

# Knowledge Gaps, Growth, Priorities

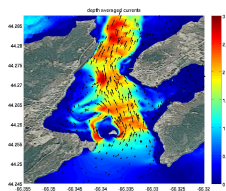
Richard Karsten



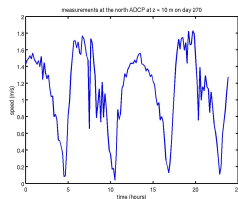
# Bankable Resource Characterization/Assessment

- 1 accurate, long term, thorough
- 2 establish standards/language specific to tidal
- 3 share the results – make it easy
- 4 quantify risk, communicate to the financial crowd

## Numerical Results



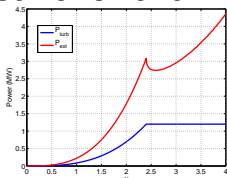
## ADCP Observation



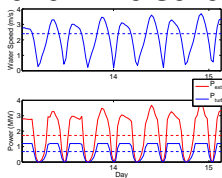
# Improved efficiency/capacity of turbine arrays

- 1 turbines designed for arrays, specific sites
- 2 understanding of turbulence, turbine wakes
- 3 now-casting of currents – combining ADCP, radar, modelling
- 4 improved O&M

Power Curve vs Power Extraction:



Power Time Series:



40% Efficiency