

# THE DESCHUTES RIVER BASIN - SEEING THINGS WHOLE

## A "WHALE" OF A VIEW

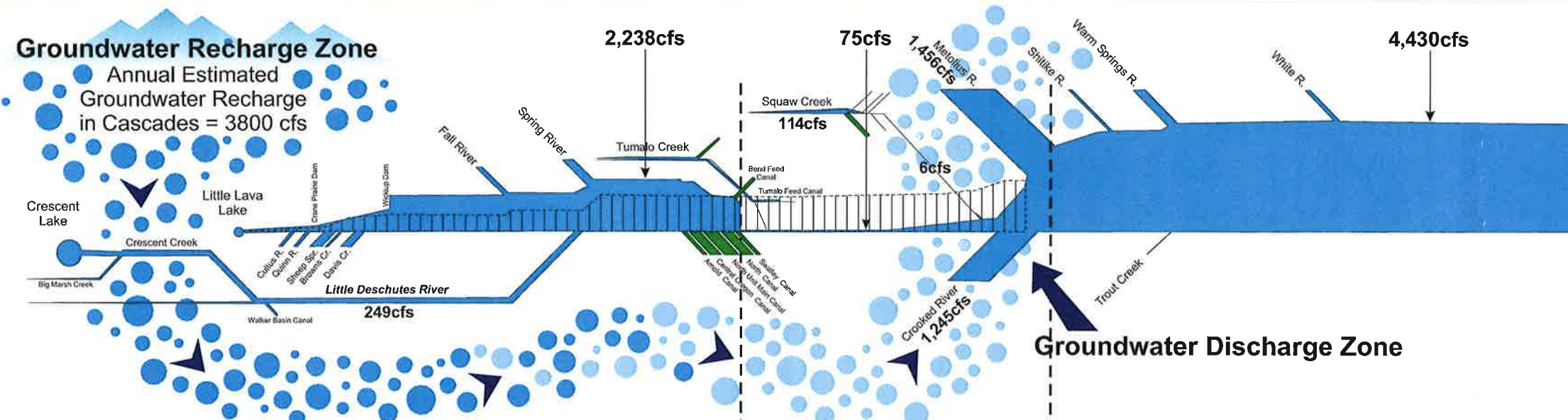
If you use your imagination, part of the map below looks a bit like a whale swimming off the page. So when Bob Main, former Central Oregon Watermaster created the map, it was aptly named "The Blue Whale". It is a graphic model of the various flows throughout the Deschutes Basin, with the width of the river corresponding to actual river flow in cubic feet per second (cfs) at the times noted.

## REACH BY REACH - IT'S THE GROUNDWATER

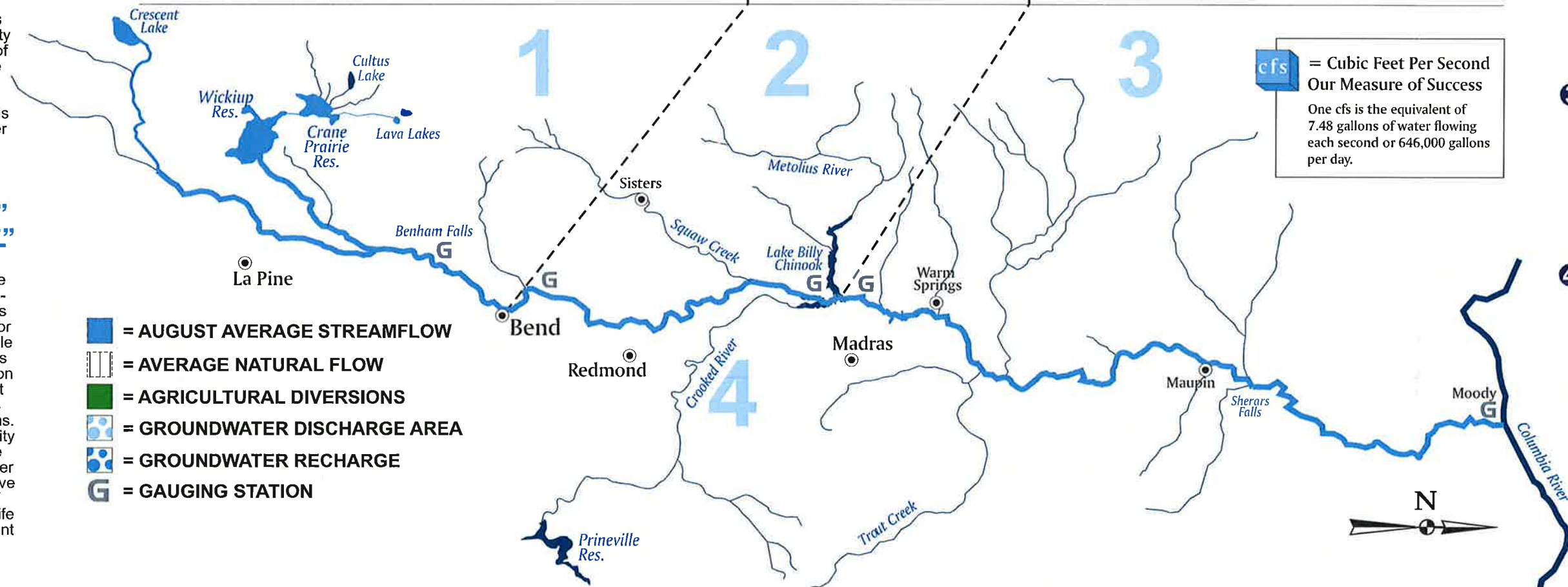
The Deschutes is talked about in three distinct parts, called reaches. The "Upper Deschutes" is considered from the headwaters to the north diversion dam in Bend. The "Middle" reach is from the north diversion to Lake Billy Chinook, and the "Lower" reach is from there to it's terminus at the Columbia. Each reach has its own story to tell and opportunity for enhancement. About half of the surface water flows in the lower reach come from groundwater discharge near Lake Billy Chinook. Most of this groundwater enters the aquifer in the high Cascades.

## A CHOICE OF FLOWS - "ALTERED" OR "MORE NATURAL"

As you can see, the summer flows are very altered from the natural flows (shown as cross-hatching). Historical diversions have created the opportunity for restoration of flows in the middle section of the river and various tributaries by doing conservation projects applied to the current system of open, leaky canals and antiquated delivery systems. This presents a great opportunity for conservation and possible reallocation of some of the water while still providing for productive agriculture and restoration of flows in our basin for fish, wildlife and scenic qualities so important to the Deschutes Basin.



Upper Deschutes	Middle Deschutes	Lower Deschutes
Average Winter Flow = 20 - 500 Cfs Average Summer Flow = 1800 - 2000 Cfs Average Natural Flow = 1404 Cfs At Benham Falls Gauge	Winter Flow = 450 - 1200 Cfs Summer Flow = 30 - 75 Cfs Natural Flow = 1350 Cfs	Winter Flow = 3750 - 4500 Cfs Summer Flow = 3750 - 4500 Cfs Natural Flow = 4533 Cfs At Madras Gauge 5800 Cfs 100 Year Average At Moody



- = AUGUST AVERAGE STREAMFLOW
- = AVERAGE NATURAL FLOW
- = AGRICULTURAL DIVERSIONS
- = GROUNDWATER DISCHARGE AREA
- = GROUNDWATER RECHARGE
- = GAUGING STATION

**cfs** = Cubic Feet Per Second  
Our Measure of Success  
One cfs is the equivalent of 7.48 gallons of water flowing each second or 646,000 gallons per day.

## THE CHALLENGES REACH BY REACH

### 1 UPPER DESCHUTES

- High summer flows
- Low winter flows
- Water Quality issues
- Potential Endangered Species Act issues

### 2 MIDDLE DESCHUTES

- Low summer flows
- Water Quality issues
- Fish passage issues
- Potential Endangered Species Act issues
- Dam re-licensing issues

### 3 LOWER DESCHUTES

- Scenic Waterway flows (protected in-stream flows)
- Potential Endangered Species Act issues
- Water Quality issues

### 4 CROOKED RIVER (AND OTHER MAJOR TRIBUTARIES THAT ENTER THE DESCHUTES)

- Low flows / winter and summer
- Water Quality issues
- ESA related issues
- Habitat change