

Sediment and Nutrient Reductions in Constructed Water Quality Ponds

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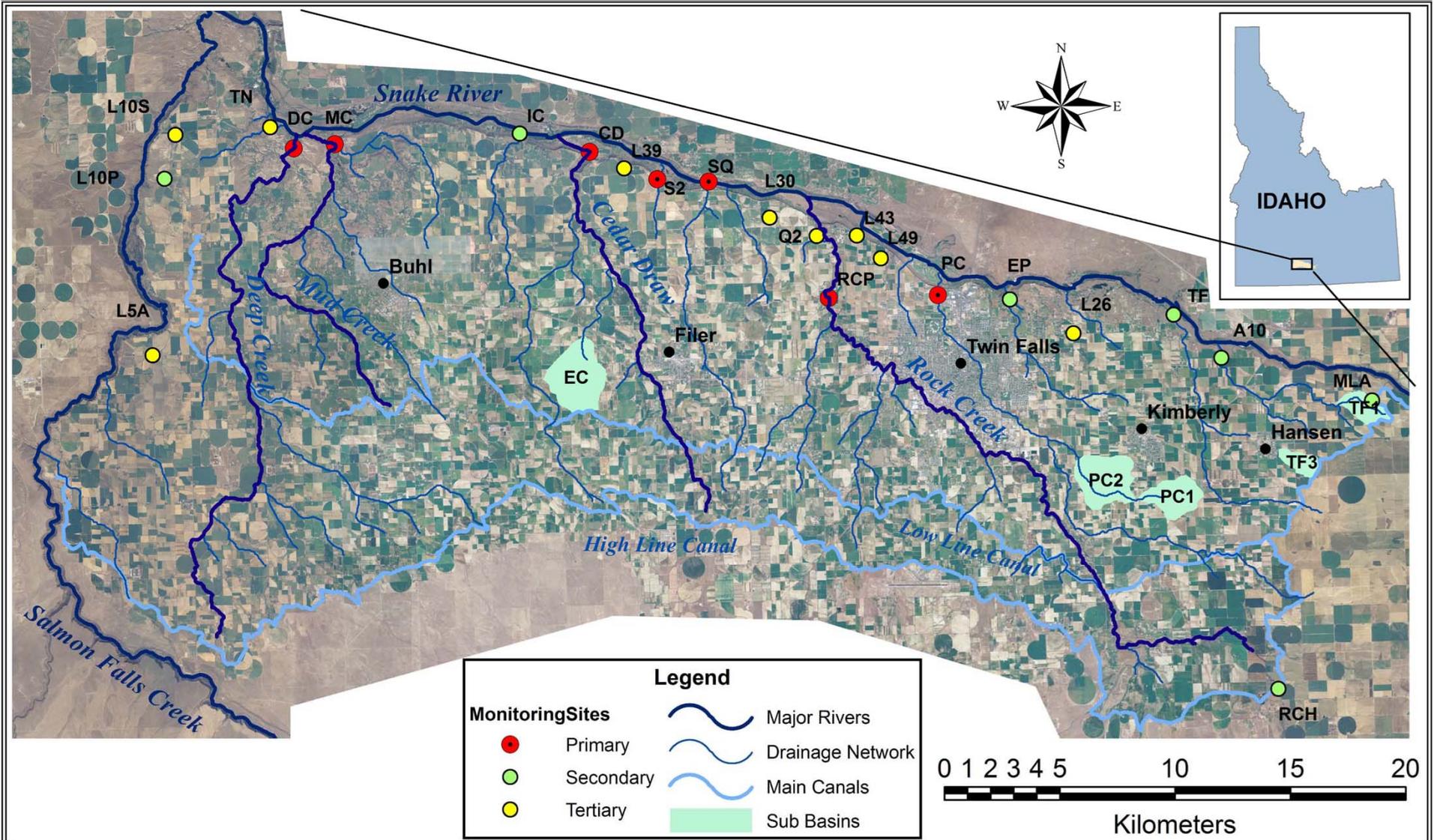
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Northwest Irrigation & Soils Research Lab Kimberly, Idaho

- 2 agricultural engineers
- 6 soil scientists
- 1 sugar beet geneticist
- 1 sugar beet pathologist

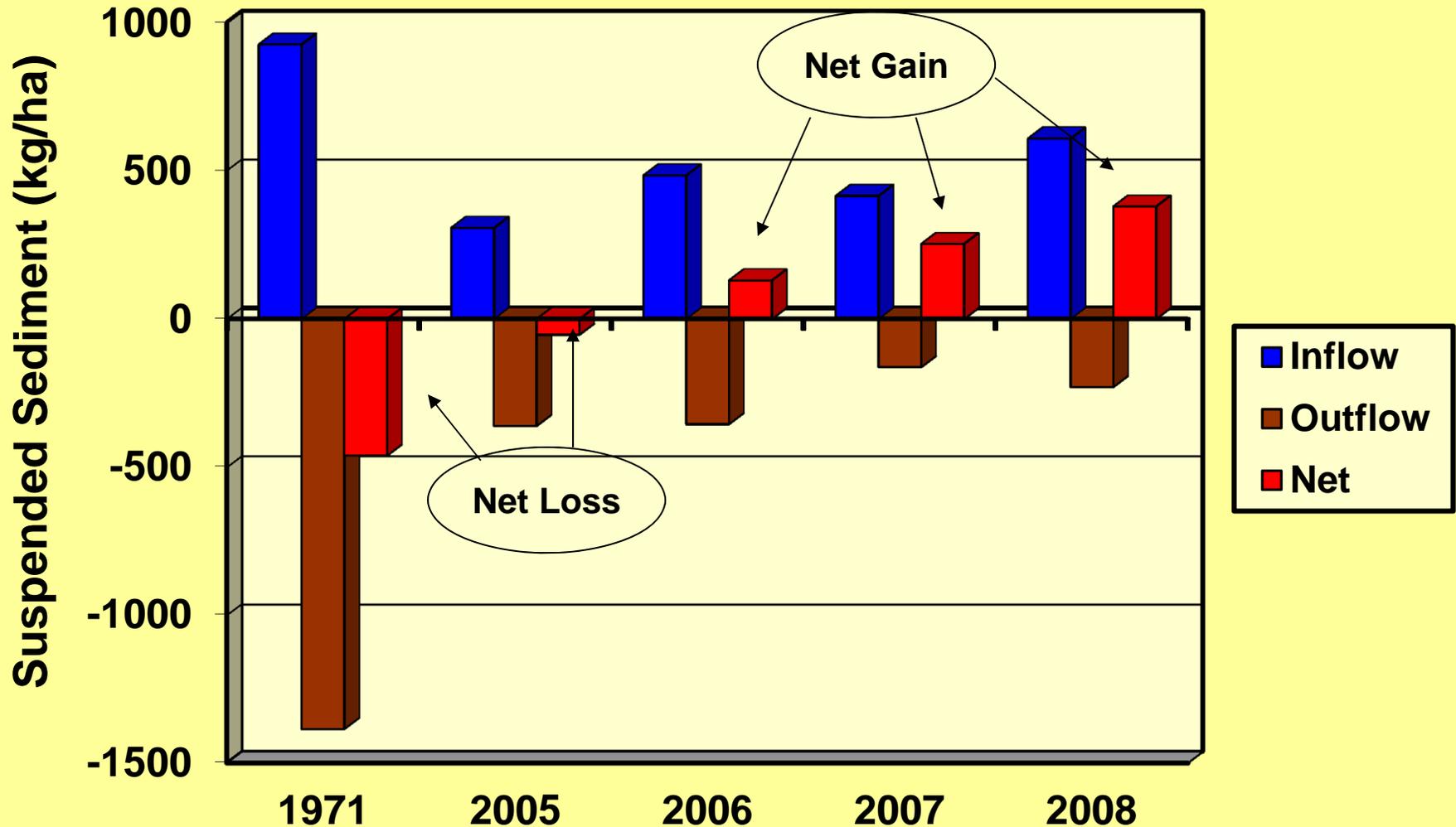


Upper Snake Rock Conservation Effects Assessment Project



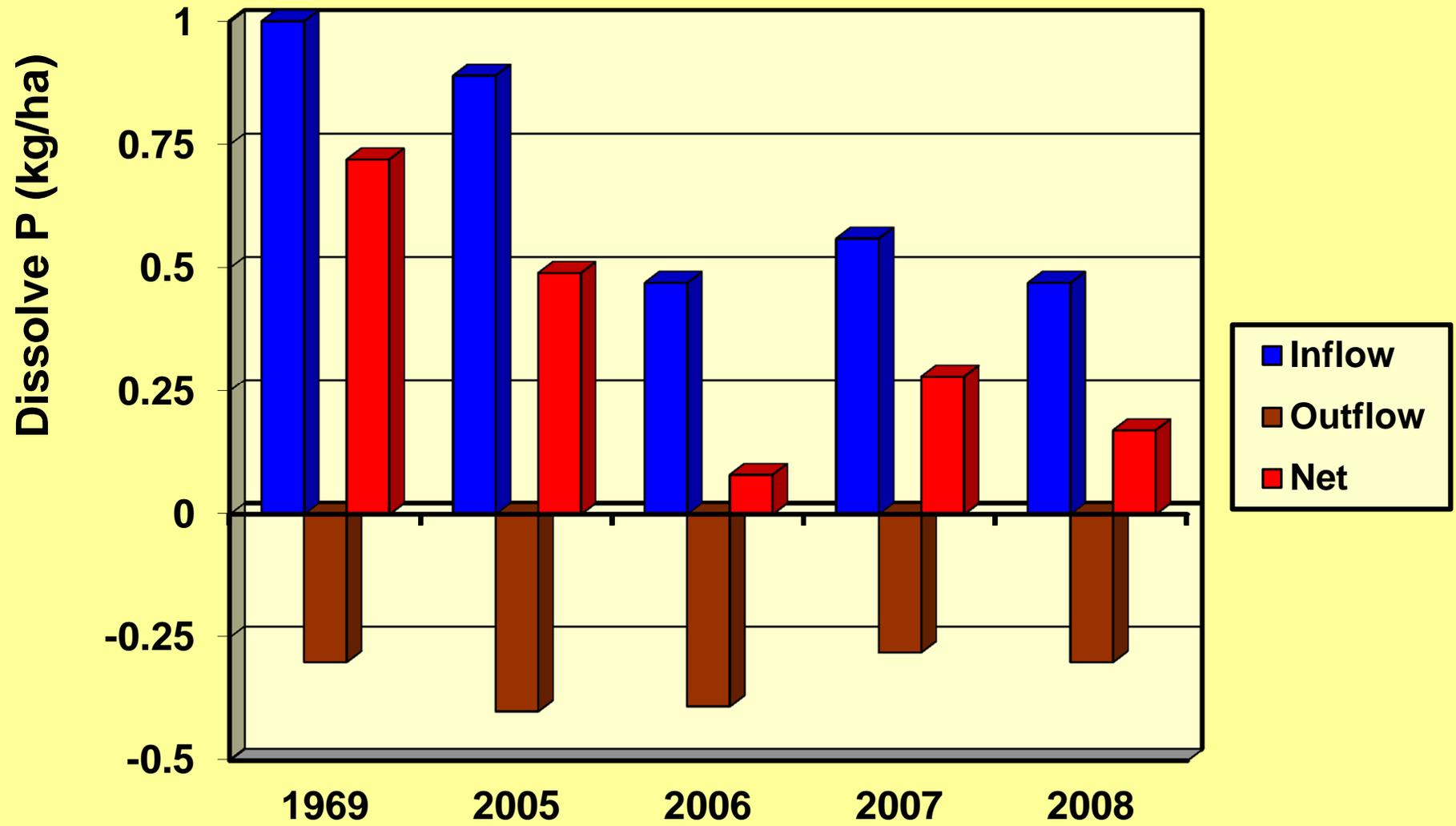
Weekly samples from 26 sites from 2005-2008.

Irrigation Season Suspended Sediment Balance (May through September)

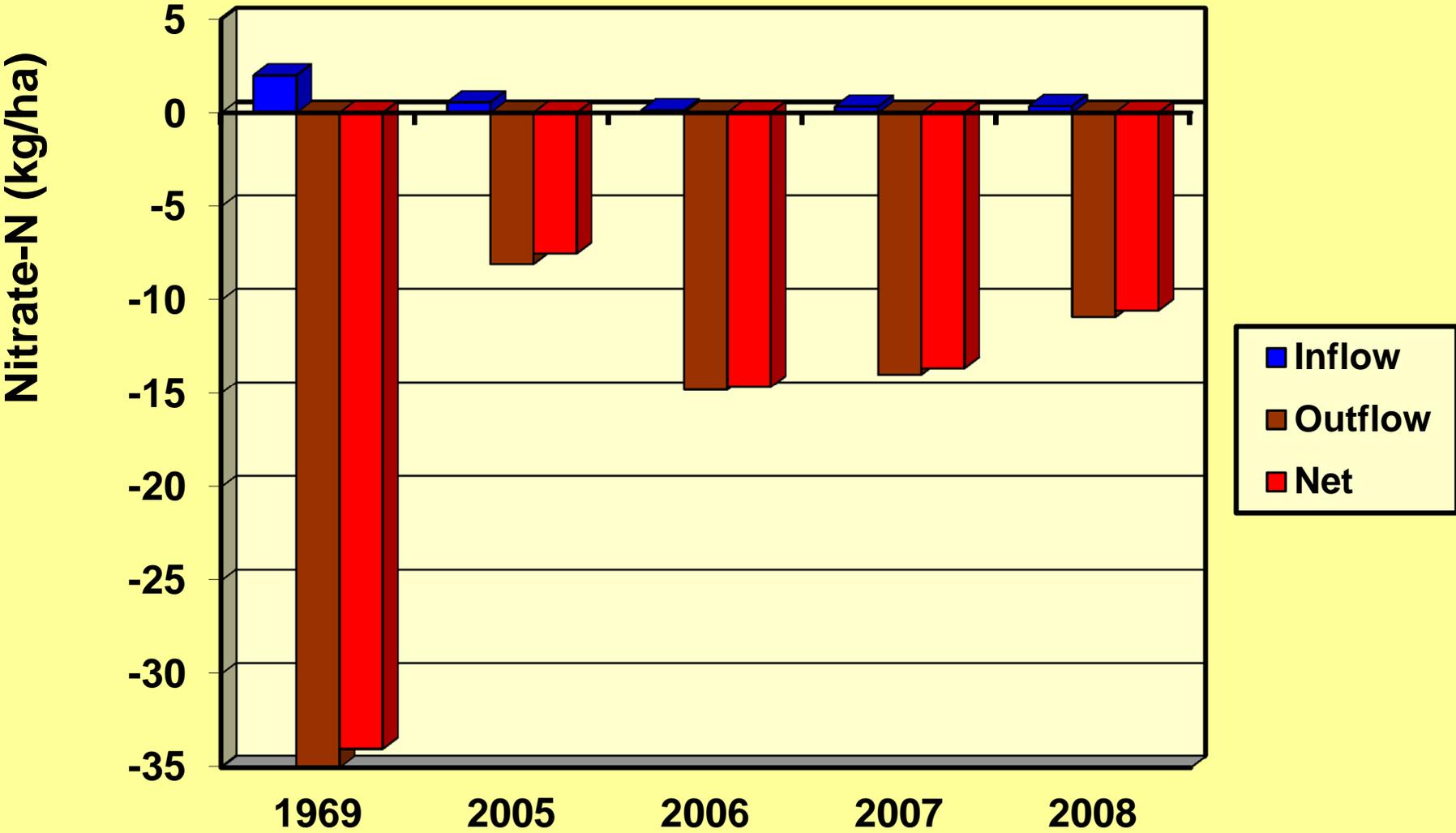


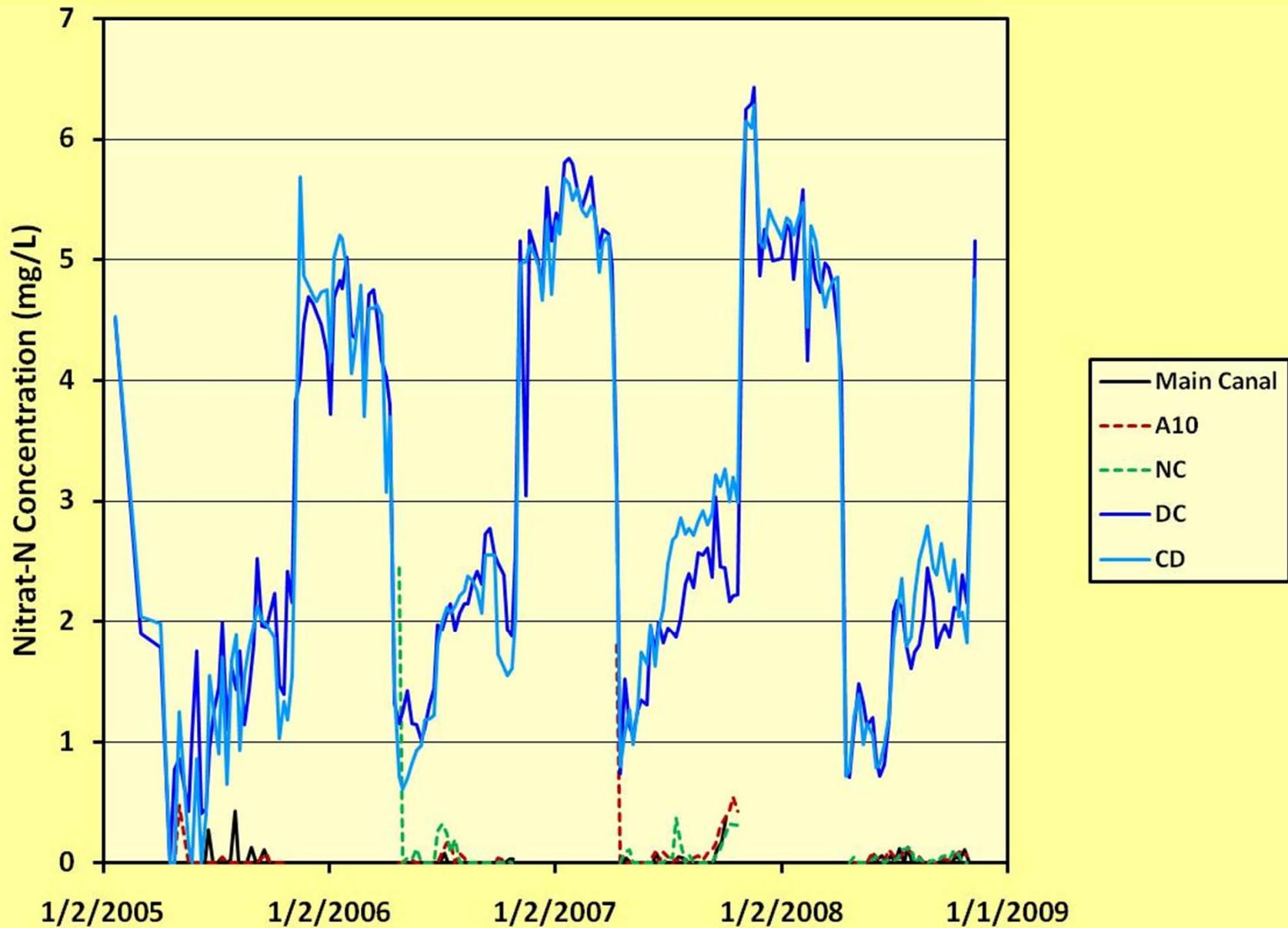
Sediment loss has decreased since 1971 when watershed was 95% furrow irrigated.

Annual Dissolved Phosphorus Balance



Annual Nitrate-N Balance



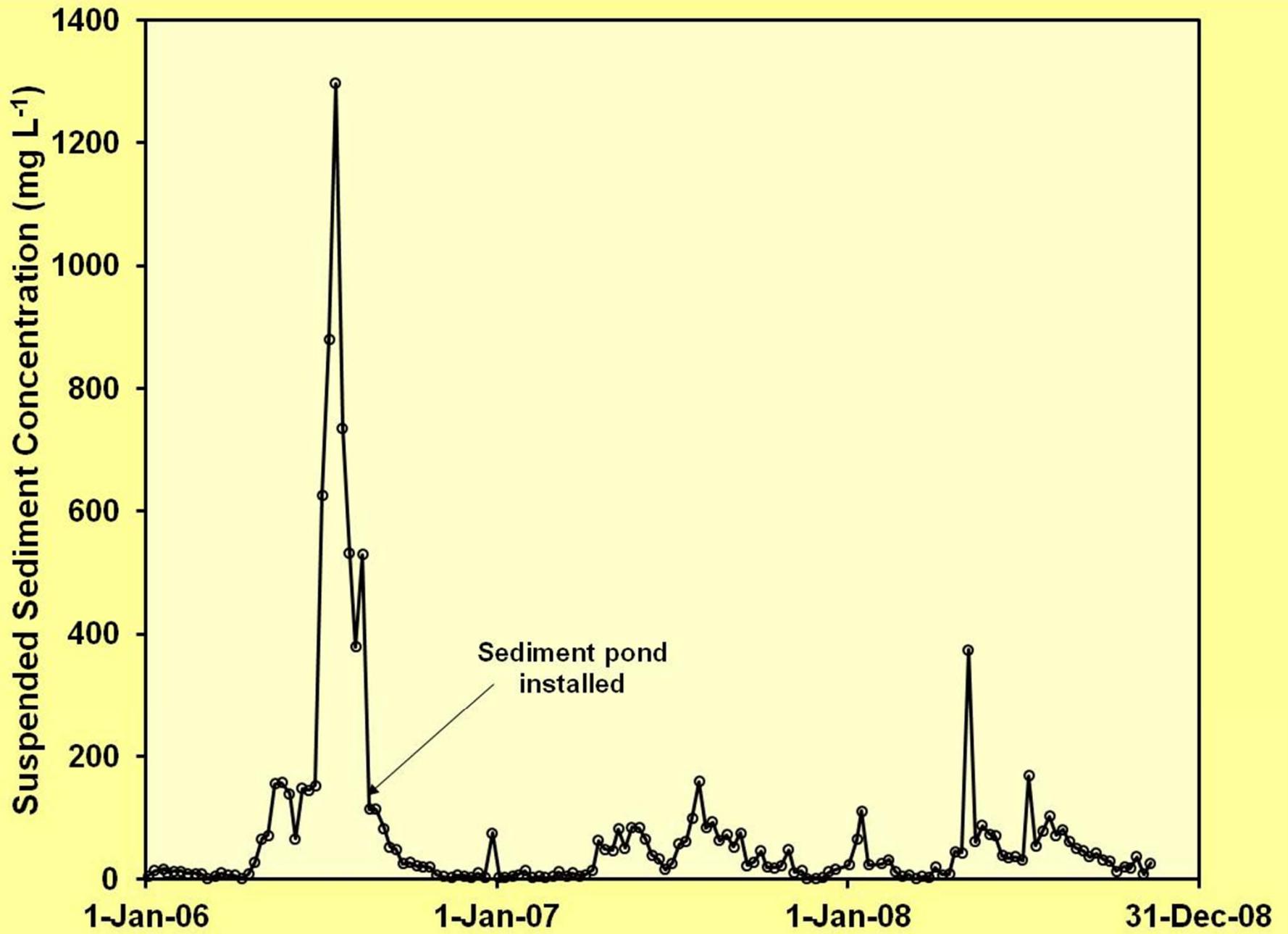


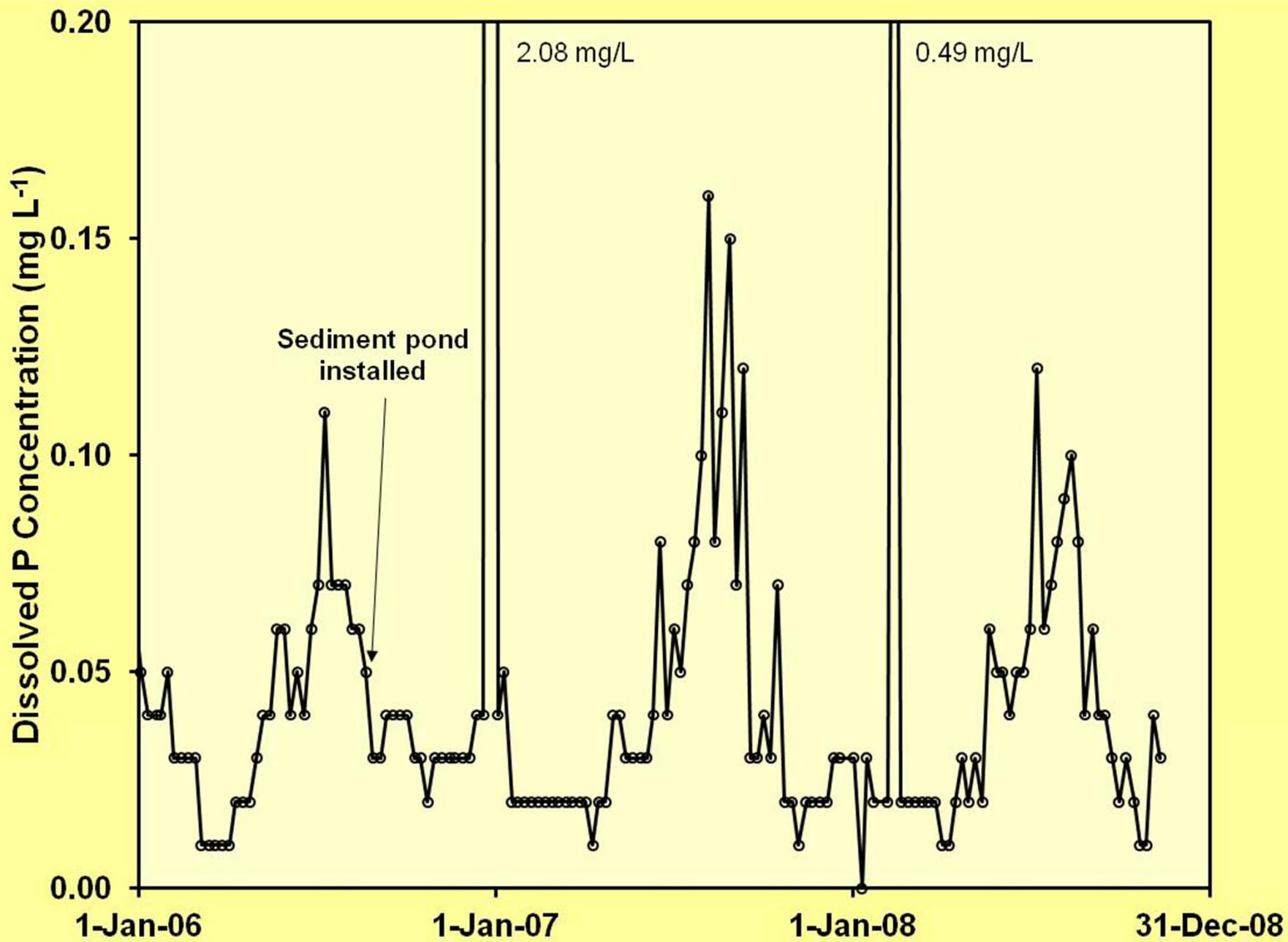
No nitrate in irrigation water. Nitrate is from subsurface drain tunnels/tiles.

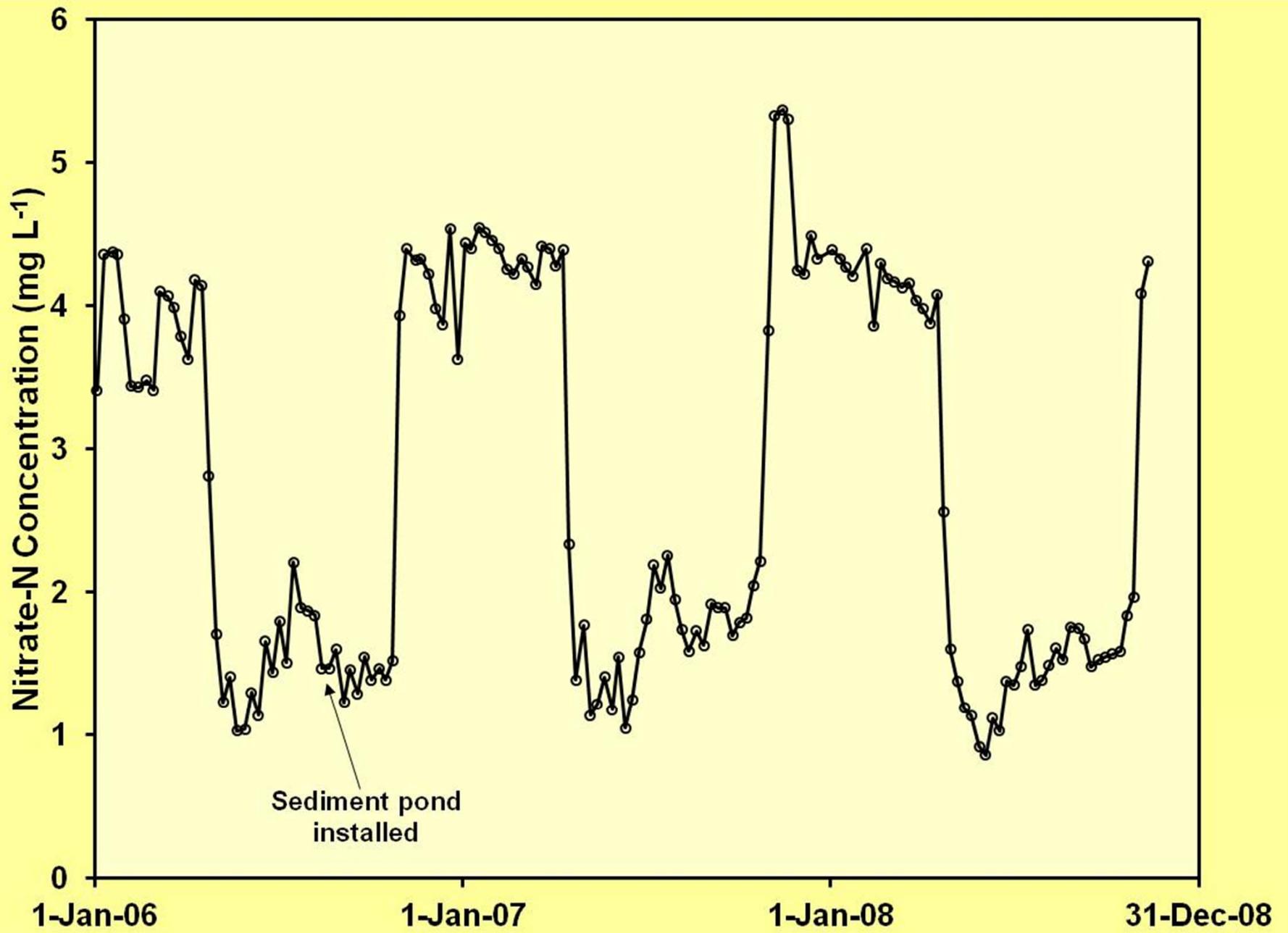
LS & LQ Drains (Pigeon Cove)

Year	Flow (acre-ft)	Sediment Concentration (mg/L)	Sediment Load (tons)
1971	880	1040	12400
2005	1430	400	7700
2006	1240	210	3500
2007	2220	70	2200





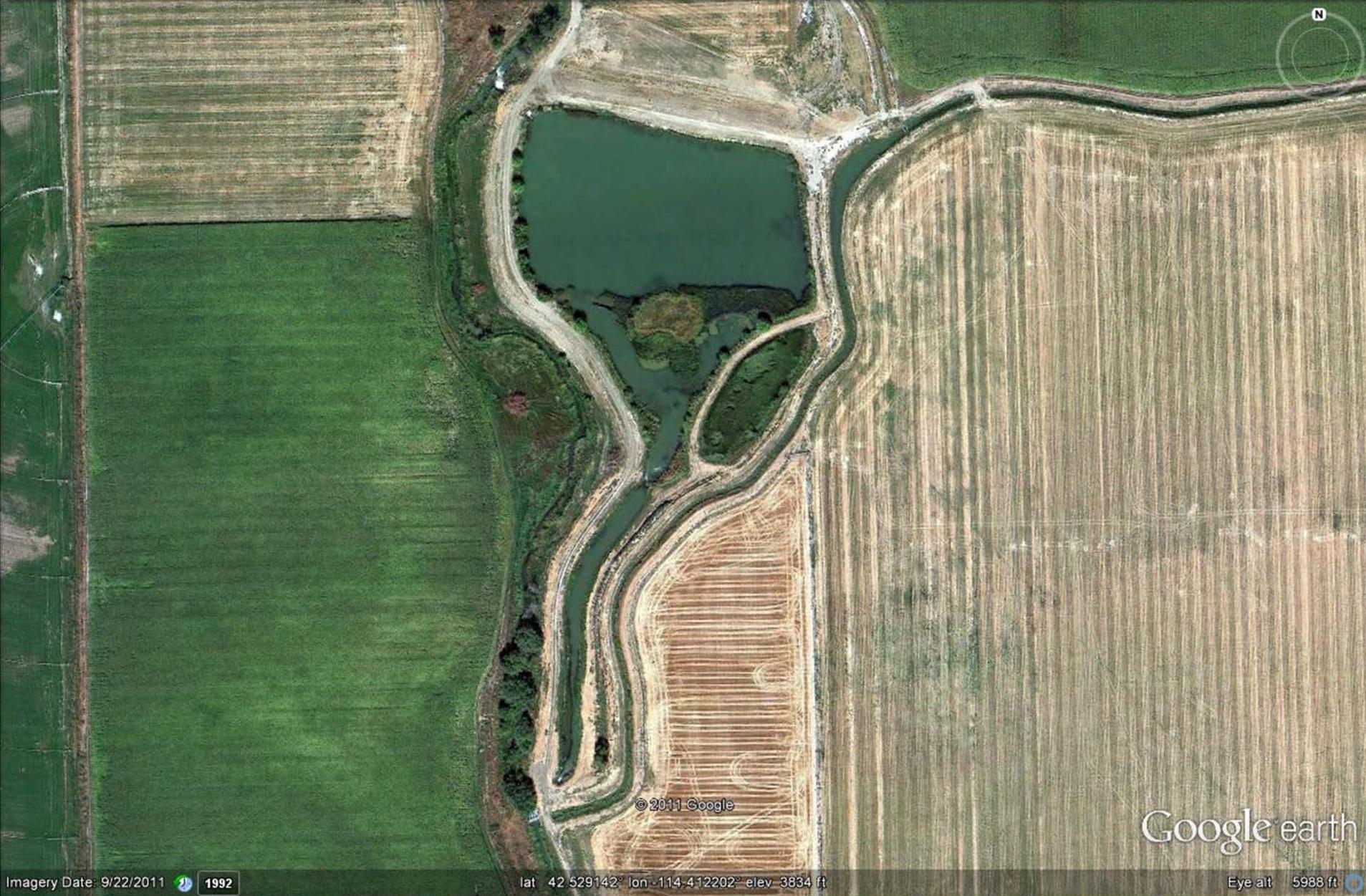




Pond Study Summary

- 1. Collected samples from five ponds for 2-3 days in May, July and September 2008.**
- 2. Ponds were 2 to 10 years old and ¼ to 70 acres in size.**
- 3. Retention time was 2 to 10 hours.**
- 4. 20 to 80% reduction in sediment concentration.**
- 5. Total phosphorus reductions were related to sediment reductions.**
- 6. Dissolved phosphorus and nitrate concentrations were low with inconsistent reductions.**

Britt Pond



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Google earth

Imagery Date: 9/22/2011 1992

lat 42.529142 lon -114.412202 elev 3834 ft

Eye alt 5988 ft

Aug 20, 2009

Cedar Draw

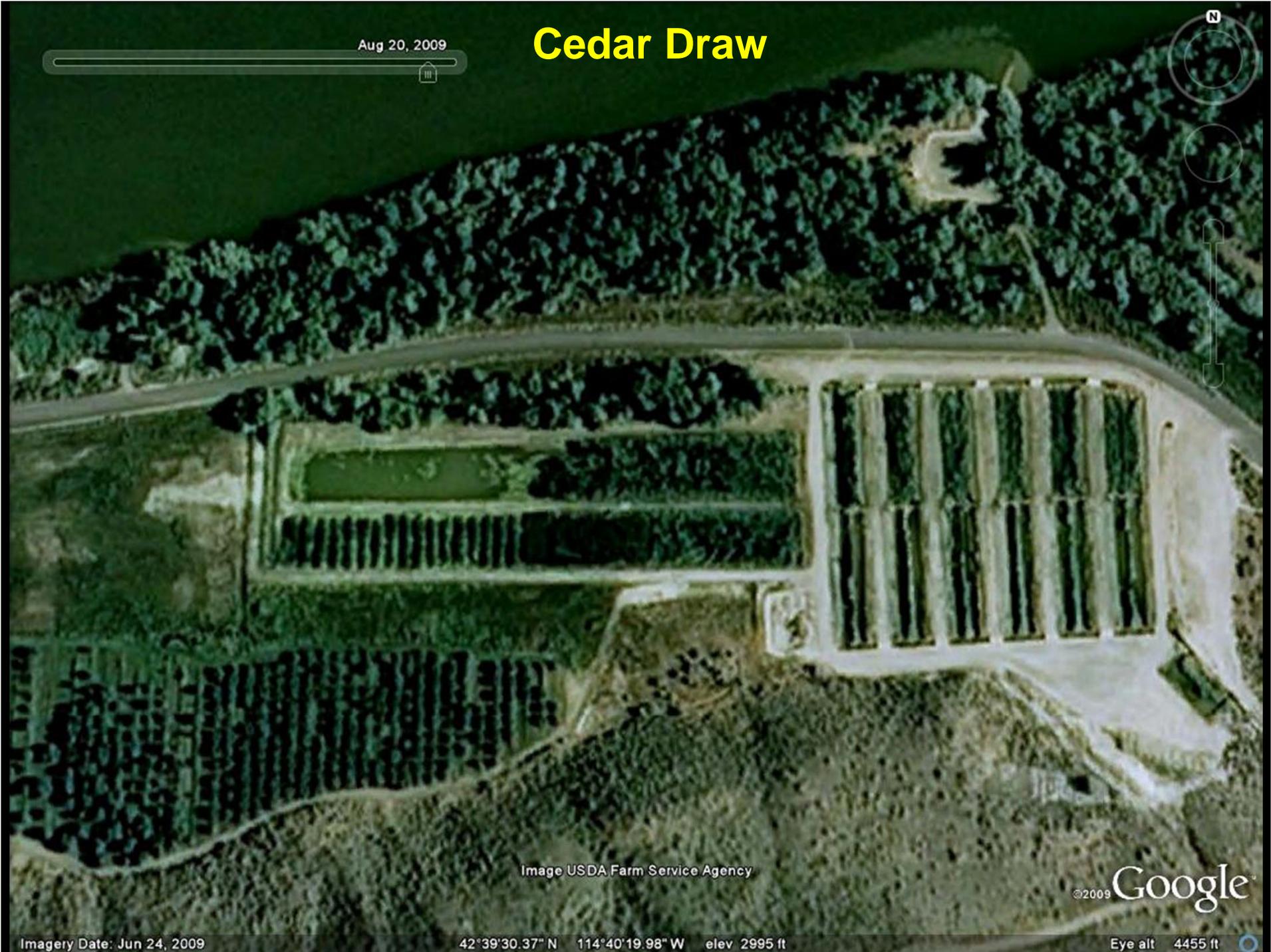
Image USDA Farm Service Agency

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Imagery Date: Jun 24, 2009

42°39'30.37" N 114°40'19.98" W elev 2995 ft

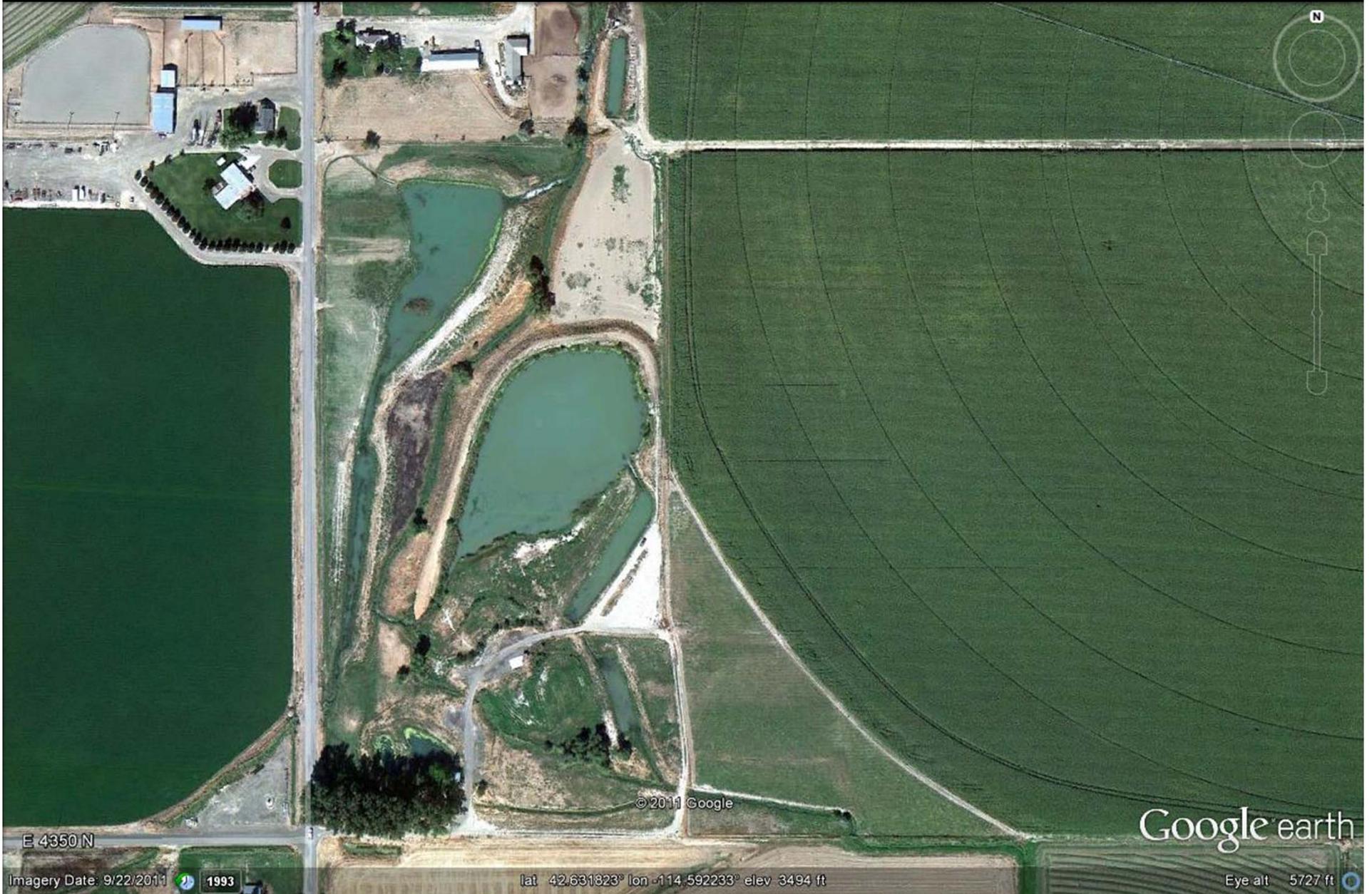
Eye alt 4455 ft



Malone Pond

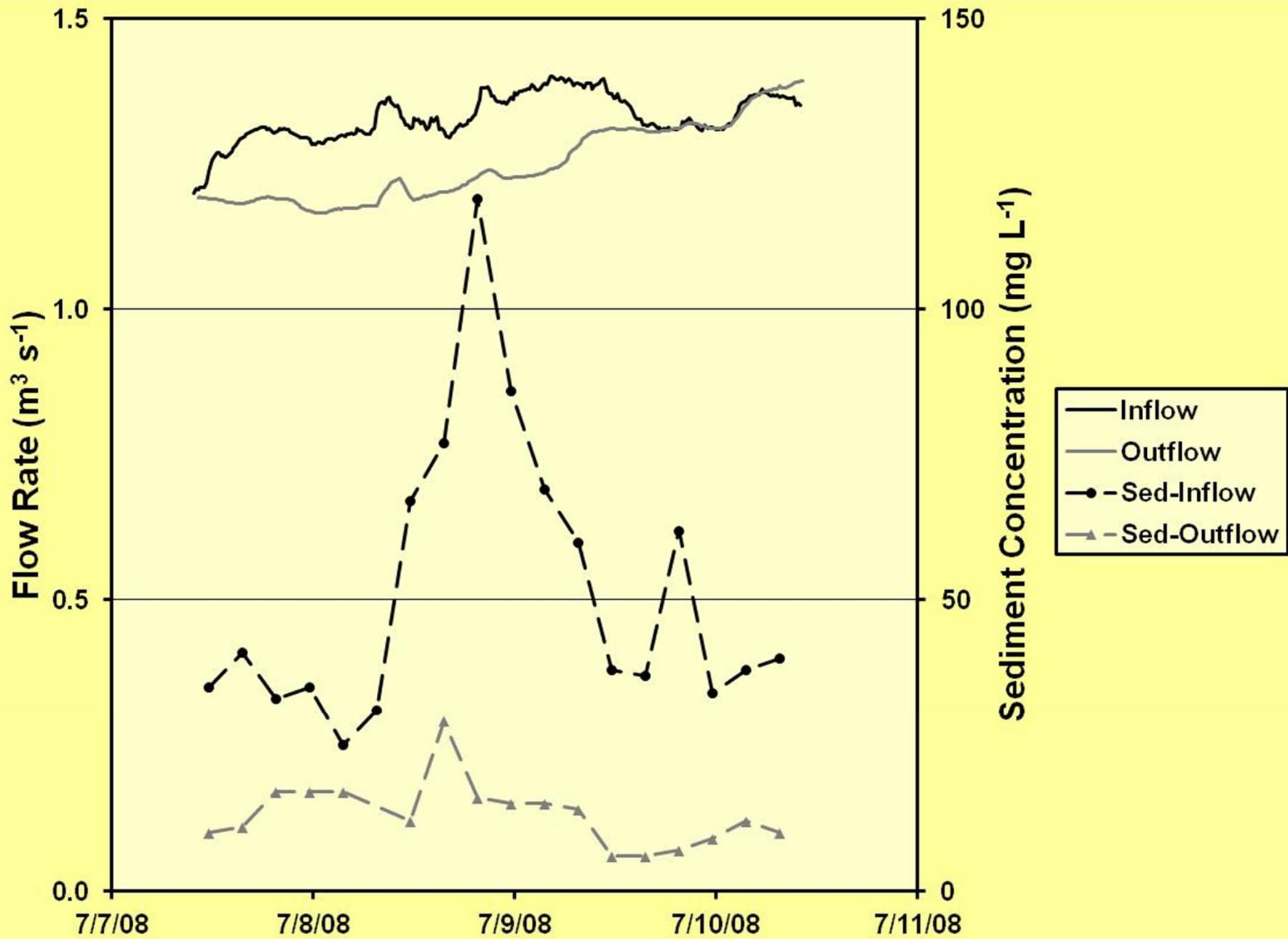


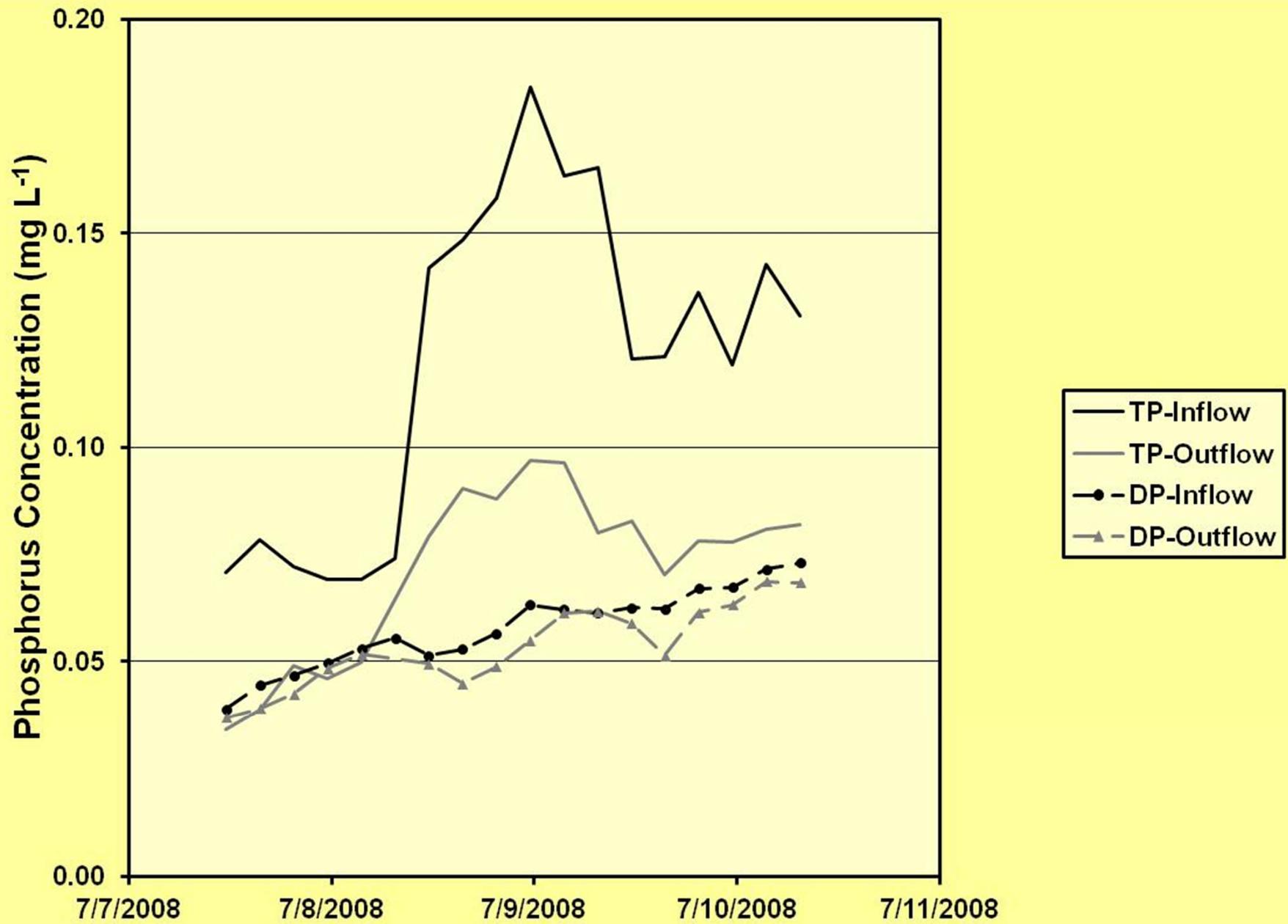
S Coulee

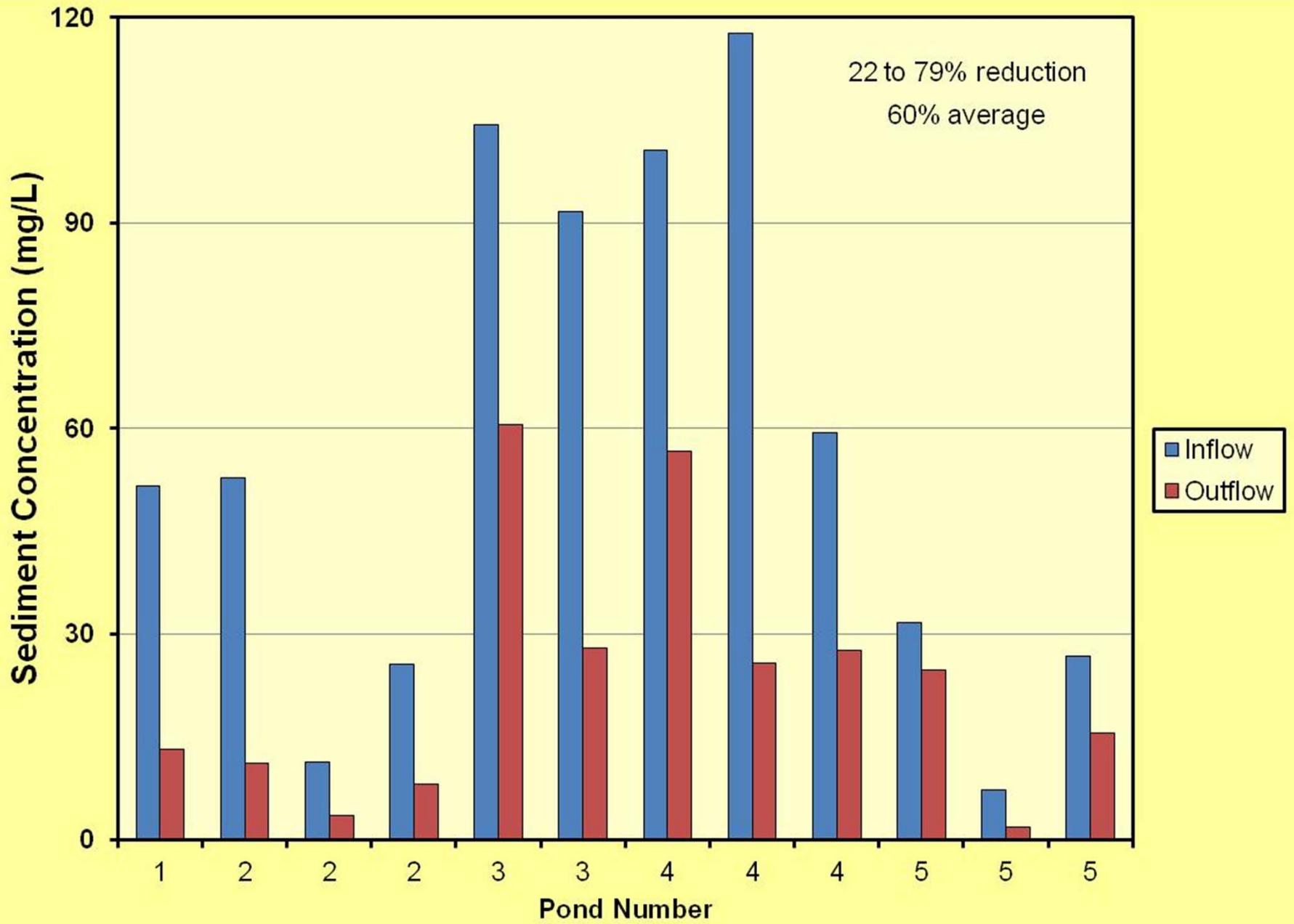


Lower Perrine Ponds

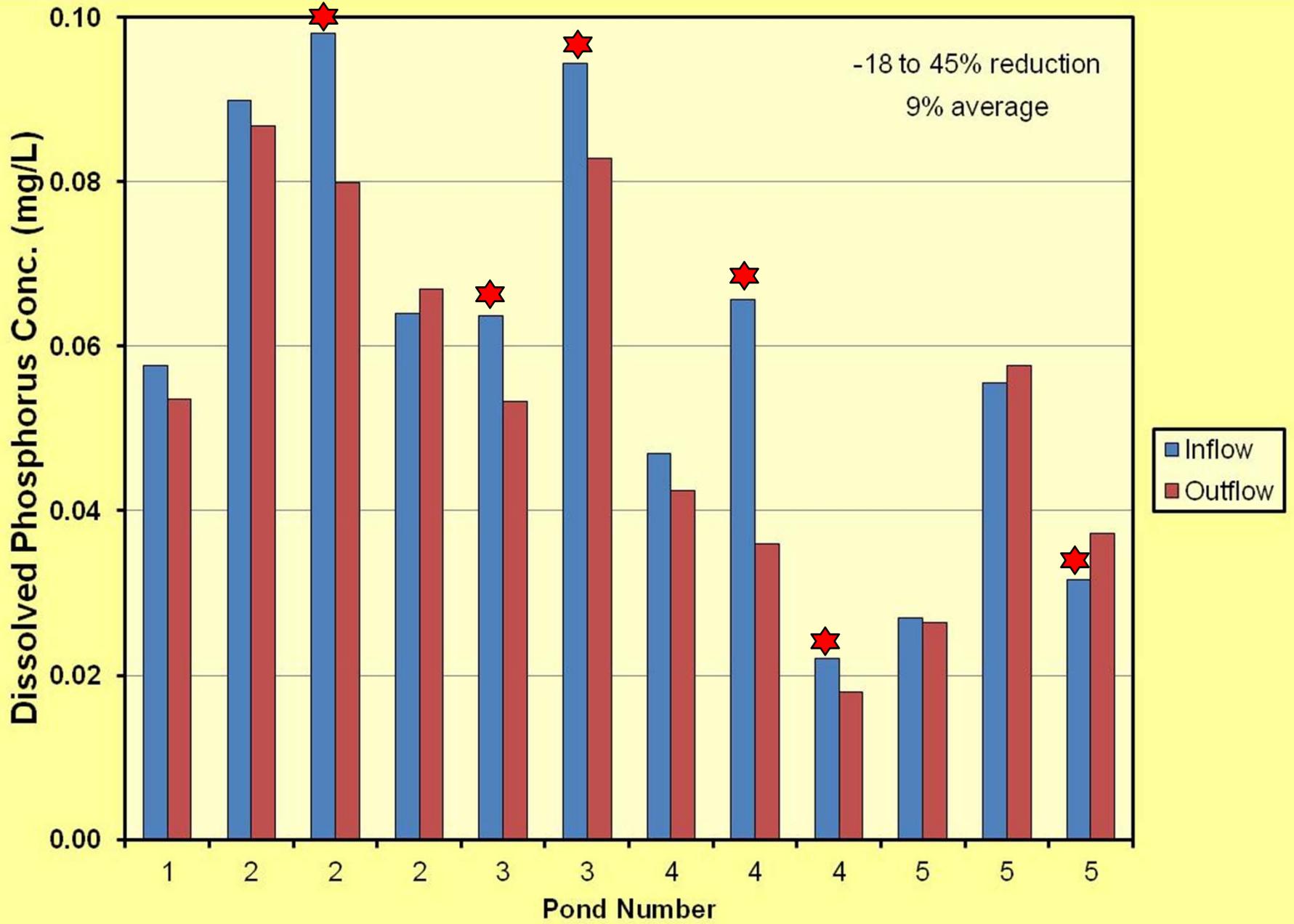




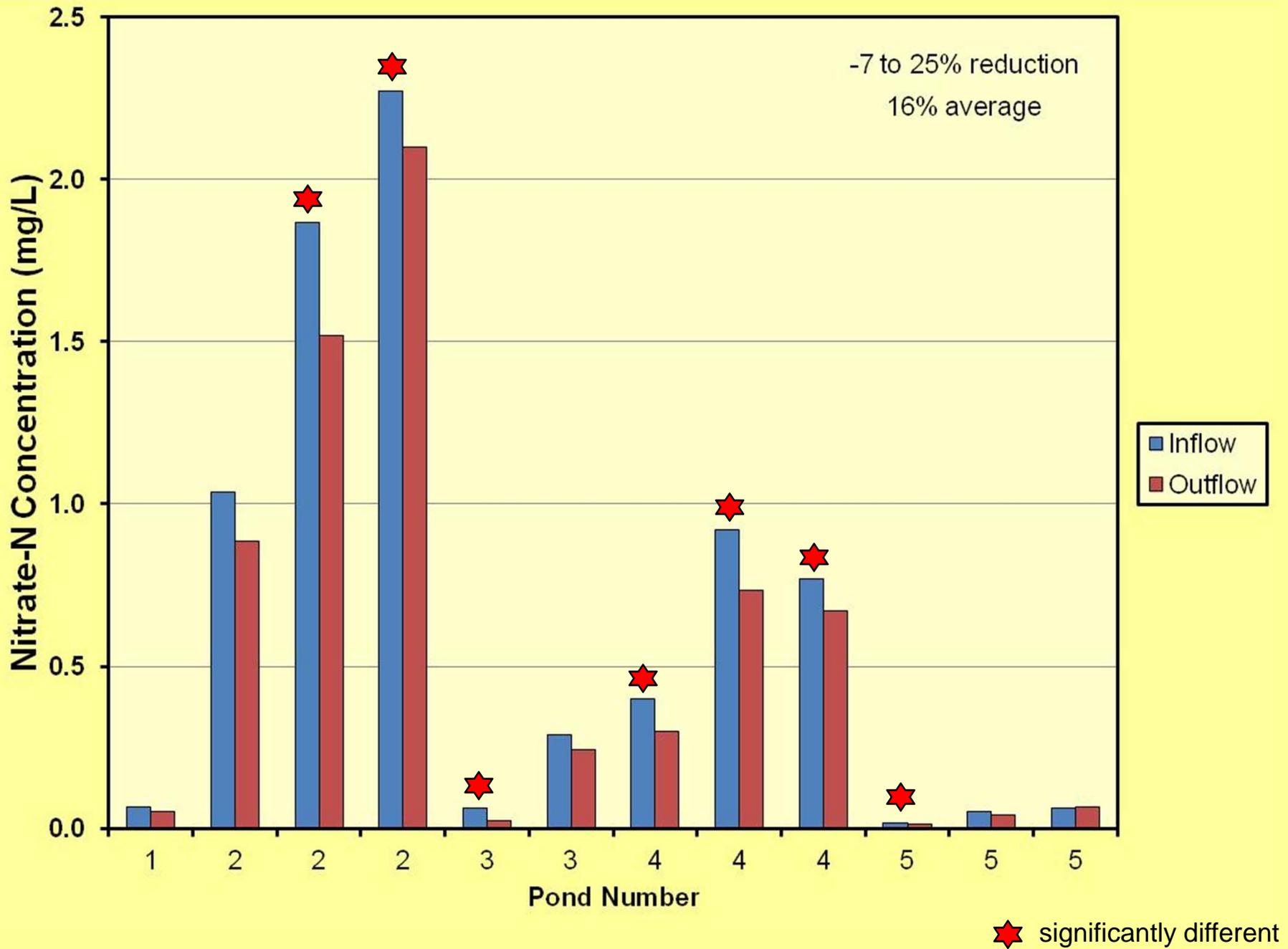




All significantly different



★ significantly different



Questions?

