Eyes Over Puget Sound

Surface Conditions Report
April 2011

ftp://www.ecy.wa.gov/eap/Flight_Blog/
Contents:

In this April edition we highlight:

• Satellite and Victoria Clipper data collected en route between Seattle and Victoria.
• Observations supported with mooring measurements made in Whidbey Basin.

Flight information:
Due to La Niña and low cloud cover, aerial observations have been challenging this year. We anticipate that visibility will improve for May.
Victoria Clipper detects strong algal bloom in Main Basin of Puget Sound in April 2011

- Clear skies and fresh/nutrient-rich water from Whidbey Basin has stimulated a large algae bloom in central Puget Sound.

- Whidbey Basin water is noticeably more turbid and associated with increased colored dissolved organic matter (CDOM) fluorescence.

Description of Ecology’s Ferry Monitoring Program
http://www.turnerdesigns.com/newsletter/newsletter_0311_full.html#iia

Additional Information: Brandon Sackmann, PhD (bsac461@ecy.wa.gov)
Possession Sound (a) bloom (↓) and frontal systems (↓) near Mukilteo-Clinton moving north with the tide (b, c)
Evolution of April 2011 spring bloom in Puget Sound

Daily snapshots...

April 19 20 21 22 23 24 25 26
Satellite helps map spatial extent of spring bloom

- Agreement between V. Clipper chlorophyll fluorescence and MERIS ocean color data.
- Smaller algae blooms seen in Carr, Case, and Budd Inlets.
This year’s early blooms

- Nutrient-rich water from Whidbey Basin often spreads through central sound.
- Fresh water leads to stratified conditions and encourages algae blooms.
Satellite products used to help assess water quality

- Chlorophyll, Maximum Chlorophyll Index (MCI, sensitive to high algae concentrations), CDOM Absorption, and Total Suspended Material reveal different information

MERIS True Color

23 April
Oxygen levels >10mg/L in the surface layer (0-16m) in Possession Sound support satellite images showing a strong spring bloom in Whidbey Basin and Central Basin.

Warmer and sunnier conditions on 4/26 give rise to enhanced oxygen production and algae growth.

http://www.ecy.wa.gov/apps/eap/marinewq/moorings/MUK01.asp#tab1
Washington State Department of Ecology’s long-term marine monitoring stations

- Core Flight
- Continuous (Mooring)

Access archived data at:


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