Role of groundwater and river discharge on phosphorus supply into the lake

*Shin-ichi Onodera[1], Mitsuyo Saito[2], Kunyang Wang[1], Syuhei Ban[3], Noboru Okuda[4], Yusuke Tomozawa[1]

1. Graduate School of Integrated and Arts Sciences, Hiroshima University, 2. Okayama University, 3. Shiga Prefecture University, 4. Research Institute of Human and Nature

We have confirmed groundwater discharge and nutrient flux into Biwa Lake in the eastern area and Yasu river catchment. In this presentation, we would like to examine to compare and quantify the role of groundwater and river discharge on phosphorus supply in the lake, based on our previous researches.

Phosphorus discharge via Yasu river into the lake has been estimated to be 25t to 37t by using SWAT model. The main source was agricultural land and human waste. In addition, water budget in the river catchment at the most downstream and flowing discharge monitoring site indicated around 40 % in river runoff of the precipitation. On the other hand, groundwater discharge into the lake was estimated to be 10 % in deep and 10 to 20% in shallow of the precipitation, respectively.

The phosphorus content of sediment was maximum in the depth of around 20m in the alluvial plain. The confined groundwater with the depth of 20m has higher pressure than the lake water level and the higher concentration than shallow groundwater and river water. Finally, we estimated larger phosphorus discharge via groundwater as compared with that via rivers.

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