Fisheries and Oceans Canada | Pêches et Océans Canada

Canada's Fish Habitat Law

Fish - Water Quantity Interactions

Okanagan Water Stewardship Council Meeting

Oct 12, 2006 - Kelowna, B.C.

Disclaimer

This presentation was developed at the specific request of the Okanagan Water Stewardship Council, including both subject matter and content. It is intended only to provide an introductory overview of legislative requirements of the Fisheries Act and associated potential liabilities. It is not intended, nor should it be considered to provide, a detailed analysis or legal opinion on these matters. Such analyses and opinions should be sought and obtained only from qualified independent legal counsel.

Outline

- The Fisheries Act
  - Legislative Requirements Pertaining to Water Use - Sec. 35, 32, 30, and 22
  - Limitations and legislative gaps (some comment)
- How much water does a River or a Fish Need?
  - Instream Flow Guidelines and Support Rationale

Some Federal and Provincial Legislation Relevant to Land Development Activities in or near Fish Habitat

Federal

- Canadian Environmental Assessment Act
- Canadian Environmental Protection Act
- Fisheries Act
- Migratory Birds Convention Act
- Navigable Waters Protection Act
- Species at Risk Act

Provincial

- Drinking Water Protection Act
- Fish Protection Act
- Health Act
- Land Title Act
- Local Government Act
- Pesticide Control Act
- Waste Management Act
- Water Act
- Wildlife Act

Fisheries Act

- Provides delivery framework for federal constitutional responsibilities over coastal and inland fisheries
- Provides for the management and protection of fish and the environmental systems that support fish for all Canadians
- Applies to all Canadian fisheries waters, including private land
- Dates back to Confederation
- Binding on Federal and Provincial Governments

Fisheries Act

- **Fish** includes:
  - parts of fish
  - shellfish, crustaceans, marine animals and any parts of same
  - eggs, sperm, spawn, larvae, and juvenile stages of shellfish, crustaceans and marine animals

Fisheries Act

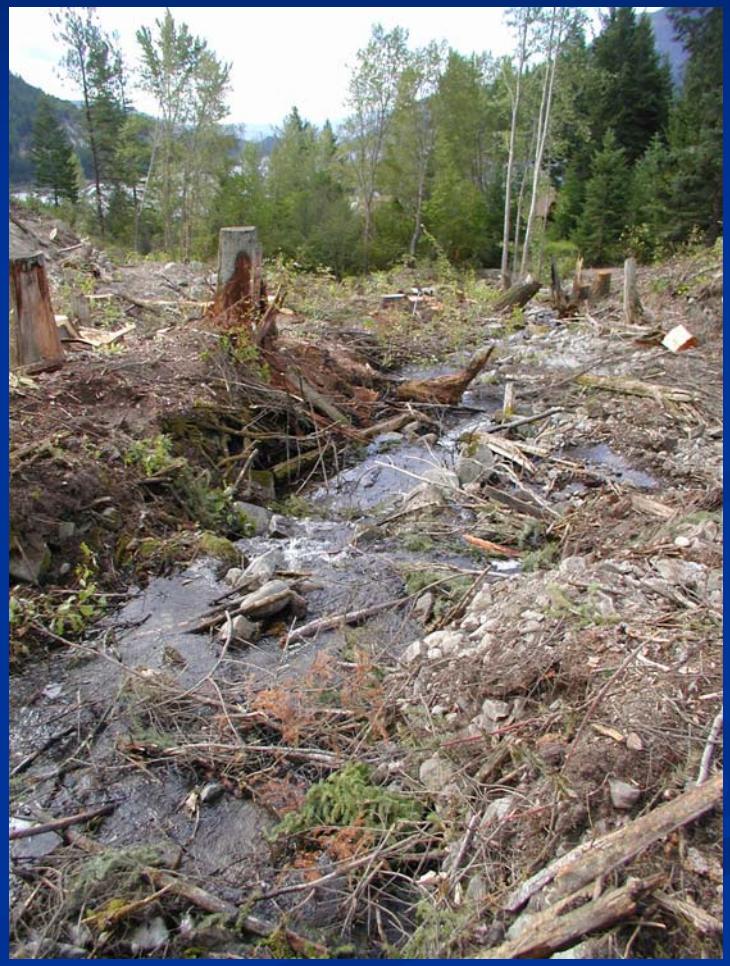
- **Fish Habitat** includes:

  spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly of indirectly in order to carry out their life processes
  - fish do not necessarily need to be present
  - fish habitat may be dry during part of the year
  - fish habitat includes water, water quality and non-aquatic areas (e.g. streamside vegetation)

Legislative Requirements of the Fisheries Act – wrt Water

Section

- **35(1):** prohibits works or undertakings that result in the harmful alteration, disruption or destruction (HADD) of fish habitat
- **35(2):** provides for the Minister to authorize the HADD of fish habitat



What is a HADD?

Harmful Alteration

any change in fish habitat that reduces its capacity to support one or more life processes of fish

Disruption

any change to fish habitat occurring for a limited period that reduces its capacity to support one or more life processes of fish

Destruction

any permanent change of fish habitat that renders it completely unsuitable for future production of fish

Section 35 (1):

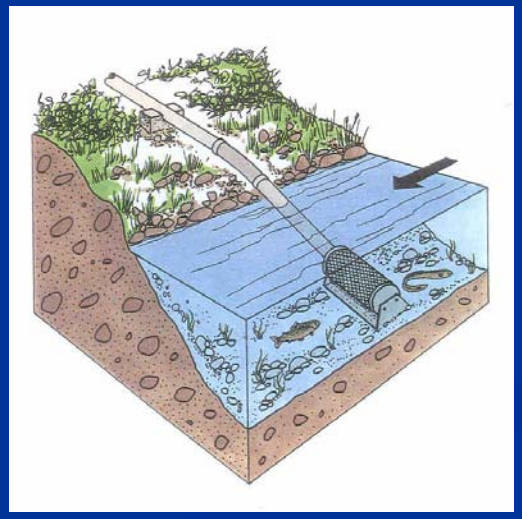
- No person shall carry out any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.

- Who is responsible for the harm?
  - physical removal of water
- Harm must be proven beyond reasonable doubt.
  - Evidence of harm to fish habitat

Legislative Requirements of the Fisheries Act

Section

- **30:** requires installation and maintenance of fish guards/screens on water intakes or diversions where the Minister deems it necessary



Section

- **32:** prohibits the destruction of fish by means other than fishing unless authorized by the Minister or Governor in Council

Legislative Requirements of the Fisheries Act

Section

- **22:** requires sufficient flow of water for the descent of fish past obstructions, for the free movement of migratory fish during construction and for the safety of fish and fish eggs downstream, where the Minister deems it necessary
- 22(3): Flow orders d/s of dams

How much water does a Fish or a Stream Need?

Aquatic Habitat

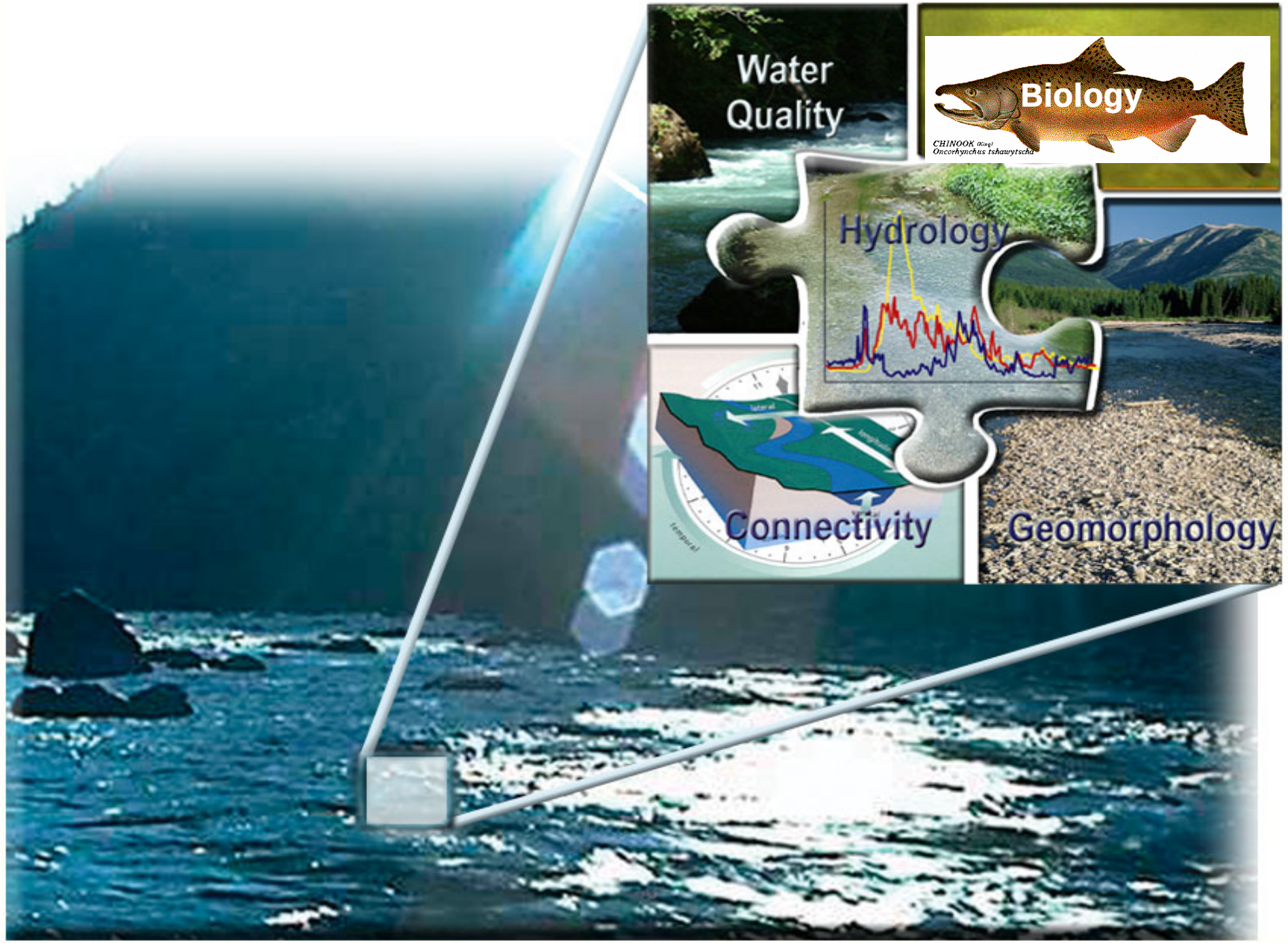
Instream Flow Requirements

B.C. Instream Flow Guidelines

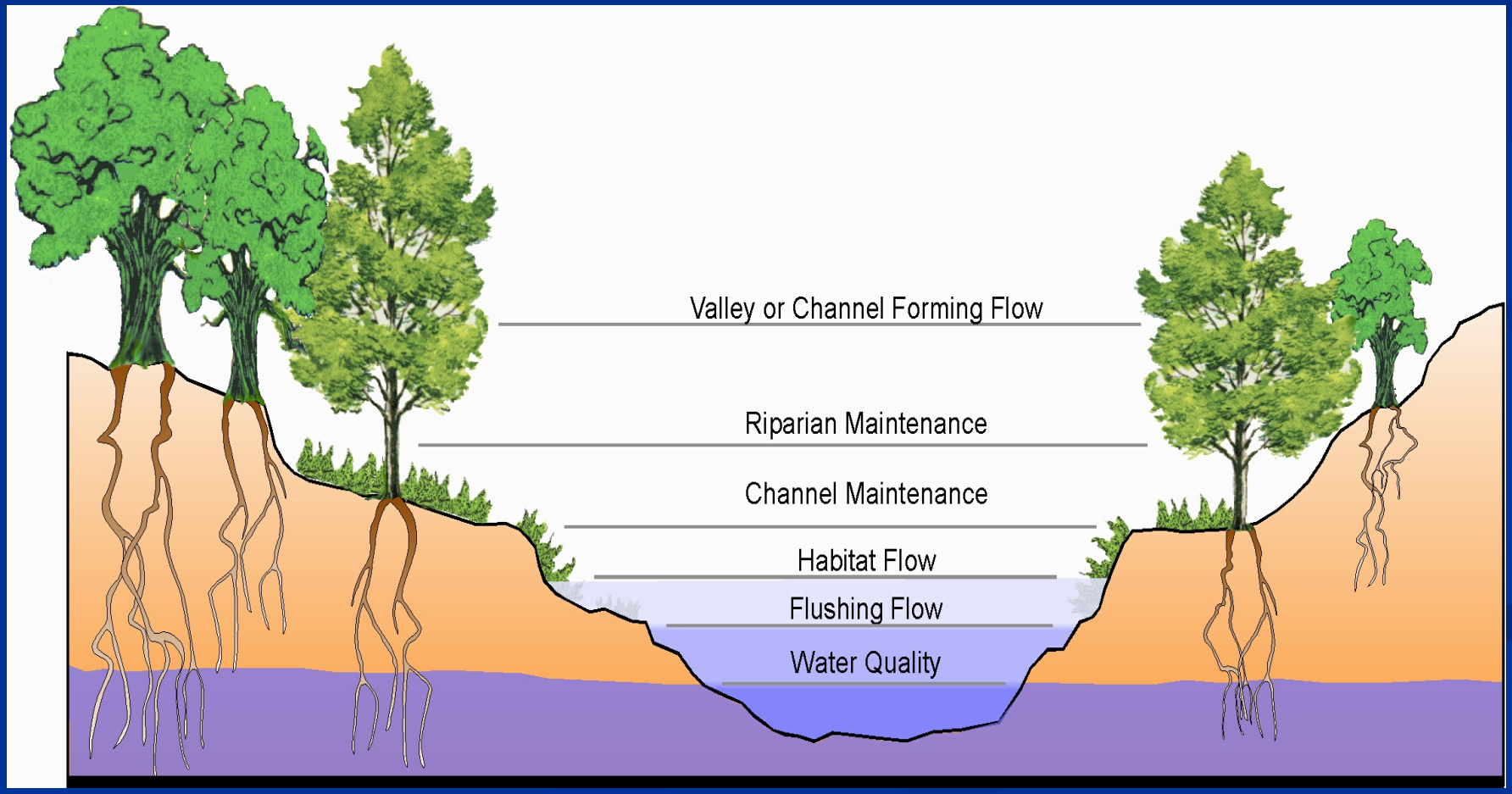
- http://www.env.gov.bc.ca/wld/BMP/instreamflow_wkgdrft.html
- Coarse filter method

Flow described as a ‘master variable’ that controls a suite of variables that in turn influence fish production (Poff et. al. 1994)

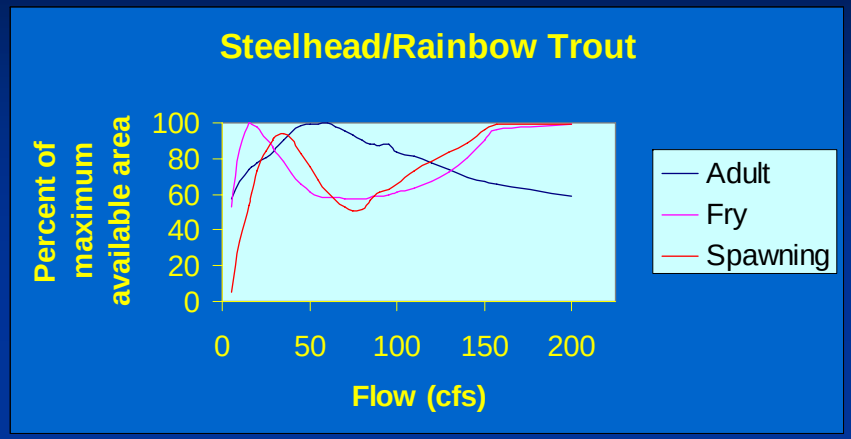
(see also Leroy Poff, B. Richter, et al 1997 – The Natural Flow Regime)


Water Quality
Biology
CHINOOK (King)
Oncorhynchus tshawytscha
Hydrology
Connectivity
Geomorphology

1. Hydrology


Valley or Channel Forming Flow
Riparian Maintenance
Channel Maintenance
Habitat Flow
Flushing Flow
Water Quality

2. Biology

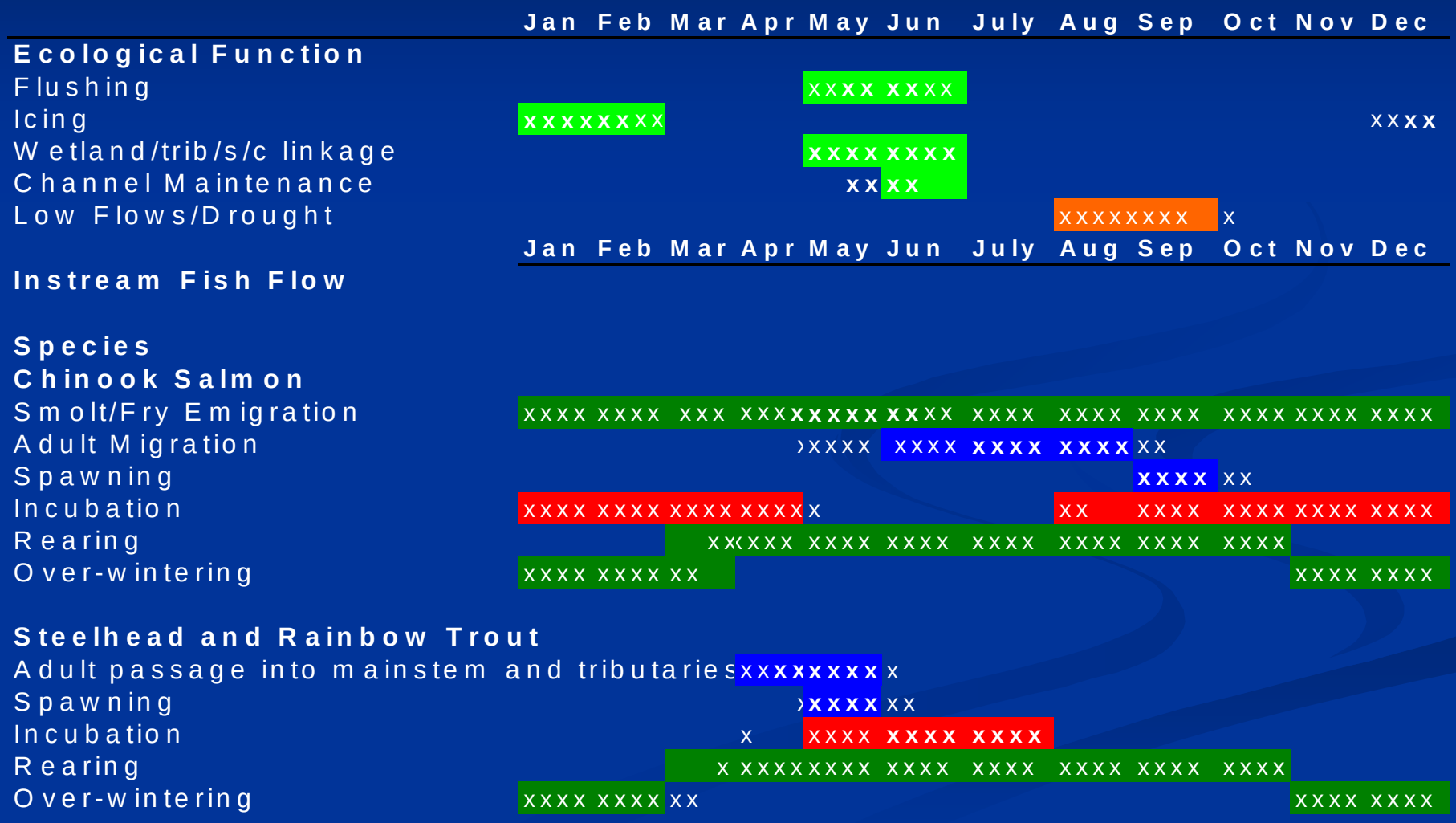


Juvenile Rainbow Trout

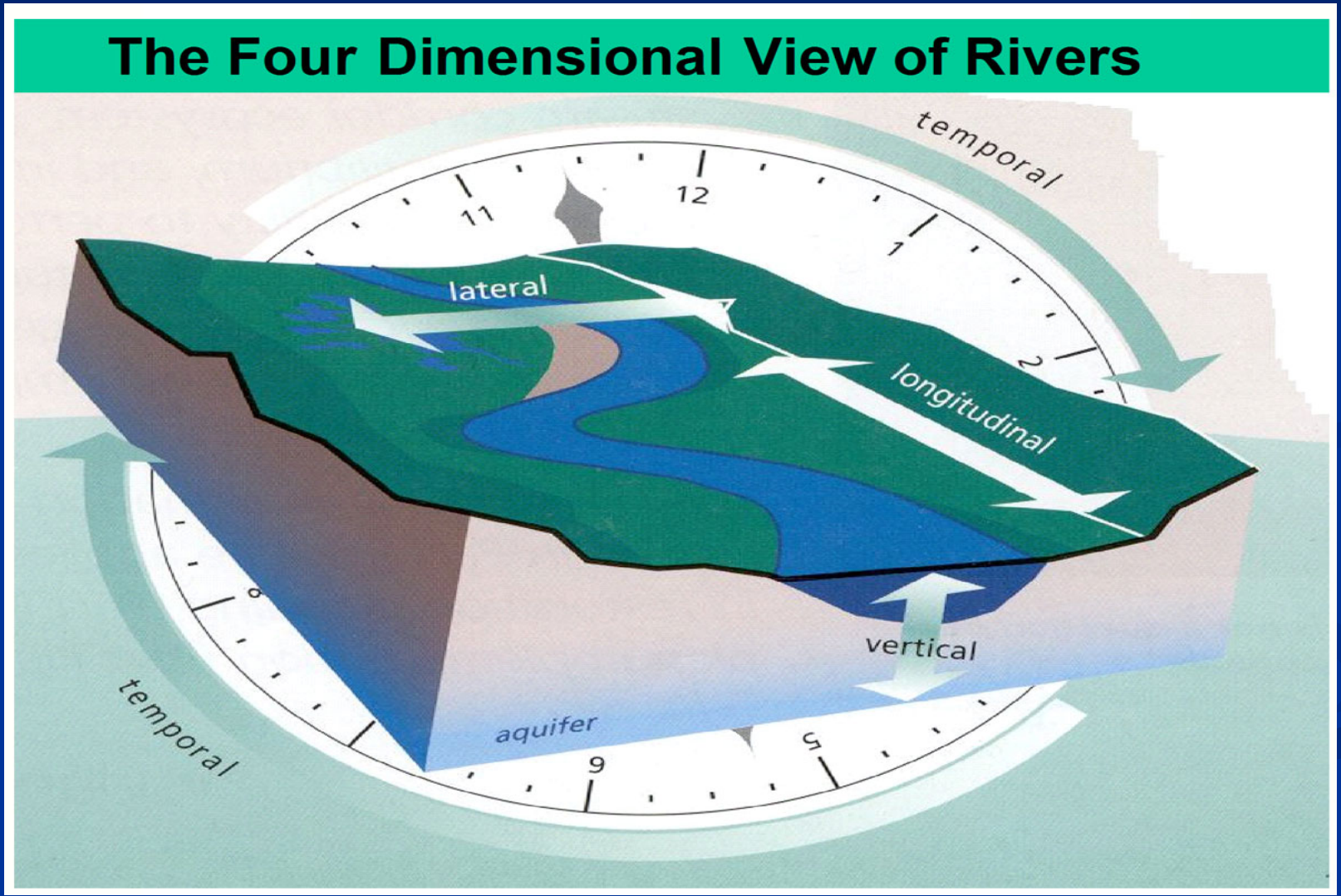
Riffle Habitat and LWD

Nicola R. Fish Life History

Fish periodicity chart for Nicola River

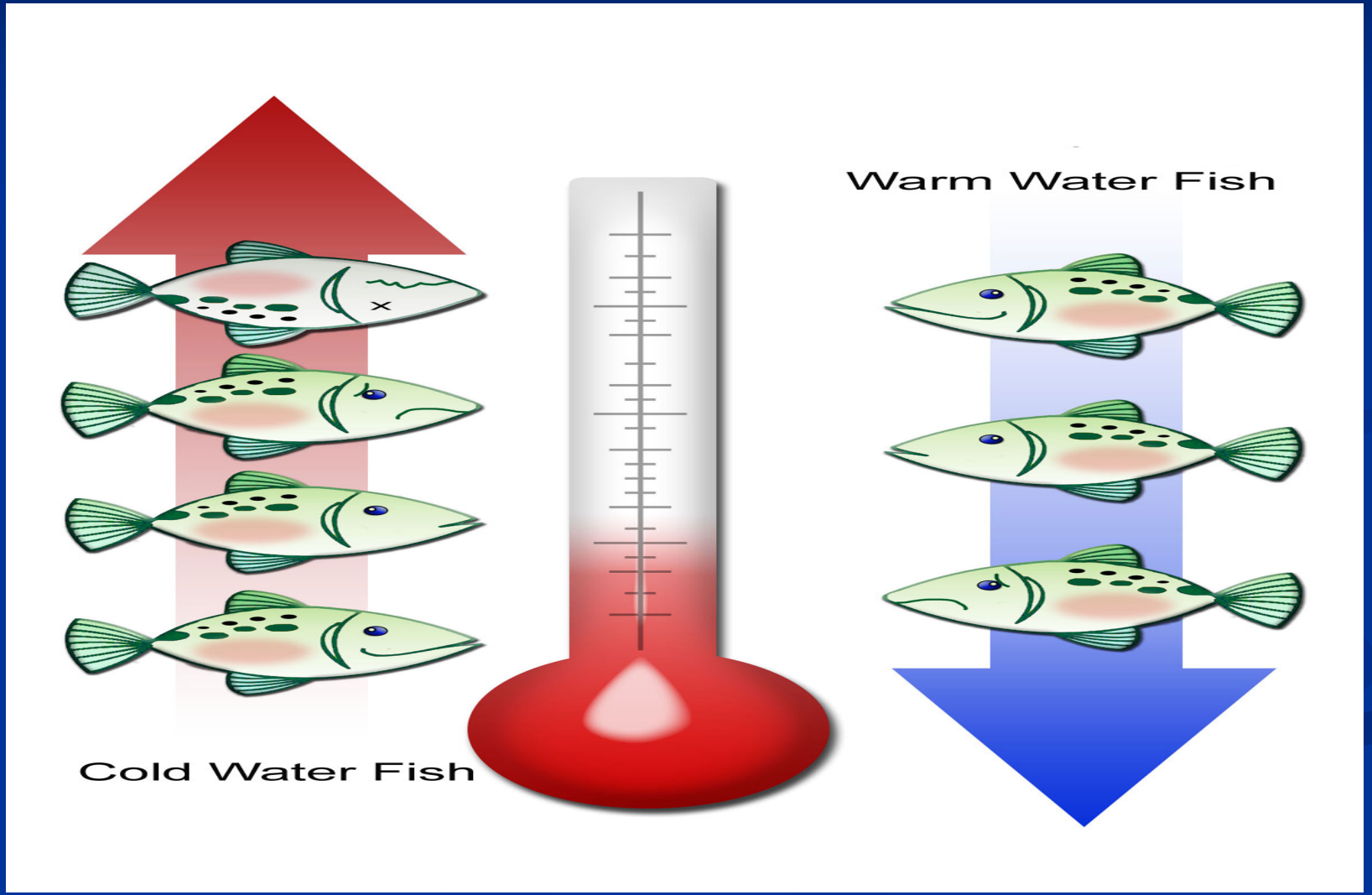


3. Connectivity



4. Geomorphology

5. Water Quality – Temperature



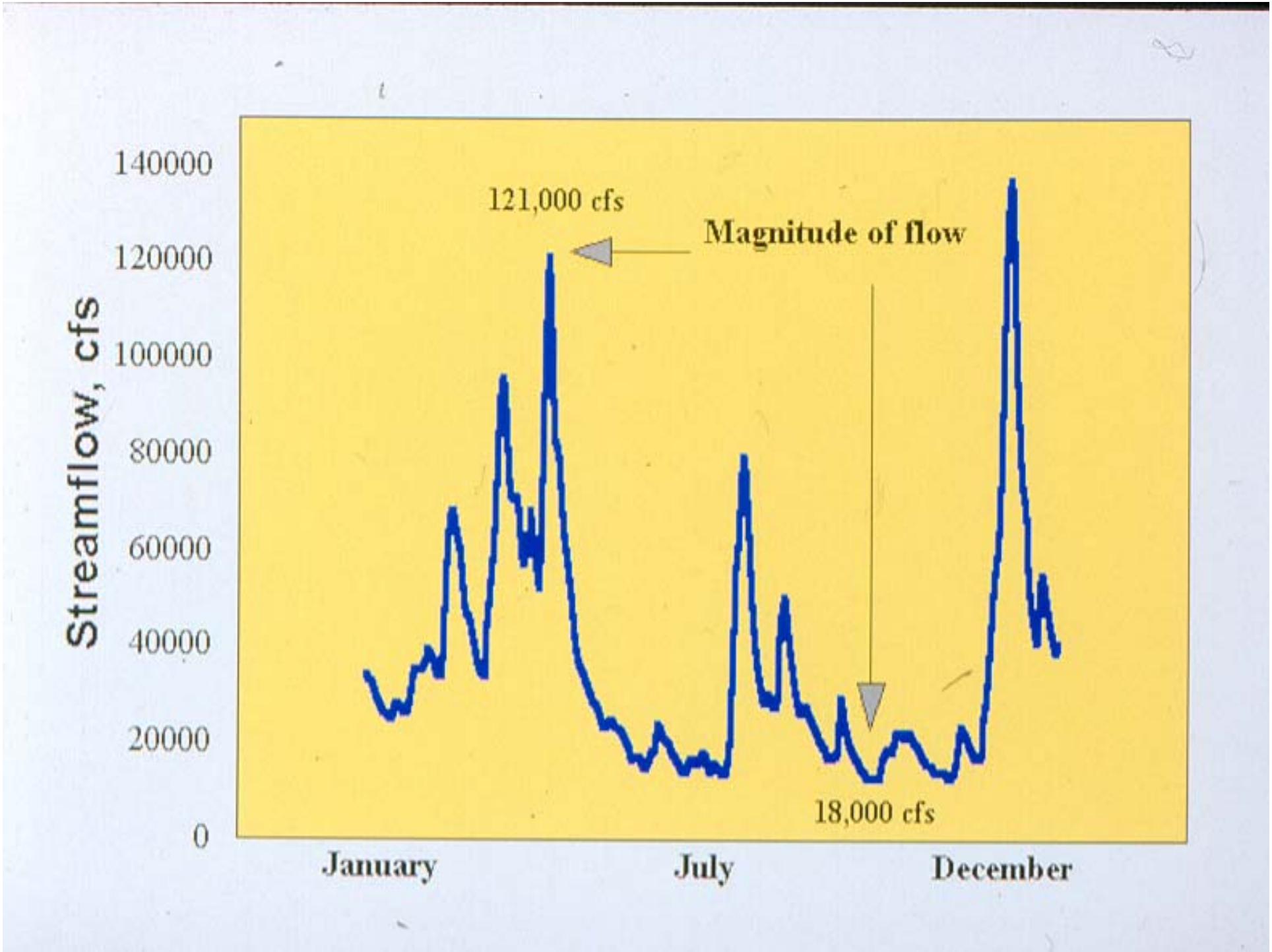
Range of Variability Approach (RVA)

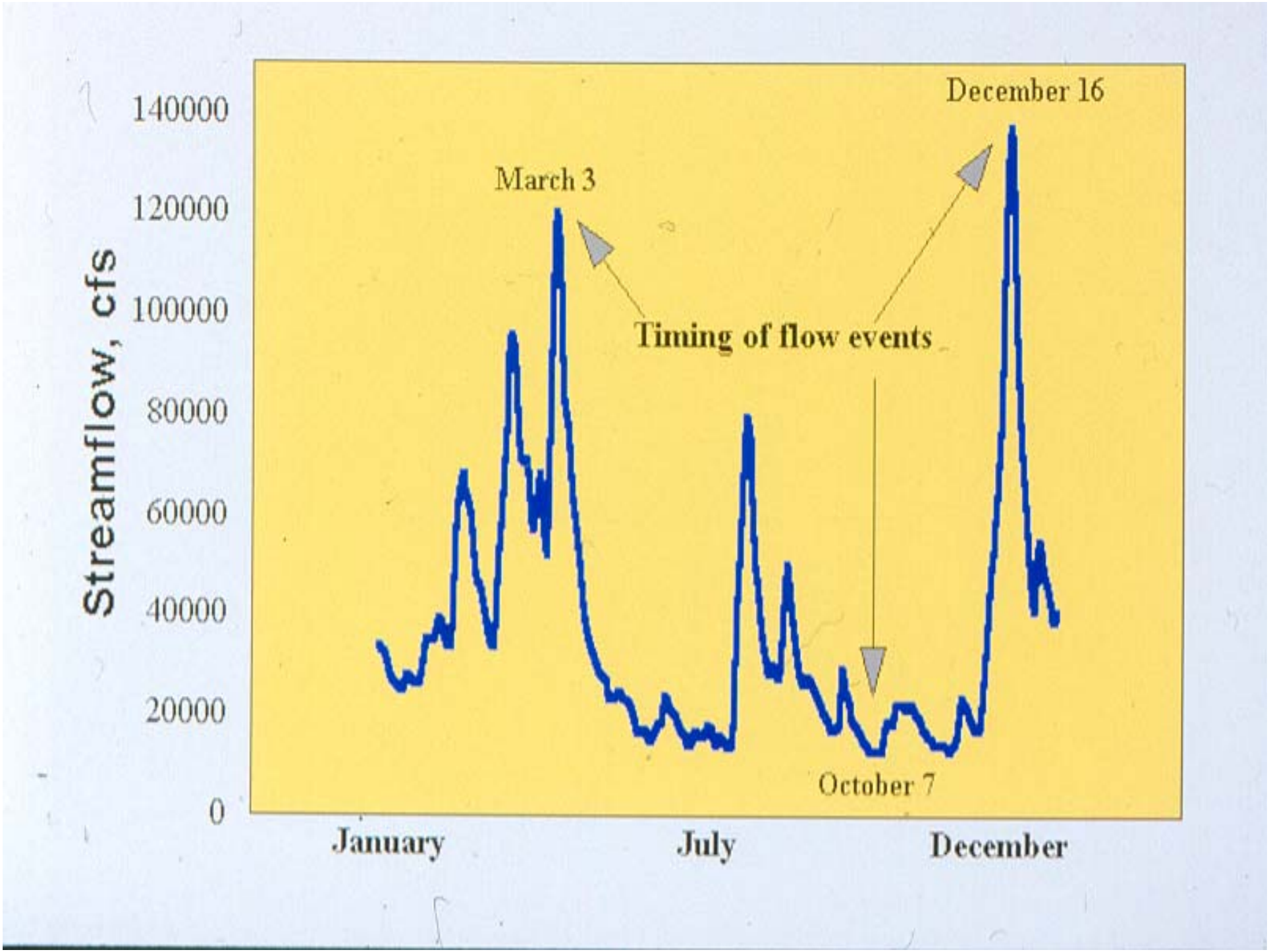
- Richter et al. 1997, "How Much Water Does a River Need?" (*Freshwater Biology*)
- "The full range of natural intra- and inter-annual variation of hydrologic regimes, along with associated characteristics of timing, frequency, duration, and rates of change, is necessary to sustain native biodiversity and evolutionary potential of freshwater ecosystems" (the "*natural flow paradigm*")

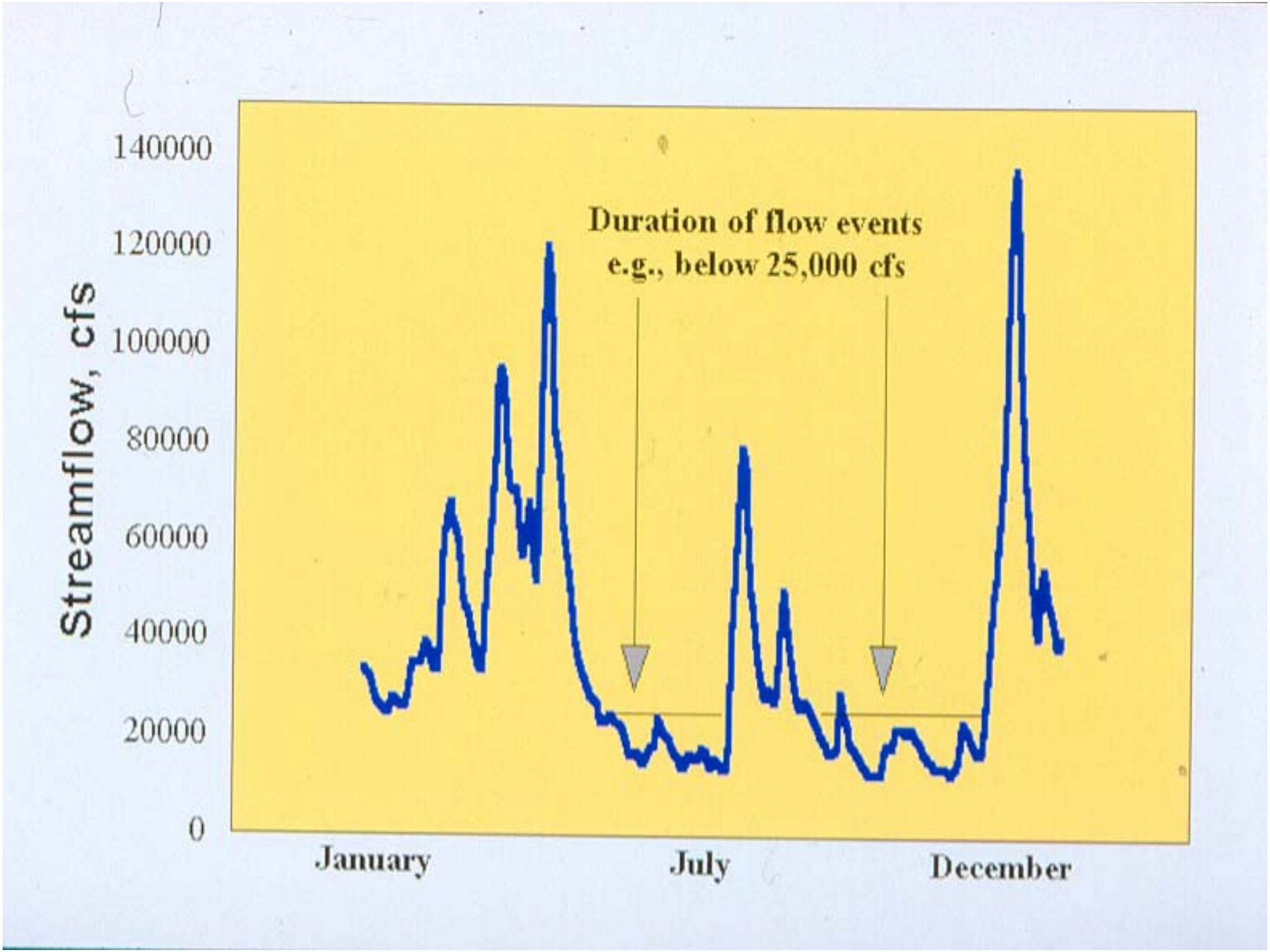
Ecologically-Relevant Flow Regime Characteristics

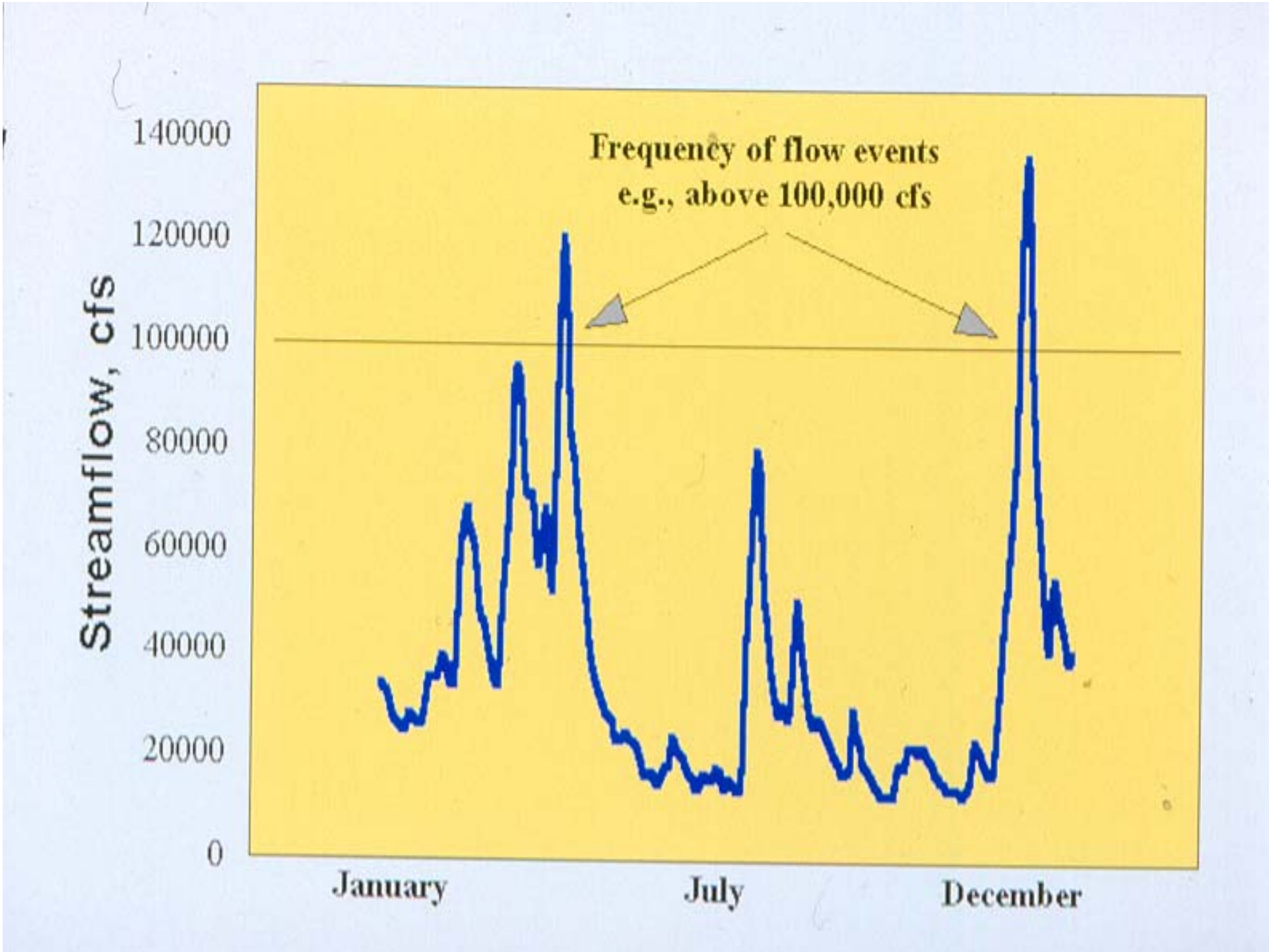
- Magnitude (how much flow or what level?)
- Duration (how long do certain flows or levels last?)
- Timing (when do certain flows or levels occur?)
- Frequency (how often do certain flows or levels occur?)
- Rate of change (how fast do flows or levels change from one condition to another?)

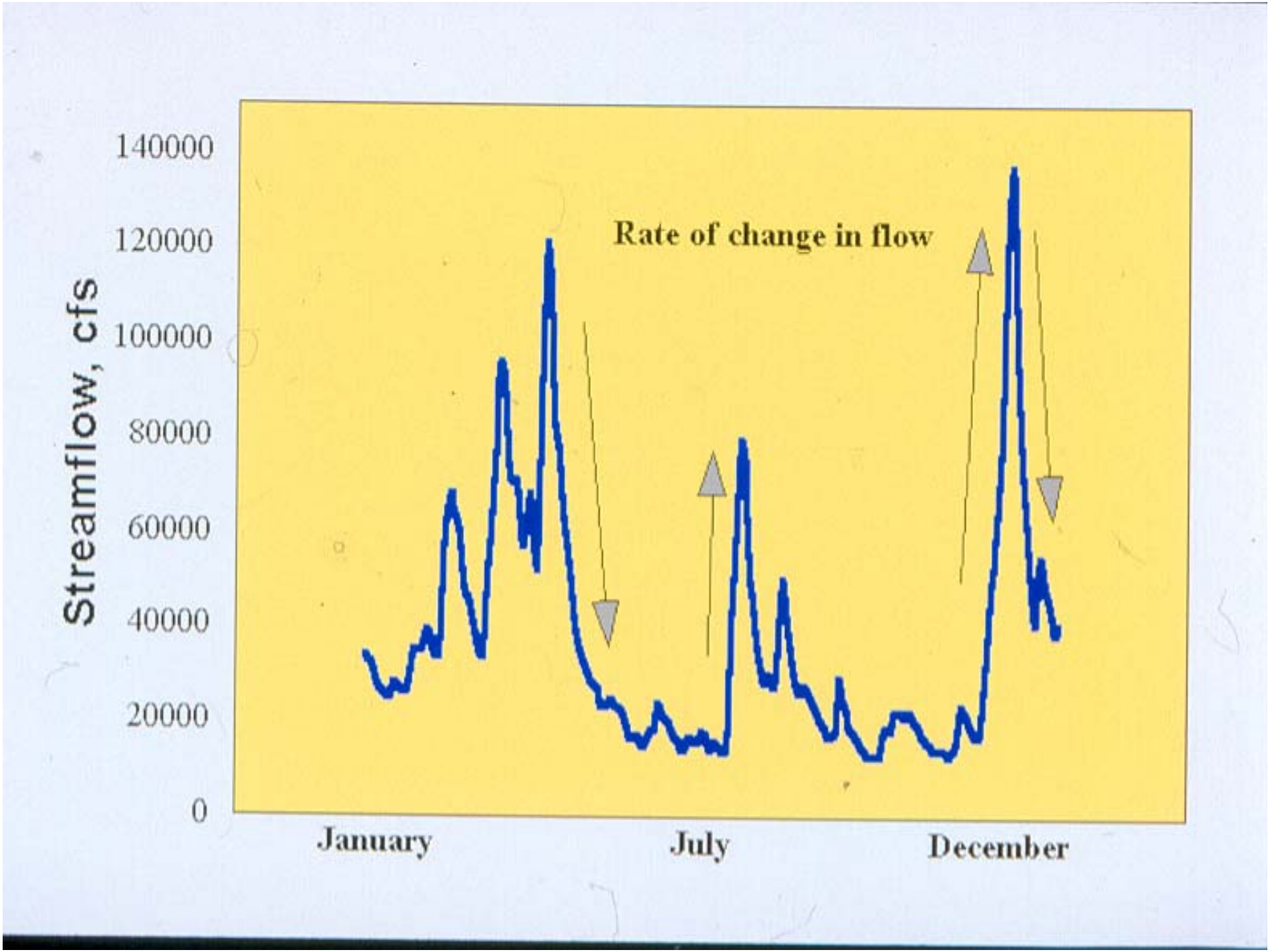
Richter et al. 1996, "A Method for Assessing Hydrologic Alteration Within Ecosystems." (*Conservation Biology*)


Streamflow, cfs
140000
120000
100000
80000
60000
40000
20000
0
121,000 cfs
Magnitude of flow
18,000 cfs
January
July
December


Streamflow, cfs
140000
120000
100000
80000
60000
40000
20000
0
December 16
March 3
Timing of flow events
October 7
January
July
December


Streamflow, cfs
140000
120000
100000
80000
60000
40000
20000
0
Duration of flow events
e.g., below 25,000 cfs
January
July
December


Frequency of flow events
e.g., above 100,000 cfs
Streamflow, cfs
140000
120000
100000
80000
60000
40000
20000
0
January
July
December


Streamflow, cfs
140000
120000
100000
80000
60000
40000
20000
0
Rate of change in flow
January
July
December

Environmental Flow Components

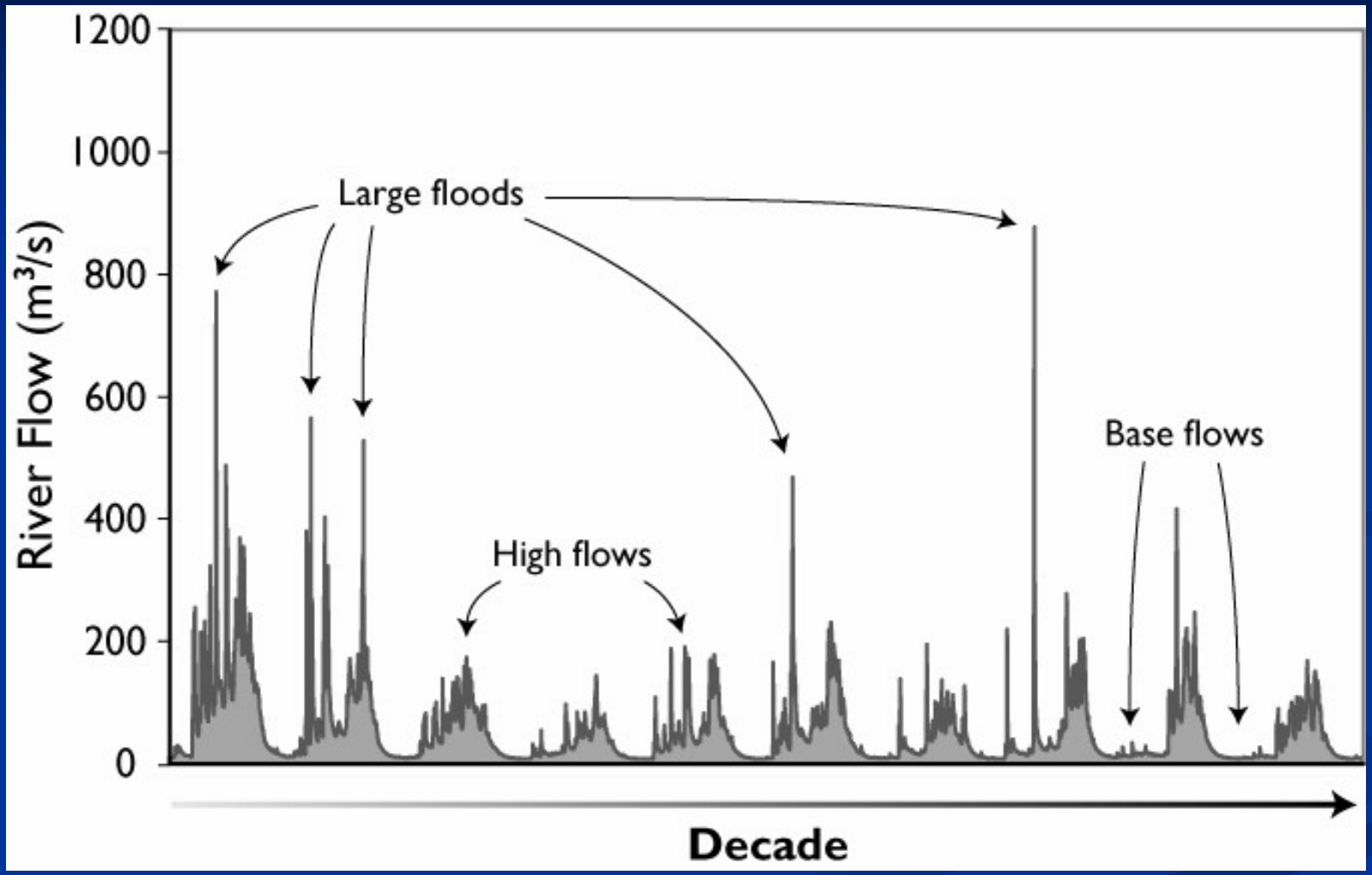
Environmental Flow Components

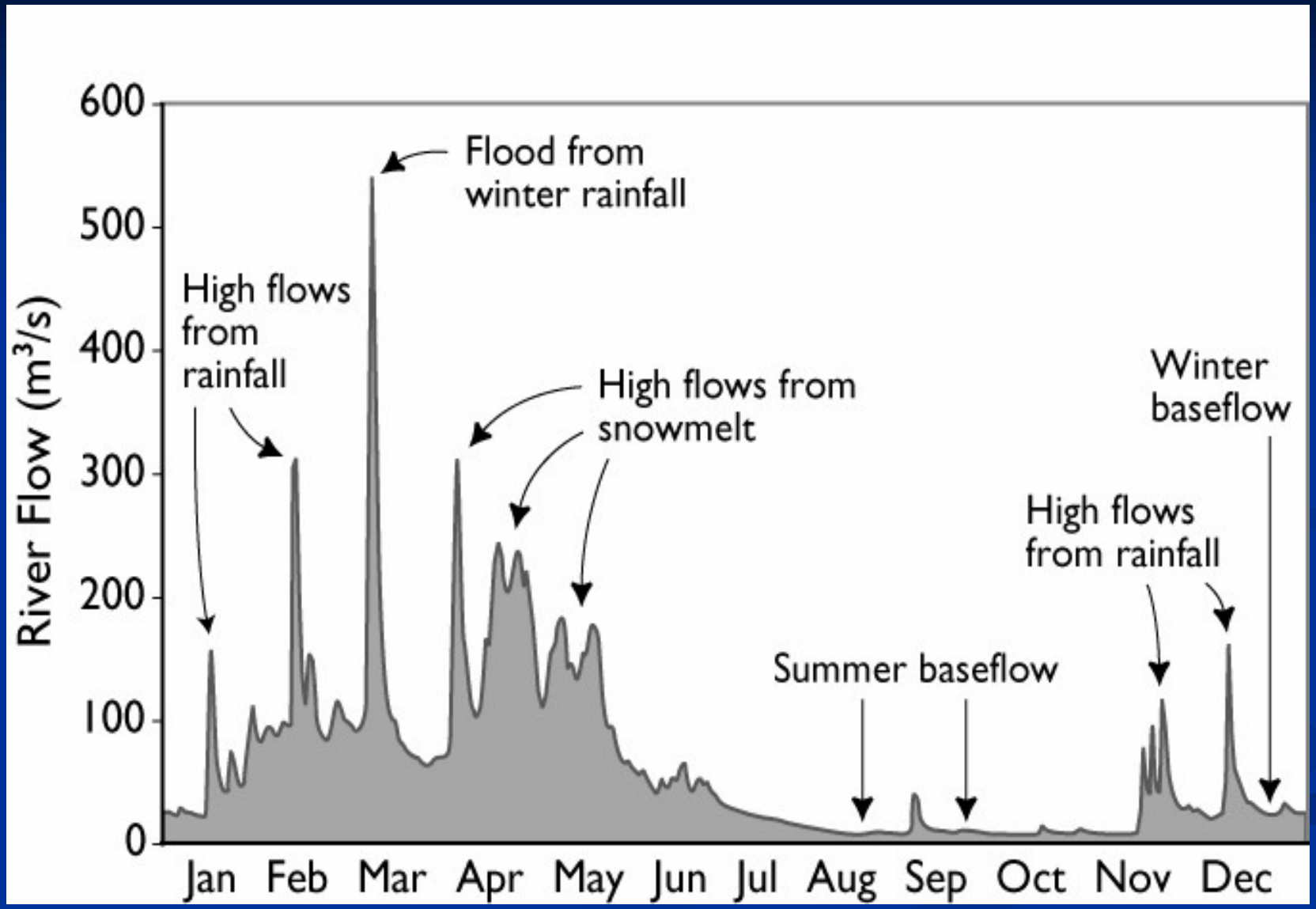
5 Flow Components

- Extreme Low Flows
- Low Flows
- High Flow Pulses
- Small Floods
- Large Floods

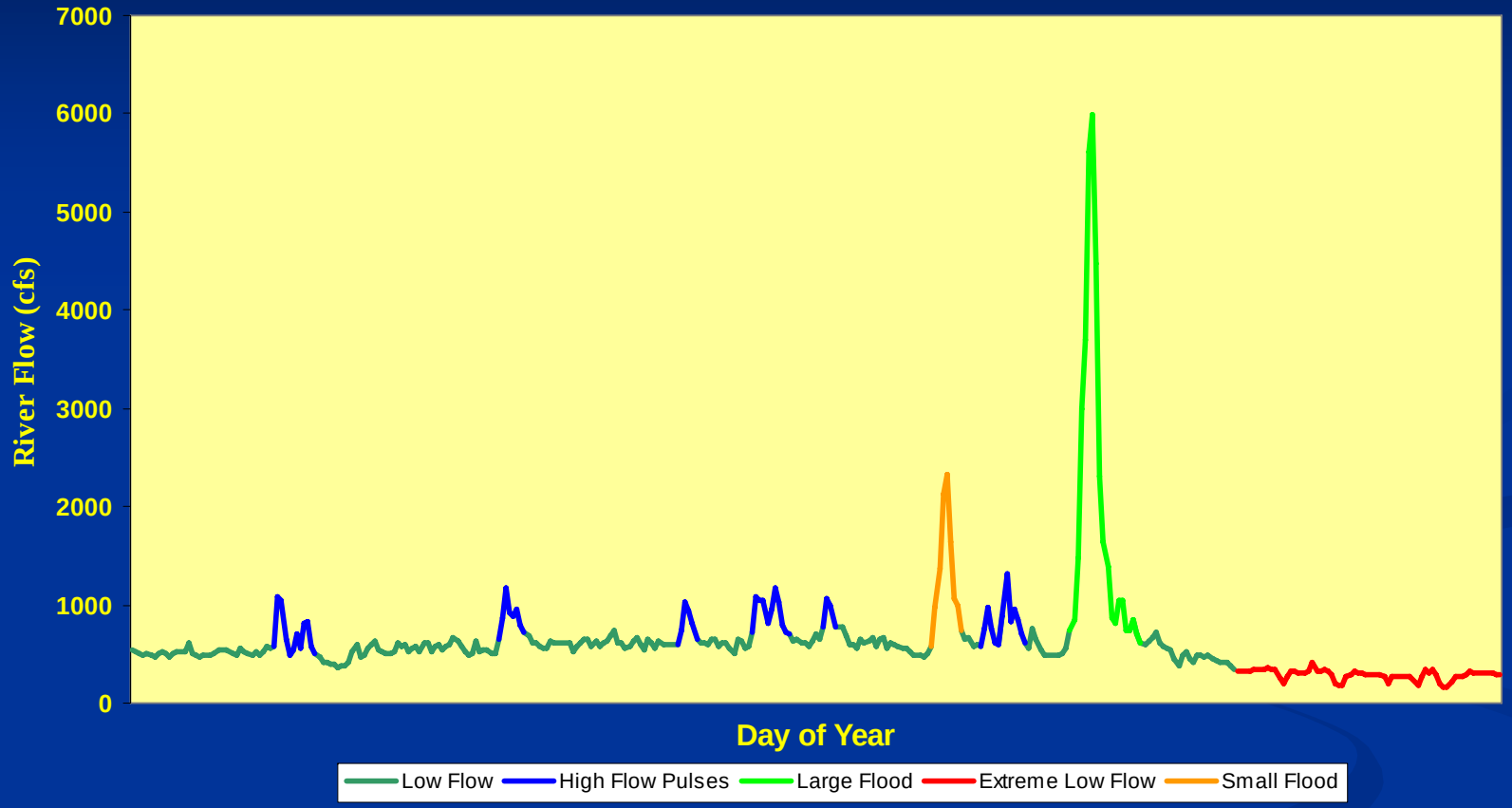
5 Characteristics

- Magnitude
- Timing
- Duration
- Frequency
- Rate of change


1200
1000
800
600
400
200
0
River Flow (m³/s)
Large floods
High flows
Base flows
Decade


600
500
400
300
200
100
0
River Flow (m³/s)
Flood from winter rainfall
High flows from rainfall
High flows from snowmelt
Winter baseflow
High flows from rainfall
Summer baseflow
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

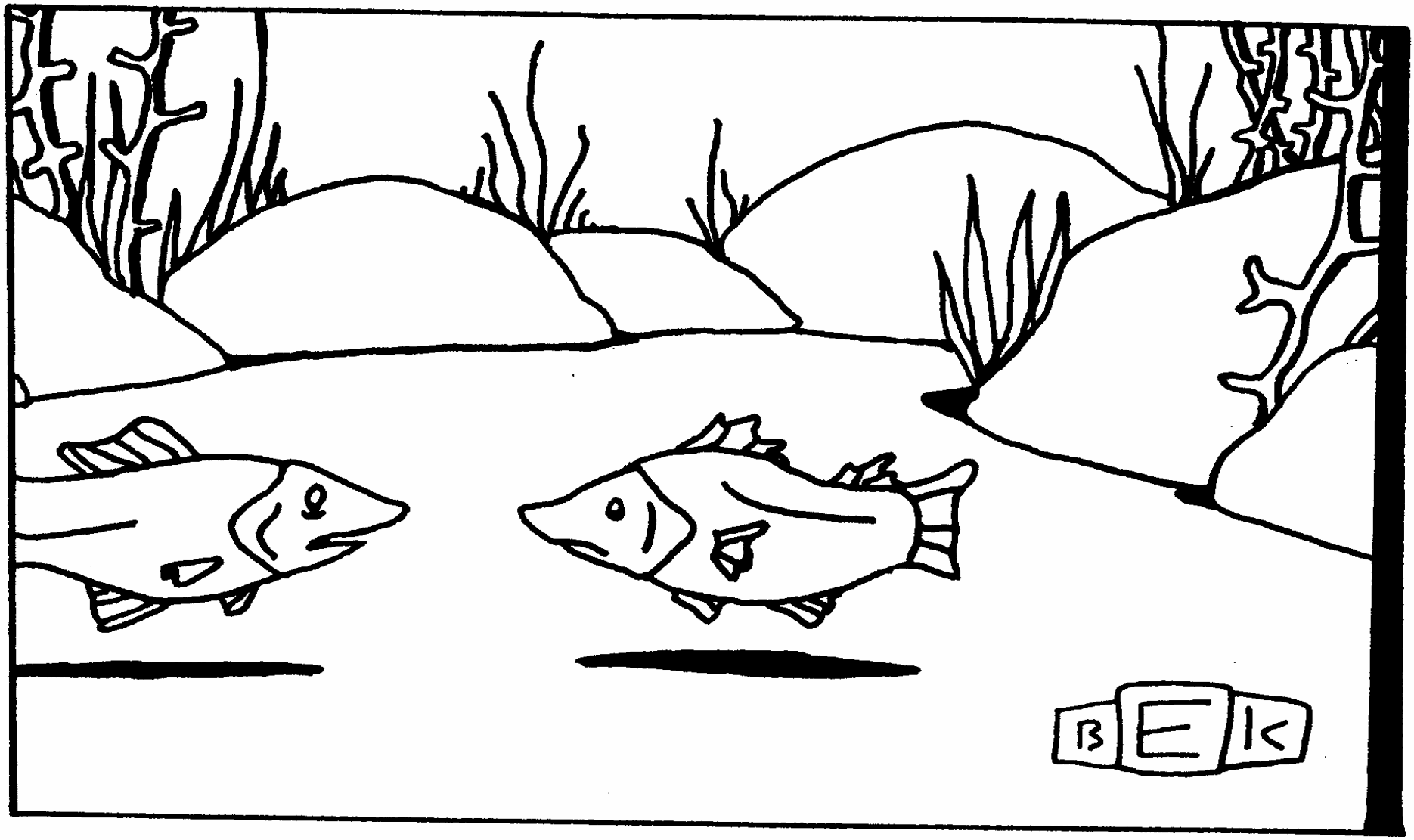
Environmental Flow Components




Trout Cr. U/S Hwy
Sept. 5/03
0.029 cms (1cfs)

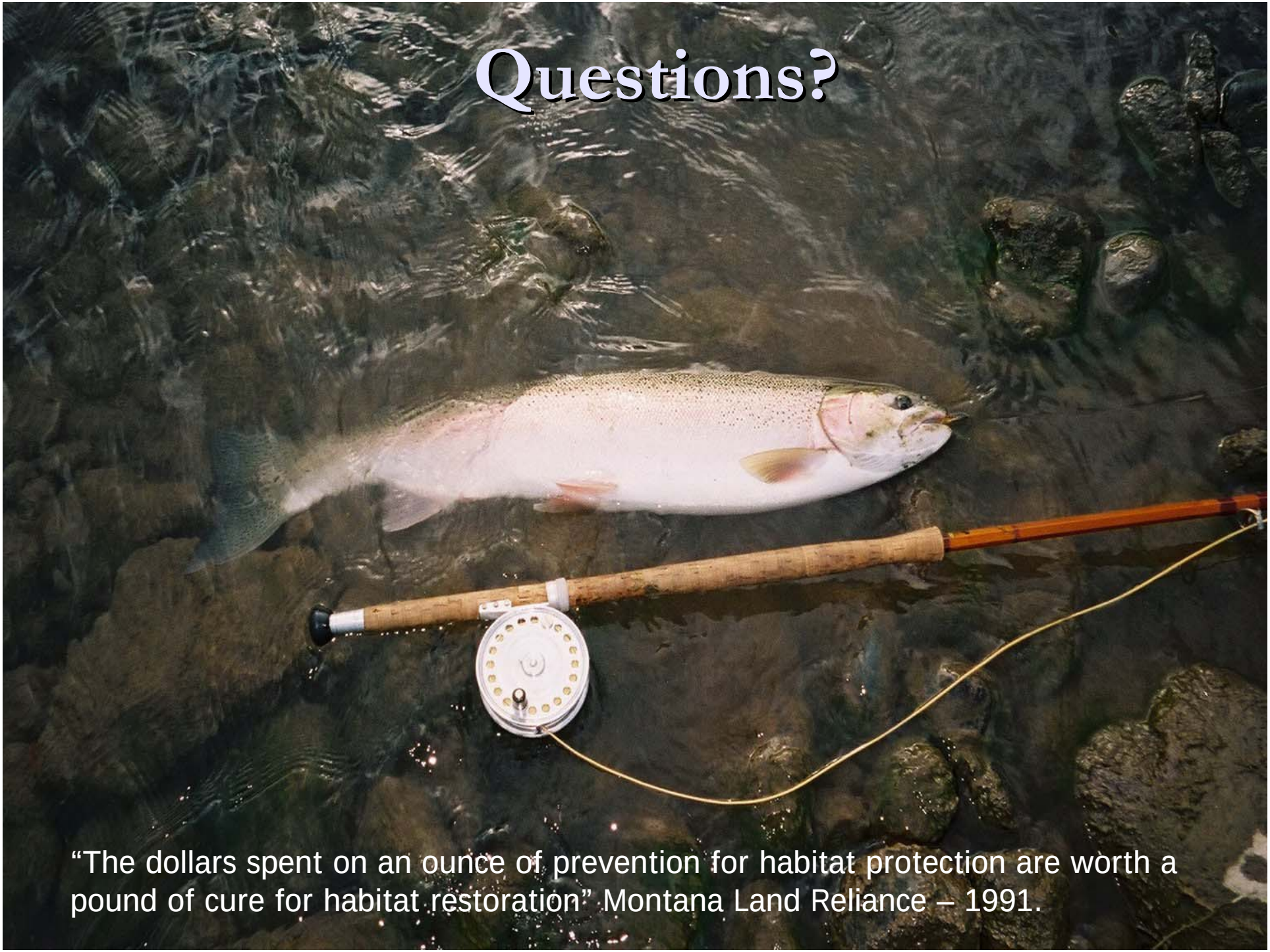

Trout Cr. U/S Hwy
Sept 15 + 0.1 cms
(3.5 cfs)


Trout Cr. U/S Hwy
Sept 21/03
0.2 cms (7cfs)



"To tell you the truth, even when I'm in water I don't feel that comfortable."

Questions?



"The dollars spent on an ounce of prevention for habitat protection are worth a pound of cure for habitat restoration" Montana Land Reliance – 1991.