

From: Ericksen, Kris
Sent: Tuesday, 5 September 2006 4:51 p.m.
To: 'David Beach'; 'Chris Bathurst'
Subject: FW: Marine turbines and marine mammals

Dear David and Chris

Please find below an email that I have sent to Peter Fraenkel of Marine Turbines in England regarding his paper on tidal current energy technologies.

I note that in your presentation in Wellington that you stated that the blades on the turbines you proposed to use revolved once every 12 seconds. This would still result in a tip speed of about one and a half times that of a squid trawler.

I trust that this information is useful to you in the preparation of any AEE.

Regards
Kris Ericksen
Community Relations Officer, Planning
Wellington Conservancy
Department of Conservation
P O Box 5086
181 Thorndon Quay
Wellington
Email: kericksen@doc.govt.nz

-----Original Message-----

From: Ericksen, Kris
Sent: Tuesday, 5 September 2006 4:42 p.m.
To: 'Peter.Fraenkel@marineturbines.com'
Subject: Marine turbines and marine mammals

Dear Peter

In your paper on Tidal Current Energy Technologies in Ibis (<http://www.blackwell-synergy.com/doi/pdf/10.1111/j.1474-919X.2006.00518.x>) you state, on page 150, that "The rotor turns under the influence of the moving water and the maximum rotational speed with Seagen is 15 r.p.m. (i.e. one revolution in 4 seconds); the maximum rotor blade tip velocity is 10-12 m/s" and "if physical contact occurred, it would in most cases be glancing (i.e. at a slight angle) off a smooth and not very fast moving surface, so the likelihood of injury or mortality would be small."

I note that a tip velocity of 10 - 12 m/s translates to approximately 36 - 42 km/h.

Research in New Zealand on marine mammal exclusion devices (MMED), while not directly comparable to underwater turbines, may throw some light on injuries that may be sustained by marine mammals.

MMEDs have been trialled in the Southern Ocean squid fishery in an attempt to reduce mortality rates of captured sea lions. A description of the device can be found on page 16 <http://tinyurl.com/nv6vx>

Research indicates that many animals passing through a MMED will suffer blunt traumatic injuries that they would be unlikely to survive. This is despite the fact that the trawl occurs at about five knots, or a quarter of the speed of a turbine tip.

The determination of when the squid fishery closes each season, based on the estimated number of sea lions killed, assumes that 80% of sea lions being ejected from a net with an MMED fitted will die from their

injuries.

Further information on this research can be found in these two publications:

Duignan, P. 2003. Autopsy of pinnipeds incidentally caught in commercial fisheries, 1997/98, 1999/2000, and 2000/01. DOC Science Internal Series 118. Department of Conservation, Wellington. 106p. www.doc.govt.nz/publications/004%7escience-and-research/DOC-Science-Internal-Series/PDF/DSIS118.pdf Refer page 67

Duignan, P. J. and Gibbs, N. J. 2002. Autopsy of New Zealand sea lions incidentally caught in commercial fisheries. Interim Report 6 May 2002. 7p. (DME WGNCR-35545)(Attached)

Consequently I consider that the likelihood of injury or mortality to marine mammals from marine turbines will not, therefore, be insignificant. It should also be noted that whales do not use echolocation. The marine turbines may pose a risk to whales and the whales a risk to the turbines.

If you have further information on the risks of marine turbines to marine mammals since the publication of your paper I would be interested in receiving it, as there is currently a proposal to install marine turbines in Cook Strait.

Your sincerely
Kris Ericksen
Community Relations Officer, Planning
Wellington Conservancy
Department of Conservation
P O Box 5086
181 Thorndon Quay
Wellington
Email: kericksen@doc.govt.nz