Aquatic Task Group Update 2008

Accomplishments to Date

Monitoring

•Aquatic Biota Monitoring Plan for CBNG Effects to fishes, aquatic invertebrates, periphyton (algae), aquatic habitat, and herptiles (amphibians and reptiles).

•Aquatic monitoring by USGS within CBNG basins (3 years).
- 47 sites in MT and WY.
- Currently working on the 4th year of monitoring.
- Draft report under review.

•Baseline monitoring for herptiles (2008, 2009).

•Aerial imagery for aquatic habitat (2007, 2008)

Accomplishments to Date

Research

•Literature Review and Development of a Study Plan to
Assess the Effects of Coalbed Natural Gas Activities on Fish Assemblages.

•Research on Effects of Coal Bed Natural Gas Development on Fish Assemblages (completed)

•Aquatic toxicity (bicarbonate) research for 3 years (includes 2008). This research should be completed this calendar year and a report on bicarbonate effects to aquatic species completed in 2009.

*Approximately 3 meetings a year to discuss effects from CBNG, new information and funding priorities.

2008 Budget

MT BLM	143k	
	105k	(Herptiles)
WY BLM	143k	
WY DEQ	53k	
USGS	91k	(match)
MT DEQ	25k	
TOTAL	**567k**	

2008 Workload

Monitoring

•Aquatic monitoring, including fish and macro invertebrate sampling at 23 sites in MT and WY.

•Amphibian and reptile monitoring within MT and WY.

•Aerial imagery on the Powder River.

Research

•Product water toxicity research on bicarbonate effects to aquatic species .

Challenges

- Concrete funding from year to year
- Prioritizing monitoring and research with limited funds
- Long time frames between inception of projects and final reports
- CBNG development proceeding faster than monitoring and research results
- Identifying triggers and management applications
- Quantifying timing and volume of CBNG product water entering system

Management Applications

- Literature review identifies the potential effects from CBNG

- Identified effects from on-channel reservoirs on aquatic life

- Baseline conditions identified for fish, aquatic invertebrates, periphyton, herptiles, aquatic habitat, and water quality.

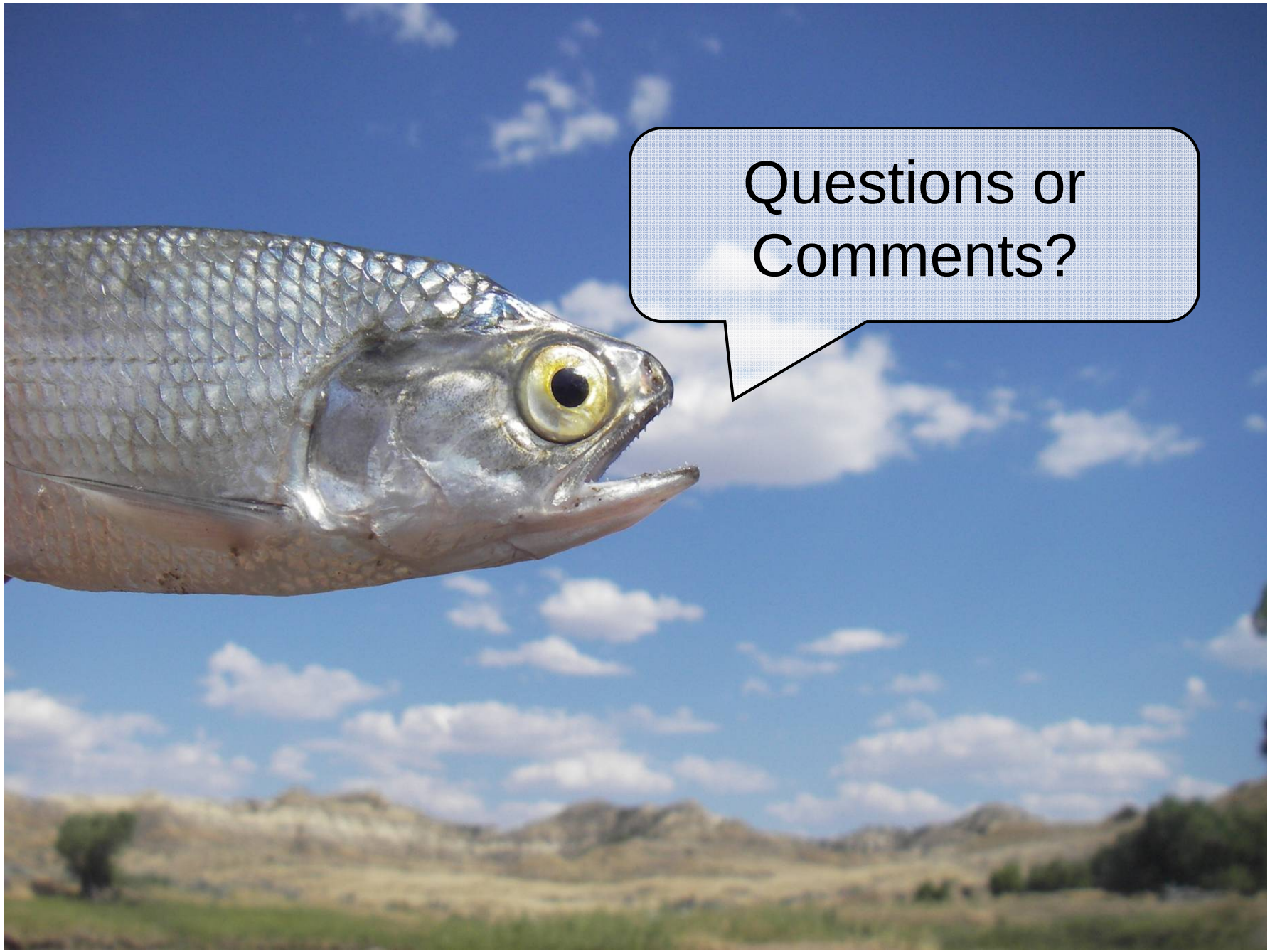
*Important for “Affected Environment” of EAs.

- Propose bicarbonate water quality standard to EPA

<u>NEED</u>

Group review and recommendations from the research /monitoring results in the fall 2008 and winter 2009.

Information will be presented to managers after review.


Questions or Comments?

Discussion

Pro (CBNG not bad for fish?)

Discussion

Pro (CBNG not bad for fish?)

- Species richness (no direct effect)
- Biotic integrity (no direct effect)
- Several fish species in product-water streams
- Recruitment, growth, and survival in product-water streams
- Conservative model (FPCF, habitat favors control streams)

Discussion

Con (CBNG may be bad for fish?)

- Changing water quality
- Negative relationship between water quality changes and fish
- Sensitive species ↓
- Tolerant species ↑
- Study limitations may mask some effects

Limitations and research challenges

- Study conducted during a drought
- Limited pre-CBNG fish surveys on these streams
- No quantification of product-water quantity or quality

Management implications

- CBNG development is expanding around the world
- Limited inferences between basins due to differences in water chemistry and fish assemblages
- Effective biological monitoring needed
- Study design could be used as a model

Recommendations

1) Conduct pre-development baseline aquatics surveys

Recommendations

1) Conduct pre-development baseline aquatics surveys

2) Fix the NPDES databases and create a product water discharge monitoring network.

Recommendations

1) Conduct pre-development baseline aquatics surveys
2) Fix the NPDES databases and create a product water discharge monitoring network.

3) Develop a water quality standard for bicarbonate

Recommendations

1) Conduct pre-development baseline aquatics surveys
2) Fix the NPDES databases and create a product water discharge monitoring network.
3) Develop a water quality standard for bicarbonate

4) Research fish assemblage response to continuous input of product water in normally stochastic systems.

Recommendations

1) Conduct pre-development baseline aquatics surveys
2) Fix the NPDES databases and create a product water discharge monitoring network.
3) Develop a water quality standard for bicarbonate
4) Research fish assemblage response to continuous input of product water in normally stochastic systems.

5) Treat product-water and discharge it directly to main stem rivers?

Discharge permitting

Problems:

General water quality standards

No standard for HCO_3

Discharge database inadequate