

## Focus Group Meeting Questions Klamath NOAA Grant

The following are possible questions of routine interest to the focus groups. Specific types of information are to be identified to address each question during the concept design process.

### 1. General Users / Public

- a. **Question:** How much precipitation fell within the last day? Within the last three days? Within the last week? **Reasons and Actions:** Provide general information about the quantity of precipitation. The amount of precipitation is often of general interest. For the farmer the amount of precipitation is related to the need to irrigate crops and crop vigor. Expectations are the amount of precipitation will be used to communicate basin condition.
- b. **Question:** What is the amount of snowpack? Is the amount of snowpack increasing or declining? How much moisture is within the snowpack? **Reasons and Actions:** The amount of snow is directly related to the condition of the resource (e.g., ability to fill Upper Klamath Lake) and the amount of water available for irrigation. There is typically interest is whether the current amounts are “normal” and whether the melt rate is slower or faster than expected. Expectations are the information will be used to communicate basin condition.
- c. **Question:** What is the likelihood there will be adequate water within the basin this year to meet all of the needs? What are the odds of surplus water? What are the odds of a water shortage? **Reasons and Actions:** There is need to understand whether there is sufficient water in Upper Klamath Lake and the reservoirs (Clear Lake and Gerber), the snowpack and flowing in the streams compared to other years and normal. Other years may include those unusually dry or wet. Expectations are the information will be used to communicate basin condition.
- d. **Question:** What is the long term climate outlook? **Reasons and Actions:** The persistence of the current weather and the climatic conditions into the future is of general interest. The information is of value when considering the need for a drought declaration, as well as the probable amount of water required and available for irrigation and available within the rivers, UKL and basin reservoirs.

### 2. Klamath County

- a. **Question:** Is there a drought? What is the likelihood of drought? How long has the drought lasted? What does the future hold relative to drought? **Reasons and Actions:** Although different information is used by various entities to decide if a drought is occurring, a drought declaration is tied to many decisions. Under ORS 536.700 – 536.780 the County initiates through their Emergency Action Coordinator, a drought emergency declaration. Once declared drought relief can be provided through the Farm Service Agency as well special rules related to temporary water right transfers come into play. The ability to assess, demonstrate and declare drought at the subwatershed scale would be useful to the County.

The Klamath Basin Restoration Agreement (KBRA) also includes a provision for a drought plan. Water management actions are modified by drought and extreme drought conditions. The draft drought plan includes monitoring drought condition by a Technical Advisory Team. The designation of drought and extreme drought is tied to the forecast net UKL inflow.

- b. **Question:** Are conditions likely to result in a flood or are flood conditions occurring?  
**Reasons and Actions:** The County is responsible for responding to flood conditions.
  - c. **Question:** Is there precipitation likely in the next few days? **Reasons and Actions:** The County is responsible for managing weeds. Spraying is used for weed control. The County can use this information to decide about whether to mobilize crews.
3. Fisheries & Natural Resource Manager & Klamath Tribe?
- a. **Question:** What is the current elevation of Upper Klamath Lake (UKL) and is the lake elevation rising, falling or constant? **Reasons and Actions:** The 2008 U.S. Fish and Wildlife Biological Opinion for UKL is tied to elevation. The Klamath Project 2012 Operation Plan and subsequent successor and related documents use and will likely continue to use these or similar elevations. The amount of water that is retained in the lake, flows into the Klamath River and to the Klamath Project for irrigation, is a function in part of these elevations. Reclamation's actions in terms of managing water are tied to these elevations. The 2012 Operation Plan indicated the historical demand for water for the April 1 through September 30 period is 350,000 kaf to 400,000 kaf. Specific actions include when to begin providing water for irrigation, the amount of water and whether reductions in the amount of water are needed.
  - b. **Question:** What is the current flow rate at Iron Gate and is the flow rate increasing, declining or remaining the same? **Reasons and Actions:** The 2010 National Marine Fisheries Biological Opinion completed for the coho salmon requires specific minimum flows at Iron Gate. The Klamath Project 2012 Operation Plan and subsequent successor and related documents use and will likely continue to use these or similar elevations. The amount of water returned through the Klamath Straits drain affects these flows, as well as the amount of accretions and released from UKL.
  - c. **Question:** At this moment, how much water is coming into UKL, being released from the lake through the A-Canal, into the Link River, arriving from the Lost River and flowing into the project, within storage in the Lost River Reservoirs (Clear Lake and Gerber) and being returned to the Klamath River from Klamath Straits Drain? What is expected to happen to these amounts of water in the future? Will the amounts increase, remain the same or decline? **Reasons and Actions:** A general understanding of the current and forecast (future) water volume, movement and distribution in the basin (including the Lost River) is needed for resource and irrigation management decisions. For example, the agencies (USFWS, NMFS, Reclamation) may (or may not) consider a short excursion beyond a biop criterion tolerable, if there is some certainty it will not persist. The specific actions affected are related to operation of the Klamath Project.

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The Klamath Basin Restoration Agreement includes a requirement for development of an “On-Project Plan” which is currently being prepared by the Klamath Water and Power Agency (KWAPA). This plan will be used by KWAPA (and the irrigators, with direct effect upon the agricultural producers) to decide on the means of meeting surface water supply shortages, potentially including groundwater pumping, changing crop types, idling lands and similar means. The decisions of KWAPA as guided by Reclamation will likely be tied to the “allocation curve” which is based on the NRCS seasonal water supply forecasts. The KBRA also includes specific locations on the Klamath River called “Points of Diversion” where estimates of the amount of water provided to the Klamath Project are “limited” depending upon the amount of water available.

There are many potential actions associated with this question, including water delivery quantities in the basin, management of the ecological resource, and whether to pump and the amount of groundwater to be pumped to supplement surface water supplies.

- d. **Question:** What is the probable demand for water and specifically agricultural demand in the coming months? Do the coming months look like they will be warmer and dryer (or cooler and wetter) than normal and therefore the probable agricultural demand will be greater (or lower) than expected? **Reasons and Actions:** The reasons are related to the amount of water available in the basin. Reclamation uses various assumptions related to agricultural demand to forecast the future hydrologic condition for managing water. Information about current weather and future climate that affect the amount of evapotranspiration is useful.
- e. **Question:** What are flows along the Klamath River (and other natural river systems)? **Reasons and Actions:** There are many ecological and resource quality issues and concerns related to river flow. These tend to be more “qualitative” in nature, but the trend is toward increasing quantification of the criteria. For example, the amount of sediment and geomorphic stability of a river is related to the dominant discharge, generally considered as the  $Q_{1.5}$ . Periodic flooding of the riparian area along a river is needed to sustain lateral connectivity and the flow of energy between the landscape and the river. The area inundated by the  $Q_{10}$  is sometimes used for assessing connectivity. Periodic flooding of the riparian area sustains wetland communities.
- f. **Question:** Are low flow or climate conditions expected that would result in high water surface temperature and low dissolved oxygen levels in the Klamath and Lost Rivers? Are the current or future climate conditions and flow similar to when problems typically occur relative to water quality. **Reasons and Actions:** The amount of solar radiation, surface air temperature, wind speed and flow rates affect surface water temperature, and therefore the oxygen holding capacity of water. The wind speed affects the mixing characteristics of UKL. This information could be useful for describing and forecasting conditions when water quality problems and the exceedance of water quality standards occur.
- g. **Question:** Many of the general questions from above will be of interest to this group.

4. Agricultural Producer & Agriculture Extension
  - a. **Question:** Those of the other groups apply to this group.
  - b. **Question:** What is the current general condition of crops across the area; i.e., are they stressed (or not) due to the amount of moisture. **Reasons and Actions:** This information is useful to the agricultural producer to understand current crop conditions. This information could also be useful to a variety of users, including the County (when considering the need for a drought disaster declaration), the Farm Services Agency (when considering decisions about crop insurance), to the Extension Service (on the need for communication with producers) and Dept. of Water Resources. The information may be used in drought related designations.
  - c. **Question:** What is the soil moisture condition? **Reasons and Actions:** This information is useful to the agricultural producer and extension service to understand current soil moisture condition at the landscape scale (not on a specific field). The information about current and future soils moisture could be related to decisions by an agricultural producer to apply water.
5. Klamath Water And Power Authority / Reclamation / Irrigation Districts
  - a. **Question:** To what extent will the Water User Mitigation Program (WUMP) and / or the actions in the (future) On Project Plan be needed in the coming year? What is the estimated amount of water that needs to be realized by the WUMP? **Reasons and Actions:** The WUMP is a program operated by KWAPA with involvement from Reclamation to address the shortage in surface water for agricultural production. The program also affects the amount and distribution of water available in the Basin. The use of water by the project is tied Reclamations Operation Plan and in the future to an “allocation curve” within the KBRA (as well as the seasonal water supply forecast of the NRCS). As the available supply diminishes the amount available for irrigation declines to a minimum value in accordance with the allocation curve. Actions taken by KWAPA are currently related to the WUMP program; e.g., asking for signups for groundwater pumping and paying for groundwater, how much groundwater to pump (subject to water rights and other limitations), whether to ask for land idling, how much land to idle, and describing and document the quantity of water saved (and left in the Klamath River).
  - b. **Question:** How much water is “saved” by the demand management (i.e., land idling) aspect of the WUMP? In what portions of the On Project Plan Area will the water be “realized.” **Reasons and Actions:** Some estimate of the amount of water saved is helpful for demonstrating fiscal accountability. The ability to document water saved and reduced diversion of surface water from the Klamath River System is a component of the KBRA. Actions may include making adjustments to the various KWAPA administered programs.
  - c. **Question:** How much groundwater is needed through the Groundwater Pumping Program of the WUMP to supplement surface water supplies? ? In what portions of the

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On Project Plan Area will the water be “realized.” **Reasons and Actions:** Some estimate of the amount of water provided is helpful for demonstrating fiscal accountability. The ability to document the amount of water pumped and reduced diversion of surface water from the Klamath River System is a component of the KBRA. Actions may include making adjustments to the various KWAPA administered programs.

- d. **Question:** How much water is expected to be available to the On Project Plan Area?
- i. What is the current elevation of Klamath Lake and is the lake elevation trend rising, falling or constant? How does the current lake level compare to the action levels identified within the BiOP?
  - ii. What is the current flow rate at Iron Gate and is the flow rate trend increasing or declining? How does the current flow rate compare to the action levels identified within the BiOP?
  - iii. At this moment, how much water is coming into the lake, being released from the lake and being returned to the Klamath River from Straits Drain.
  - iv. How much water is there in the snowpack / fell as rain over the basin during the last week. Is there enough moisture to keep the lake level up?
  - v. How much water is being released from the lake now and is there a sense of the agricultural demand in the next month.
  - vi. From a long term perspective (say 90 days) what is the chance that the lake level will fall below the BiOP or enough water won't be delivered downstream on the Klamath River.
  - vii. How much water is in storage on the east side in Clear Lake and Gerber Reservoirs?

**Reasons and Actions:** Many of these are described in previous portions of this document.

- e. **Question:** What are the current groundwater levels and probable near-term future trends in level within the On Project Plan Area? **Reasons and Actions:** There are regulatory limitations on the amount of ground water which can be used. Decisions about whether more ground water can be used to supplement surface water needs are likely. The weather and climate influence on agricultural demand is useful information.
- f. **Question:** Those of the other groups apply to this group related to agricultural crop demand and water needs.

### 6. Lower Klamath Wildlife Refuge

- a. **Question:** Those of previous groups apply to this group. However, this information needs to be at a finer spatial scale, specific to the refuge. For example, related to a water balance for the refuge. This might include the amount of water being delivered from the Tule Lake Sumps and returned to the Klamath River via Klamath Straits Drain.
- b. **Question:** What is the estimated evapotranspiration rate from the wetland area?  
**Reasons and Actions:** The influence of weather and climate on evapotranspiration rates is related to the USFWS's need to provide water to maintain wetland water levels within refuge wetlands.