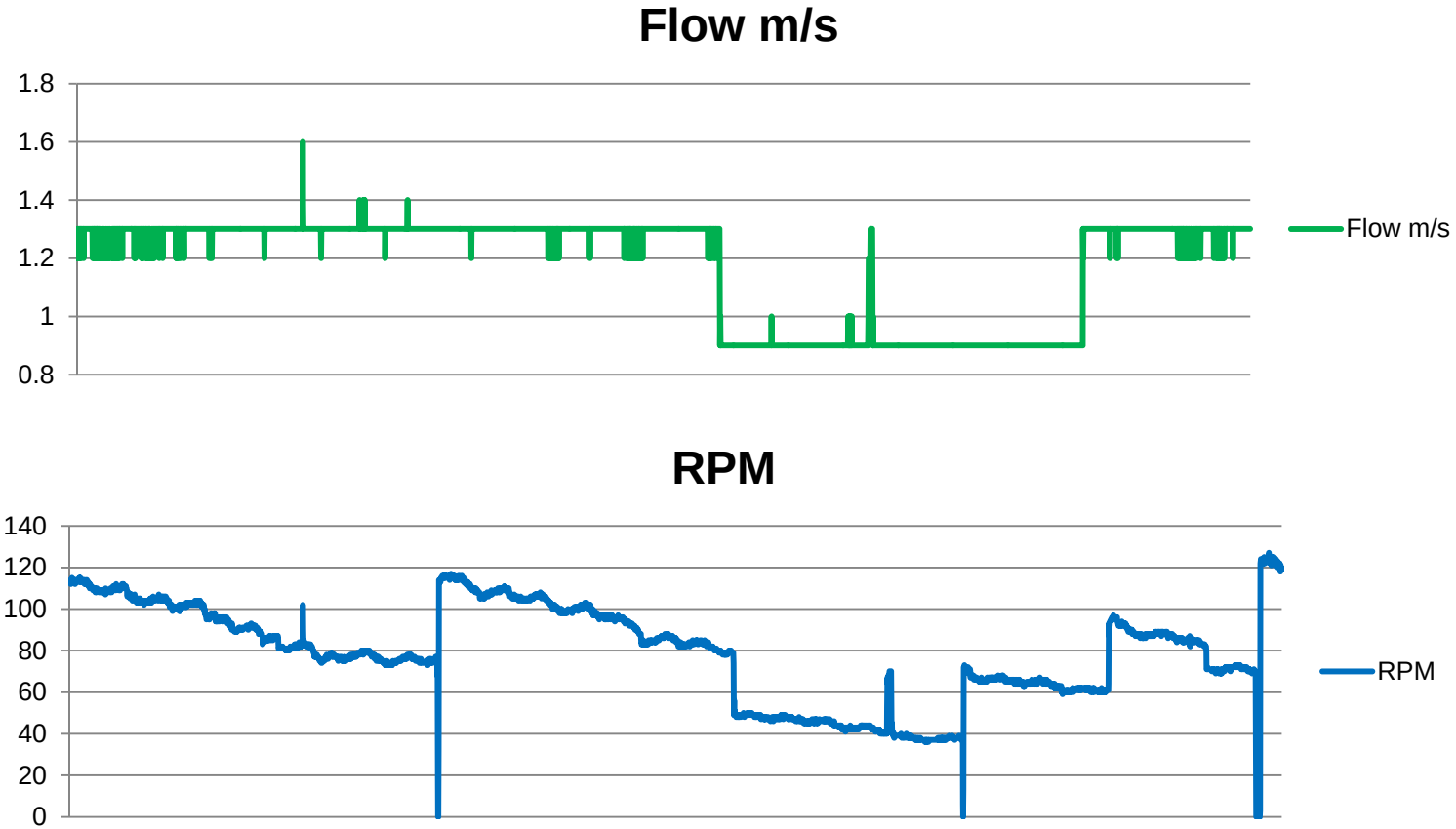
- ThingSpeak.com
- Free
- Uploaded data graphed
- Realtime
- Data retrieval

Data Visualisation

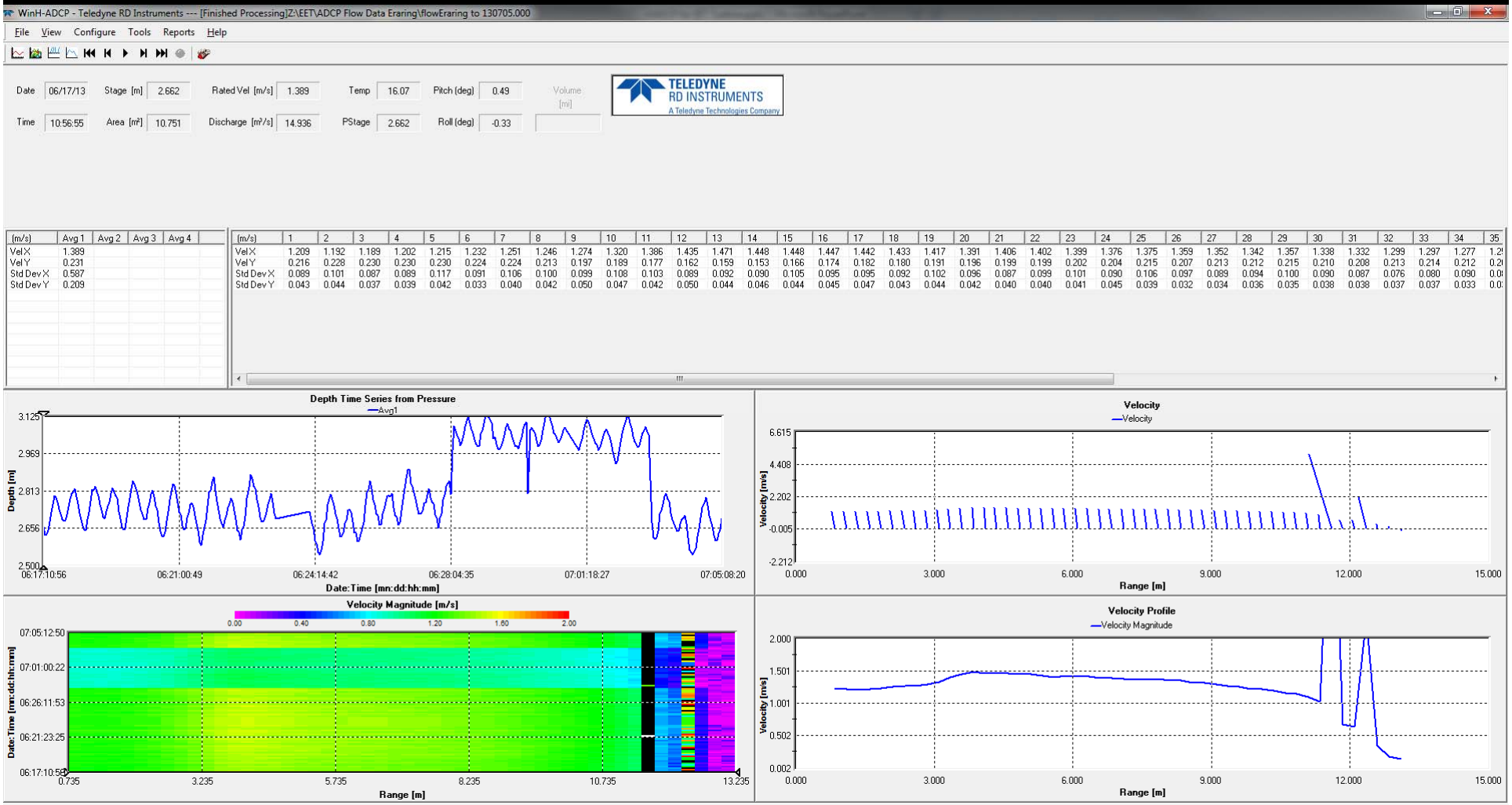


www.thingspeak.com/channels/4298

Eraring Channel Inlet
Flow vs Turbine RPM 17/06/13 to 4/07/13



Data



WinH-ADCP 17/06/13 to 4/07/13

Summary

H-ADCP for SeaUrchin™ Turbine

- Application required real-time flow measurement
- Decoded ChannelMaster PD0 data
- Uploaded with other data
- Monitored on free website
- Further analysis

Questions?