Community Clean Water Institute

6741 Sebastopol Ave. Ste. 140 Sebastopol, CA 95472 707 824-4370 www.ccwi.org

Press Release

For immediate release
June 13, 2005

Contact: Mike Sandler, CCWI
(707) 824-4370

Humboldt Bay First Flush Report Analyzes Eureka and Arcata Stormwater Runoff

Community Clean Water Institute (CCWI), a non-profit organization which conducts water quality monitoring, has concluded a study on water quality in Humboldt Bay. The 2004 Humboldt Bay First Flush Report describes the results from testing stormwater runoff at 10 sites around Humboldt Bay on a rainy day on October 17, 2004.

"First Flush" refers to the first significant rain event ("First Flush") of the season. During First Flush, contaminants which accumulate over the dry summer are washed down the storm drains and carried into waterways. First Flush provides a potential "worst case" scenario for waterways near urban areas due to urban stormwater runoff which may contain metals, oil and grease, nutrients and bacteria.

"Pollutants run off our roads and into Humboldt Bay when it rains. This type of study helps us understand the water quality of the Bay, and how our activities impact the Bay. Then we can encourage policy makers to protect the Bay," said Program Coordinator Mike Sandler.

10 sites were monitored on Humboldt Bay, ranging from the south part of Eureka (near the Municipal Golf Course) to the northern part of Humboldt Bay (Jolly Giant Creek in Arcata). Approximately 15 volunteers collected samples which were analyzed by CCWI and North Coast Laboratories. Samples were analyzed for the following parameters: conductivity, pH, stage height, water temperature, turbidity, Nitrogen/Nitrate, Phosphorous/Phosphate, total coliform, E. coli, metals (cadmium, chromium, lead, nickel, and zinc), oil and grease, and total suspended solids.

CCWI trained about 20 volunteers from Eureka and Arcata to become citizen water quality monitors for the First Flush. Two interns from Humboldt State University assisted with the writing of the report. Several citizen's groups, governments, and agencies participated.

The First Flush storm event took place on Sunday, October 17, 2004. In Eureka, the stream sites were Cooper Gulch and 14th Street, and Martin Slough, upstream of the golf course. The Eureka stormdrain sites were Waterfront Drive at the intersections of P St., L St., C St., Commercial Blvd., Truesdale and Christie, and McCullens Ave. There were two stream sites in the City of Arcata, Jolly Giant Creek at Samoa Crossing, and Grotzman Creek near Bayside Road and Crescent Street.

Results Summary:
Sites with the highest number of highest readings were Grotzman Creek in Arcata, and the storm drain at McCullens Ave. in Eureka.

Grotzman Creek in Arcata had the highest readings of the sites monitored for: Nitrogen/Nitrate, turbidity, chromium, and nickel.

The storm drain at McCullens Ave. in Eureka had the highest readings for: Total Suspended Solids, Phosphorous/Phosphate, oil and grease, and total coliform. McCullens had a reading for Total Coliform of **209,880** MPN/100mL. The California Department of Health Services (DHS) draft guideline for Total Coliform is 10,000 MPN per 100 ml. So McCullens was 20 times higher than the State guideline.

Also in Eureka, the storm drain at Truesdale and Christie Street in Eureka had the highest reading for Zinc.

In Arcata, Jolly Giant Creek in Arcata had the highest readings for Lead at 84 parts per billion.

Total Coliform and E. coli were the parameters with the highest number of exceedences of standards. CCWI used a 1:100 dilution to test for coliform, meaning that 1 milliliter of sample water was placed in a 100mL container before the test was run. Some tests were performed at a 1:400 dilution (which uses 1/4 milliliter of sample water and 99.75 milliliters of distilled water).

Jolly Giant had readings of E .coli measured at 65,860 MPN/100mL.

The California Department of Health Services (DHS) draft guideline for E. coli is 235 per 100 ml.

Coliform is a heading that describes a type of bacteria, which includes E. coli . It is found within the intestines of warm blooded animals, though most water contamination comes from cattle and people. Sources of bacteria include the natural environment (soils and decaying vegetation), stormwater, urban runoff, animal wastes (both wildlife and domestic animals), and human sewage. Analysis for total coliform and E. coli bacteria is widely used as an indicator test.

There are, of course, limitations to the conclusions that can be drawn from this single study. Additional ongoing studies will provide the data needed for a more thorough analysis of water quality and stormwater characterization in Humboldt Bay.

“CCWI recommends a community-wide effort to continue First Flush studies on an annual basis. We also encourage local and regional jurisdictions and agencies to collaborate in funding on-going citizen monitoring which will serve to educate the public and collect valuable water quality data,” said Program Coordinator Mike Sandler.

3 factors: climate, population growth, and land use
The information provided by the First Flush study combined with future studies may help to model and predict how other factors such as climate, population growth, and land use in Humboldt County will effect both the quantity and quality of the stormwater discharge entering Humboldt Bay.

Climate variability may greatly influence the characteristics of any future stormwater flushes. Depending on seasonal shifts, annual precipitation, and duration of precipitation, stormwater runoff events may exhibit changes in quantity, quality, duration, and timing. Shifts in the area's climate over time, including those predicted by global climate change such as increased probability of severe drought years, may also affect stormwater runoff events over time.

Population growth and land use practices may influence the results of future flushes. Increases in population around the Bay may increase the quantity of stormwater runoff if the growth takes place on the outskirts of the Cities and results in increased impervious surface (pavement which does not allow rainfall to seep into the ground). However, if population growth occurs in downtown Eureka's redevelopment area, or areas which do not result in additional impervious surface (growing the town vertically, not horizontally), or if best management practices such as stormwater catchment with bioswales and pervious pavement are implemented, stormwater runoff may be less affected. The Cities of Eureka and Arcata can exercise discretion over land use policy, and can encourage practices which minimize the environmental impact of stormwater runoff.

One example of a best practice is the City of Arcata's GIS-based Stormwater Drainage Master Plan. The Plan is an example of how a city in Humboldt Bay can set policies to discourage the creation of impervious surface. The City implemented a utility fee which is calculated based upon actual square footage of impervious surface for each parcel. Billing based upon impervious surface area provides a means to more equitably distribute the costs according to how runoff is generated, and it further encourages minimal paving. Taxing the source of pollution to pay for its cleanup is known as "polluter pays." There are many well-known Best Management Practices which can mitigate the impacts of stormwater runoff, available from the EPA, State Water Resources Control Board, and from numerous agencies, conservation districts, and non-profits which work on water quality.

"For non-point source pollution, unfortunately, the polluter is all of us. Each of us can do something about stormwater runoff," said Sandler. "This study is meant to encourage citizens to become involved in the protection of Humboldt Bay. Every resident can become an active steward of this valuable resource which supports our economy, community, and environment, and we can make a healthier Humboldt Bay."

CCWI encourages continued community collaboration to support citizen monitoring which will serve to educate the public and collect valuable water quality data.

Humboldt Bay First Flush Report is available at http://www.ccwi.org/issues/firstflush.htm or by contacting CCWI at (707) 824-4370.