

Bubble Tubing® Technology and the Marine Industries

Air Bubble Curtains or Bubble Barriers, made with Bubble Tubing®, have enormous potential that warrants further research in mitigating noise and effects from blasting due to mining, drilling, seismic surveys and underwater pile driving thus protecting marine mammals, maritime environments, and those who work or find recreation in the ocean environment.

West Australian based company, Econets, has recently been appointed distributors for Air Bubble Barriers with Bubble Tubing® and Director, Jai Ferguson explains the technology and applications.

The operating principle of a curtain of bubbles lies in the creation of a flexible bubble barrier that rises continuously from the sea or river bed via weighted bubble tubing to the surface. This is achieved by using a properly adapted compressor which is adjusted to the estimated air volume. The bubble curtains serve as buffer zones which reduce the impact of shock waves, sound waves and frequencies of these shock events dispersing in water from a source (e.g. sea bed pile driving). The injected air flow must be large enough to form a very dense and efficient bubble curtain.

Jai Ferguson says, "Depending upon the project, it may be necessary to regularly suggest the installation of double or triple bubble curtains to maximise the amount of bubbles present. In the case of a double or triple curtain, the lines of Bubble Tubing® diffusers are installed parallel to one another at a distance specific to each project. The reasoning is that each layer of bubble tubing contributes to the reduction of the total impact and also when two rows run closely parallel they create the "venturi affect", so by incorporating

several layers it is possible to increase protection in the aquatic environment."

Independent studies are underway to determine the specific capacity of the Bubble Tubing®. The market for noise attenuation and environmental protection by two-phase barriers is certainly evolving rapidly.

Marine pile driving at large construction sites produces considerable noise and high pressure underwater. These conditions can be lethal to fish and can harm marine mammals. In an effort to reduce sub aquatic sounds generated by work sites, projects are increasingly utilising air bubble curtains. These air bubble curtains provide an effective barrier to sound propagating through water, because of the difference in density between air and water.

Common sources of high pressure noise at sea:

- Demining operations and underwater blasting
- Seismic surveys
- Pile driving
- Drilling for the installation of offshore wind turbines
- Retraction of marine structures
- Oil prospecting operations (seismic)
- Military activity using seismic or sonar equipment
- Port and coastal development

Demand for bubble tubing® by industries, government and the private

sector is rapidly growing with markets including marine construction firms, manufacturing and processing plants, mining, port authorities, aquaculture, agriculture, waterways and canals, parks and recreation engineering, landscaping and reclamation firms, universities and research facilities, ponds and lakes.

The myriad of applications include, but are not limited to:

- Protecting fish and marine mammals from underwater blasting and pile driving noise
- Diverting marine mammals away from off-shore oil platforms and continuous machinery and engine noise
- Containing ALL hydrocarbon spills within a given area (submerged and surface)
- Dredging, bubble tubing can stop dredging silt from migrating into protected areas whilst in construction.
- Controlling movement of marine life such as jellyfish, fish and seagrass as well as debris and sediments
- Improving water quality for increasing water clarity, reducing algae blooms and H2S production for odour suppression.
- Bubble Tubing® is available in various diameters for different applications. Econets' bubble tubing is the only "self-cleaning" air diffusing system on the market.
- Econets will specifically design the installation to meet requirements. For more information contact Jai@econetsaustralia.com.au or www.econetsaustralia.com

Econets and Bubble Tubing® will be showcased at the MARINE 17 Convention & Trade Exhibition in Sydney from 30th July - 1st of August.

