

Senate Committee on Natural Resources
 Oregon Capitol
 900 Court St NE
 Salem, OR 97301

April 8, 2023

Chair Golden, Members of the Committee,

My name is Tony Malmberg with Bunchgrass Land and Livestock in Union. I support the Split Season Leasing Bill, HB 3164.

Split Season Leasing allows irrigators to leverage limited water resources for hay and grass production while supporting hot season river flows. Most upper tributary rivers in eastern Oregon consist of cool season plants, e.g. meadow hay and alfalfa. Cool season plants evolved to shut down, or senesce, when ambient temperatures reach 70 degrees F. In eastern Oregon that happens around July 10, on average. The cool season plants benefit by saving nutrients to grow when temperatures cool later in the fall. Continued irrigation during that period may keep plants green but they do not produce much forage.

In effect, the value of water to cool season plants and river function, including salmon habitat, is inversely proportional. Water adds more value to grass and hay production in the cool spring and fall than the hot summer. And water adds more value to river function during the hot summer. So let's do the numbers.

My testimony in support of Split Season Leasing to the Oregon Legislature on Feb 2, 2012:

<https://olis.oregonlegislature.gov/liz/2012R1/Downloads/CommitteeMeetingDocument/92108>

In 2011 we were growing hay, an alfalfa grass mix on a twenty acre field, but all cool season plants. We used 1.5 AF for irrigation and put 1.5 AF instream. This was planned with the following analysis of eastern Oregon transpiration rates, determining that 14 inches of irrigation, for the first two cuttings, added more value to production than received for instream flow. (Our initial analysis suggested that one dollar in revenue for leasing water instream would have been \$5.71 in revenue for the 1st cutting and \$3.00 for the 2nd cutting. While the hot-season 3rd cutting only returned \$0.37 on the dollar. We entered a 3 year split season lease to generate two cuttings and forego a 3rd cutting.)

	Production	Irrigation	Prod / inch	Instream \$: hay
First cutting-	5,500 lbs.	6 inches	916 lbs.	\$1: \$5.71
2 nd cutting-	3,500	8	438 lbs.	\$1: \$3.00
3 rd cutting-	1,200	13	92 lbs	\$1: \$0.37
Total	10,200			

With actual use numbers supporting the projection, we entered a 5 year instream lease, in 2015, that increased instream use to 2 AF / acre for 18.585 acres, down from 20 acres after transferring pivot corners instream. Our payment of \$25,089.75 was used to upgrade irrigation to a center pivot. We made a shift from focusing on hay production to focusing on soil health production and grazing, improving our gross margin. We entered another lease in 2020, for only 2 years because we had reached the 10 year cap. Our finances and the fish benefited from split season leasing for ten years. We were ineligible for split season leasing in 2022, because of the ten year cap. So let's do the numbers.

	Production	Irrigation	Graze Income / Ac	Instream \$ / Ac	Total / Ac
20109-21 Avg	5,247 lbs.	12 inches	\$ 94.84	\$260.22 (2 AF)	\$355.06
2022	7,972 lbs	36 inches	\$155.71	\$0.00	\$155.71
Gain			\$ 60.87	-\$260.22	-\$199.35

The take-away? Without Split Season Leasing, the fish had less hot season water and our ranch had less income.

Bottom line? 1) Cool season irrigation adds value to cool season plant agriculture. 2) Hot season instream flow adds value to salmon and river function.

I would like to note, Split Season Leasing compliments The Healthy Soils Bill by supporting the greatest leverage point of improving soil health-by empowering the decision maker closest to the soil surface—the farmer or rancher.

Thank you,
Tony Malmberg
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Attachment: Book excerpt related to Split Season Leasing

Excerpt from [Green Grass in the Spring](#)

by *Tony Malmberg*

Beginning on 3rd paragraph, page 196:

Our homeplace near Union, Oregon, had different issues. We purchased this property, in part, because the irrigation water came from one of the most critical Chinook salmon streams in the Pacific Northwest. Based on our experience with sage-grouse in Wyoming, being involved with an endangered species was on the nineteen-point checklist. We believe the practices that support endangered species add diversity and complexity to an entire environment. We know more functional ecosystem processes benefit livestock productivity and our profits. We set out to learn how this worked with salmon. Holistic Management has taught me that when a problem presents itself, we should ask what we can add to the equation, not look for things to remove.

To manage our irrigation water for salmon, we took a page from our Twin Creek playbook. Holistic Management's charge to mimic nature had prompted us to ask why we were irrigating during the hot season. The Wind River Range foothills did not get regular rainfall from Memorial Day to Labor Day. We realized hot season irrigation could be sustaining a dependent plant community in a system that could not provide that luxury in a drought. We started turning the irrigation off when Twin Creek dropped. This usually occurred around the first part of July. Surprisingly, our production did not decline at all. Even as the drought intensified and we were turning irrigation off as early as the end of May, production on the riparian areas remained steady because there is no drought on a creek that's connected to the floodplain.

As we explored how to support salmon by sustaining stream flows from mid-July through fall in Oregon, we gained insight into what was going on at Twin Creek. Cool season plants evolved to shut down,

or senesce, during the hot season. This tactic allows them to retain carbohydrates and energy for growth when temperatures cool. With this new information, I thought back to our time on Twin Creek and realized that our hot season irrigation kept plants green but did not produce much forage. By putting that water into the stream instead, we actually improved stream channel function and floodplain production as the creek reconnected to the floodplain. Lateral bank storage and return seepage provided thermal refuge for fish and improved drought resistance on riparian areas.

In Oregon, we worked with The Freshwater Trust to put hot-season water instream with a **split-season instream lease**. The gross profit analysis demonstrated that the enterprise of salmon production returned more gross profit than a second cutting of alfalfa or aftergrowth on native hay meadows. Improved production on the river provided an additional bonus.

We also had some ground with pervasive Baltic rush. We did a full season instream lease on that ground. After three years, red top, meadow foxtail, and red clover started replacing the hydrophytic plants, and production increased by 150 percent. After ten years of Holistic Planned Grazing without irrigation, our trend-and-condition transect showed the following:

- Plant basal cover increased from 25 to 55 percent.
- Plant vigor improved with average leaf height increasing from 15 to 28 inches.
- Maximum leaf height increased from 23 to 53 inches.
- Production increased from 4,470 to 7,800 pounds per acre.

- Species diversity improved by 180 percent.
- Desired plants were up by 138 percent.
- Undesirable plants were down by 115 percent.
- Plant distribution improved by 120 percent.
- Living organisms improved by 175 percent