Relationships between presence of bottlenose
dolphins, environmental variables and boat traffic;
visual and acoustic surveys in New Quay Bay, Wales.

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Introduction

We investigated the use of New Quay Bay (fig. 1), by the resident
bottlenose dolphins (Tursiops truncatus) by analyzing the
relationships between dolphin presence/absence and variables
such as time, tide, weather, sea state and boat traffic.

Results

• The presence of dolphins was
affected by month (peak: June-
August. Mann-Whitney U, W = 779.5,
P=0.0051), time of day (Kruskal-Wallis,
H= 42.93 DF = 23 P = 0.007) (fig. 3) and
tidal cycle (Kruskal-Wallis, H=24.54 D=11
P=0.011) (fig 4), while weather and
sea state had no significant
influence on the animals.

• The presence of dolphins varied
inversely with boat traffic (Kruskal-
Wallis, H=298.74, DF=147, P<0.001), with
decreased evidence of dolphin
presence in the afternoon, which
was the peak time for boat activity
(fig 3).

• The reaction of dolphins during boat
interactions varied significantly. Most
encounters resulted in the dolphin
either changing its behaviour or
disappearing from view (fig 5). Fast
moving boats such as motor boats
and speed boats appeared to cause
greatest disturbance to the animals.

Methods

We conducted a land-based visual survey (497 hours from
May 1st to August 7th 2004, fig. 2) and a T-POD acoustical
survey (1077 hours from June 14th to August 7th 2004, fig. 2).

Concluding remarks

• Visual and acoustic methods revealed
broadly similar patterns.

• The level of boat traffic seemed to have an
adverse effect on the presence of dolphins in
the area.

• Despite this potential degree of boat
disturbance, dolphin presence remained high
during the months when boat traffic was
highest.

• Precautionary measures such as codes of
conduct for marine vessels and education
campaigns may help to reduce disturbance
experienced by bottlenose dolphins and other
marine wildlife, due to increased boat activity in
the area.

• Further study is necessary to determine any
long term impacts of disturbance caused by
boat traffic.

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