A hydrodynamic acoustic recording tag for small cetaceans and first results from a pantropical spotted dolphin

**WHY CARE ABOUT HYDRODYNAMICS?**

- **Attachment stability**  Hydrodynamic tags should enjoy reduced tag migration.
- **Attachment duration**  Hydrodynamic tags should enjoy longer attachment life.
- **Effect on subject**  Hydrodynamic tags should mitigate subject discomfort.
- **Accelerometry**  Hydrodynamic tags should be less susceptible to wobble that could contaminate accelerometer records.

**Acoustic Recording**  Acoustic recordings by hydrodynamic tags should suffer less flow noise, improving signal-to-noise at low frequencies.

**WHAT MAKES A TAG HYDRODYNAMIC?**

- **LOW PROFILE**
- **TEARDROP SHAPE**
- **SELF-ALIGNMENT WITH FLOW** (or minimal increase in drag with off-axis flow)

**THE ACOUSONDE™ 3B:**

**A HYDRODYNAMIC ACOUSTIC RECORDING TAG**

The Acousonde™ 3B is a self-contained underwater acoustic recorder comprising one or, optionally, two hydrophones, sensors for attitude, orientation, depth and temperature, a digital recorder, and a fail-safe rechargeable battery. The Acousonde™ 3B is a streamlined package with 22.4 cm body length and weighing under 360 g fully assembled.

**KINETIC AND ACOUSTIC DATA**

- **3D compass, 3D tilt, and pressure sensors**
- **Vessel noise**
- **Other sounds**

**REFERENCES**


**CONCLUSIONS**

- An acoustic recording tag has been especially designed for hydrodynamics.
- On its first successful deployment the tag held well to a small cetacean, remaining attached for 12 h 16 m.
- Kinematic sensors yielded data that appeared to export well to kinematic analysis software (TrackPlot).
- Acoustic levels above and below 10 kHz were balanced, the prewhitening filter on the HF channel is OK.

**REFERENCES**
