Surface Conditions Report
August 27, 2012
We have a new website (take a look)

Up-to-date observations of visible water quality conditions in Puget Sound and the Strait of Juan de Fuca
Personal flight impression
Jellyfish are on the loose in Budd Inlet, large vortex in Rich Passage.

Aerial photography
High abundance of marcoalgae aggregations in Central Sound. Red-brown blooms in South Sound Inlets and parts of Central Sound. Jellyfish patches numerous and increasing in size in Sinclair and Budd Inlets.

Ferry and satellite
Low-Moderate fluorescence and turbidity in Main Basin and Admiralty Inlet. Temperatures in Main Basin drop below 15 °C, near-surface salinity >28 PSU

Laura Friedenberg
Dr. Christopher Krembs
Dr. Brandon Sackmann

www.ecy.wa.gov/programs/eap/mar_wat/eops/
During the Central Sound flight a very interesting algal vortex caught our eye. It was located in Rich Passage and looked like a green, spiral-shaped bloom. Because we have never seen anything this large on previous flights, it was a great opportunity to take pictures.

Budd Inlet was also very biologically active. We saw numerous patches of jellyfish and thick algal blooms in shades of red and brown.

Jellyfish are on the loose in Budd Inlet
Combined reporting of long-term monitoring products and present conditions

Go to website

Slideshow highlighting data products and the Marine Water Condition Index (MWCI)

Find past conditions for the water column, surface and mooring sites

EOPS releases

Video of the Marine Waters Unit activities

Video and information on algal blooms

Video of long-term nutrient trends
Summary: Aerial photography 8-27-2012

High abundance of macroalgae aggregations in Central Sound. Red-brown blooms in South Sound Inlets and parts of Central Sound. Jellyfish patches are numerous and increasing in size in Sinclair and Budd Inlets.

Mixing and Fronts: 1 2 11 12
Fronts in Elliot Bay, Sinclair Inlet, Tacoma Narrows and Quartermaster Harbor.

Suspended sediment: 5 6 11 12
Sinclair Inlet, Tacoma Narrows, Case Inlet Budd Inlet and Commencement Bay.

Visible blooms: 1 2 3 4 5 6 7 8 9 10 11 13 14 15
Red-brown: Sinclair, Case, Budd, Eld, Henderson Inlets, Squaxin Island and Quartermaster Harbor.

Olive to green: Elliot Bay, Port Madison, Sinclair Inlet, Quartermaster Harbor, Eagle Harbor, Jarrel Cove (Pickering Passage).

Macroalgae: Central Sound.

Debris (unidentified) 2 3 8 9 11 12
Abundant in Central Sound and usual locations in South Sound (Squaxin Passage, Case & Carr Inlets).
Aerial photography navigation guide 8-27-2012

Flight Information:

- **Afternoon flight (round trip):** High visibility, windy, broken cloud cover and reflections on the water.

Observation Maps:

Click on numbers

High tides: 12:48 AM, 3:43 PM, Low tides: 7:56 AM, 9:05 PM
Macroalgae. Location: Between Elliott Bay and Sinclair Inlet (Central Sound), 2:18 PM.
A) Looking north towards Discovery Park. B) Looking south towards West Seattle.
Green bloom. Fronts from different water masses and Dyes Inlet. Location: Sinclair Inlet (Central Sound), 2:24 PM.
Red-brown and turquoise bloom. Location: Sinclair Inlet (Central Sound), 2:26 PM.
Red-brown, brown and turquoise bloom. Location: Sinclair Inlet (Central Sound), 2:26 PM.
Jellyfish, red-brown and turquoise bloom. Location: Sinclair Inlet (Central Sound), 2:26 PM.
**Red-brown bloom.** Location: A) North Bay, B) Rocky Bay, C) Jarrell Cove, Case Inlet (South Sound), 2:37 PM.
Red-brown and turquoise bloom. Location: Between Squaxin and Harstine Island (South Sound), 2:43 PM.
Red-brown and turquoise bloom. Location: Between Squaxin and Harstine Island (South Sound), 2:43 PM.
Red-brown bloom, jellyfish and turquoise water (+ cloud reflections). Location: Budd Inlet (South Sound), 2:52 PM.
Red-brown bloom and turquoise bloom (+ cloud reflections). Location: A) Eld Inlet, B) Henderson Inlet (South Sound), 2:52 PM.
Structured surface water with distinct fronts. Puyallup plume appears south of Point Defiance.
Location: Tacoma (Central Sound), 3:10 PM.
Puyallup River plume. Location: Commencement Bay, Tacoma (Central Sound), 3:11 PM.
*Red-brown and green bloom.* Location: Quartermaster Harbor - Vashon Island (Central Sound), 3:13 PM.
Green bloom. Location: Quartermaster Harbor - Vashon Island (Central Sound), 3:14 PM.
Large macroalgae aggregations. Location: Near Edmond (Central Sound), 3:27 PM.
We had the opportunity to fly a complete loop without interruption. Maps are therefore only separated by location.
**Legend to map annotations**

Maps are produced by observers during and after flights. They are intended to give an approximate reconstruction of the surface conditions on scales that connect to and overlap with satellite images in the section that follows.

<table>
<thead>
<tr>
<th>Plumes</th>
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<tbody>
<tr>
<td>• Freshwater with sediment</td>
<td>solid</td>
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<tr>
<td>• Freshwater with sediment</td>
<td>dispersed</td>
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<tr>
<td>• Coastal erosion with sediment</td>
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<table>
<thead>
<tr>
<th>Blooms</th>
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<table>
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<th>Front</th>
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<td>• Distinct water mass boundaries</td>
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<td>• Several scattered</td>
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Current Conditions: Low-Moderate fluorescence and turbidity in Main Basin and Admiralty Inlet. Temperatures in Main Basin drop below 15 °C, near-surface salinity >28 PSU.

--- Daily ‘Quick-Look’ Products Available ---
(http://www.ecy.wa.gov/programs/eap/mar_wat/eops/clipper.html)
Warm near-surface temperatures in Strait of Juan de Fuca promote widespread phytoplankton bloom in mid-August.

Strong bloom in Main Basin begins to fade over last few days as temperatures drop below 15 °C.
Ferry & satellite observations 8-1-2012 to 8-27-2012

Warm near-surface temperatures in Strait of Juan de Fuca promote widespread phytoplankton bloom in mid-August.

Strong bloom in Main Basin begins to fade over last few days as temperatures drop below 15 °C.
Get data from Ecology’s Monitoring Programs

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| Real–Time Sensor Network | | | |
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You may subscribe or unsubscribe to the Eyes Over Puget Sound email listserv by going to:
http://listserv.wa.gov/cgi-bin/wa?A0=ECOLOGY-EYES-OVER-PUGET-SOUND

Many thanks to our business partners: Clipper Navigation, Swantown Marina and Kenmore Air.

We are looking for feedback to improve our products.

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Marine Monitoring Unit
Environmental Assessment Program
WA Department of Ecology