



Meeting Notes

Project: **Washington State Drought Contingency Plan**

Subject: Task Force Meeting

Date: Wednesday, August 17, 2016

Location: Department of Ecology, Lacey, WA

Attendees:	Jeff Marti, Ecology	Teresa Scott, WDFW
	Barb Anderson, Ecology	Gregory McKnight, DOH
	Morgan Mak, EMD	Andrew Graham (Facilitator), HDR
	John Schelling, Commerce	Sarah Pistorese, HDR
	Nick Bond, OWSC- UW (phone)	Urban Eberhart, KRD (phone)
	Karin Bumbaco, OWSC- UW (phone)	Tom Ring, Yakama Nation (phone)
	Jon Culp, WSCC (phone)	

Handouts

- Agenda
- Review of other State Drought Stages and Triggers
- Geographic Description of Drought
- Determination of State Drought Plan Scope
- WDFW Resources and Risk Responses
- 2015 Washington State Agricultural Land Use

Review Action Items from Last Meeting

- Where possible, Task Force members who have not already done so will estimate or provide a qualitative narrative of the number of hours or equivalent full-time employees used in 2015 for drought response.
- Morgan Mak, Emergency Management Division (EMD), confirmed that the Washington Intrastate Mutual Aid System (WAMAS) can be activated prior to a drought declaration.
- Where possible, Task Force members will identify vulnerabilities that could be mapped and come to the Task Force meeting prepared to discuss if sufficient information is available to develop a vulnerability mapping tool.

Stages and Geographic Basis of Drought Declarations

Drought Stages and Triggers

Sarah Pistorese, HDR, provided a summary of the drought stages and triggers used by other states. Examples from other states are provided in the *Review of other State Drought Stages and Triggers* handout. Highlights discussed include the following:

- Texas, California, and Alabama are examples of other states that use drought stages.

- Texas has five stages: Level 1 – Advisory, Level 2 – Watch, Level 3 – Warning, Level 4 – Emergency, and Level 5 - Disaster. These stages can be applied to the whole state, individual climatic/hydrologic regions, counties, or specific sectors.
- California has adopted drought stages used by the U.S. Drought Monitor and also has five stages.
- Alabama has four stages of drought.
- Triggers are used to determine which stage of drought a region is in. These triggers are based on a variety of metrics including, but not limited to: reservoir levels, groundwater levels, snow pack, precipitation, fire danger, crop moisture, temperature, crop conditions, fish and wildlife habitat conditions, and livestock sales.
- Many triggers are based on specific quantitative values. For example, in Alabama, if precipitation is 10 to 25 percent of normal, then drought conditions would fall within the Level 3, Warning, stage. Although specific quantitative values are used to define each stage, ultimately the decision to declare a drought stage is made by a drought task force/committee, the lead agency, or governing body.
- Some states also consider qualitative metrics, such as crop, pasture/rangeland, industry, recreation, and/or habitat conditions.
- The California and Texas drought plans specify agency actions that would be taken under each drought stage.
- In Texas, drought declaration requests and hardships are generally reported at the county level. These requests are sent to the Texas Water Development Board and the Governor's office for consideration.
- In Texas, up to three drought stages can be assigned to one region. This is because Texas uses three different drought indices: climatological index, agriculture index, and water availability index. These three indices help to capture the drought impacts to different sectors (i.e. environmental, agricultural, and domestic).

Task Force members provided the following input on the use of drought stages in Washington State:

- Washington State's approach to drought response aims to be proactive to limit potential drought impacts. This involves mobilizing response based on forecasted conditions, instead of existing conditions. Other state drought stages appear to be primarily based on existing conditions. This approach is not conducive for implementing response actions in preparation for drought. The Washington Drought Contingency Plan (DCP) should consider using drought stage triggers and metrics that are more predictive of future conditions.
- Teresa Scott, WDFW, said that the data evaluated to determine each drought stage should be commensurate with the stakes associated with a drought declaration. For example, additional data gathering may be warranted when allocating drought relief funding.
- In 2015, State agencies were not aware of hardships experienced by some entities. In instances when data is not available for some entities it can be difficult to equitably

allocate drought relief funding. The data needs for each stage should also consider what information is readily available on small or private entities that require assistance.

- In the stages leading up to a drought declaration, it could be useful to have a drought contingency fund available to implement initial drought mitigation and response measures. To encourage advanced drought planning and mitigation, the drought contingency fund could be reserved for entities that have already made individual investments to prepare for drought.
- Restrictions imposed on water rights should be considered at each drought stage. The extent of water right restrictions could act as drought stage triggers.
- It would be useful to assign different drought stages to different sectors. This could be a good approach for Washington since drought can impact some sectors more than others.
- Greg said that five stages of drought seem appropriate. The fifth stage, Disaster, could go beyond the State drought declaration to trigger Federal assistance. Also, having more stages could be useful to distinguish between the severity of drought experienced by different sectors and regions.
- Andrew asked the group to consider administrative complexity of having more stages vs. fewer stages. Fewer would be simpler to manage and communicate. For example, consider how it would work if we used only three stages.
- It could be useful if the state drought stages were comparable to the water shortage stages used by the large municipal water suppliers. However, if the drought stages do not trigger actions at the local level, then it may not be necessary for local and state stages to line up.
- It could be useful to coordinate with Oregon and/or Idaho, due to spillover effects across state lines.
- When selecting the number of stages, triggers, and metrics used, we should consider the level-of-effort required to make a drought declaration and if it can be done in a timely manner. It will be important to not get caught up on the logistics of moving between drought stages or making a declaration. The process should be streamlined to allow for drought response measures to be implemented efficiently and quickly.

Geographic Description of Drought

Andrew Graham, HDR, described a potential approach for announcing drought stages and making declarations. Examples of this approach are provided in the *Geographic Description of Drought* handout. This approach documents a hierarchy of three, levels of drought effect:

1. Name the counties affected by drought (partly or wholly)
2. Then list affected watersheds within those counties (generally by WRIA or sub-WRIA)
3. Finally, list likely types of affected and unaffected water users, uses, and/or resources within those watersheds. For example, this could be specific tributaries, farmers growing particular crops or groups of crops, or public drinking water systems. It's important to list unaffected sectors as well as affected sectors.

Task Force members provided the following input on this approach:

- Water management frameworks vary by location and entity. For example, the different climates in eastern and western Washington result in significantly different water supply conditions. In addition, the Bureau of Reclamation's water supply objectives are significantly different than Seattle Public Utilities' objectives. The proposed approach allows drought declarations to account for these differences.
- This approach makes it easy to distinguish between impacts to different water users.
- This approach provides a range of information that would be useful to different stakeholders. For example, water supply managers would likely be interested in the affected WRIA information, while the general public may be more interested in the affected county information.
- The gradual narrowing of information is effective. Especially since it allows for distinguishing between affected areas and unaffected areas.
- Urban Eberhart, Advisory Committee member from Kittitas Reclamation District, said that this approach would likely work well for central Washington.
- Jeff Marti, Ecology, noted that in 2015, the drought declaration did not identify exceptions to the drought impacted areas. Instead, separate communications that specified the affected and unaffected areas were circulated concurrent with the declaration. Moving forward, the declaration could include a generic statement such as "contact your local water system for more information". This declaration could be accompanied by communications that specify the affected and unaffected areas.
- It could be valuable to ask local entities what their water supply conditions are. This could be important for small water systems that may have limited resources to track water supply risks. The following approach could be taken before making a declaration:
 - Tier 1 Water Users (small or vulnerable water users): The State reaches out to areas that experiencing drought conditions. This could involve communicating drought indicators tracked by the state, such as snow pack. Water users can then initiate a conversation with the state if they anticipate any water supply concerns.
 - Tier 2 Water Users (large or resilient water users): These entities would be responsible for reaching out to DOH or Ecology to report any concerns and request assistance as needed.

Plan Development

Drought Monitoring

- Office of State Climatologist Activities
 - Karin Bumbaco, OSC- UW, provided an update on the drought monitoring task. She has completed an outline for the drought monitoring and forecasting evaluation. She plans to convene an advisory panel to review the evaluation once complete. Karin will coordinate with all of the advisory panel members before the next Task Force meeting.
- Other Activities
 - Jeff said that Washington State University (WSU) is applying for a NASA grant to develop an improved water supply and demand forecast tool. WSU has asked

Ecology for a letter of support. This tool would better capture the demand response experienced during droughts. If WSU receives the grant, they plan to work with Ecology and other water managers in the state to develop the tool so that it would be a valuable and practical for water managers.

- Jeff had a conference call with Reclamation to discuss options for adopting Reclamation’s water supply forecast model to create a rolling probabilistic forecast. Jeff is still reviewing options for advancing this effort.

Vulnerability Assessment

- According to DCP development schedule, the Task Force aims to complete the vulnerability assessment by the end of September. Jeff is working on it and has begun drafting text to summarize the information task force members have provided and that we’ve discussed in the meetings.

Impact Tiers

- Jeff summarized an approach for identifying the drought impacts/hardships that would be addressed in the DCP. Drought impacts could be broken into the following tiers based on the decisions we discussed last month regarding what belongs in the 2017 plan to meet the existing statutory requirements:
 - Tier 1: Impact is directly caused by reduced water supply or water shortage. Hardship arising from these impacts are within the primary scope of the drought mitigation and emergency response. For example, crop losses due to reduced water availability would be considered a Tier 1 impact.
 - Tier 2: Impact is indirectly related to reduced water supply or water shortage. Hardships arising from these impacts are considered to be outside the primary scope of state drought mitigation and emergency response. For example, reduced productivity of cropland due to wind erosion from prolonged drought would be considered a Tier 2 impact.
 - Not Applicable: Impact is not considered to be an emergency water supply condition and is outside the scope of this drought plan. For example, fire would be considered an impact that is outside the scope of the drought plan. Fire impacts and response are addressed by other state emergency response plans.
- The intent of this approach is to focus on those hardships/impacts that meet the conditions identified in the drought statute (RCW 43.83B.400). Tier 1 impacts would warrant state mitigation and response. Therefore, the DCP would include specific mitigation and response actions related to these impacts. Tier 2 impacts are important and worth acknowledging in the DCP, however they do not fall under the state mitigation and response actions. Therefore, these impacts would be noted in the DCP, but mitigation and response actions would not be identified; or would be deferred to a future update of the plan.
- The *Determination of State Drought Plan Scope* handout includes a list of proposed drought impacts/hardships and associated tiers applicable to Washington.
- The Task Force provided the following input on this approach:

- This approach clearly addresses the intent of the legislature as outlined in the existing statutory definition of drought conditions (RCW 43.83B.400).
- The DCP should clearly define the type of mitigation and response that the state will provide. There should be an obligation for water users to be actively implementing mitigation measures or long-term adaptation strategies in order to receive state support. The state may provide support in the first or second drought, but to receive support in subsequent drought years, water users must demonstrate that they are taking actions to improve their resiliency.
- It may be useful to quantify or weight the consequence of each impact. For example, the state may want to prioritize drought relief funding to sectors that would experience the greatest consequences. Can it be expressed in dollars?
- During actual droughts, it may be difficult to clearly distinguish between the Tier 1 and Tier 2 impacts.
- Greg noted that drought often disproportionately impacts different socioeconomic groups. This can result in inequality in drought relief. For example, changes in the cost of produce can disproportionately impact the health of low-income households. Research suggests that socioeconomic inequalities and impacts to health are closely correlated. These impacts can be exacerbated by natural disasters such as drought. Currently, human health impacts are defined as a Tier 1 impact and inequitable distribution of relief is defined as not applicable. Greg suggested that inequitable relief be combined with or commensurate with the human health impacts.
 - Because of the potential for inequality, the DCP should clearly define what the decision making process is for distributing relief resources.
- Task Force members will send Jeff any additional feedback on the following handouts: *Determination of State Drought Plan Scope, Geographic Description of Drought, and Review of other State Drought Stages and Triggers.*

Other Ecology Activities to Develop Plan

- Moving forward, Jeff will update the *Determination of State Drought Plan Scope* table based on the Task Force's feedback. Jeff envisions that this table will be expanded to include mitigation and response measures associated with each Tier 1 impact.

Agriculture Activities to Develop Plan

- Jeff presented the *2015 Washington State Agricultural Land Use* map provided by Jaclyn Hancock, Agriculture. This map documents the location of different crop types. This breakdown of crop types will be useful for graphically displaying where water users are located and determining which regions are most vulnerable to drought in terms of agriculture.

Health Activities to Develop Plan

- Ginny Stern, DOH, is working on identifying potentially vulnerable water systems based on their size, sources of supply, physical assets, location, and other factors. Greg will

work with Ginny to determine if DOH's vulnerability database can be used to identify systems with drought vulnerabilities. Ginny will send the list of potentially vulnerable systems to Jeff.

- CREAT system. Climate Resiliency Evaluation and Awareness Tool (USEPA).
- DOH is considering distributing a survey to water systems to determine how they were impacted by the 2015 drought.
- Jeff noted it would be helpful to gather data on water systems that activated their water shortage response plans and what stage was activated. DOH requires some water systems to submit annual Water Use Efficiency reports. Greg will look into options for adding an additional question to the WUE report that would ask if systems activated their WSCP in the prior year. Although this would provide information only on the prior year, it would gradually help build data on where droughts are affecting drinking water systems. Eventually it would be good to establish a means for gathering "real-time" data on activation of local water systems' WSCPs.

Fish and Wildlife Activities to Develop Plan

- WDFW has prepared a draft Drought Contingency Plan. This draft plan includes lists of fish and wildlife resource risks, WDFW operational issues related to drought, and WDFW infrastructure vulnerabilities and opportunities. For each item, WDFW has identified specific WDFW response actions. Teresa noted that the tables included in the *Resources and responses* handout are still incomplete and considered draft. Jeff will review this handout and update the *Determination of State Drought Plan Scope* table to encompass the applicable WDFW items not already captured in the table.
- Teresa said that WDFW has mapped the following fish and wildlife impacts and vulnerabilities. Teresa will send these maps to Jeff.
 - Fish passage blockages (including rock dams)
 - Hydraulic Project Approval restrictions implemented in 2015
 - Fish hatcheries
 - Wildlife areas
 - Water access sites (such as boat ramps)
- WDFW has also done some modeling and mapping of existing and potential future stream temperatures. Future stream temperature information could potentially be included in the climate change section of the DCP.
- Teresa will evaluate the fish hatcheries that may be vulnerable during droughts.

Other Activities to Develop Plan

- John Schelling, Department of Commerce, said that he will send Jeff a summary of the following considerations related to the impacts of drought on power production:
 - What impacts would drought have on power generation (hydropower, oil and gas refinery operations etc.)?
 - How is power generation in Washington resilient to drought (e.g. contingency funds to purchase power from elsewhere)?

- How would Commerce and the power industry respond if drought conditions restricted power generation in the northwest?
- John noted that hydropower systems have identified response actions and have alternate supplies available, so they are probably pretty resilient. Jeff asked for information on the regulatory basis for this readiness.
- Teresa noted that high temperatures and associated demand for air conditioning can affect utilities, either with or without dry conditions at the same time.
- Greg noted that oil refineries require a large volume of treated water, so can also be vulnerable to drought affecting their supplies.

Upcoming Stakeholder Meetings

- Jeff is working with DOH to set up a teleconference with stakeholders from small water systems. This meeting will likely be in late September or October.
- Jeff is working on setting up a meeting with tribal stakeholders.

Next Steps

- NIDIS will be hosting a workshop in September focused on the northwestern states. Jeff plans to attend this workshop and will report back to the Task Force.
- The next Task Force meeting is September 21.

Action Items

Who	What	By When
All	Send Jeff any feedback on the following handouts: Determination of State Drought Plan Scope (i.e. impact tiers), Geographic Description of Drought, and Review of other State Drought Stages and Triggers.	Aug 24
Teresa Scott	Send Jeff the WDFW potential vulnerabilities mapping information. Identify hatcheries that may be vulnerable during droughts.	Sept 21
Jeff Marti	Review the WDFW <i>Resources and responses</i> handout and update the <i>Determination of State Drought Plan Scope</i> table as needed.	Sept 21
Greg McKnight	Look into options for adding an additional question on activation of water shortage contingency plans to the WUE report.	Sept 21
John Schelling	Provide documentation of drought considerations related to the hydropower and oil/gas industries.	Sept 21
Karin Bumbaco	Contact drought monitoring advisory panel members to coordinate review of drought monitoring material.	Sept 21
Jeff Marti	Set up a meeting with the large water utilities in fall 2017 to learn more about their system operations and monitoring/forecasting tools.	Sept 21



Jeff Marti	Arrange a meeting with tribal stakeholders.	Sept 21
Jeff Marti	Solicit input from Trout Unlimited and the water trusts.	Sept 21
All except Ag. and WSCC	Estimate or provide a qualitative narrative of the number of hours or equivalent full-time employees used in 2015 for drought response.	Sept 21
All	Identify vulnerabilities that could be mapped. Send available geographic data to Jeff.	Sept 21
Jeff Marti	Request Melissa Downs prepare a summary of the Lake Roosevelt Drought Insurance program for inclusion in the DCP.	Sept 21
Ginny Stern and Greg McKnight	Send joint DOH/Ecology outreach letter to small system representatives. Set up a teleconference meeting with these representatives.	Sept 21
Ginny Stern	Prepare a summary of DOH's vulnerability/susceptibility rating approach and send Jeff the list water systems that are vulnerable to drought.	Sept 21