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Adaptive Management, Economic Realities and the Platte River Cooperative Agreement

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Market Report	Yr Ago	4 Wks Ago	8/25/06
Livestock and Products, Weekly Average			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight	$81.59	$80.05	$87.66
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb	133.06	137.69	135.35
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb	120.48	119.30	121.09
Choice Boxed Beef, 600-750 lb. Carcass	133.01	140.88	147.32
Western Corn Belt Base Hog Price Carcass, Negotiated	70.35	63.84	73.15
Feeder Pigs, National Direct 45 lbs, FOB	49.85	47.86	50.10
Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean	75.65	70.31	76.74
Slaughter Lambs, Ch. & Pr., 90-160 lbs., Shorn, Midwest	94.00	101.00	91.25
National Carcass Lamb Cutout, FOB	241.57	230.58	222.81
Crops, Daily Spot Prices			
Wheat, No. 1, H.W. Imperial, bu	*	4.39	4.14
Corn, No. 2, Yellow Omaha, bu	1.66	2.07	2.01
Soybeans, No. 1, Yellow Omaha, bu	5.87	5.29	4.99
Grain Sorghum, No. 2, Yellow Columbus, cwt	2.68	3.18	2.95
Oats, No. 2, Heavy Minneapolis, MN , bu	1.70	2.19	2.03
Hay			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton	117.50	135.00	135.00
Alfalfa, Large Rounds, Good Platte Valley, ton	37.50	87.50	87.50
Grass Hay, Large Rounds, Good Northeast Nebraska, ton	52.50	82.50	82.50

* No market.

In the past several years, the term 'adaptive management' has been used a lot with reference to the Platte River Cooperative Agreement. This leads to many questions – what exactly is adaptive management? How does it relate to economic and policy choices? How does it affect management choices made on the Platte River?

At a basic level, adaptive management recognizes that there are multiple management options for natural resources, and that there are tradeoffs in choosing a particular strategy. For example, reducing the flows out of Lake McConaughy will hurt farmers who rely on the water for crop irrigation. However, it will benefit people who fish and camp at Lake McConaughy due to improvements in recreation opportunities. The choice of management options depends on the values of all impacted stakeholders, and therefore the use of stakeholder input is crucial. Adaptive management also recognizes that since scientists do not know the outcomes under different policy choices with certainty, incorporating learning into those policy decisions is critical, and having policies that can adapt over time to improved scientific knowledge is crucial.

Wyoming, Colorado, Nebraska and the Department of the Interior are all parties to the Platte River Cooperative Agreement. As part of the agreement, each state has agreed to change management of some aspect of the Platte River. Wyoming has agreed to provide additional storage for water that can be released as needed; Colorado has agreed to change the timing of some of their river releases; and Nebraska has established an Environmental Water Account in Lake

McConaughy. Modifications to the Platte River are mandated by the Endangered Species Act, since endangered species such as the Whooping Crane, Interior Least Tern, Piping Plover and the Pallid Sturgeon rely on the river and its surrounding habitat. Changes due to reduced flow levels and modified flow patterns have adversely affected the available habitat for these species. There is hope that these modifications and habitat needs can be met at a lower cost through cooperation between the states as opposed to each state making its own management decisions separately.

An illustration that better explains the types of choices required under adaptive management comes from a study by Gregory et al. (2006) of British Columbia's water use planning.

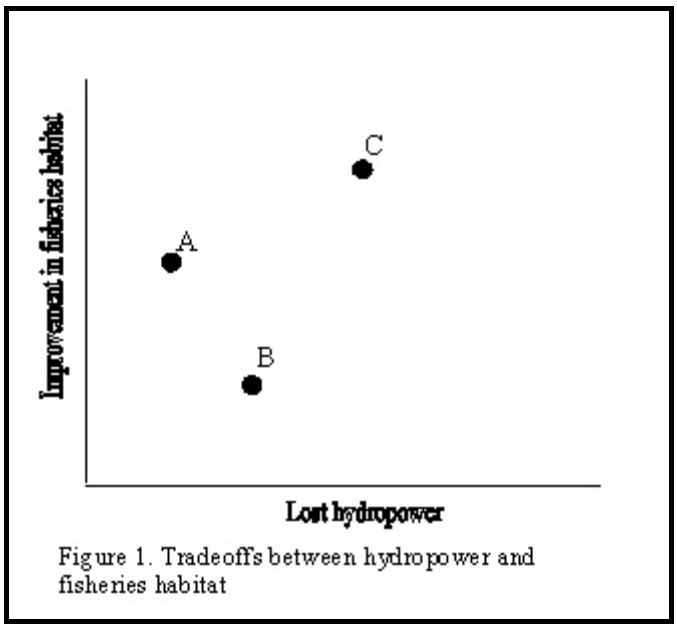

Figure 1. Tradeoffs between hydropower and fisheries habitat

Figure 1 represents a simplified example of the tradeoffs in different management strategies for the water use in British Columbia. Tradeoffs are considered between improvements in fisheries performance and the foregone hydropower from altered flows in the rivers. It is clear from the diagram that option B will not be preferred, since it has a lower benefit to fisheries than the other two options, but comes at a higher cost than option A. However, the choice between A and C is not clear. Stakeholders in British Columbia were presented with examples of this type of tradeoff, and their opinions and values were incorporated into the experiments used in the adaptive management plan. Scientific uncertainty is important, since it might not be known ahead of time if option A provides enough fisheries habitat for the long-term viability of a particular species, or if option C is necessary to keep the species from going extinct.

In another British Columbia location, two operating alternatives that compared benefits to different fish habitat locations were considered by stakeholders. One choice would improve salmon habitat in a reservoir, and the other would improve spawning conditions downstream. Even if both locations are considered good-quality habitat for their ecological benefits, there is still a conflict between different user groups. For example, anglers who use boats will prefer improved reservoir habitat, while fly fisherman will prefer improved river habitat. This example could just as easily represent different species with diverse habitat needs, instead of different habitat locations for the same species.

So, how does adaptive management fit into the Cooperative Agreement? In addition to the agreements that each state will increase or retime flows on the Platte River the agreement explicitly recognizes that monitoring the outcomes of changing flows is necessary to improve Platte River management in the future. Different habitat modification plans will be used along the river, with the outcomes monitored by biologists. Learning more about habitat needs through adaptive management will lead to a better understanding of the habitat requirements for the endangered species, and ultimately to better policy recommendations in the future. The long-term goal is to provide the necessary habitat for endangered species, but to do so at the least-cost to other users of the water. Hopefully, the final outcome can result in the satisfaction of all stakeholders involved in the decision-making process and the outcomes of those decisions.

References:

Gregory, R., L. Failing and P. Higgins (2006). 'Adaptive Management and Environmental Decision Making: A Case Study Application to Water Use Planning,' *Ecological Economics* 58(2) pgs. 434-447.

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