Columbia River Temperature Assessment

Water Quality Standards

for

Temperature

Water Quality Standards

- Adopted by States and Tribes
- Approved/Disapproved by EPA
- EPA Promulgates upon Disapproval

WQS Components

- Beneficial Uses
- Water Quality Criteria to meet Uses
- Anti-Degradation Policy

Beneficial Uses

- Clean Water Act requires “fishable/swimable”
- States adopt specific uses
- Aquatic life uses are impacted by elevated temperatures – this calls for criteria

Water Quality Criteria

- Specify Numeric or Narrative Conditions Necessary to Support a Beneficial Use
- Examples
  - Not to exceed 10 mg/l”
  - “No toxics in toxic amounts
- Columbia River temperature criteria are blend of both (numeric and narrative)

River Reach	Idaho	Oregon	Washington	Colville
	Daily avg/ Maximum	7 day average of daily maximums	Maximum	Maximum
Snake: Salmon R. to OR border	19 C 22 C	12.8 C or Natural 17.8 C or Natural		
Snake: OR border to Clearwater R.	19 C 22C		20 C or Natural + 0.3 C	
Snake: Clearwater R. to mouth			20 C or Natural + 0.3 C	
Columbia: Canada border to G.Coulee			16 C or Natural + 0.3 C	16 C or Natural + 0.3 C
G.Coulee to Chief Joseph			18 C or Natural + 0.3 C	16 C or Natural + 0.3 C
Chief Joseph to Wells			18 C or Natural + 0.3 C	18 C or Natural + 0.3 C
Wells to Priest Rapids			18 C or Natural + 0.3 C	
Priest Rapids to OR border			20 C or Natural + 0.3 C	
OR border to mouth		20 C or Natural	20 C or Natural + 0.3 C	

Do the Columbia/Snake Rivers Meet WQS for Temperature?

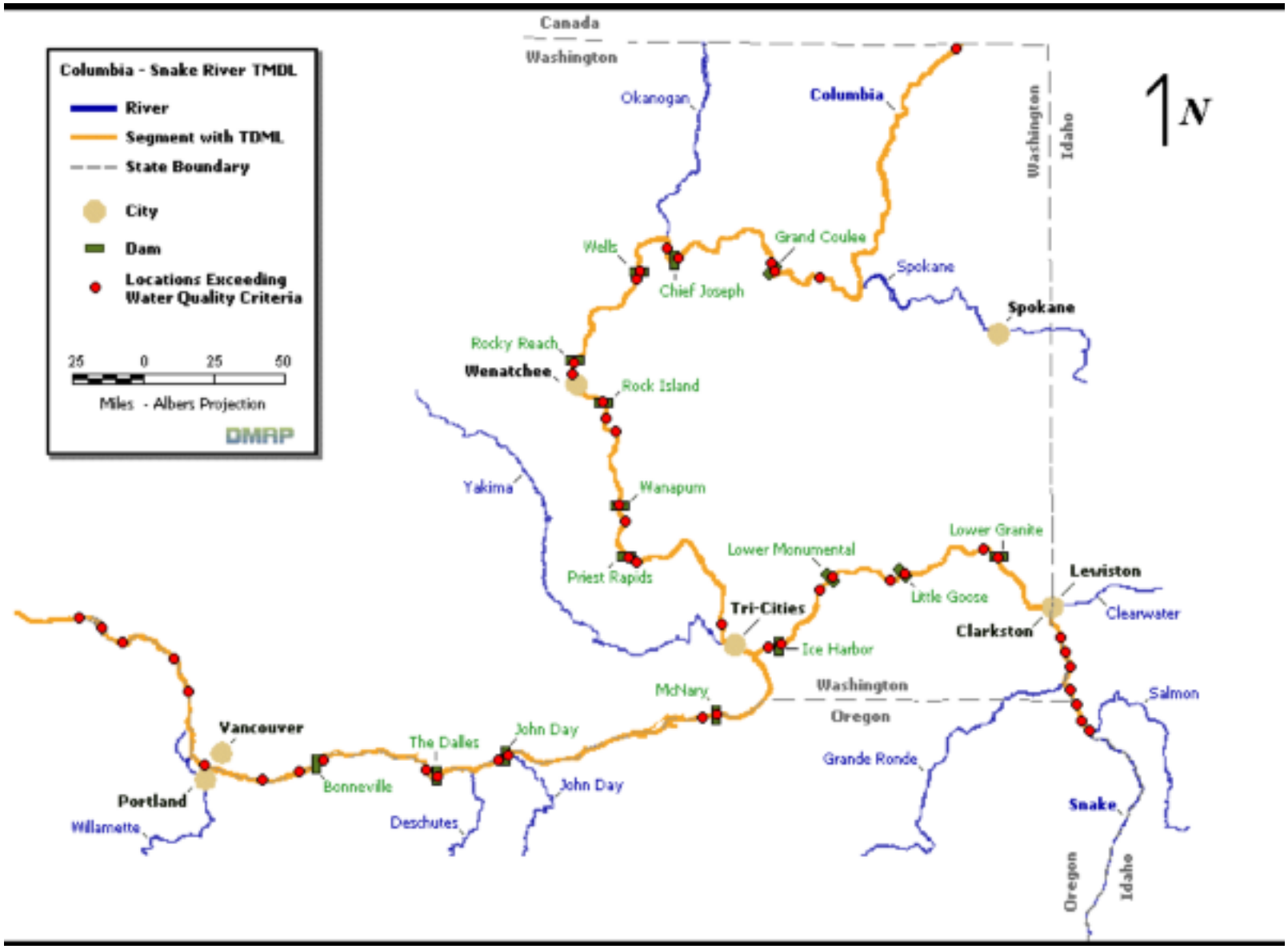
- First, Simple Problem
  - Compare measured temperatures to the numeric criteria
- Tougher Problem
  - Determine whether river temperatures are caused by human activity

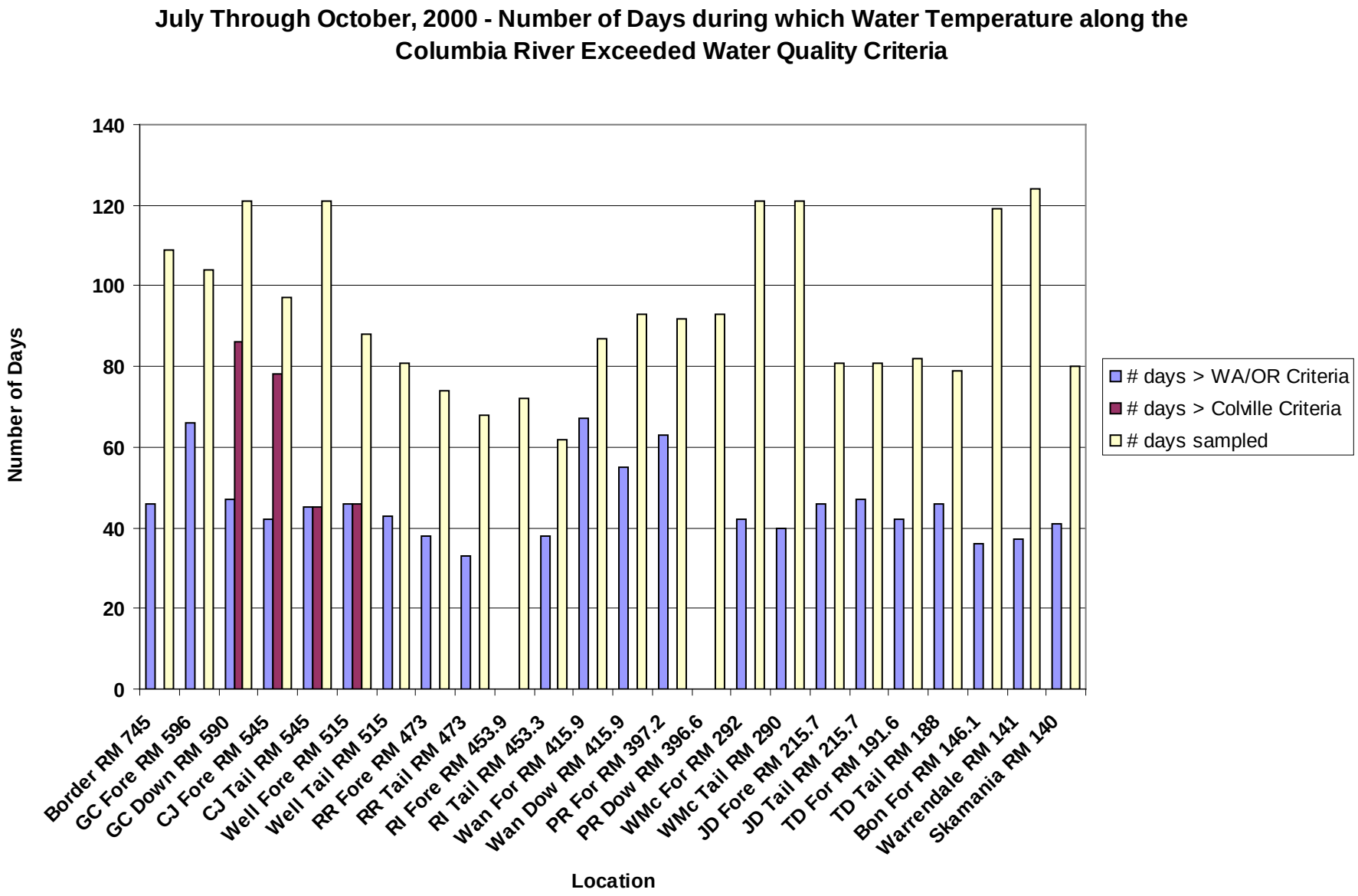
Available Temperature Data

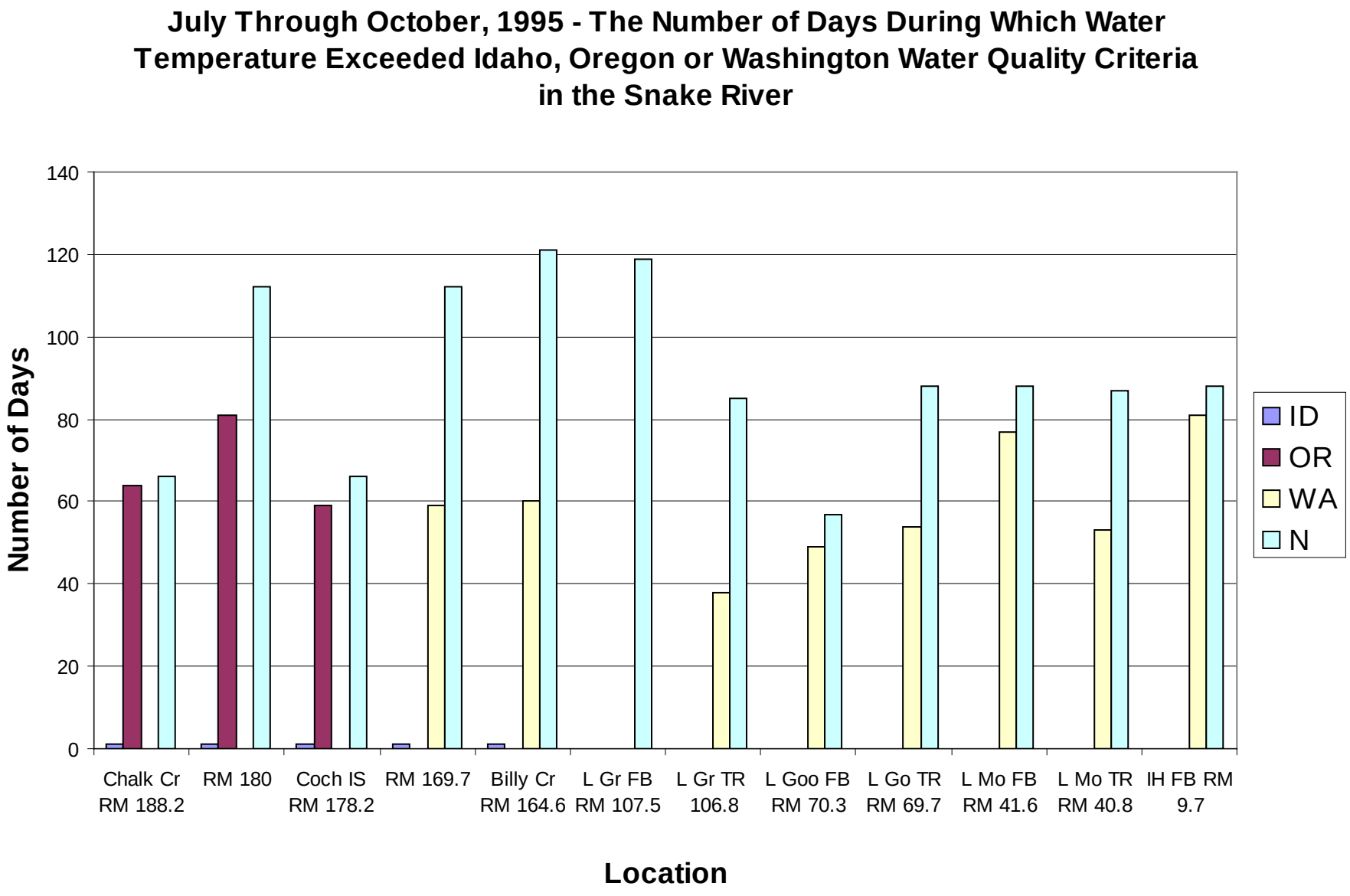
- Sources
  - Dams
  - USGS, States, Tribes, Special Studies

- McKenzie and Laenen (1998) assembled temperature data from 84 stations along the Columbia and Snake Rivers within the study area

Geographic Scope




July Through October, 2000 - Number of Days during which Water Temperature along the Columbia River Exceeded Water Quality Criteria
Number of Days
0
20
40
60
80
100
120
140
Location
Border RM 745
GC Fore RM 596
GC Down RM 590
CJ Fore RM 545
CJ Tail RM 545
Well Fore RM 515
Well Tail RM 515
RR Fore RM 473
RR Tail RM 473
RI Fore RM 453.9
RI Tail RM 453.3
Wan For RM 415.9
Wan Dow RM 415.9
PR For RM 397.2
PR Dow RM 396.6
WMc For RM 292
WMc Tail RM 290
JD Fore RM 215.7
JD Tail RM 215.7
TD For RM 191.6
TD Tail RM 188
Bon For RM 146.1
Warrendale RM 141
Skamania RM 140
days > WA/OR Criteria
days > Colville Criteria
days sampled


July Through October, 1995 - The Number of Days During Which Water Temperature Exceeded Idaho, Oregon or Washington Water Quality Criteria in the Snake River
Number of Days
140
120
100
80
60
40
20
0
Chalk Cr RM 188.2
RM 180
Coch IS RM 178.2
RM 169.7
Billy Cr RM 164.6
L Gr FB RM 107.5
L Gr TR 106.8
L Goo FB RM 70.3
L Go TR RM 69.7
L Mo FB RM 41.6
L Mo TR RM 40.8
IH FB RM 9.7
Location
ID
OR
WA
N

What Happens When Water Quality Criteria Are Exceeded?

- Clean Water Act requires:
  - State(s) must include the waterbody on 303(d) list
  - States/EPA must develop a TMDL

Columbia/Snake Rivers are on EPA-approved 303(d) Lists for Oregon, Washington, and Idaho

TMDL is under development – Problem Assessment Phase