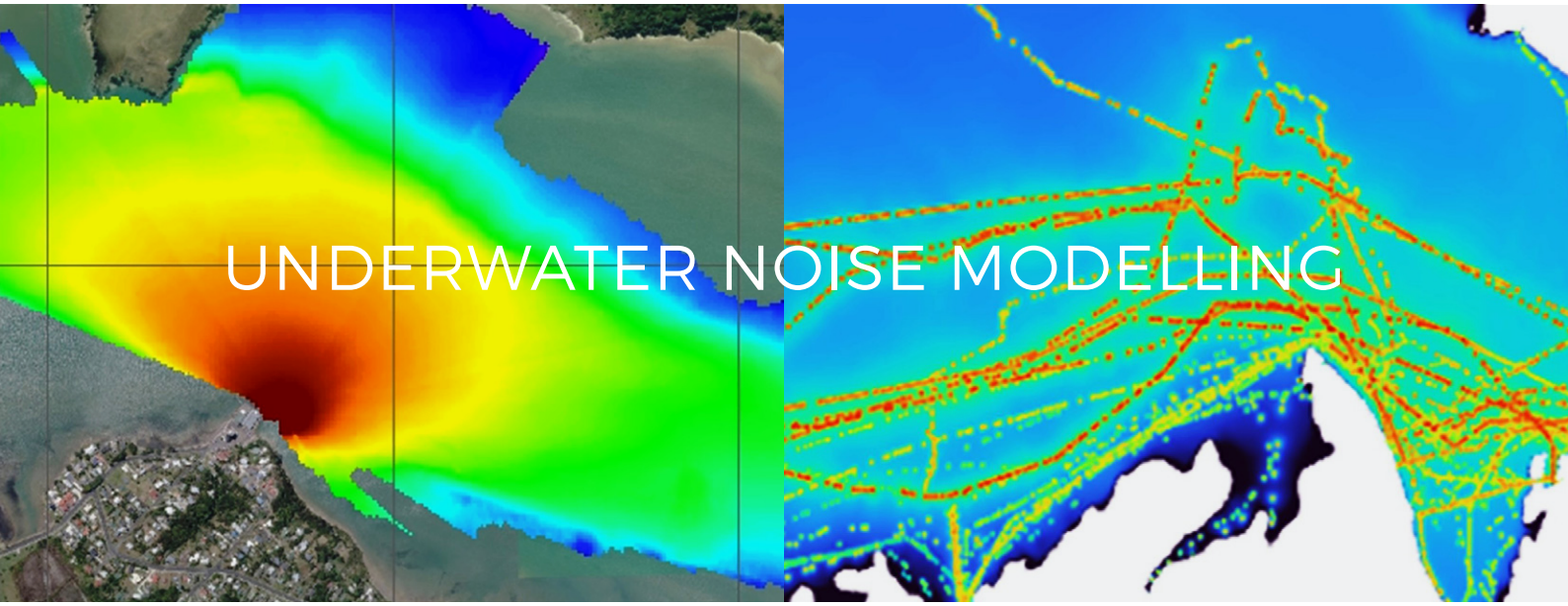

UNDERWATER NOISE MODELLING

Accurately predict and model underwater noise

Understanding the potential effects of underwater noise on marine environments requires accuracy and expert noise modelling. Our Underwater Noise Modelling service combines advanced software with years of scientific experience working in underwater acoustics. For clients requiring predictions of underwater noise impacts from anthropogenic noise sources, such as shipping, pile driving, or blasting on any scale: we deliver. Our scientists have access to wide range of internationally recognised modelling code, such as, but not limited to, parabolic equation models (RAMGeo implementation), ray tracing (Bellhop implementation), normal modes, energy flux and specific models that are empirically generated from real-world data.

Our specialist software has been developed to incorporate the most accurate and advanced data, so you can rely on the output. Fully range-dependent models that incorporate a range of environmental parameters are standard. And writing the model's input and output code in-house means we produce completely tailored results for any application. For example:

- Ship noise modelling that fully integrates Automatic Identification System (AIS) data or GPS waypoint tracks (such as for predicting future routes), as well as vessel specifications, to produce a wide range of noise metrics.
- Seamlessly incorporating multiple piling driving methods and pile type in any environment.
- Differentiating between confined and open water blasting for shockwave modelling and far-field propagation.
- Self-adjusting algorithms to calibrate model outputs against empirical noise measurement data.

Underwater noise modelling can also be used to map the acoustic detection ranges of noise sources, such as marine mammals and fish. This is an essential component to effective Passive Acoustic Modelling which relies on the appropriate placement of hydrophones.

www.StylesGroupAcoustics.com

Phone: +64 9 308 9015 **Email:** info@stylesgroup.co.nz **Head Office:** Saatchi & Saatchi Building, Level 2, 125 The Strand, Parnell, Auckland, NZ