

TO: Board of County Commissioners, Lewis County

FROM: John T. Mudge

July 25, 2007

Subject: Chehalis River Flow

INTRODUCTION

For several years I have attended Chehalis Basin Partnership (CBP) meetings because it was apparent water availability was a coming critical issue. On October 24, 2003 I provided comments to the Chehalis Basin Partnership emphasizing some key objectives and clear legislative intent. Those intentions included providing "...for the economic well being of the state's citizenry and communities." (RCW 90.82.010).

Lewis County has been - and is - experiencing good growth and this looks to be a long term trend. New companies looking to Lewis County, as I understand matters, are not overly encouraged to come here if they use process water. Obvious exceptions come to mind. Cardinal Glass is the most recent but their water needs have yet to be fully resolved. Chehalis Power now uses air cooling instead of water but still uses 150,000 gallons per day of operation, down 95% from their initial proposal. Other large, older, process water users include the steam plant, National Frozen Foods, Darigold and possibly others. The most recent information I have is that Napavine sorely needs added water rights but has not secured them.¹ Yet they are growing very rapidly.

The CBP Watershed Management Plan was adopted by the counties in early 2004. Yet there have been no proposals or means suggested to help resolve the water availability issues. The Tribes are justly concerned about Chehalis River flow and the impact of past and future growth. The immediate objective of this report is to examine the low flow history to try and determine if past use has impacted low flows. The short answer is No. The following material provides evidence. Hopefully, Lewis County can open up new water rights applications in appropriate locations, secure water from the Cowlitz River or help under RCW 90.44.400 relating to management areas. Otherwise, future hopes for growth may prove impossible.

¹ Napavine elected not to purchase rights from Hamilton Farms either because of price or they were insufficient or for other reasons. Thurston County was recently reported to have purchased them.

BACKGROUND & ANALYSIS

Several charts are attached. These charts show the average daily flow by month from 1929 through 2006 for July, August and September, the critical low flow period. In addition, the final chart shows the annual average daily flows for the same period. The data shows a great deal of variation from year to year. This has been smoothed by using a 10 year moving average.

As the last chart shows, the annual average shows considerable ups and downs even on a moving average basis. However, there does not seem to be any long term change. Because low flow months are so small absolutely and high flow months so much larger, the annual data tell nothing about summer months.

The individual months show even greater proportional variation than the annual amounts. However, the 10 year moving average shows each month average daily flow has increased. July has increased little (less than 2%). August and September, however, both show much larger increases in the moving average: up 24% and 33% respectively. Even with ups and downs in annual average flows, the dry months have managed to increase. The "why" is not known but increased usage certainly has not reduced it. Conversely, if the pattern were to reverse and the 10 year moving average begin to decrease, increased use would not likely be to blame.

The Department of Ecology (DOE) and the Tribes as well as citizens and governmental units are concerned about Chehalis River flow, especially low summer flows. We all know that growth has caused much more water to be used over the past 70 years. We also know many water rights and claims exist. But the extent they are still valid and how much of their right is actually used is unknown.

It is probably generally agreed that fish require some level of protection if natural conditions have been degraded. Water quantity is clearly critical. While fish do not begin migration until water levels increase with fall rains, there are juvenile fish present in addition to non-anadromous fish such as trout that require adequate water.

Even without numerical proof, use has increased since the early days. Industrial and business use has grown from zero in 1929 to become an important user today. We have such users as the Centralia steam plant, Chehalis Power, Cardinal Glass, National Frozen Foods and Darigold. In the

case of most of these companies, uses are consumptive. Irrigators are also consumptive. Population has increased from 40,000 in 1930 to 68,600 in 2000. Per capita water use has undoubtedly risen greatly so that domestic water use would have grown even faster than population.

Much of the water used is returned to ground or surface water, especially household use. Because so much use is returned, the net increased usage is less and could be one reason why low flows have not been reduced over the years. Future use should follow the same pattern, especially if the policy of discouraging new process users from locating here could be officially adopted.

It is not known if rainfall on a basin wide basis has or has not changed. The 10 year moving average flow for the entire year shows a 13% increase over the period 1929 to 2006. The attached chart shows details which seems to show some kind of long term cycle. By individual month, July shows only a less than 2% increase while August and September show 24% and 33% increases respectively. These changes, however, do not represent a lot of water because flows in those months is low. Nonetheless, they have increased. Yet well use and surface withdrawals peak because that is when water is used most and those increased withdrawals are likely consumptive.

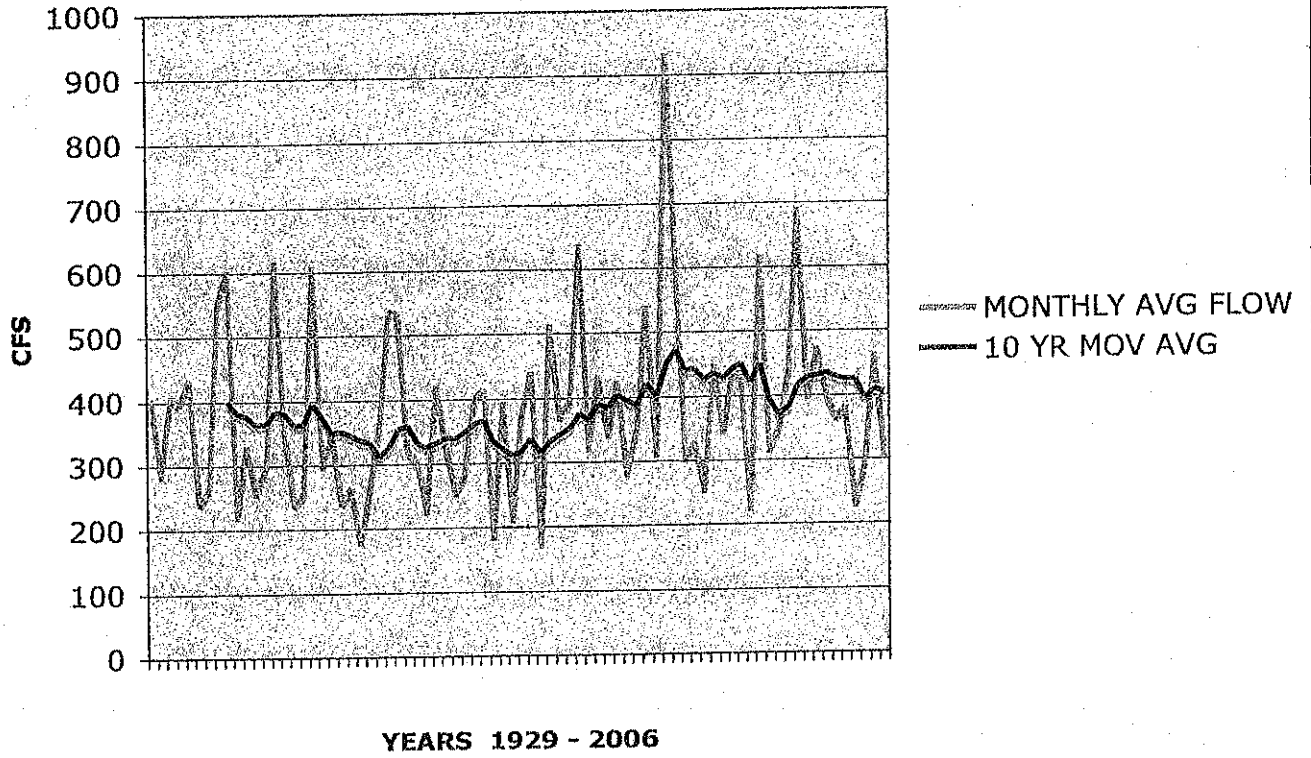
CONCLUSION

It is apparent that no negative impacts on low summer flows have occurred in the entire record dating back to October, 1928. There is adequate water in low flow periods and more than enough at other times. Indeed, floods are common. The DOE should seriously review its current policy of not issuing new water rights in the upper Chehalis Basin.

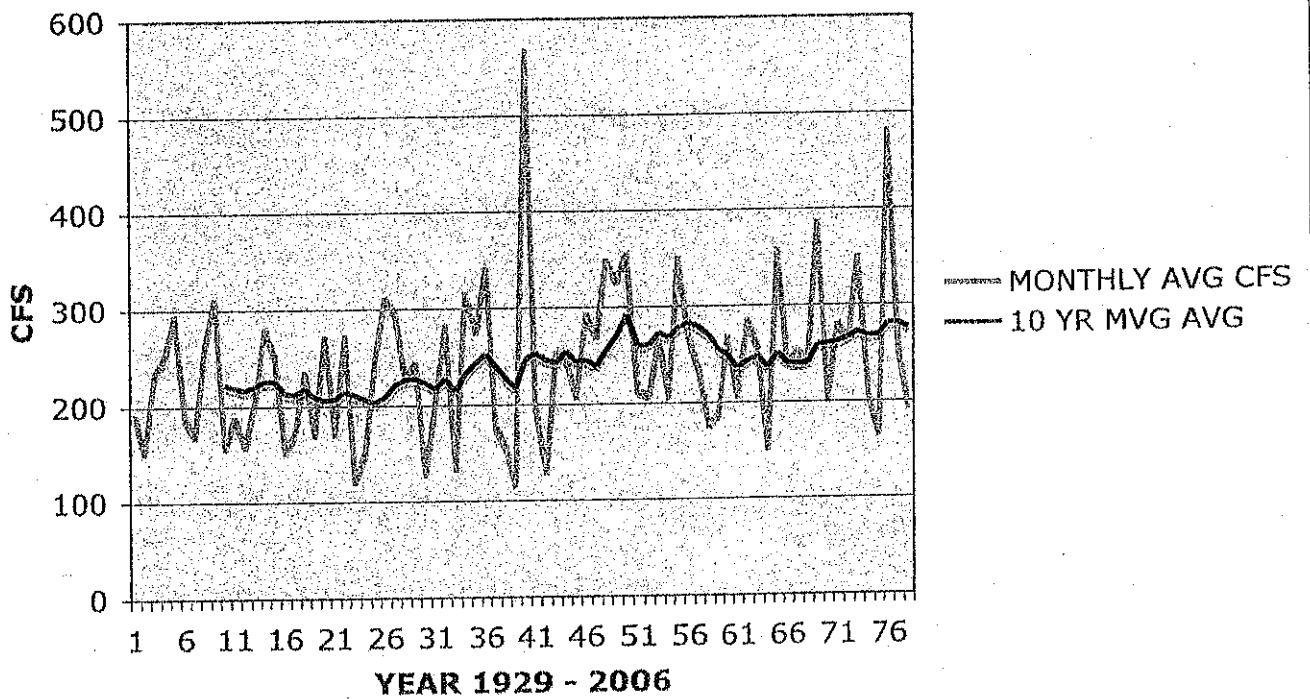
Prepared by:

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Concerned Citizen

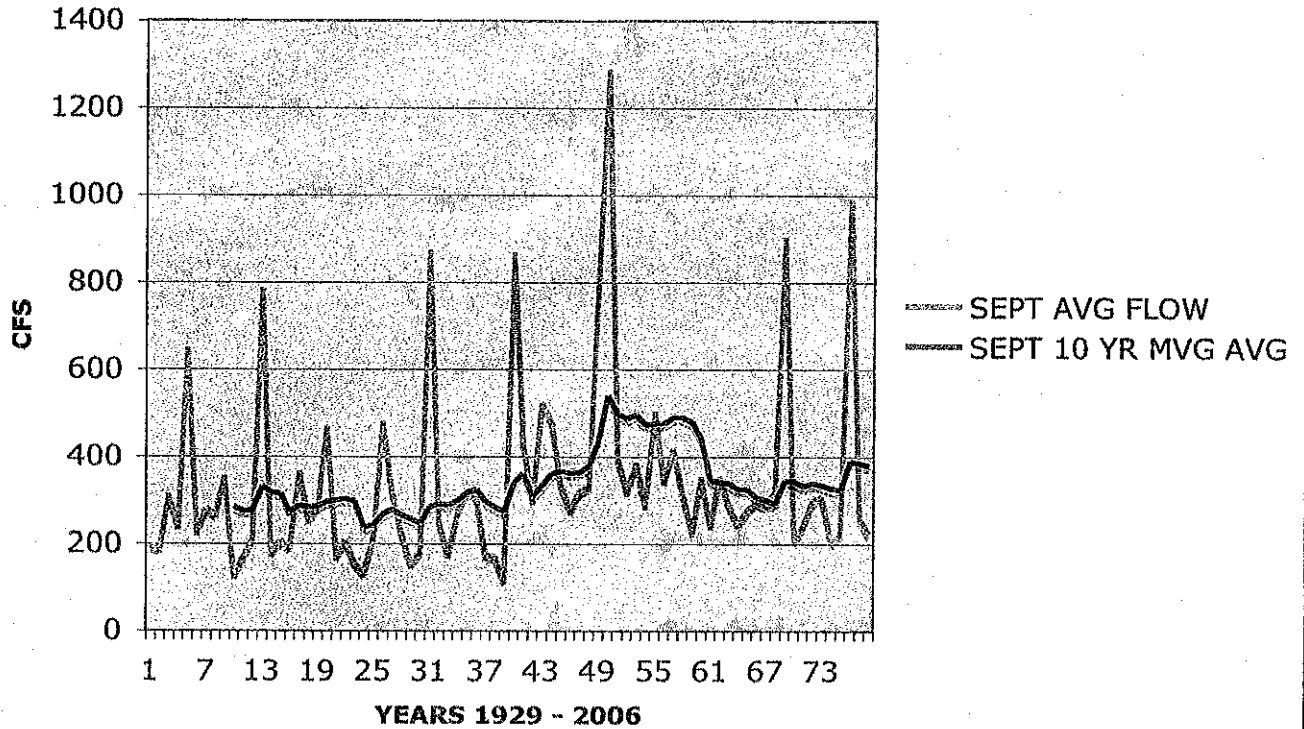
JULY AVG FLOW & 10 YR MVG FLOW



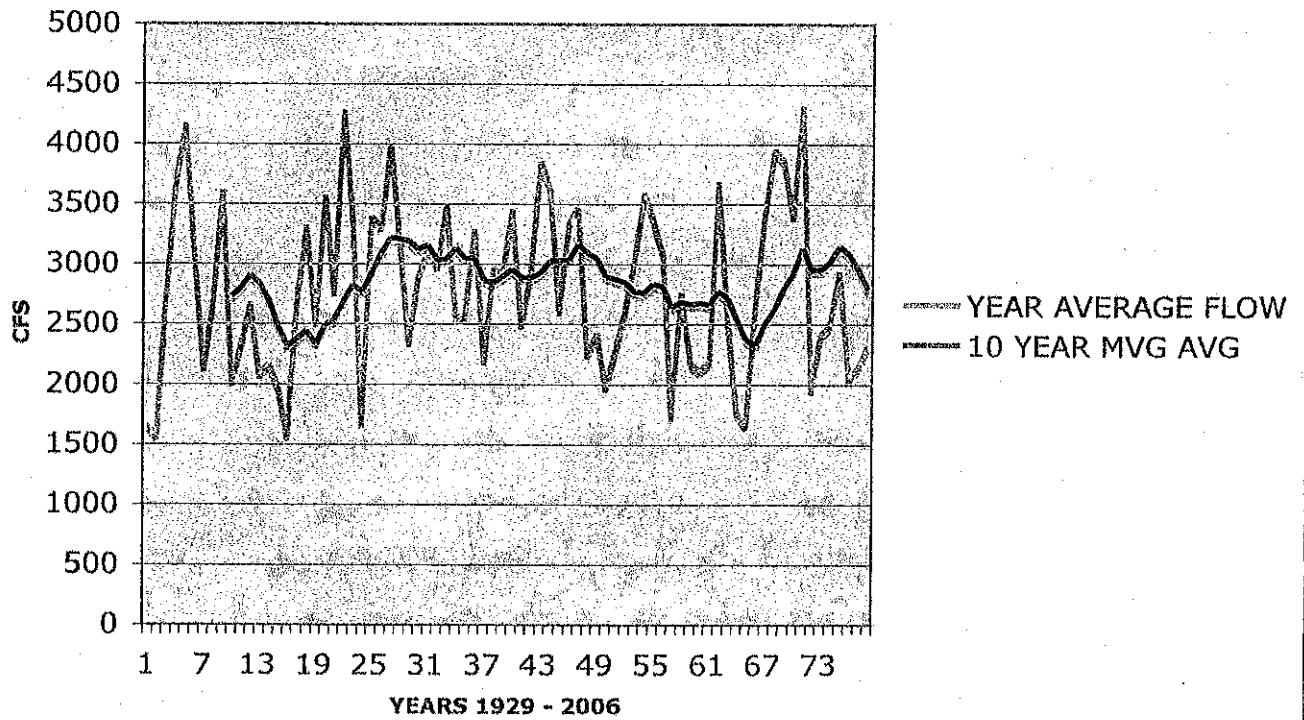
AUG AVG & MVG AVG FLOW 1929 - 2006



SEPT AVG & MVG AVG 1929 - 2006



ANNUAL AVG & 10 YR MVG AVG 1929 - 2006



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