Evaluate the effects of changing surface to overhead irrigation systems on water quality of return flows and the effects of conservation practices on sediment and phosphorus in irrigation return flows.

**Watershed Description**
- Receives approximately 10 inches of precipitation per year.
- Nearly all water used by crops is delivered by irrigation systems, diverted from the Snake River.
- 1,537,000 acres

**Issues:** Irrigation return flows laden with sediment, nutrients, runoff from dairies and feedlots; effluent from aquaculture, industrial and municipal facilities; and storm water runoff; water conservation; air quality; soil quality; and wildlife habitat.

**CEAP Assessment**
- 53% rangeland and 41% cropland
- A Total Maximum Daily Load (TMDL) has been established for sediment, pathogens, and phosphorus.

*Natural Resources Conservation Service*
**Approach**

**Water Sampling:** Sediment, flow, nutrients (total and dissolved phosphorus)

**Watershed Models:** MODFLOW, SWAT (Soil and Water Assessment Tool)

**Water Quality Monitoring:** Water flows, irrigation return flows

**Communicating Results**

Database development for monitoring irrigation return flows; identification of the effects of irrigation system conversion on irrigation return flow water quality; and identification of irrigation system placement effects.

**Collaborators**

- USDA Natural Resources Conservation Service
- USDA Agricultural Research Service
- Idaho Farm Service Agency
- Idaho Department of Environmental Quality
- University of Idaho
- Twin Falls Canal Company
- North Side Canal Company

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January 2007

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