

# ASLO

Association for the  
Sciences of Limnology  
and Oceanography



[Home](#) [Members](#) [Libraries](#) [Publications](#) [Meetings](#) [Employment](#) [Activities](#) [Search](#)

## Marine diffusive boundary layers at high latitudes

Roberts, Jason, Andrew McMinn

Limnol. Oceanogr., 49(4), 2004, 934-939 | DOI: 10.4319/lo.2004.49.4.0934

**ABSTRACT:** The thickness of marine diffusive boundary layers (DBLs) can be calculated from the friction velocity and the water density (a function of temperature and salinity). However, DBL thickness scales differently with temperature, depending on whether free-stream or friction velocity is used. We show that there are advantages to using frictional velocity for experimental scaling. Low seawater temperatures in polar areas cause DBLs to be up to 32% thicker than in temperate or tropical areas. This will have a significant effect on biological processes such as photosynthesis and respiration.

### Article Links

[Download Full-text PDF](#)

[Return to Table of Contents](#)

### Please Note

Articles in L&O appear in PDF format. Open access articles may be freely downloaded by anyone. Other articles are available for download to subscribers only, or may be purchased for \$10 per article. All L&O articles are moved into Open