Greater Yellowstone Hydrologists (GYH) Subcommittee

Louis Wasniewski

GYH Chairman &
Forest Hydrologist
Caribou-Targhee NF

GYCC Public Meeting
Bozeman, MT
Oct. 28, 2014
Formation

- The GYH formed in October of 1990 at the urging of Luna Leopold.

- Leopold had the vision to see the utility of a collaborative group of hydrologists in the GYA.
History

- **2001** - GYCC Commissioned the GYH to write a watershed management strategy to better position the Committee to provide effective stewardship of watersheds and aquatic ecosystems

- **2002** - GYH presented the 1st “Watershed Management Strategy for the GYA”

- **2006** - GYH updated the original strategy to be more concise, more issue driven and provide recommended action items

- **2007** - GYCC removed Watershed Management as a priority
History

- **2009** - GYCC added Water Quality & Flow as a Priority.
  - **Outcome**: Landscapes that are managed to ensure healthy water flow and quality and reduction of water consumption.

- **2011** - GYH updated strategy more recent references with additional climate change, watershed assessment, and rehabilitation emphasis.

- **2012** – Annually Update 3-5 Year Action Plan
### Members

<table>
<thead>
<tr>
<th>Members</th>
<th>Location</th>
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<tbody>
<tr>
<td>Louis Wasniewski (Chair)</td>
<td>Caribou-Targhee NF</td>
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<tr>
<td>Brad Higginson</td>
<td>Caribou-Targhee NF</td>
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<tr>
<td>Jim Laprevote</td>
<td>Caribou-Targhee NF</td>
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<tr>
<td>Kevin Weinner</td>
<td>Beaverhead-Deerlodge NF</td>
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<td>Dale J White</td>
<td>Gallatin NF</td>
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<td>James Efta</td>
<td>Custer NF</td>
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<td>Ronna Simon</td>
<td>Bridger-Teton NF</td>
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<td>Trevlyn Robertson</td>
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<tr>
<td>Karri Cary</td>
<td>Shoshone NF</td>
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<tr>
<td>Kathryn Mellander</td>
<td>Grand Teton NP</td>
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<td>Jeff Arnold</td>
<td>Yellowstone NP</td>
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<td>Dan Mahony</td>
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<td>David Harper</td>
<td>USGS</td>
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<td>Steve Kallin</td>
<td>National Elk Refuge</td>
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<td>Bryce Bohn</td>
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<td>Michael Philbin</td>
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<td>Stephen Armiger</td>
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<td>Dennis Saville</td>
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Meetings

1. **Winter: Office / Video Conf.**
   - Strategy & Project Coordination

2. **Late Spring: Office & Field Trips**
   - Two day meeting with evening social
   - Information sharing
   - Projects site visits
   - Brainstorming ideas and solutions
   - GYA coordination & consistency
Watershed Management in the GYA: An Interagency Strategy - 2011 Update

- Incorporates more recent references, climate change, watershed assessment, and rehabilitation emphasis
- Development of current issues, outcomes, measures, actions, projects, and project ranking criteria
- Added a Five Year Action Plan
Watershed Management
Interagency Strategy

Issues:

1. Interagency cooperation on a watershed scale
2. Watershed, riparian area, and geomorphic integrity
3. Water quality protection and enhancement
4. Water flow, water supply, and water rights

“A key role of GYA agencies is managing disturbances while sustaining watershed health.”
Accomplishments

- Reference Reach Database (2004)
- Inland West Water Initiative Summary of Ratings for GYA (2006)
- GYA Potential Dam Site Inventory (2012)
- Watershed Condition Class Framework for the GYA (2012)
- Reference Multiple Indicator Monitoring Stream Surveys (2014)
## Watershed Condition Classification

<table>
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<tr>
<th>GYA Units</th>
<th>Watershed Classification</th>
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<tr>
<td></td>
<td>Good</td>
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<tr>
<td>Caribou-Targhee NF</td>
<td>71</td>
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<td>TOTALS</td>
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*Protecting & Improving Watershed Conditions Increases Their Resiliency*
Watershed Vulnerability Assessment

**Values**

- Infrastructure
- Native Coldwater Fish
- Stream Ecology

**Climate Exposure**

- Combined Flow (Base + Runoff)
- Snowpack vulnerability
- Base Flow
- Average Summer Air Temperature

**Result:** Winter 2014/2015

**Map of 6th Code HUC watersheds with relative ranking of vulnerability to climate change.**

Informs management actions, priorities

**Sensitivity Analysis**

Based on Terrain and Soils/Geology

(More can be added in future)
Watershed Vulnerability Assessment

Terrain
Sensitivity

Combined
Infrastructure Value
at Risk

Combined Flow
Percent Change to Mid-Century
(2030-2050)
What’s Next

- Complete Watershed Vulnerability Assessment (2014-15)
- Expanded WCC to cover BLM (2014-15)
- Identify Priority Watersheds for Targeted Improvement (2015)
Thank You!!

Questions