

Fifteenmile Watershed Council presents:

Endangered Species Act Workshop

January 25, 2012. 9:00 AM – 3:00 PM. St. Alphonsus Parish Hall, Dufur, OR

Sponsored by Irrinet, LLC, Wy'East Resource Conservation & Development Council and Wasco County SWCD

DRAFT Workshop Notes

9:00 – 9:20 Welcome

*Phil Kaser, Chair, and Kate Conley, Coordinator, Fifteenmile Watershed Council
Rick Mogren, meeting facilitator*

Phil Kaser convened the meeting, noting there had been a fish kill in 2009 that raised concern for irrigators in the Fifteenmile watershed. The Watershed Council has been working to address those concerns, helping irrigators find a way to balance water rights with the need to comply with the Endangered Species Act.

Kate Conley explained some goals for the workshop. One goal was information sharing between agencies and local residents, and giving locals the opportunity to ask the agency representatives some difficult questions. Ultimately, the goal is for the Watershed Council to get better informed so that it can make good decisions about future plans. Kate hoped the workshop would provide an opportunity to develop ideas for both long-term watershed management plans and shorter-term “emergency” plans to use in future cases of extreme conditions like severe drought.

Part 1: Who Wants The Water?

9:20 – 9:50 Water Rights and Irrigation

Bob Wood, Oregon Water Resources Dept., District 3 Watermaster

Bob Wood is the Watermaster for the region that includes Hood River and Wasco Counties. He explained that the goal of his presentation was to get everyone on the same page regarding how water rights work and how water rights play into ESA issues.

Bob described that Oregon water law follows the doctrine of Prior Appropriation, which means that junior water rights can be shut off to satisfy senior rights. Priority is based only on the date of the water right, not on the type of use (except in a drought when preference can be given to stock watering and household use). A water right may be subject to forfeiture if it hasn't been used for five consecutive years. However, if a water right is leased in stream it is considered to be “used” and therefore would not be subject to forfeiture for nonuse.

Water rights can be put to in-stream use through a lease or transfer. A transfer is permanent whereas a lease is only temporary and may last for one to five years. There is no limit to the number of times a lease can be renewed. If the lease is not renewed the water right automatically reverts back to the original place of use. Split-season leasing allows an irrigator to use the water right for part of the season and protects the water right in-stream for part of the season. An instream right can either be for a point or a reach. The Oregon Water Resources Department is in charge of registering and regulating instream leases and transfers. The OWRD will not permit an instream lease/transfer if it will cause injury to other water rights or result in an enlargement of the right.

On Fifteenmile Creek (including Ramsey Creek) there are 3,450 acres with surface water rights, which works out to a total rate of approximately 47 cubic feet per second (cfs). Instream rights

senior to 1980 amount to 5.83 cfs. On Eightmile Creek, there are 1,450 acres with surface water rights, equivalent to a rate of approximately 17 cfs. Instream rights senior to 1980 amount to 0.60 cfs.

Bob showed a map of the sites where he measures stream flow. The “losing reach” on Fifteenmile Creek extends from the gage below Pine Creek (river mile 29) down to the gage at the Kaser ranch (river mile 6). The new gauging station, where Bob has installed a continuous recorder, is located just below the confluence of Eightmile and Fifteenmile Creeks. Data from the past two summers shows that flows drop off significantly from June to July. In 2010, average flow in June was 62.4 cfs and dropped to 14.1 cfs in July. In 2011, average flow in June was 78 cfs and dropped to 26 cfs in July. Consumptive use is highest in July (9 cfs in July 2010 and 8 cfs in July 2011).

Bob discussed the impact of the losing reach. Losses in that reach can vary greatly from month to month and year to year depending on base flow, air temperature and other factors but losses greater than 50% of total flow have been documented. Because instream leases cannot injure existing rights or result in an enlargement of the right, Bob has to take the losing reach into account when he protects instream water rights downstream. He protects a percentage of the instream rights based on the percentage of flow that makes it through the losing reach.

Bob shared data on stream flow and air temperatures from summer 2009 around the time of the fish kill (see table below). Temperatures were in the 90s to 100s for a week before the flows both above and below the losing reach dropped to less than one cfs. After several days of air temperatures in the 100s the effect of the losing reach became much more extreme. Within two days the percentage of loss went from 4% to 61%.

Max Air Temp	91	102	104	104	97	93	88	71	88	84
	Friday	Monday	Wednesday	Friday	Monday	Tuesday	Wednesday	Thursday	Monday	Wednesday
Regulation Date	7/24/2009	7/27/2009	7/29/2009	7/31/2009	8/3/2009	8/4/2009	8/5/2009	8/6/2009	8/10/2009	8/12/2009
	12/31/1960	12/31/1960	12/31/1912	12/31/1909	12/31/1908	12/31/1908	12/31/1908	12/31/1865	12/31/1865	12/31/1900
K Cutoff Gage RM 13.0	6.85	5.86	4.34	3.02	0.91	0.91	3.28	2.09	6.85	6.36
Use Lower Reach	1.54	1.16	1.21	0.68	0.50	0.50	0.23	0.24	0.04	0.27
Expected Flow	5.31	4.70	3.13	2.34	0.41	0.41	3.05	1.85	6.81	6.09
Kaser Gage RM 6.0	5.08	5.08	3.27	0.92	0.37	0.37	0.48	0.31	3.43	4.58
Instream Rate	3.68	3.68	3.16	3.16	3.16	3.16	3.16	0.53	0.53	2.89
Loss/ Gain	0.23	0.38	0.14	1.42	0.04	0.04	2.57	1.54	3.38	1.51
Percentage	4%	8%	4%	61%	10%	10%	84%	83%	50%	25%

Bob discussed what has happened since 2009. More than 40 flow meters have been installed on almost all significant diversions. Funding has come from the OWRD, OWEB, the Confederated Tribes of the Warm Springs Reservation, and NRCS. Stream flow monitoring has increased with the new continuous recorder at the gage below Eightmile Creek. The goal is to add telemetry to that site so that near-real-time data will be available online. Four staff gage sites have been upgraded to official state stations and data from those sites will now be posted on the OWRD website.

Next Bob talked about the Endangered Species Act and Oregon water law. As Watermaster, he regulates water rights based on priority date but cannot regulate for or against the ESA. He emphasized the importance of knowing the details of your water right, including the rate, duty, place of use, etc. Instream leasing is a tool that water right holders can use to protect their water rights and it allows Bob to protect water instream.

Gary Van Orman asked Bob to clarify the “use it or lose it” rule pertaining to water rights. Bob said it is true that the water right must be used at least once within five years with a few exceptions that are laid out in Oregon statute. Gay Melvin asked if there are different rules for municipal rights. Bob

said that municipal rights are not subject to forfeiture after five years of nonuse but they do not otherwise have priority over other rights.

Bob Durham asked if there has been any research regarding the use of water by stream-side plants. He understands that riparian plant growth is good for keeping the stream cool but during hot weather the plants must also use a lot of water. Bob Wood said that there is some data on how many gallons per day are consumed by different species but it might be a good project for a grad student to study in more detail for the Fifteenmile watershed.

Adrienne Averett asked if there are any groundwater-monitoring wells in the watershed. Bob said that there are about 90. Groundwater levels in the watershed are declining in general but the connections with surface water are not yet well understood.

9:50 – 10:20 Fish in Fifteenmile Watershed

Jason Seals, Oregon Dept. of Fish & Wildlife, Assistant District Fish Biologist

Matt Fox, Confederated Tribes of the Warm Springs Reservation, Fisheries Biologist

Jason Seals gave an overview of steelhead in Fifteenmile Creek. He showed a map of steelhead distribution in the watershed. Both adults and juveniles use all the main tributaries including Fivemile, Eightmile, Ramsey, Larch, and Dry Creeks. Fifteenmile steelhead are part of the Mid-Columbia group or “Evolutionarily Significant Unit” (ESU). Wild steelhead populations vary from year to year with fresh water availability and habitat as well as ocean conditions. There are no hatcheries in the watershed. Steelhead and rainbow trout are actually the same species, but steelhead go to the ocean and then return to freshwater to spawn rather than staying in freshwater their entire life. Steelhead parents can produce resident trout offspring and vice versa.

Fifteenmile Creek steelhead used to be considered winter steelhead because they would enter the creek in winter. However, newer studies have found that they enter the Columbia in summer, crossing Bonneville Dam from July through September, so these are actually summer steelhead. (Winter/Summer denotes when they return to fresh water). Then they wait for higher flows to enter Fifteenmile Creek in January through April. They spawn from March to May.

Steelhead typically build their redds (nests for their eggs) in stream bed gravels found in pool tailouts. The incubation period depends on temperature and typically lasts 50 days at 50 degrees F. Steelhead juveniles rear in Fifteenmile Creek for one to three years before going to the ocean. Smolts (juveniles on their way to the ocean) migrate out of the creek from April through June when stream flows are high. ODFW doesn’t know a lot about the distribution of juvenile steelhead in the watershed and will be looking to see if there are certain stream reaches that attract high densities of juveniles.

ODFW uses several different steelhead monitoring techniques in the watershed. They used to try to assess population numbers by walking the streams and counting redds, but that was not a very accurate method. They trap and tag juveniles on their way out of the creek so that they can track their movement across dams. They also set up an adult weir so that they can count how many adults are returning to Fifteenmile Creek.

Jason described the ideal steelhead habitat. It would consist of a meandering stream with channel diversity including braided channels, diverse pools, and lots of gravel. Stream flows and temperatures would be at natural levels and riparian zones would be wide to provide insulation from summer and winter extremes. More water means more habitat, more natural temperatures, more fish food, and ultimately more fish. In the real world, channelization of Fifteenmile Creek has reduced habitat diversity, reduced pool complexity, and caused downcutting and scouring. Riparian zones have been damaged, but fencing and riparian buffer programs are bringing about improvements.

The ODFW role in Fifteenmile watershed is focused on wild fish management since there is no hatchery. ODFW helps restore and maintain habitat through riparian fencing, screening water intakes, and providing comment on land use permits. ODFW is also actively studying Fifteenmile steelhead to gain a better understanding of their status and life history.

Next, Matt Fox gave an overview of Pacific lamprey and their use of the Fifteenmile watershed in particular. Lamprey are ancient creatures that belong to the most primitive group of living vertebrates. They range from Alaska to Baja California, and are native to the Columbia River basin. They do not have scales, and they have breathing holes instead of gills. Like salmon and steelhead they are anadromous, meaning they are born in fresh water, migrate to the ocean, and then come back to fresh water to spawn. While in the ocean they are parasitic on other fish. They are considered a Sensitive Species by the state of Oregon.

Adults spawn in gravel nests in stream riffles and then die. The eggs hatch into larva called ammocoetes, which bury into silty stream bottoms where they filter feed for 3 – 7 years. The larva then transform into juveniles called macrophthalmia and migrate to the ocean. Adults develop sucking disks for parasitic feeding in the ocean, where they live for 1 – 3 years before returning to freshwater. Once back in freshwater the adults stop eating.

Lamprey are important to salmon both as a food source and as a source of protection from predation, because they provide an alternative food for animals that prey on salmon. Lamprey are also a culturally significant food source for Native Americans. There are tribal harvest sites on Fifteenmile Creek, the Deschutes River, and Willamette Falls.

Current problems for lamprey include lack of passage at dams and diversions, decreased habitat due to channelization and low flows, poor water quality and high stream temperatures. Presence of lamprey is an indicator of “clean” water. Fish ladders designed for salmon or steelhead do not work for lamprey, which cannot navigate 90-degree corners. They also have trouble with perched culverts because they can’t jump.

The lamprey study that Matt is working on for the Confederated Tribes of the Warm Springs Reservation has several objectives. They are researching the distribution of larval lamprey and the timing of juvenile lamprey out-migration. They are monitoring the abundance and run timing of adult lamprey above Cushing Falls. They are also looking at lamprey spawning distribution, redd characteristics, and habitat use in the watershed.

In 2010, Matt saw 63 lamprey adults from late April through July. In 2011 they saw a total of 1100 adults from April through October. These are all night-time sightings. The peak is probably from late May through late June until the water level starts to drop. So far they have not found lamprey in Dry, Ramsey, or Fivemile Creeks. They collect lamprey using eel pots at Seufert Falls. They also installed antennas that read the lampreys’ tags upstream and downstream of the falls/fish ladder in order to monitor how long lamprey take to pass through the ladder as well as the timing from the Columbia River dams to the falls on Fifteenmile Creek. At the fish ladder on Fifteenmile Creek the lamprey can only travel along the rock walls, not up the ladder steps. They can only navigate up these walls when flows are high enough to allow passage.

Todd Davis asked if the Tribes harvest steelhead in Fifteenmile Creek or in the Columbia River just downstream. Jason said that if they did on the Columbia River they would be susceptible to the Zone 6 fishery regulations. There is no sport or tribal harvest of steelhead in Fifteenmile Creek. Matt said that the main tribal fisheries are salmon and lamprey rather than steelhead. Todd asked if netting for salmon might affect steelhead populations. Jen Graham said she would be available to answer questions about tribal harvest after the presentations.

Someone asked if lamprey are going to be listed under the Endangered Species Act. The answer was that the US Fish and Wildlife Service and tribal groups have developed plans for lamprey protection

and enhancement. They hope to implement those plans proactively so that lamprey do not have to be listed.

Tony Justus asked if lamprey are susceptible to high temperatures like steelhead. Matt said that 72 degrees F. is the maximum temperature for lamprey embryonic development. Jason said that for steelhead, the lethal temperature is somewhat dependent on the population and location but it is generally in the 60s.

10:20 – 10:30 Break

Part 2: Legal Protection for Steelhead

10:30 – 11:30 The Endangered Species Act and the National Marine Fisheries Service

Rosemary Furfey, NOAA Fisheries Salmon Recovery Division

Clayton Hawkes, NOAA Fisheries Habitat Conservation Division

Sean Stanley, NOAA Fisheries Enforcement Division

Rosemary introduced herself and the agency she works for. The National Oceanic and Atmospheric Administration (NOAA) is organized under the US Department of Commerce and deals with oceans and climate. One of the more familiar components of NOAA is the National Weather Service.

The National Marine Fisheries Service (NMFS) is one department of NOAA. Their mission is “stewardship of living marine resources through science-based conservation and management and the promotion of healthy ecosystems.” Salmon and steelhead are included under “marine resources” because they spend part of their life cycle in the ocean. The NMFS Northwest Regional Office covers Oregon, Washington and Idaho. Rosemary emphasized the connection between effective species management and economic benefit to communities.

Rosemary described NMFS responsibilities under federal law. NMFS implements the Endangered Species Act for marine animals. This includes listing species and developing recovery plans. The ultimate goal is to get threatened and endangered species off the list. NMFS also has responsibilities under tribal treaties, the Magnuson-Stevens Fishery Conservation and Management Act, and the Marine Mammal Protection Act.

Next Rosemary provided more information about the Endangered Species Act (ESA). As noted already, NMFS is responsible for the ESA when it deals with marine and anadromous species. The US Fish and Wildlife Service is responsible for the ESA when it deals with freshwater and terrestrial species.

Rosemary showed a map of the northwest that highlighted the areas with ESA-listed salmon and steelhead. The area in which Middle Columbia Steelhead are listed covers approximately 35,000 square miles! Upstream and downstream on the Columbia River, on the Snake River, and in Puget Sound there are many other listings for salmon and steelhead, so there are lots of other communities wrestling with similar issues.

The ESA was established in 1973 to conserve threatened and endangered species and the ecosystems upon which they depend. The ESA requires the following actions: 1) status reviews of at-risk species, 2) list species and designate critical habitat, 3) consult on federal actions, 4) apply protective regulations for threatened species, 5) issue “incidental take” permits, 6) produce and implement recovery plans, and 7) delist species.

When the Mid-Columbia Steelhead were listed as threatened, the ESA required NMFS to develop a recovery plan for that species. The recovery plan for Mid-Columbia Steelhead was completed and adopted in 2009 and includes a chapter on Fifteenmile Creek. Rosemary mentioned that of all the listed species in the Columbia River Basin, there is some optimism that steelhead could eventually be delisted.

The ESA contains 11 different sections, and Rosemary explained a few of them. Section 3 defines key terms such as “threatened”, “endangered” and “critical habitat”.

Section 4 deals with ESA listing and provides five factors that must be considered in determining whether a species is endangered or threatened. Listing can originate from NMFS/USFWS or it can result from a petition by the public. Section 4 also deals with critical habitat, a designation applied to areas essential to conservation of the listed species. Designation of critical habitat requires consideration of scientific data, economic impact analysis, publication in the Federal Register and opportunity for public comment. Designation does not create a park or preserve.

Section 4 also describes recovery goals, including restoring self-sustaining wild populations and removing species from the list. Section 4(d) requires regulations to protect threatened species. Regulations for threatened species may include the Section 9 prohibitions on “take,” which applies to endangered species, and/or other specific requirements.

The ESA Section 9 “take” prohibition says that “take” means to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect” the listed species and violation of take prohibitions may result in civil or criminal penalties.

Rosemary displayed a long list of factors that contribute to the decline of salmon and steelhead. Then she explained that the Section 4(d) rule does not prohibit actions, it prohibits killing or injuring protected species. Activities or programs that do not result in take do not require permits. The take prohibitions are not applied to activities conducted under an ESA permit, research during permit processing, and fish/wildlife personnel aiding stranded salmonids. Activities such as water diversion screening can also qualify for a limit on the take prohibition if they meet specific requirements. The key is to determine whether your actions could result in take. If no take, no problem. If take is likely, identify ESA permit options and contact NMFS staff early on in the process.

Rosemary described the process of evaluating potential ESA liabilities. Based on the evaluation, determine whether there is no change needed or whether actions can be changed or modified to reduce liability. If actions still may result in take, then seek ESA permits. Rosemary gave examples of some other communities that are taking action in response to potential ESA liability. The Deschutes Basin Board of Control, an organization of seven different irrigation districts, is seeking funding to develop a Habitat Conservation Plan. A coalition of central Oregon cities and counties has also hired a consultant to evaluate potential liabilities under the ESA, looking at issues such as screening diversions, discharge and habitat.

Next Rosemary introduced Clayton Hawkes, who works for the NMFS Habitat Conservation Division in Portland. Clayton described how the Division is organized, with State Habitat Directors in each of the three Northwest Region states. Oregon has Habitat Conservation Division offices in Roseburg, Portland, and La Grande.

The Oregon State Habitat Office performs duties under the authority of many different federal acts including the ESA, the Magnuson-Stevens Act (MSA), the National Environmental Policy Act (NEPA), etc. The MSA governs all US marine fisheries management. Under the MSA, Fishery Management Councils have the responsibility of designating “Essential Fish Habitat” for managed species. Clayton gave a brief recap of the ESA. He showed a list of the ESA-listed fish in Oregon, including five distinct groups of steelhead. At the last five-year status review in August, all listed salmon and steelhead were kept on the list.

Clayton works with Section 7 and Section 10 of the ESA. Under these sections, when you get a permit for a legal activity, Clayton’s division will try to minimize the damage caused by the activity and give you an incidental take permit. This permit defines what level of take will be acceptable as long as all permit conditions are met.

When a federal agency proposes to do or fund a project that might impact listed species, the agency is required to complete a Biological Assessment and submit it to NMFS. Then NMFS will evaluate the project, evaluate the status of the species, gather input from ODFW, and try to determine how the project will affect the listed species. NMFS writes up their decision in a Biological Opinion, which

may require modifications to the project and can allow for a certain amount of take, which provides liability protection.

Take may occur via habitat degradation, which includes actions such as creating fish passage barriers, discharging pollutants into streams, removing physical features or vegetation that are important to fish habitat, removing water or altering stream flow, or using inadequate fish screens. The aim is to attain “Proper Functioning Condition” (PFC), which means long-term natural processes are maintained. Some actions may even have short-term negative impacts but may help attain or preserve PFC over the long term.

Next Clayton focused in on Fifteenmile Creek steelhead. The 2009 Mid-Columbia Steelhead Recovery Plan says that low flows and high temperatures have impacted spawning and migration timing for steelhead in Fifteenmile Creek. The Oregon Plan identified most Fifteenmile subwatersheds as high priority basins for stream flow restoration. Most of the lower and middle watershed was also identified as high priority for reducing summer water temperatures. The TMDL (the DEQ document that addresses the problem of high stream temperatures) says that restoration of riparian vegetation will have a greater impact on stream temperature than restoring flow, though flow restoration will still be important.

Climate change may impact steelhead in freshwater habitats because summer stream flows may decrease and summer water temperatures may increase. These changes may affect steelhead more than salmon because of their longer rearing period in freshwater. The Independent Scientific Advisory Board recommends restoring riparian buffers, protecting thermal refugia, improving channel complexity and side-channel habitat, and purchasing water rights to leave more water in stream. Mt. Hood’s glaciers have been shrinking, which will impact stream flows.

Next Clayton talked about Habitat Conservation Plans. Section 10 allows a nonfederal applicant to develop a Habitat Conservation Plan (HCP) and submit to NMFS in order to get a permit that will allow limited take within certain guidelines. HCPs are typically in effect for many decades to provide the greatest benefits of functioning habitats while permitting land management activities. NMFS and US Fish and Wildlife Service provide technical assistance to applicants and ensure that relevant regulations are followed. Once an HCP is approved, NMFS and USFWS issue an incidental take permit that covers all listed species. The HCP must specify impacts from the taking, steps to minimize/mitigate/monitor the taking, and analysis of alternatives. HCPs require a high likelihood of attaining PFC within the term of the Plan in order to promote long-term survival of the species.

There are several HCPs for salmon habitat in the Northwest region. HCPs have been approved for the City of Portland, City of Seattle and municipal water supplies, industrial timberlands, WA Dept. of Natural Resources geoduck fishery, Mid-Columbia PUD hydroelectric projects, and WA state forest practices. Tumalo Irrigation District has an HCP under development for proposed actions such as piping and pressurizing the system, improving fish ladders, and improving water measurement. There is also a Deschutes Basin Multi-species HCP under development. Seven irrigation districts and the City of Prineville are involved. The HCP addresses the effects of activities on stream flow, temperature, and other water quality parameters. It involves mapping surface waters and assessment of groundwater.

The Middle Fork Irrigation District has a Fisheries Management Plan. It is an implementation plan required by a US Forest Service Special Use Permit. It includes fish passage, instream flow, water quality issues, reservoir water level management and vegetation management. The Plan serves as the basis for future ESA, CWA, and NEPA compliance. Another example of a different type of plan is the Yakima River Basin’s Integrated Water Resource Management Plan.

Programmatic Biological Opinions can help streamline restoration projects. Similar types of activities in similar areas are batched together and NMFS issues one BiOp to cover any activities that fit the category. Many agencies operate under programmatic BiOps for certain activities. For example, there are programmatic BiOps for BPA’s habitat improvement projects, the Army Corps of Engineers’ maintenance and restoration activities, and the Forest Service’s aquatic restoration projects. NRCS

was also able to get a programmatic BiOp for certain Farm Bill-funded conservation practices on nonirrigated agricultural land in Gilliam, Sherman and Wasco Counties.

After Clayton's presentation, Sean Stanley provided information about ESA enforcement. Sean is the Acting Assistant Special Agent in charge of southern Washington and all of Oregon. He is currently filling the position that was vacated by Special Agent Mitch Fong, who previously visited the Fifteenmile Watershed Council.

Sean said he would try to address the questions: "what does the ESA mean to me?" and "how can we plan to take concrete steps?" He said that the fact that everyone showed up for this workshop is very meaningful to him.

Sean explained that the enforcement division of NMFS has agents and officers. They conduct investigations – civil or criminal – into anything that affects living creatures protected under the ESA. From the enforcement perspective, threatened species are treated the same as endangered species.

The law says that if your actions result in the "take" of a listed species you may be subject to civil and criminal penalties. A criminal conviction will send you to jail and you may also be fined. A civil conviction results in fines but no jail. In practice, the intent of the person who violates the law is taken into account by prosecutors. If you're working in cooperation with recovery planning efforts and your actions happened to result in take, it's most likely that your efforts would be taken into account.

No matter the circumstances, if there is a take there will be an investigation. And, if you take a listed species and you have no permit to do so, then a violation has occurred. The investigator needs to find out and document what happened by collecting data, conducting interviews, etc. Then the investigator takes the documentation to a prosecutor.

The ESA is a gigantic law and the enforcement part is a very minimal part. The most critical part of the ESA is what is going on at this workshop: "people who have exposure to the critters are getting together with smart people to decide what to do."

Phil Kaser asked who will be held responsible if a fish kill happens again. Sean said he could only provide an unsatisfactory answer. He mentioned his previous career experience dealing with real criminals. The idea that someone will be held accountable in a fish kill situation such as the 2009 event may not be true. An investigation will happen and groups or individuals can be held accountable, but every situation is different. Therefore, assigning blame is always different in each case.

As a group of water users, the first step in insulating yourselves against liability is meeting in this group and then figuring out concrete ways to prevent future take.

It would be a huge task for prosecutors to condemn someone who is already working with the government to protect listed species.

In closing, Sean said that you are obligated to comply with the law. Even if you don't know that you're breaking the law you can still be convicted of a civil violation. What the investigator finds will probably have big influence on what the prosecutor does next.

11:30 – 12:00 Roundtable Q&A #1

Moderated by Steve Shropshire of Jordan Ramis PC

All of the morning speakers took places at a table at the front of the room. Steve Shropshire introduced the question-and-answer session. He suggested that Sean continue the previous conversation by further addressing the question of where the civil liability would lie for an unintentional take in Fifteenmile watershed. He also asked Rosemary and Clayton to talk about where the ESA provides opportunities for citizen suits.

Sean said that the key to civil violations is that the penalties are purely financial. Still, civil penalties can be devastating. The criminal justice system doesn't want to be bogged down by most of these cases. If there was no permit, take can lead to a civil penalty regardless of the circumstances. However, if you're working with NMFS and ODFW to follow their recovery plans it would be more challenging for a prosecutor to prosecute. Sean said that he couldn't guarantee that nothing would happen but it probably would be a lower priority for the prosecutor.

The next question is who would be held liable in a civil case. Sean said that there would be an investigation. It would look into the plans of any organizations that might have been involved. The investigation would look for who or what (such as individuals, the sun, earth, etc.) physically consumed the water that led to take. Then the investigator would present a report to a prosecutor. Sean reminded everyone that the process still includes the defendant's opportunity to plead not guilty and argue their case.

Steve commented that cause and effect have to be clearly linked through evidence in order to have a case. Intervening causes could complicate the case.

The bottom line is that no one wants to deal with the expense and hassle of being accused of a take. Therefore it's better to be proactive to avoid accusations in the first place, even if you wouldn't end up being convicted.

Audience question: Can this group obtain a permit for incidental take?

Clayton: The group could pursue a Section 10 Habitat Conservation Plan like the HCPs that some timber operators have.

Rosemary: In Prineville a group obtained funding through the USFWS for a multi-year process to develop an HCP and do proactive work in the meantime. In Fifteenmile watershed it might be possible to evaluate current practices, see where the liability might be, address those things, and maybe not have to do an HCP. She suggested that the Fifteenmile irrigators may find it beneficial to talk to the group in Prineville for input.

Mike Kelly: Why isn't there a Section-10-type exception in place that would protect the irrigators and the Watermaster from liability if the Watermaster is doing his job properly and the irrigators are following his orders? Who is responsible if Bob Wood goes home for the weekend and then the flows drop suddenly?

Rosemary: the ESA supersedes state law, including water law. Section 10 of the ESA deals with permitting. Section 7 deals with process. If you have a federal nexus for your actions you can get a Section 7 Consultation. You have to proactively come to NMFS and develop a Section 10 plan for evaluation, it's not something that NMFS just grants automatically for certain actions. For example, ODOT developed a plan for routine maintenance practices that protects them from liability when following the practice guidelines.

Mike Kelly: Who would initiate the process to get that coverage?

Clayton: Irrigation is a different animal. Most permits are given to big timber companies or municipalities.

Phil Kaser: The point is that we (irrigators) are all accustomed to answering to Bob Wood and we want a way to link that in.

Clayton: But water rights are not tied in to the ESA. A Section 10 Habitat Conservation Plan would be the best vehicle. It would put the basin on a trajectory to get the watershed in good shape.

Clayton's division at NMFS would evaluate the potential take under a proposed HCP.

Steve Shropshire: Section 10 is the gold-plated standard. Maybe there are interim measures or data collection efforts that we can identify in the afternoon discussion.

Gary Van Orman: What did the different lines on the temperature graph in Clayton's presentation represent? Two different lines were "natural" conditions? You're saying that everything that's been done to this creek is the problem?

Clayton: One line represented predicted stream temperature if natural riparian vegetation were restored and another represented predicted stream temperature if natural flow were restored. The graph showed that (according to the DEQ model) restoring riparian vegetation will have a greater impact than restoring flow. However, both streamside vegetation and sufficient flows are necessary.

Gary Van Orman: You guys don't know what those "good" conditions are. I don't think the science is there to identify natural conditions.

Adrienne Averett: Question to Bob Wood: Would an HCP allow you to do your job? There's not a critical ecological trigger that would allow you to do your job differently?

Bob Wood: I can only legally protect water in the stream if there is an instream water right. There is a missing link or gap between water law and the ESA.

Someone commented that it is possible for the Watermaster to protect flows instream (and thus protect fish) if senior water right holders lease or transfer their rights instream.

Steve Shropshire: This is why HCPs work well with organizations like irrigation districts, because you have a structure to manage water.

Ron Graves: In theory we could do a Section 10 HCP with irrigation water management being the core part of that plan. That could probably be done under existing conservation plans for irrigators. We could monitor water temperatures and set a trigger to take a certain action. We need to explore these alternatives.

Bob Wood: We need more data on the losing reach.

Tony Justus: A lot of this talk is assuming that shutting the water off will fix the problem, but it sounds like that's not the only answer.

Clayton: Yes, the DEQ study says that riparian restoration is more important (to water temperature). The process takes time and the combination of increasing flow and restoring habitat is key.

Steve Shropshire: Are there any examples of smaller groups of water users who are not organized under an irrigation district dealing with these issues?

Rosemary: The Lower John Day Coordinating Group brings together agricultural producers with different agencies such as SWCD's and Watershed Councils for coordinated grant writing, project prioritization, field tours, recovery planning, and leveraging money. Some private, non-profit foundations may want to help fund a proactive, organized group.

Matt Fox: Does the magnitude of a fish kill matter when it comes to enforcement?

Sean Stanley: NMFS has investigated the death of an individual fish and also the death of thousands of fish. Each instance has to be investigated independently.

Audience question: How many fish were killed in 2009 and what size or age class were they?

Sean: We don't know.

Jason Seals: Right, we don't know. Some fish kills are easy to document but this was not. There were reports from people in different areas over different days. There weren't adult steelhead around and smaller juvenile fish are harder to see. Small fish also disappear quickly. ODFW also couldn't access private lands easily to document the scope of the problem.

Todd Davis: An animal can die at any time. Why would you assume the death was human-caused?

Sean: Typically when there is a one-fish case it is an unambiguous case of harvest.

12:00 – 12:15 Serve lunch

Lunch from Kramer's Market provided thanks to workshop sponsors **Irrinet, LLC** and **Wy'East RC&D**

Part 3: Plans for Steelhead and Watershed Recovery

12:15 – 12:35 The Mid-Columbia Steelhead Recovery Plan (lunchtime presentation)

Adrienne Averett, ODFW Recovery Plan Implementation Coordinator

Rosemary Furfey introduced Adrienne Averett, the Eastside Implementation Coordinator for Oregon's Middle Columbia Steelhead DPS Conservation and Recovery Plan (Mid-C Recovery Plan).

The Mid-C Steelhead Distinct Population Segment (DPS) was listed as threatened in 1999. The DPS covers two states (Oregon and Washington) and includes four Major Population Groups (MPGs) and 17 populations. In 2009, NOAA approved a bi-state recovery plan made up of the Washington and Oregon recovery plans for Mid-C steelhead. The ODFW Commission approved the plan in 2010.

The Oregon Mid-C Recovery Plan was created with the involvement of a broad group of technical, stakeholder, and public participants. There were over 125 contributors. The plan was based on existing work and solid science. The plan considers the full steelhead life cycle and all four of the "H" threats (hydro, hatcheries, habitat, harvest). The plan meets ESA and OR NFCP requirements.

The plan is a non-regulatory guidance document. It describes: the biological structure and current status of Mid-C steelhead in Oregon, recovery goals, limiting factors and threats, recovery strategies and actions, and research and monitoring needs.

Adrienne explained that the Mid-C steelhead DPS is made up of MPGs, which are made up of populations. Each population has its own attributes including abundance, productivity, spatial structure, and diversity. Adrienne showed a map of the current viability status of the different populations of Mid-C steelhead. The Fifteenmile population is considered viable. It is part of the Cascade Eastern Slope Tributaries MPG. It has only natural-origin (no hatchery) spawners. The population's three major spawning areas are upper Fifteenmile Creek, Eightmile Creek, and Fivemile Creek. The population's minor spawning areas are Mill, Chenowith, Threemile, Mosier, and lower Fifteenmile Creeks.

Limiting factors for Mid-C steelhead include degraded tributary habitat, hydrosystem operations and impaired fish passage, hatchery-related effects, estuary habitat problems, harvest, and predation. Primary limiting factors in the Fifteenmile population are tributary habitat quantity and quality. The issues include low stream flows, high water temperatures, degraded riparian condition, sedimentation, degraded floodplain connectivity and function, and degraded channel structure and complexity. Threats include current land use practices such as roads, residential development, and agricultural and forest practices.

There are 121 site-specific recovery actions listed in the Mid-C Plan for the Fifteenmile population. Priority recovery actions include protecting the highest quality habitats, conserving water, restoring natural plant communities, and restoring natural channel form and bank stability.

Adrienne concluded her presentation with a discussion about moving the Mid-C Plan toward implementation. The Oregon Mid-C Implementation Team has 81 members representing 44 entities including SWCDs and Watershed Councils. The Team's purpose is to "work together, collectively and synergistically, to achieve and advance recovery goals." It takes a diverse, enthusiastic implementation team and dedicated landowners to make progress down the road to recovery. The ultimate goal of the Mid-C Steelhead Recovery Plan and the Implementation Team is to recover Mid-C steelhead to abundant, productive and diverse levels.

Adrienne explained that the Mid-Columbia Steelhead Recovery Plan is available online if anyone wants to download it.

Someone asked how this plan interfaces with BPA's plans. Adrienne explained that the 2008 biological opinion on the Columbia River federal dam system addresses one of the 4 "H's" (hydro) in the Mid-Columbia Steelhead Recovery plan. She noted that Oregon has identified more issues that they would like to see addressed above and beyond what's addressed in the 2008 Bi-Op.

Someone asked about possible funders. BPA and OWEB were suggested as possible funders.

Mike Kelly: Is it possible to delist the viable Fifteenmile population of steelhead?

Adrienne: Steelhead can only be delisted at the DPS level. Fifteenmile is just one population within the DPS. All the other populations within the DPS must be classified as "viable" in order for delisting to occur.

Rosemary: The contribution that the Fifteenmile population makes is very important. We have to make sure that the less viable populations improve. The Yakima and Natches populations are very endangered so we need to work closely with Washington to recover Mid-Columbia Steelhead.

Mike Kelly: Who drew the boundaries for the different populations? They seem arbitrary when looking at the map.

Rosemary: They are based on genetics.

Jen Graham (to Rosemary): For bull trout the US FWS is talking about delisting population segments.

Rosemary: NOAA has been ordered to delist salmon and steelhead on a large scale (all populations within a DPS).

12:35 – 1:00 Introduction to Fifteenmile Watershed Restoration Plans

Kate Conley, Fifteenmile Watershed Council Coordinator

David Pilz, Flow Restoration Coordinator, The Freshwater Trust

Kate Conley provided an introduction to existing restoration plans for the Fifteenmile watershed. She said that it is important to know what we already have to work with so that we don't reinvent the wheel.

Existing plans include the Fifteenmile Watershed Assessment and Action Plan, the Fifteenmile Subbasin Plan, the Forest Service's Fifteenmile Creek Basin Aquatic Habitat Restoration Strategy, the Miles Creeks TMDL (DEQ's plan related to high stream temperatures), the Mid-Columbia Steelhead Recovery Plan (as discussed by Adrienne), and various plans for lamprey recovery.

The Fifteenmile Watershed Council Action Plan was written to guide the Watershed Council's work on all watershed issues, not just steelhead habitat. Action plan goals include: improving riparian and instream habitat, improving water quality and quantity, improving soil quality and quantity, sustainably managing grasslands and forestlands, increasing upland water storage and availability, and minimizing sediment delivery to streams. The Plan then lists some specific actions that could be used to accomplish these goals. Actions include: enrolling privately owned land in riparian buffer programs, eliminating fish passage barriers, metering surface water diversions, piping irrigation ditches, promoting irrigation efficiency through financial assistance, encouraging instream leasing or transfer of water rights, and promoting off-stream water storage for irrigation.

The Fifteenmile Subbasin Plan shares the goal of increasing water quality and quantity and recommends very similar actions to achieve that goal.

The Fifteenmile Creek Basin Aquatic Habitat Restoration Strategy also catalogs and prioritizes restoration actions in the watershed. It lists specific restoration actions for each subwatershed.

The Middle-Columbia Hood (Miles Creeks) Subbasin TMDL by the Dept. of Environmental Quality addresses the problem of elevated stream temperatures. It includes a management plan that identifies strategies for improving stream temperatures. Again, these actions are similar to those listed in the previous plans.

Next, Kate introduced David Pilz to discuss The Freshwater Trust's latest plans for the Fifteenmile watershed.

David reviewed in-stream leasing options available from The Freshwater Trust. Full season leasing is available for senior water rights (1856-1896) at \$220 per acre per year and junior rights (1897-1909) at \$150 per acre per year. Split season leasing (July 15 – Sept. 30) is available for senior rights at \$100 per acre and junior rights at \$65 per acre. In-stream leasing is considered beneficial use and has no permanent impact upon water rights. The maximum term for leases is five years. Funding for the program comes from BPA and the Columbia Basin Water Transactions Program (CBWTP).

He mentioned that The Freshwater Trust may want to change their goals so that they have separate goals for the upper and lower parts of the watershed in order to take into account the losing reach.

Kate concluded the presentation by saying that we already have several plans, which provide various prioritization schemes and recommended actions. The question now is: what do we do next with the plans that we already have? It's time to come up with specifics including who will do what, when, and how.

1:00 – 1:15 Message from sponsors Wy'East RC&D and Irrinet, LLC

Robert Wallace, Executive Director of Wy'East Resource Conservation and Development Council, described his organization's efforts to help irrigators save electricity. Wy'East has been administering a grant from Oregon Dept. of Energy and works with energy conservation funds from Bonneville Power Administration. They have helped irrigators with new efficient pumps, variable frequency drives, soil moisture monitoring, and sprinkler hardware upgrades. Last fall they helped the SWCD and NRCS put on the tour of irrigation projects in the Dufur Valley.

Robert described new programs. The NRCS has identified energy conservation as a top priority. The first step for NRCS-funded energy conservation projects is typically a full-farm energy audit. The audit will look at all energy types including electricity and diesel. Wy'East RC&D will provide "fee for service" audits. Fred Vosper will be doing the audits. The farmer can take the results to NRCS in order to get an EQIP contract to help pay for the actions suggested by the audit. The program looks like it will pay out pretty well. Irrigators can still match NRCS funds with rebates from utilities.

Wy'East RC&D is also working with the Northwest Energy Efficiency Alliance (NEEA), which has developed a goal of reducing agricultural energy use by 20% by 2020.

Another tour of irrigation efficiency projects has been proposed for some time in the spring.

Next, Merlin talked about the irrigation scheduling services offered by Irrinet, LLC. Irrigation scheduling based on soil moisture and other data can help save 10 – 20% of the water and energy used for irrigation. With the money saved on electricity and the improved crop yields, irrigation scheduling ultimately helps the farmer's bottom line.

Merlin also commented that the coordination between the Fifteenmile Watershed Council, NRCS, and Wy'East RC&D has been very effective.

1:15 – 1:35 Roundtable Q&A #2

Moderated by Steve Shropshire of Jordan Ramis PC

Question: Could the Freshwater Trust project in northeastern Oregon be a useful example for Fifteenmile?

David Pilz: That project is on the Lostine River that comes out of the Wallowa Mountains and provides habitat for steelhead. The project involves five different ditch companies. They came up with a minimum flow agreement. Approximately 100 individual landowners are involved. They have installed gauging stations below each diversion. They agree to maintain 15 cfs at a certain point in

the river for a certain time period. The agreement doesn't dictate how they will maintain the flow, but the Freshwater Trust will compensate them if they meet the target. In really dry years they might have to shut down to just stock water. They rotate ditches on and off. This is a good example of how to take action without the OWRD Watermaster because they don't need to be regulated in order to meet a target. This agreement does not qualify as an HCP or provide protection from liability but it could be built into an HCP.

Question: How do you balance all the different masters? Is there a unifying way to figure out what's what and coordinate among agencies?

Rosemary Furfey: The Clean Water Act and the Endangered Species Act are complementary. If you address water quality impairments it will help you comply with the ESA too. Some conflicting mandates have complementary paths.

Adrienne: ODFW is working to keep track of mandates and track progress. This is the beginning of a long-term implementation process.

Davíd: This group has a powerful resource in the Watershed Council, which has a great group of engaged landowners. It may be one of the best and most involved groups in the state.

Steve Shropshire: Invite regulators and politicians to your tours so they can see how policy affects real people.

Question: Is there good science out there to address the water use of riparian vegetation?

Adrienne: Native plants are adapted to the local climate. There is significant research on the positive impact of riparian restoration including elevating the water table and providing insulation from extreme summer and winter temperatures.

Question: Is there data on the number of steelhead in Fifteenmile Creek and trends in their numbers?

Adrienne: The target or "low extinction risk threshold" for Fifteenmile Creek is 500 steelhead spawners. These 500 could be male or female fish; there is no distinction regarding sex of the spawners. But the key to recovery is productivity. The target is 1.56 recruits per spawner and current levels might be around 1.76. This number is the 10 year average geometric mean, meaning the very low and very high numbers or outliers are not considered. The recent five-year status review found the Fifteenmile Creek population to be viable and fairly stable, which means it's not improving but at least it's not getting worse.

Steve Shropshire: Regarding water rights, your rights are exempt from forfeiture if you engage in an irrigation practice that results in less water being used, as long as you are ready, willing, and able to use your full right.

Tony Justus: You need to irrigate every acre under your water right at least once every five years but you don't have to use your whole water right every five years.

Adrienne Averett: Instream leasing is not a stand-alone action.

Question: What level of steelhead spawners and productivity would we need to reach and ideal steelhead population in Fifteenmile Creek?

Adrienne: I don't have exact numbers off the top of my head. You would need to look at 10-year rolling averages of data because populations fluctuate year-to-year for lots of different reasons.

Question: Have we made any improvements?

Adrienne: The system itself is broken. It's not just one part. The only thing that really brings immediate results in terms of improved steelhead production is the removal of fish passage barriers, which immediately opens up more habitat for spawning. There is a lot of complexity in the reasons for the problems steelhead are facing. For example, we still don't know a lot about groundwater-surface water interactions. It will take time for the cumulative impacts of restoration work to start driving the species forward.

Question: What will it take to delist steelhead?

Answer: All populations in the “Mid-Columbia Distinct Population Segment” must be recovered. Recovery goals that must be met include increased abundance and productivity and improved spatial structure, which means that the steelhead would be spread out across all potential habitats in their historic range. Fifteenmile Creek is unique for not having any hatcheries and for having steelhead spread out throughout their natural range.

Question: Have any species been delisted?

Answer: Yes, species such as the Bald Eagle and Peregrine Falcon have been delisted.

Clayton Hawkes: the ESA helps stop species from sliding toward extinction, even if they are not delisted.

Chris Rossel: Do all the Mid-Columbia steelhead populations have to be viable for 10 years before delisting?

Adrienne: No. There are specific requirements for different populations. Some are “must have” viable populations. For each Major Population Group you need some viable, some highly viable, and some maintained populations; the distinction is based on size and structure.

There are monitoring requirements for five years after delisting to determine the population is sustained.

Steve: One big issue for state agencies is the question: are we administering resources to prevent further harm or to achieve recovery? Sean Stanley was talking from an enforcement perspective about “do no further harm.” But agencies usually have to plan around recovery standards instead of take standards.

David Brewer: Is there evidence of natural genetic transfer among different steelhead populations?

Adrienne: Hatchery steelhead do stray. This is particularly an issue for the John Day population because natural-origin spawners’ stock has been diluted with hatchery strays.

Question: How do we “help” other basins?

The Fifteenmile population is not contributing genetically to other populations but having a healthy population here is like having an insurance policy in case something catastrophic happens elsewhere.

Jason: Steelhead are notorious for straying.

Merlin: Why is it so important that they go back to their original stream?

Jason: Straying is a life history trait in steelhead and it can be a good thing. It acts like an insurance policy. If a generation or two are wiped out in a particular stream, a neighboring population can recolonize that stream.

Question: Why are hatchery fish bad?

Rosemary: Hatchery fish are not all bad; they play several roles. In some cases they preserve genetics and allow a very endangered population to continue to exist. In other cases hatchery fish serve purposes for fisheries and treaty tribe obligations. The problems are that they are less vigorous and produce fewer eggs in the wild. They are basically a domesticated animal. When hatchery steelhead spawn with wild fish it drives reproductive success down. They can weaken genetics because they don’t survive well, don’t always return, etc. It is ideal not to have hatchery fish. They are phasing out some hatchery programs that bring in brood stock from other rivers and basins.

Jim Olson: Why don’t we take the beaver dams out?

Adrienne: We actually like beaver habitat. One recommended recovery action is to preserve and improve beaver habitat. Channel complexity improves as beaver dams reconnect the stream channel to the floodplain. Beaver dams are not full passage barriers; most steelhead can navigate through them.

Jason: I've seen steelhead get over five-foot dams.

Clayton: The benefits of beaver dams far outweigh the disadvantages of temporary passage interruption. Oregon Coast Coho recovery plans count on beaver dams for restoration.

Jim Olson: When they make a dam too high for fish to get over it seems ridiculous to allow it to stay in place.

Clayton: There are ways to get fish through.

Another benefit of beaver dams is that they help keep stream temperatures cooler by trapping cold water

Jim Olson: I have been told by ODFW staff that no redds were observed above the beaver dams on Fifteenmile and Ramsey Creeks. I have beaver dams which I believe are impeding fish.

Rick: I'm hearing two different perspectives on beaver dams. Let's put this on the list of topics to return to in the future.

Clayton: I was involved in a previous study showing that beaver ponds are the biggest producer of juvenile salmonids.

1:35 – 1:45 Break

Part 4: Planning for the Future

1:45 – 3:00 Group Planning Session: Where do we go from here?

Rick asked the workshop participants to split into smaller groups organized around a variety of topics. Each group discussed potential future actions and needs related to that topic and then reported back to the large group. Highlights from the small group reports are noted below.

Group 1: Monitoring and Research (group spokesperson Kate Conley)

Topics discussed:

- Groundwater / surface water monitoring (one of highest priorities, need funding)
 - o Expand well monitoring
- Should we exchange surface rights for groundwater rights?
 - o Shallow ground water / surface water connection (need to understand losing reach)
- Basinwide habitat status: How well do plantings survive?
 - o Riparian habitats take >20 years
 - o Status: when is restoration complete?
- Off-channel storage: Concerns for fish & habitat; need data
- Watershed Council could list and prioritize monitoring questions

Bob Wood commented that real-time stream flow data will be crucial to understanding. More sites are needed, especially in Eightmile Creek.

Group 2: Instream Leasing (group spokesperson Bob Wood)

Topics discussed:

- Exploring options for different types of split season leases.
- Limited license to do ground preparation for plowing? This might require legislative changes.
- Crop rotation opportunities: smaller % doing alfalfa vs. wheat this year, which could mean opportunities for instream leasing.

- Steve Springston: as a habitat person I would rather see perennial crops in the floodplain to provide protection from flood flows. There are tradeoffs.
- Phil Kaser: it's a good idea to never open up bottom ground in the fall.
- Multi-purpose storage: use for irrigation and flow augmentation.
 - May be able to get a grant from OWRD for a feasibility study.
 - Would off-stream storage affect stream temperatures?
- Approach senior water users with additional incentives.

Group 3: Dry Year Contingency Plan (group spokesperson Ron Graves)

1. Alert triggers:
 - a. Early season snow pack
 - b. Summer: 5-day forecasts
2. Concept: HCP (Section 10)
 - a. Optional irrig water mgmt plan
 - b. If stream temp reaches near lethal level turn off pumps (base flow in upper watershed ~15 cfs)
 - c. Possibly only irrigate at night
 - d. Possible pooling agreement with OWRD
 - e. Potential fund to reimburse production losses
3. Off-stream reservoir
 - a. Store winter water for summer use
4. Change POD to groundwater or pump to stream?
 - a. Permit and/or temperature issues?

Comments: HCP might be a long process. Put together a plan and implement it locally while waiting to get HCP so that we can still make a difference in the meantime.

Ron: could we use something like a pooling agreement with all irrigators to rotate use and leave some water in stream?

Davíd Pilz: One option would be to do a completely voluntary plan that involved shut off or irrigating only at night. The option would be to do something more formal with contracts or rotational pooling agreements. The Freshwater Trust might be able to find funding to help offset losses during shutoff.

Rick Mogren: Has any other Watershed Council set up a dry year contingency plan?

Rosemary: Possible example in the Methow Valley in Washington.

Adrienne: Experienced some similar planning in the southeastern US when she worked there.

Jason: The Hood River Watershed Group came up with a drought plan.

Tony Justus: I have serious concerns about the idea of a Watermaster taking on any regulation for the ESA. Why would he put a target on his back?

John Clausen: What is the absolute minimum flow before you shut down the most senior user?

Bob Wood: The minimum stream flow required by law is "moving" water for stock. Currently when regulating back to 1856 that leaves only about 0.3 or 0.5 cfs instream.

Group 4: Riparian Improvements (group spokesperson Karen Lamson)

The group expressed the concern that there is not much opportunity for giving up more land for riparian restoration, meandering the creek, etc. because the cropland is too valuable. The group discussed: what else can be done? Possibilities include:

- Rock weirs and log placements
- Establish vegetation for small and large debris (provide habitat for macroinvertebrates, etc.)
- Plantings (can be expensive?)
- Convert stream crossings to bridges
- Easements: maybe a land trust could obtain permanent easements instead of just a CREP contract

Chris Rossel: Existing watershed restoration plans also list a lot of other projects we haven't gotten to yet.

Group 5: Irrigation Efficiency (group spokesperson Robert Wallace)

- Saving water means saving money too.
- Pipe open ditches (prioritize by location in watershed)
- System upgrade:
 - o Pivots
 - o VFDs
 - o Hardware upgrades/maintenance
 - o Need to fill funding gaps in order to fund bigger system improvements (good funding available for some things but not others)
- Water management (IWM, SIS)
 - o Metering flow: need good calibration. Meters are helpful to the Watermaster but growers also need to know how to use them.
 - o Soil moisture monitoring
- What happens to saved water? Does it stay in stream or get used by junior users downstream?
- Pre- and post-project monitoring
- Progress tours to help promote practices with other landowners
- Off-channel storage?
- Conflict with water rights when water savings are achieved?
 - o If a grower increases his efficiency (i.e. using better sprinklers), will he get penalized?
 - o Bob Wood: no, allowances are made for different sprinkler types.
 - o David: an irrigator making a change should talk to Bob about it because you do get some options when you save water:
 - Irrigate new ground
 - Transfer conserved water instream
 - o Steve Shropshire: the OWRD conserved water program works best with surface water rights.
 - o Tony Justus: it is more difficult to use the conserved water program for water rights that are used right next to the stream (more likely to impact other water rights).