EWEB DWSP Data Resources Description

There are four broad categories of data that will comprise EWEB's dinking water source protection database. They include:

- Storm-event data (this is a well defined set of monitoring data collected 5 times a year and associated with defined storm events).
- Base-line water and environmental condition data (this is a less defined set of water quality monitoring data collected by various sources on a monthly, or sometimes other interval).
- Biological and physical assessment data (this is data typically collected through field surveys).
- Pollution source and basin inventory data (This is a collection of ancillary data, less well-defined and more varied in structure. It includes non-point pollution sources, point source pollution data, industrial facilities, mailing lists, and perhaps spill response data, though it might be a separate, fifth classification).

A graphical representation of these broad data categories is included at the end of this section.

Storm-event data:

Five times a year, at times associated with defined storm events, water samples sets will be taken at eight storm sewer sites, fourteen sites associated with creek basins (five on Camp Creek, six on Cedar Creek, and three on Keizer Slough), and two sites associated with highway drainage. There are also four sampling sites associated with the McKenzie River (Hendrick's Bridge, Downstream of confluence with Camp Creek, downstream of confluence with Cedar Creek, Hayden Bridge). Each of these sets contain two separate water samples, for all sites the first water sample is of the initial flush of pollutants, for storm sewer sites the second sample is a composite (average) of the entire storm event, for basin sites, the second sample is from the tail of the hydrograph.

For each event, these fifteen storm event sample sets will be analyzed in a laboratory for the a number of parameters that are described in the table below:

Storm Event	Metals	Petroleum Hydrocarbons	Semi-volatile Organics	Pesticides and Herbicides	Bacteria	Nutrients	Turbidity	Total Suspended Solids	Chemical Oxygen Demand	Dissolved Oxygen	Total Organic Carbon	Temperature	PH	Conductivity
October First Flush	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Major Early Winter Storm	X				X	X	X	X	X	X	X	X	X	X
Major Late Winter Storm	X				X	X	X	X	X	X	X	X	X	X
Spring Storm Event	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Summer Storm Event	X	X	X	X	X	X	X	X	X	X	X	X	X	X

For each of the parameters listed in the table above, more detailed descriptions will be provided, along with data samples, from EWEB. Incomplete summaries are provided in the table below:

Parameter class	**Measurement**
Total Metals	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn
Dissolved Metals	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn
Petroleum Hydrocarbons	
Semi-Volatile Organic Compounds	
Pesticides and Herbicides	Pesticides, Herbicides, Chlorinated Pesticides with PCBs. USGS might be collecting in conjunction with EWEB efforts.
Bacteria	Fecal Coliform, E Coli, Fecal Streptococcus, Enterococci,
Nutrients	Nitrate, Nitrite, Kjeldahl Nitrogen, Total Phosphorus
Chemical Oxygen Demand	
Total Suspended Solids	
Dissolved Oxygen	
Total Organic Carbon	
Temperature	
PH	
Conductivity	
Color	

In addition, the following data will be collected and used in conjunction with the analytical results of sampling on storm water:

Precipitation (from LRAPA)
Stream flow rate and stage (from USGS and EWEB gauging sites)

Base-line water and environmental condition data:

There are currently on-going monthly monitoring programs at several sites within the watershed. These data include:

- McKenzie Watershed Council – Springfield School District monthly water quality monitoring data collection
- State DEQ water quality data collected at seven locations, nine times per year.
- EWEB Hayden Bridge staff collect data at one location along Keizer Slough
- EWEB intake monitoring at HaydenBridge

The MWC – SSD data set includes monthly monitoring at ten locations along Cedar Creek for the following parameters:

Temperature
Dissolved oxygen
Conductivity
Coliform Bacteria
Turbidity
Stream flow

The following parameters were to be added last summer:

Phosphorus
Chromium
Cadmium
Copper
Lead
Nickel
Nitrates
Zinc

A similar program will be added for Camp Creek in the future.

On Keizer Slough, EWEB staff monitor at one location for:

Temperature
pH
Conductivity
Turbidity
Metals
Semi-volatile organics
Volatile organics
Fecal-coliform bacteria
Dissolved oxygen
Stream flow

Hayden Bridge intake montoring (EWEB)

pH

turbidity
total organic carbon

DEQ monitoring data include the following parameters:

Temperature
pH
conductivity
bacteria
nutrients
metals
Biological Oxygen Demand
TOC
Chlorophyll
Color
Total organic halogens
Total solids
Total suspended solids
Turbidity
Dissolved oxygen

There is also some historical water quality monitoring data from the USGS.

The list of parameters above is likely to be incomplete and should not be considered exhaustive.

Biological and physical assessment data:

In addition to water quality monitoring and storm sampling, various biological assessment activities will be conducted on Cedar Creek, Camp Creek, and Keizer Slough. There are two primary collection tools that will be used; stream bioassessment (qualitative) and macroinvertebrate monitoring (quantitative).

Bioassessment surveys: There are five bioassessment survey sites that have been selected, two each in the Cedar and Camp Creek basins and one along Keizer Slough. Depending on the type of stream reach being surveyed, there are two sets of assessment data being collected. Example data collections forms have been made available. Locations of bioassessment surveys should correspond to water quality monitoring and macroinvertebrate sampling locations. Surveys are performed twice a year. Locations of survey start and end points are gathered by GPS in the field. Each type of data collected would have numerous associated data items (to be determined by EWEB)

Type of Stream Reach	Data elements collected
High-gradient streams:	Stream substrate
	Embeddedness
	Velocity/Depth combination
	Sediment deposition
	Channel flow status
	Channel alterations
	Frequency of riffles
	Bank Stability
	Bank vegetation coverage
	Riparian zone width/characteristics
Low-Gradient Streams	Stream substrate
	Pool substrate
	Pool variability
	Sediment deposition
	Channel flow status
	Channel alterations
	Channel sinuosity
	Bank stability
	Bank vegetation coverage
	Riparian zone width/characteristics

Macroinvertebrate monitoring: Monitoring efforts have been on-going at locations in the Camp Creek and Cedar Creek basins. The McKenzie Watershed Council has been conducting these and their locations will be adjusted to correspond to bioassessment and water quality monitoring locations. The state DEQ also collects data on macroinvertebrates that may be included in the database. Specific data elements will be supplied by EWEB.

Sediment sampling: Sediment sampling will be conducted periodically in areas identified by storm event sampling as problem areas. Moe detail should be obtained from EWEB.

Pollution source and basin inventory data:

Source	Items
Spill response data:	Protected_Resource_Type (DW intake, spawning gravels, etc…)
	Protected_resource_location (lat/long)
	Protected_res_size (square feet)
	Protected_resource_contact_info (name, address, phone, pager, fax)
	Protected_resource_comments Booming_strategy_ID
	Booming_Strategy_status

	Location
	Length and type of boom
	Strategy implementation
	Equipment staging areas
	Site Access
	Resources_Protected (?)
	EquipmentType
	Availability/Costs
	ContactInfo (for equipment)
DEQ Industrial Permit Information	Printed example available from EWEB (source – DEQ FTP site)
GEMS study industrial permit data	Printed example – CD ROM available from EWEB
City of Springfield industrial permit information	??
Non-point Source Pollution data	NPS Type
[note – these data will come from a variety of sources and will likely be compiled "manually" by EWEB into the database.]	NPS Location
	Acres
	Pollution
	Category (Pesticide, Herbicide, Nutrient, Sediment, Etc…)
	Chemical application Type (Pesticide, Herbicide, Fertilizer)
	Chemical Application Schedule
	Application Quantity (#/acre, etc…)
	Owner
	Contact Info
	Tax Lot#
	Comments
	Basin_ID
	Catchment_ID
Point Source Pollution Data	Inventory of point sources in McKenzie River watershed has been completed, over 120 facilities were identified.
	Permit data
	Other point source tracking and evaluation data items

STORM EVENT MONITORING

EWEB collected Storm Event Data
- 5 times per year
- 28 sites

USGS Stream flow

Rainfall data (LRAPA)

BASE-LINE CONDITION DATA

USGS water quality data (historical data)

McKenzie watershed council – Spfld schools – monthly monitoring:
- Camp Creek – ten sites
- Cedar Creek – ten sites

EWEB Hayden Br monitoring data for Keizer Slough

DEQ monitoring program
- Seven locations
- Nine times per year

EWEB Hayden Br intake monitoring

Related by location

BIOLOGICAL AND PHYSICAL ASSESSMENT

Bio-assessment surveys (MWC, Spfld Schools)
- Camp Creek
- Cedar Creek
- Keizer Slough

DEQ macroinvertebrate data

Related by location

Macroinvertebrate monitoring
- Camp Creek
- Cedar Creek

Sediment quality sampling

POLLUTION SOURCE AND BASIN INVENTORY

Spill Response Data

DEQ Industrial Permit data

GEMS study industrial facility data

City of Springfield Industrial facility data

Non-Point source pollution data
Many sources

Point source pollution data