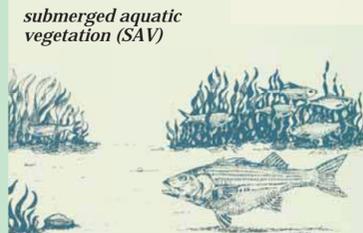
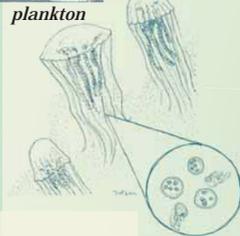
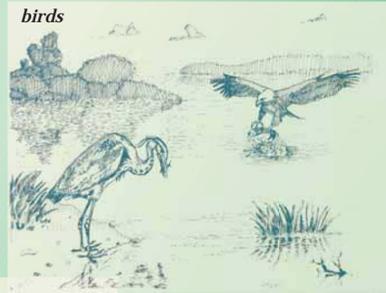
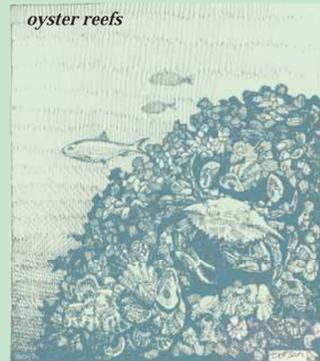




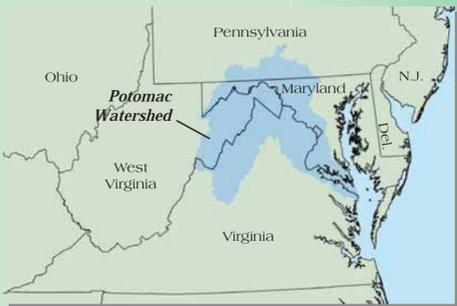
ICPRB AND THE POTOMAC IN 2004

The **Potomac River food web** is complex with many factors affecting it. As one piece of the web changes, such as an increase in plankton or decrease in oysters, all other food web pieces are affected. These images highlight some important biological communities in the Potomac's estuarine food web. In non-tidal portions of the river, a food web similar in complexity and critters could be explored.



LEGEND

- Hydrologic Stations
 - ICPRB/USGS groundwater network
 - ▲ ICPRB supported stream gages
- Land use
 - Forest and wetlands-about 58%
 - Agriculture, transitional barren/grasses-about 32%
 - Residential, industrial, mining-about 6%
 - Open water-about 4%
- Municipalities
- ICPRB American shad and river herring restoration sites



DATA SOURCES
Non-tidal waters: Environmental Monitoring and Assessment (EMAP), 1993-1998; Md. DNR Biological Stream Survey (MBSS), 1995-97, 2000-01; Montgomery Co., Md. DEP Countywide Stream Protection Strategy (CSPS), 1999-2002; W.Va. DEP Watershed Assessment Program (WAP), 1996-2002; Pa. DEP Unassessed Watersheds (UW), 1997-2001; Virginia DEQ Ambient Water Quality Assessment/Surface Water Monitoring, 1994-2002.
Tidal waters: Water quality - www.chesapeakebay.net/data/index.htm; SAV acreage - www.vims.edu/bio/sav/segstats.html; U.S. Environmental Protection Agency, April 2003. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity, and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries, EPA 903-R-03-002. www.chesapeakebay.net/bayercriteria.htm. Map: U.S. Geological Survey, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration, and the U.S. Forest Service.
 Illustrations: Christopher Dotson, Claire Buchanan

POTOMAC RIVER BASIN HABITAT QUALITY DATA (2004)

The region's rich quality of life, seen in good drinking water supplies, fisheries, property values, and water sports and recreation are tied to the health of the Potomac basin's waters, from the myriad of upland streams to the vast estuary at the river's mouth. Healthy, productive aquatic habitats require good conditions, both in the water and on the land. Water quality, including temperature, acidity, dissolved oxygen, nutrient concentrations, salinity, and water clarity, gives a partial picture of the quality of habitat. Physical features such as landscape disturbance, riparian buffer width, bank stability, submerged aquatic vegetation beds, oyster reefs, and migratory fish blockages help fill out the picture. Monitoring data on these multiple habitat features allows resource managers to evaluate the status of Potomac waters and plan management initiatives to restore, preserve, and protect habitat.

The ICPRB staff has developed uniform methods for assessing habitat quality in Potomac **non-tidal (free-flowing) streams and rivers** and the **estuary (tidal)**. "Reference" habitats with desirable features or least-impaired conditions are identified and employed as "yardsticks" to measure habitat quality at other sites.

Non-tidal (free-flowing) Streams and Rivers
 Free-flowing streams and rivers are assessed by comparing them to reference sites in the same geophysical areas (Coastal Plains, Piedmont, Valley, Highlands). The ICPRB staff has developed a habitat quality index for Wadeable streams and rivers that can be applied to the data collection of the basin's jurisdictions. Habitat ratings are numeric and can be rated as Very Good/Good (least disturbed), Fair (slightly disturbed), and Poor/Very Poor (moderately/severely disturbed). Generally, ratings are highest in forests/vegetated areas, with lower values in agricultural/open space, followed by urban developed areas. Examples of Good and Very Good ratings can be found in all land categories, however.

Subwatershed	# Samples	% Good/ Very Good	% Fair	% Poor/ Very Poor
Cacapon	77	64	22	14
Conococheague, Antietam	211	43	17	41
Goose, Catoctin	42	24	12	64
Lower Potomac	141	52	21	27
Lower Shenandoah	15	53	13	33
Monocacy, Catoctin	230	31	18	51
North Branch Potomac, Savage	169	47	19	34
North Fork Shenandoah	27	33	15	52
Ocoquan, Accotink	80	14	21	65
Opequon, Back	81	44	19	37
Seneca, Anacostia	315	40	32	29
South Branch Potomac	221	47	27	26
South Fork Shenandoah	47	23	6	70
Wills, Everts, Town Creeks	182	54	18	28

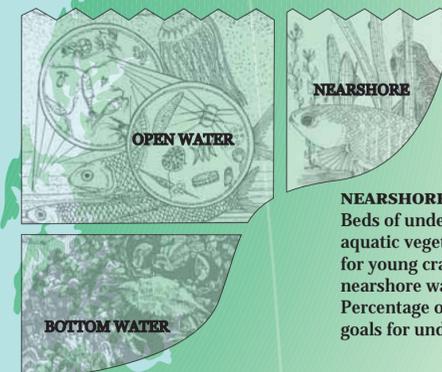


Potomac Estuary (Tidal River)

The open water, nearshore (shallow), and bottom water environments in each of the three tidal Potomac River segments are represented in the diagrams. Water samples were collected by Maryland Department of Natural Resources. Data on underwater grasses were collected by Virginia Institute for Marine Science.

OPEN WATER

Algal blooms in open water environments deplete summer oxygen levels when they die and decompose. The risk of algal blooms is low when water clarity is adequate for algae photosynthesis and the levels of two critical nutrients, nitrogen and phosphorus, are moderate. The risk of algal blooms is high in nutrient-enriched, light-impooverished waters. Yardstick: Percentage of surface samples having good water quality and a low risk of forming algal blooms, January - September, 2004.



NEARSHORE

NEARSHORE

Beds of underwater grasses, also known as submerged aquatic vegetation (SAV), provide refuge and plentiful food for young crabs and fish. SAV presence is closely linked to nearshore water quality, especially water clarity. Yardstick: Percentage of Chesapeake Bay Program (CBP) restoration goals for underwater grasses achieved in summer 2004.

BOTTOM WATER

Decomposing organic matter leads to low bottom dissolved oxygen levels, especially in summer. Criteria developed by the CBP identified DO levels that do not harm living resources. Yardstick: Percentage of bottom water samples that met the CBP proposed dissolved oxygen criteria for healthy bottom communities, June - September 2004.

BASIN BASICS

- The drainage area includes approximately 14,670 square miles in the District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia.
- The mainstem length is approximately 383 miles from the Fairfax Stone (W.Va.) to Point Lookout (Md.); Tidal reach: approximately 117 miles.
- Population: Approximately 5.3 million (2000 data); about 75 percent live in the Washington metropolitan area.
- Flow: Highest flow at Washington, D.C., in March 1936, was about 275 billion gallons per day. Lowest flow was in September 1966, about 388 million gallons per day. Average flow is about 7 billion gallons per day.
- Water Supply: An average of about 475 million gallons is used daily for Washington metropolitan area public water supplies. Of that total, about 377 million gallons are taken directly from the Potomac, with the remainder taken from reservoirs on the Occoquan (Va.) and Patuxent (Md.) rivers. Approximately 181 million gallons per day of groundwater is used in rural areas.

The ICPRB is an interstate compact commission established by Congress in 1949. Represented by appointed commissioners, the ICPRB includes the states of Maryland, Pennsylvania, Virginia, and West Virginia, the District of Columbia, and the federal government.

This publication has been prepared by the staff of the Interstate Commission on the Potomac River Basin. Funds for this publication were provided by the members of the Interstate Commission on the Potomac River Basin.

Published May 2005 ICPRB Pub. # 05-03

ICPRB • 51 Monroe Street • Suite PE-8
 Rockville, Md. • 20850 • 301.984.1908
 Email: info@icprb.org
www.potomacriver.org

