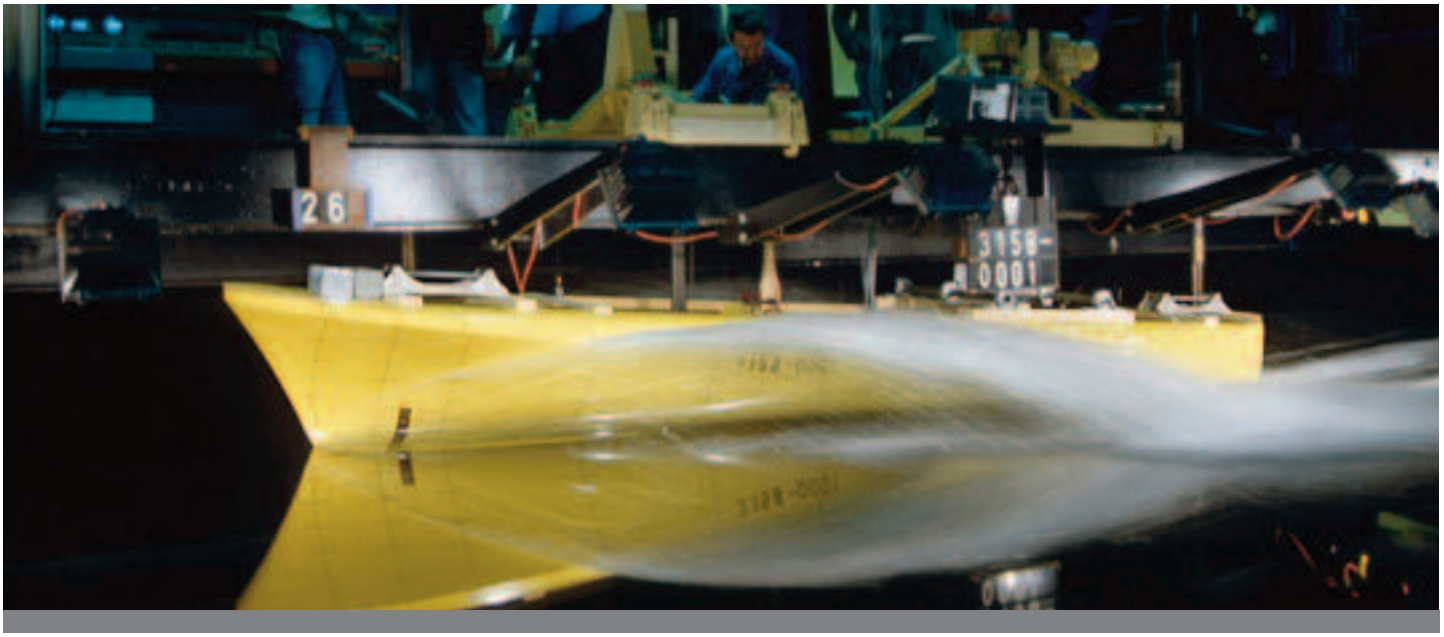
BCTQ
Burness Corlett Three Quays

The Maritime Consultants

Specialist Software Solutions

In support of BCTQ Marine Expert Services division, the firm is able to carry out technical studies and investigations for marine and offshore clients, using its own range of state-of-the-art analytical tools and software.



Specialist Software Solutions

Software

BCTQ is at the forefront of design and development of software solutions specifically for the maritime sector. Our Specialist Software Solutions team has created a series of packages including:

CFD – BASIN

BCTQ has developed a computational fluid dynamics package called BASIN for the analysis of generalised hydrodynamics problems. BASIN utilises a fully non-linear time-domain boundary element approach to calculate the motions & loads for one or more vessels. The method can be applied to a wide variety of problems, including:

Non-linear seakeeping in regular or irregular seas with or without forward speed

Wave resistance in flat water

Added resistance and added loading in waves

Interaction between multiple vessels

MATHMAN

BCTQ writes, markets, supports and operates the industry leading manoeuvring simulator MATHMAN, which is used for the simulation of ship manoeuvring and track reconstruction. It is also used as a computerised towing tank for port and channel design studies and for collision and grounding risk studies.

The MATHMAN manoeuvring simulation package has been developed by BCTQ with particular emphasis on its use as a tool to assist in the investigation and reconstruction of collisions and groundings. MATHMAN allows consistent, comprehensive and accurate reconstruction of vessel tracks, including all external forces, such as wind and current, as well as an accurate representation of control input, such as engine and rudder orders. In addition to track reconstruction, the program also enables checking of the consistency of evidence, e.g. between a course recorder trace and log book, as well as the possibility of investigating potential avoidance manoeuvres and other "what if" scenarios. Expert evidence based on MATHMAN has been presented on numerous occasions.

BCTQ has worked with GRC Ltd to integrate MATHMAN as a design tool into GRC's PARAMARINE naval architectural design package, which is used by the UK Ministry of Defence (MOD), amongst others. BCTQ has also developed TRIMAN, which is used by the MOD to predict manoeuvring characteristics for the MOD's 'TRITON' trimaran frigate project.

HYDAS

HYDAS – a fully integrated software suite for the analysis of intact and damage stability (including progressive flooding) longitudinal strength, motions and grounding which interfaces with other design and analysis tools.

Other specialist software systems include:

LOADCALC – a simple to use shipboard loading and stability system.

SALVCALC – a self contained PC loading and stability system, with the ability to analyse damage and grounding forces, suitable for ISM applications and with the ability to analyse grounding forces suitable for ISM applications.

EQUIMOOR – for static and dynamic analysis of ship mooring systems.

We also a have a number of proprietary codes, including:

ANSYS – a general purpose code for carrying out Finite Element Analysis investigations into the static, dynamic and non-linear behaviour of structures.

OSCAR and SCORES 2 – for investigating ship and offshore structure motions and hydrodynamic loadings.

3-D STUDIO – for the development of 3D computer animations, including realistic light and sound. This may be interfaced with MATHMAN to provide 'the view from the bridge' or other animated reconstructions.

CRYSTAL BALL - for probabilistic analysis, using the Monte Carlo simulation method.

MATHCAD - a general symbolic solver permitting on screen manipulation of mathematical equations.

CAD - various CAD software packages are supported including NAPA, Rhino, Microstation and Autocad.

NAPA - for the analysis of intact and damage stability

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