



## Abstract View

[Volume 8, Issue 6 \(November 1978\)](#)

### Journal of Physical Oceanography

Article: pp. 1061–1069 | [Abstract](#) | [PDF \(816K\)](#)

# The Shallow Salinity Minimum of the Eastern North Pacific in Winter

**Kern E. Kenyon**

*Scripps Institution of Oceanography, University of California, San Diego 92093*

(Manuscript received February 10, 1978, in final form June 19, 1978)

DOI: 10.1175/1520-0485(1978)008<1061:TSSMOT>2.0.CO;2

### ABSTRACT

Extensive STD data at a 100 km station spacing from a recent winter cruise (March–April 1976) along 35°N between California and Japan are used to describe the large-scale (5000 km) shallow salinity minimum within the upper 500 m in the eastern half of the transect in relation to the salinity structure above and below it, and to the mesoscale (500 km) variations in salinity in the western Pacific. The shallow salinity minimum, which has a vertical scale of order 100 m, was found to be a continuous feature less than 200 m from the sea surface on more than 50 consecutive stations from about 125°W to about 175°W. The depth of the shallow salinity minimum has a large-scale maximum of about 160 m near 135°W and it decreases to about 60 m east and west of the maximum. The salinity, temperature and density at the shallow salinity minimum increase westward monotonically, and the salinity deficits between the salinity at the minimum and at the salinity maxima above and below the minimum decrease westward. The vertical scale of the shallow salinity minimum increases westward. The shallow salinity minimum lies in the main pycnocline where the vertical stability is large; the maximum vertical stability occurs between the bottom of the surface layer and the depth of the shallow salinity minimum. Also within the main pycnocline and about 20 m above the shallow salinity minimum is a maximum in dissolved oxygen concentration, which was found over the same longitude range as that of the shallow salinity minimum. The salinity and oxygen data along 35°N are consistent with a source of low-salinity and high-oxygen water at the sea surface in high latitudes.

#### Options:

- [Create Reference](#)
- [Email this Article](#)
- [Add to MyArchive](#)
- [Search AMS Glossary](#)

#### Search CrossRef for:

- [Articles Citing This Article](#)

#### Search Google Scholar for:

- [Kern E. Kenyon](#)



© 2008 American Meteorological Society [Privacy Policy and Disclaimer](#)  
Headquarters: 45 Beacon Street Boston, MA 02108-3693  
DC Office: 1120 G Street, NW, Suite 800 Washington DC, 20005-3826  
[amsinfo@ametsoc.org](mailto:amsinfo@ametsoc.org) Phone: 617-227-2425 Fax: 617-742-8718  
[Allen Press, Inc.](#) assists in the online publication of *AMS* journals.