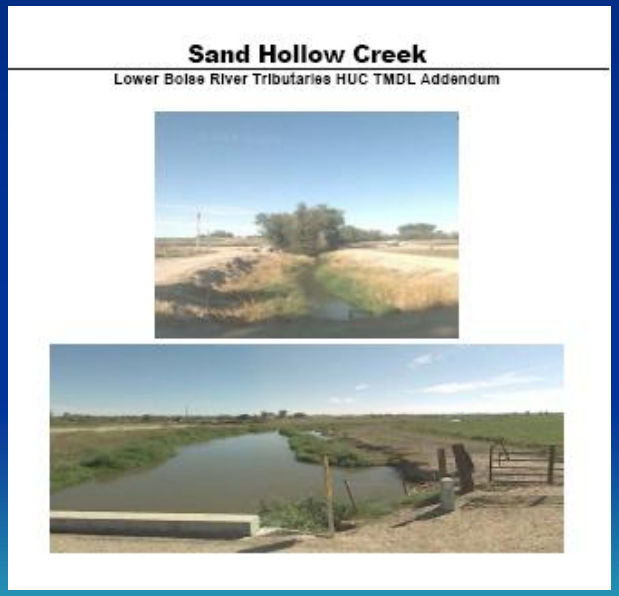
Total Maximum Daily Loads

-An Overview-

Idaho Department of Environmental Quality



What is a Total Maximum Daily Load?

- Referred to as a TMDL
- Pollution budget
  - how much “pollutant” a water body can receive and still meet water quality standards
    - support of beneficial uses

What is a Total Maximum Daily Load?

- LC = MOS + NB + WLA + LA

LC = Pollutant Load Capacity
MOS = Margin of Safety
NB = Natural Background
WLA = Waste Load Allocation
LA = Load Allocation

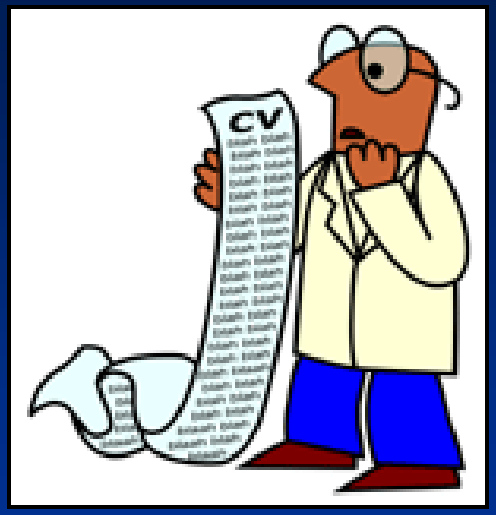
Why are TMDLs Necessary?

- Clean Water Act
  - Beneficial Uses
  - 303d list
- Scientifically defensible mechanism for water quality management
- Cornerstone for receiving water quality improvement grants and loans

Steps in the TMDL Process

- Step #1: Subbasin assessment (SBA)
- Step #2: Develop the TMDL
- Step #3: Implement management actions

Step #1 – Subbasin Assessment



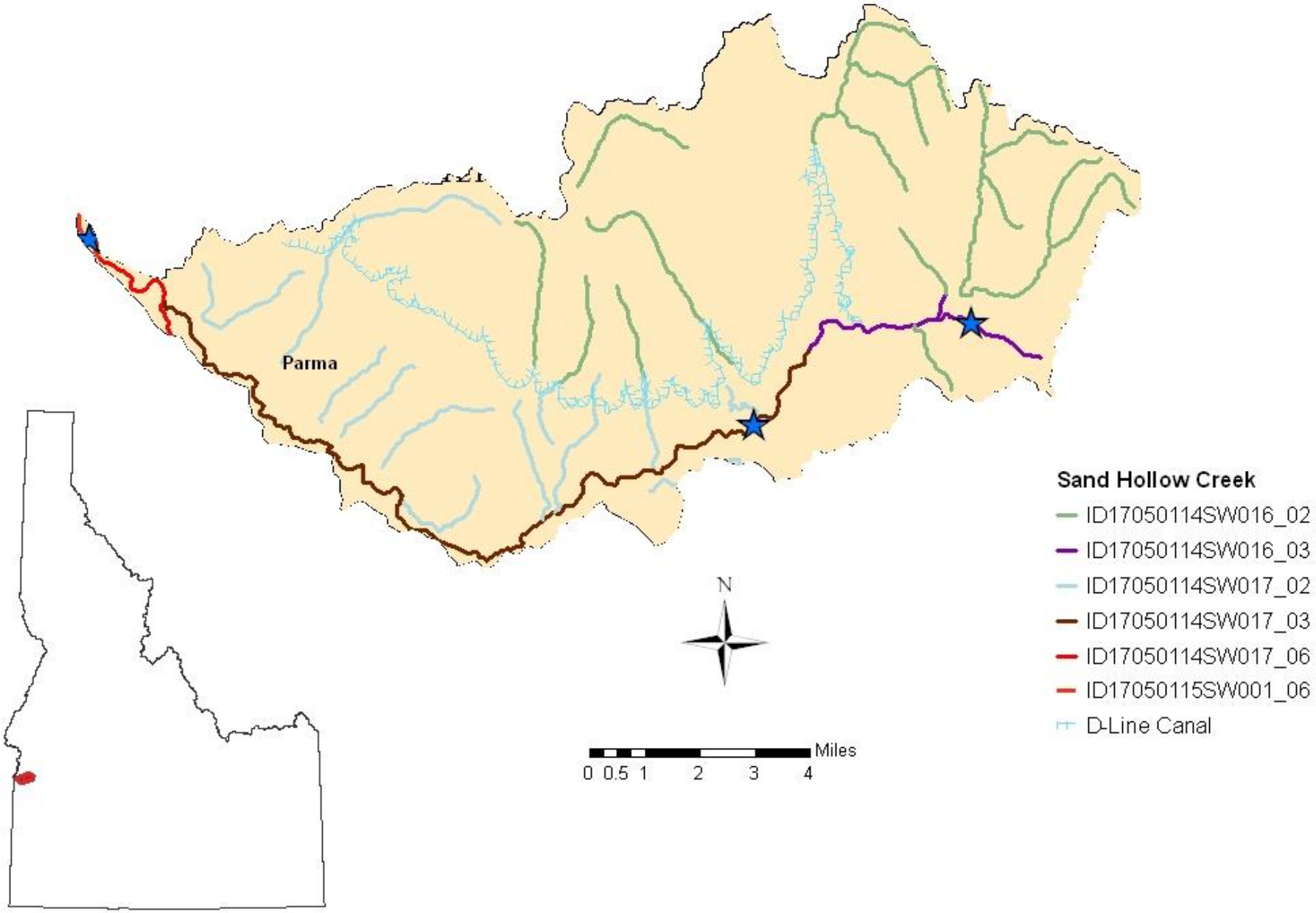
- Geographic boundaries
- Physical, biological and cultural characteristics
- Water quality concerns
- Are water quality standards met?
- Action recommendation

- A TMDL is necessary if the water quality standards are not met

Beneficial Uses

- Cold Water Aquatic Life*
- Secondary Contact Recreation*
- Water Supply
  - Agricultural
  - Industrial
- Aesthetics
- Wildlife Habitat

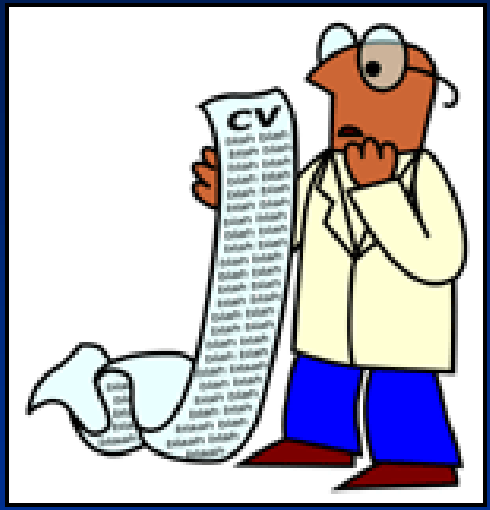
Sand Hollow Creek Watershed



Beneficial Uses and Impairment Status

Assessment Unit	Beneficial Uses	Listed Impairments (2010)
016_02	Presumed	
016_03	COLD, SCR	Sedimentation/Siltation
017_02	Presumed	
017_03	COLD, SCR	Sedimentation/Siltation, Fecal Coliform
017_06	COLD, SCR	Sedimentation Siltation

Step #1 – Subbasin Assessment



- Geographic boundaries
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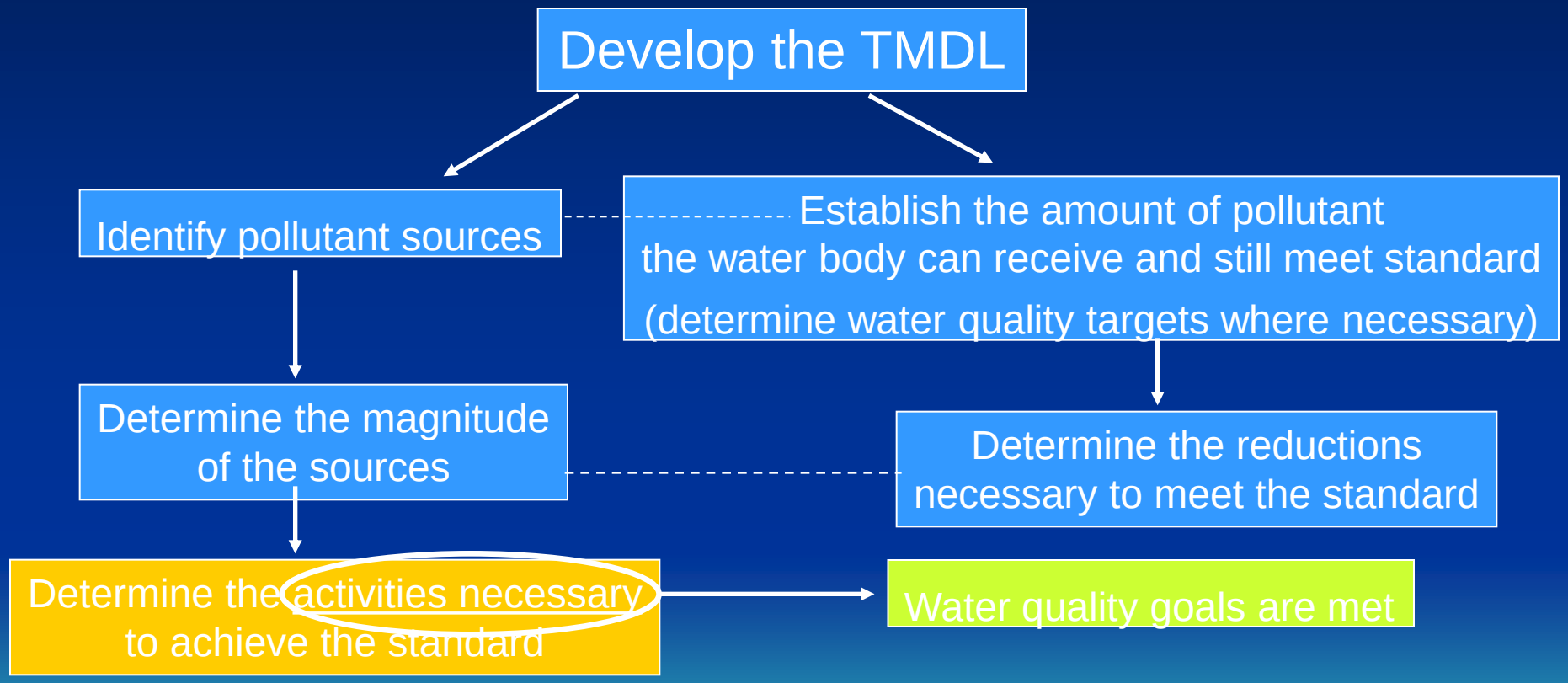
Likelihood of Proceeding with TMDLs

- Snake River-Hells Canyon, 2004
  - Sediment target
    - 50 mg/l monthly average
    - ≤ 80 mg TSS/L for acute events (<14 days)
  - Bacteria target
    - 126 *E. coli* organisms/ 100 ml 30 day geo-mean
    - AND no sample greater than 406 *E. Coli* per 100/ml

Step #2 – TMDL


Develop the TMDL
Identify pollutant sources
Establish the amount of pollutant the water body can receive and still meet standard (determine water quality targets where necessary)
Determine the magnitude of the sources
Determine the reductions necessary to meet the standard
Determine the activities necessary to achieve the standard
Water quality goals are met

Step #3 - Implementation

activities necessary → Water quality goals met

- Implementation can be challenging
- DEQ relies on existing authorities to help implement TMDLs

Summary of the Steps

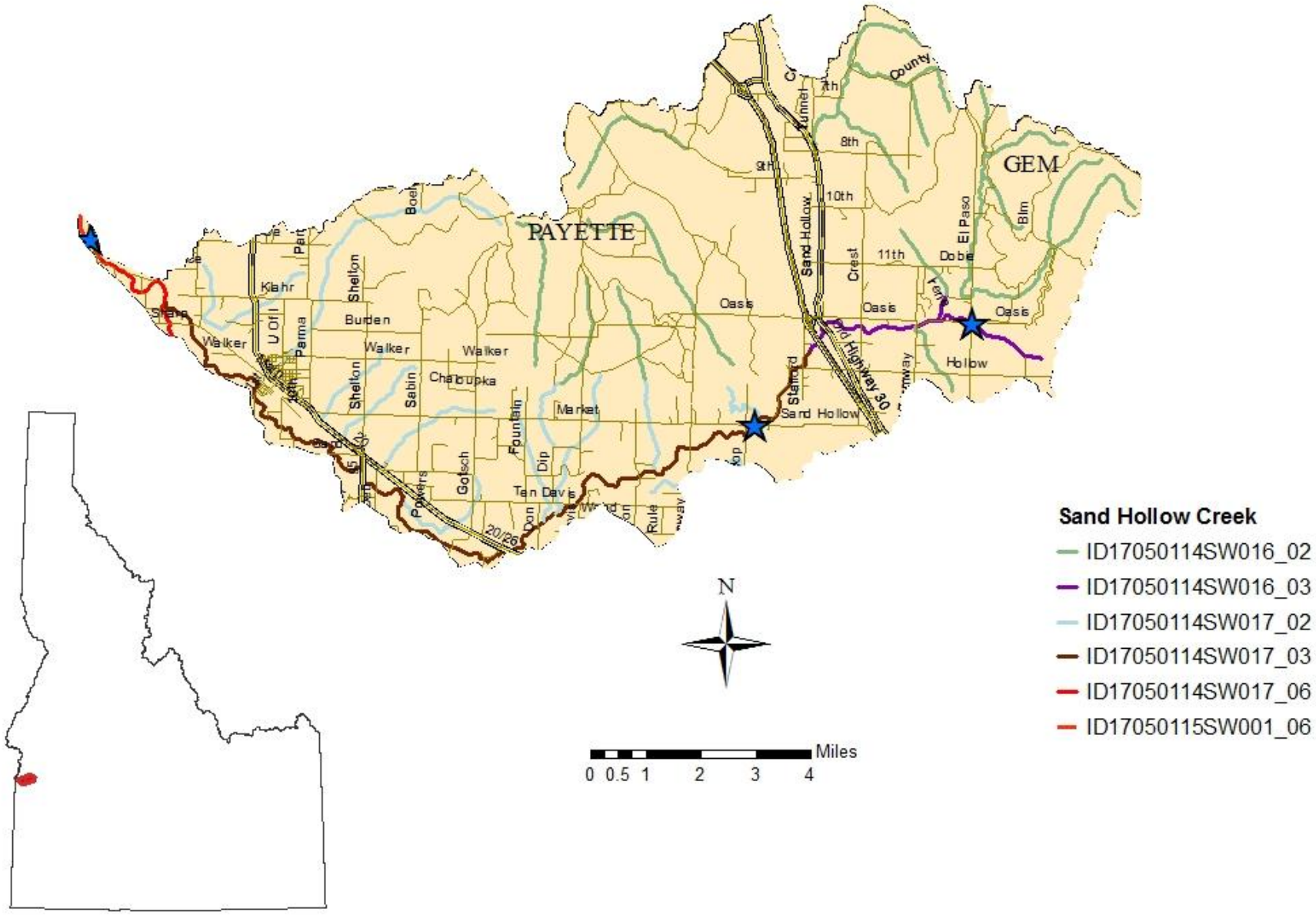
Other Factors Must be Considered

- Commitment
  - Continued participation from all stakeholders
  - Cost
  - Phased approach
- Culture
  - Education of agency and stakeholder

Sand Hollow Creek:

- Sand Hollow Creek altered hydrology
- Water quality of creek is impaired
- Community driven by agriculture
- Community members committed to finding solutions
  - City of Parma proactive with NPDES discharge
  - Evidence of sustainable agricultural BMPs

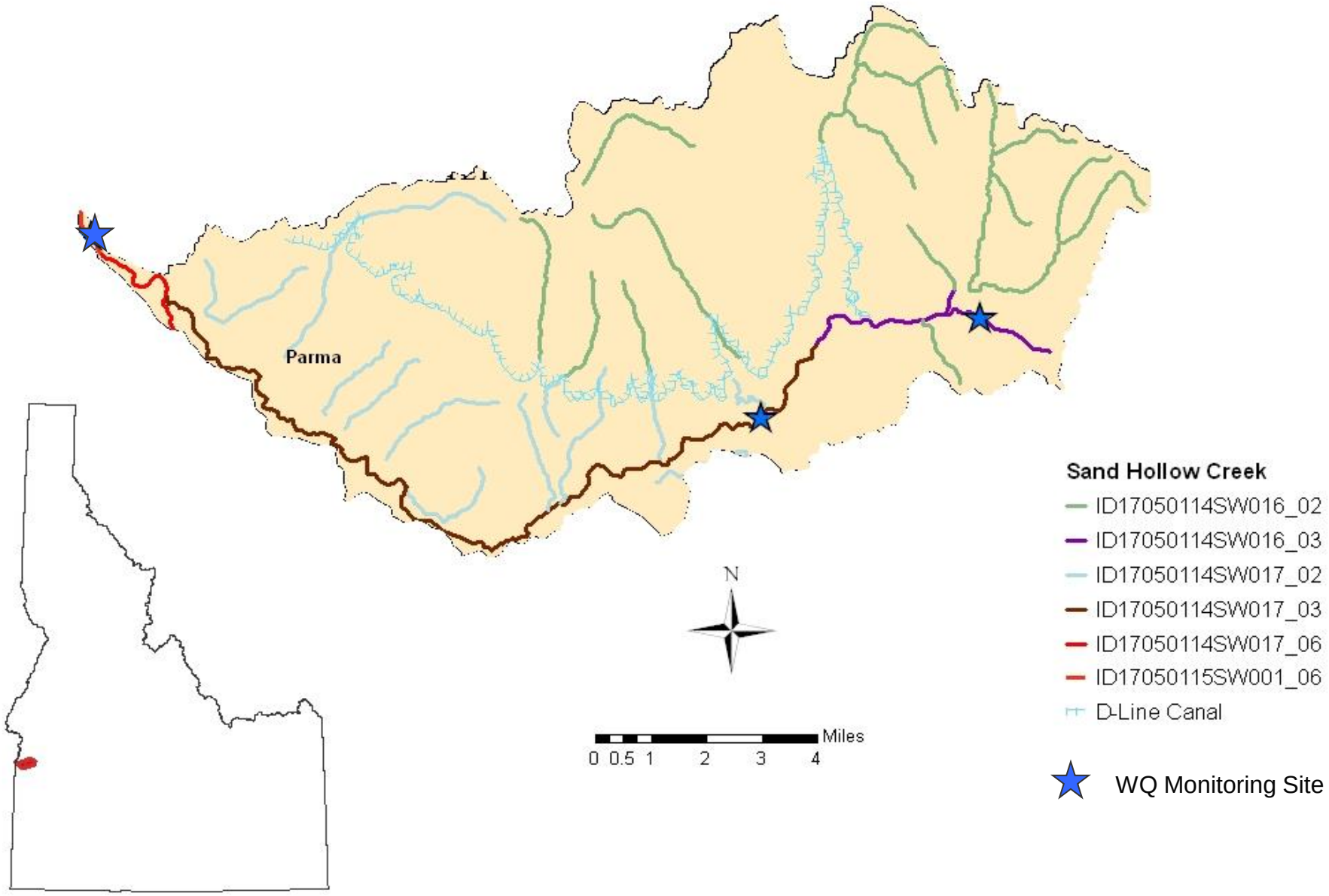
Sand Hollow Creek Watershed



Available Data

Assessment Unit (2008 Integrated Report)	Stream Segment Description	Collection Agency	Data Collected	Year
016_03	Sand Hollow Creek C-line Canal to I-84	[1]DEQ [1]DEQ	BURP, Satellite photo image review, nutrients, sediment, bacteria, field parameters	1996 2008
016-02 017_02	Sand Hollow Creek 2nd order tributaries	[1]DEQ	Satellite photo image review	2008
017_03	Sand Hollow Creek I-84 to Sharp Lane	[1]DEQ; [2]USGS;[1]DEQ [1]DEQ	[1]BURP data, Satellite photo image review [2]Discharge, nutrients, bacteria, sediment, field parameters Bacteria geometric mean	[1]1996, 2006, 2008 2008 2010
017_06	Sand Hollow Creek Sharp Lane to mouth	[1]DEQ; [2]USGS; [3] ISDA [1]DEQ	[1]Satellite photo image review [2, 3]Discharge, nutrients, bacteria, sediment, field parameters Bacteria geometric mean	[1]2008, [2]2009, [3]2008 2010

Sand Hollow Creek Watershed



016_03

17_03

017 06