



Applicability of USGS Historical Return Flow Data to ESPAM

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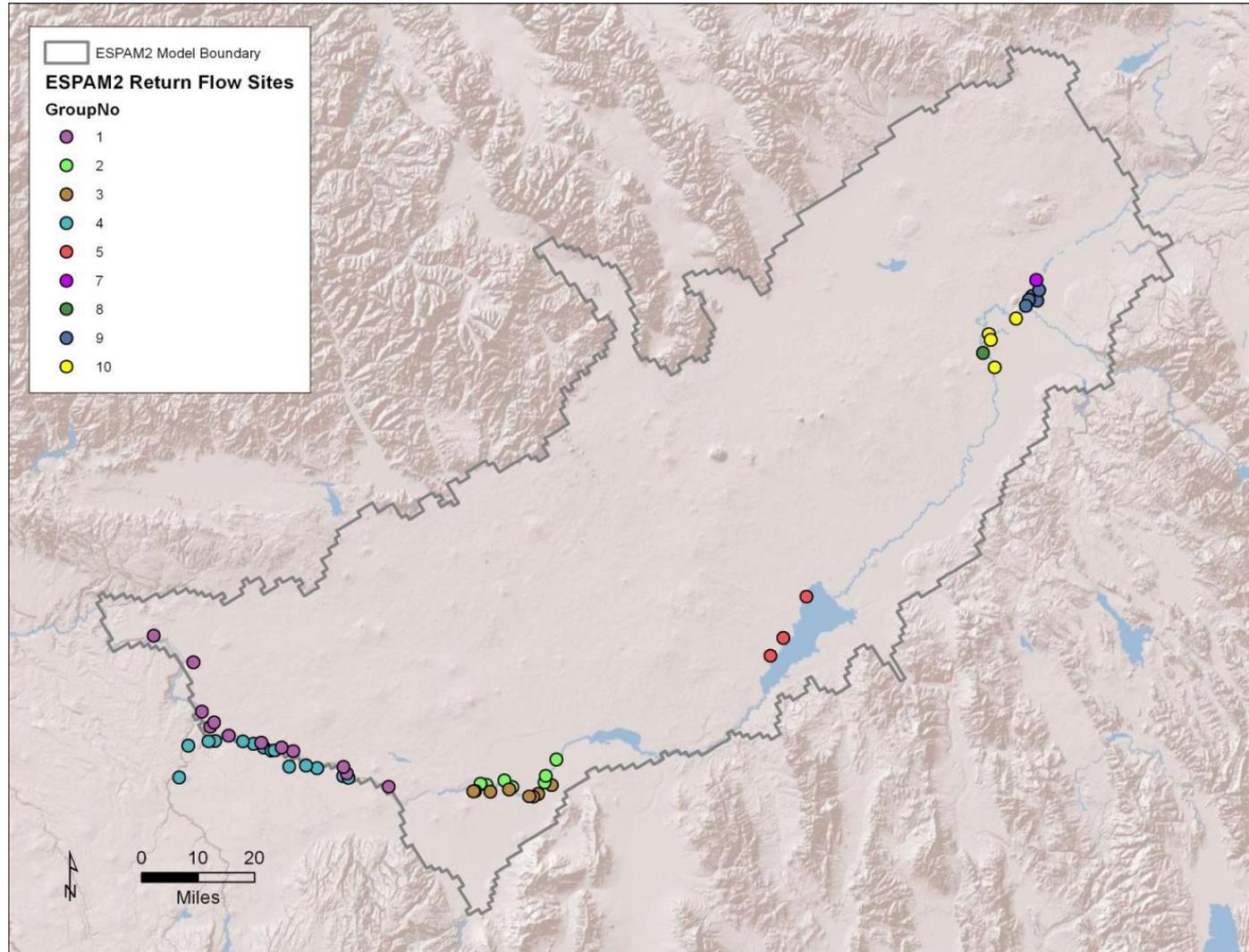


Background and Concept

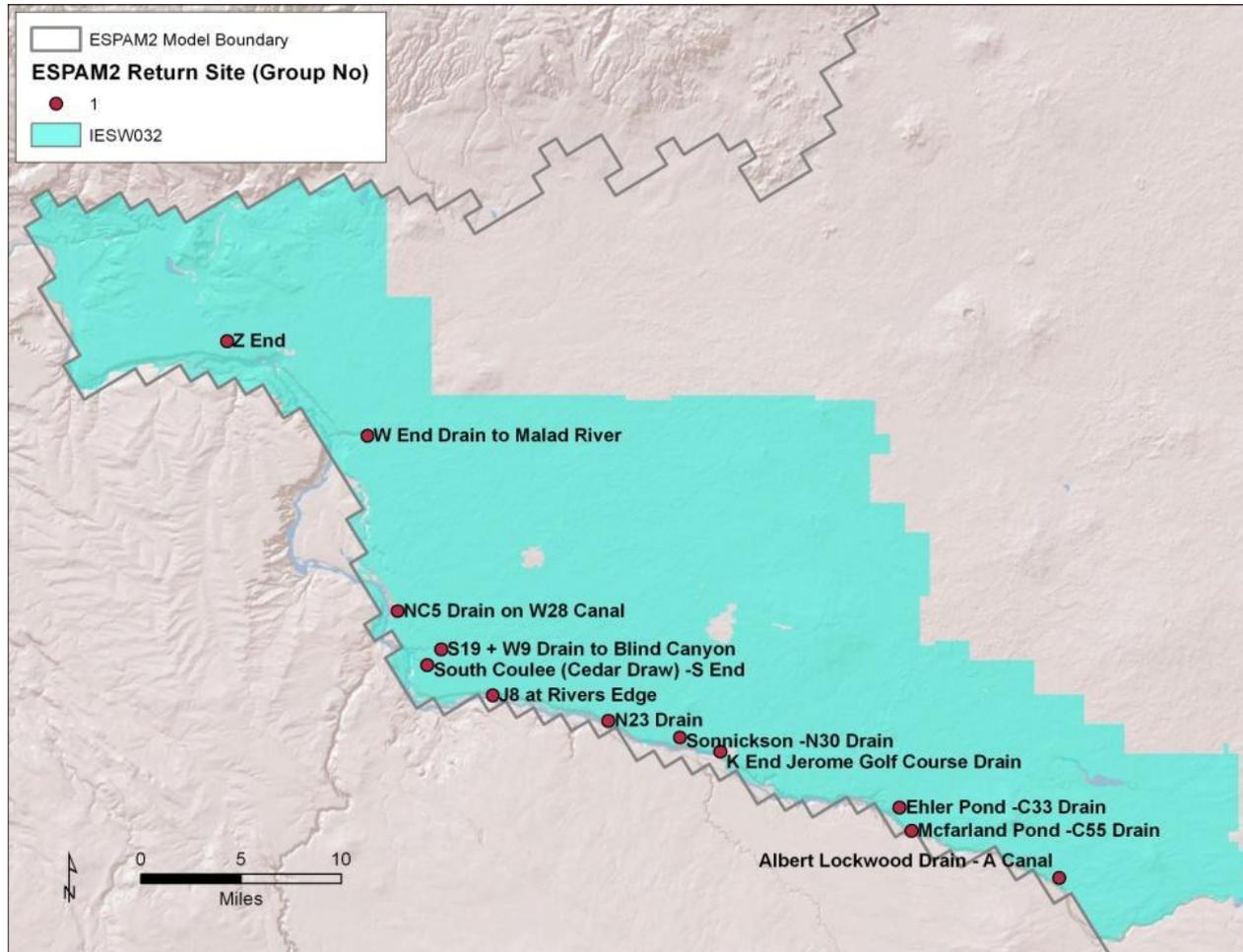
- USGS data (primarily spanning mid- to late 80's) for 14 return flow sites that coincide with our currently monitored return flow sites
- How can these data benefit ESPAM?
- USGS data fall within 6 of the 10 grouped irrigation entities
- USGS monitoring ceased around 1990 and resumed for a majority of these sites in 2002 by various other organizations and continues presently
- General concept is to identify what portion of the total Group return currently measured is represented by each of the 14 return flow sites
- Discuss as a group the validity of assuming that relationship between measured and unmeasured returns remained the same from the 1980's to the 2000's

Process and Assumptions

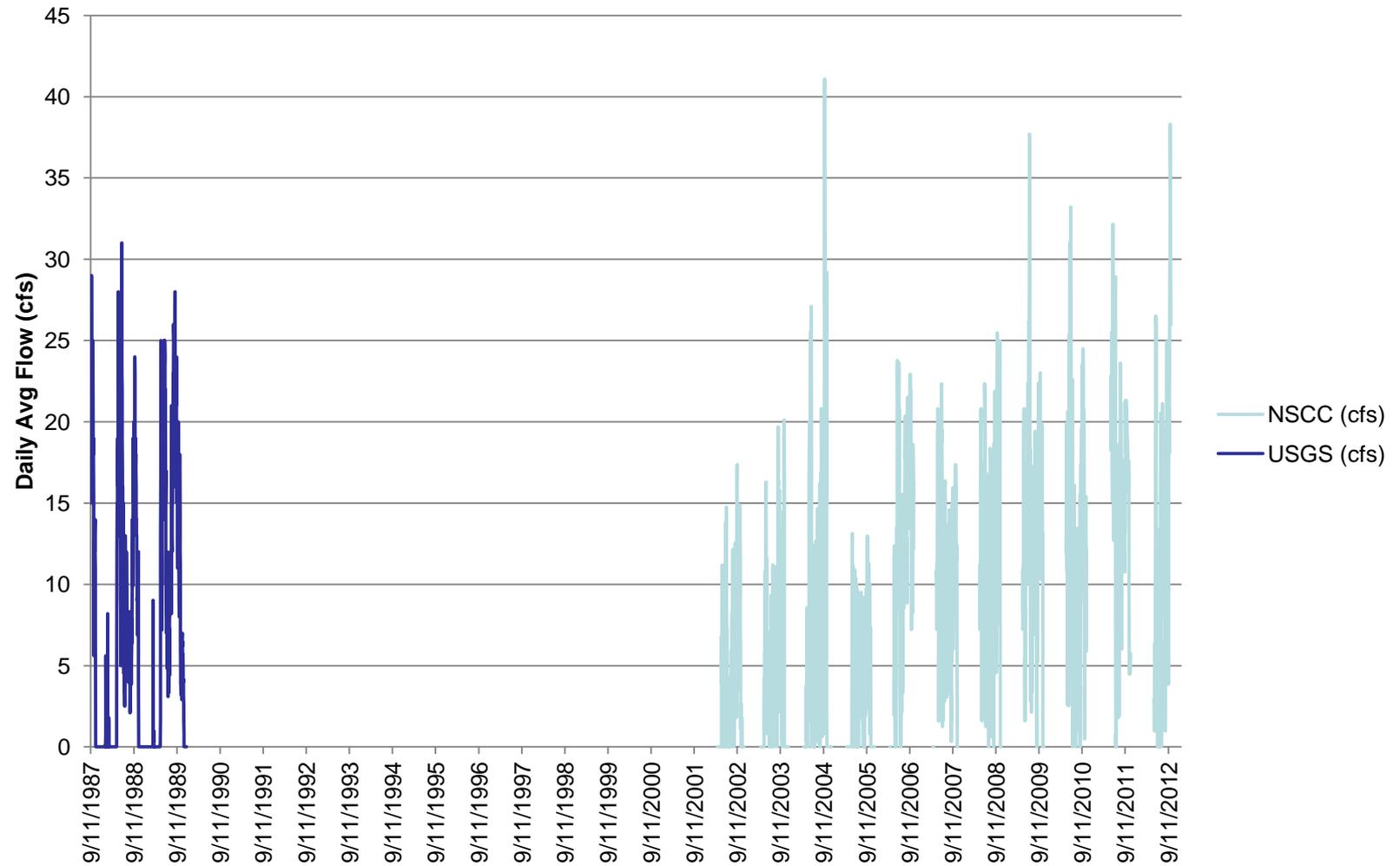
- Base flow is removed from all perennial sites to determine return flow – refer to the design doc on returns and reach gains for calibration of ESPAM2 (DDW-V2-15)
- After 2005, we added new sites to several of the Grouped Entities since the original assignment of returns was made (NSCC, ASCC, TFCC, and BID)
- To account for the additions to the Grouped Entities, a given site's return flow was determined first as a percentage of the expanded Group's return, and then as a percentage of the original Group's return scaled up by the average contribution from the new sites



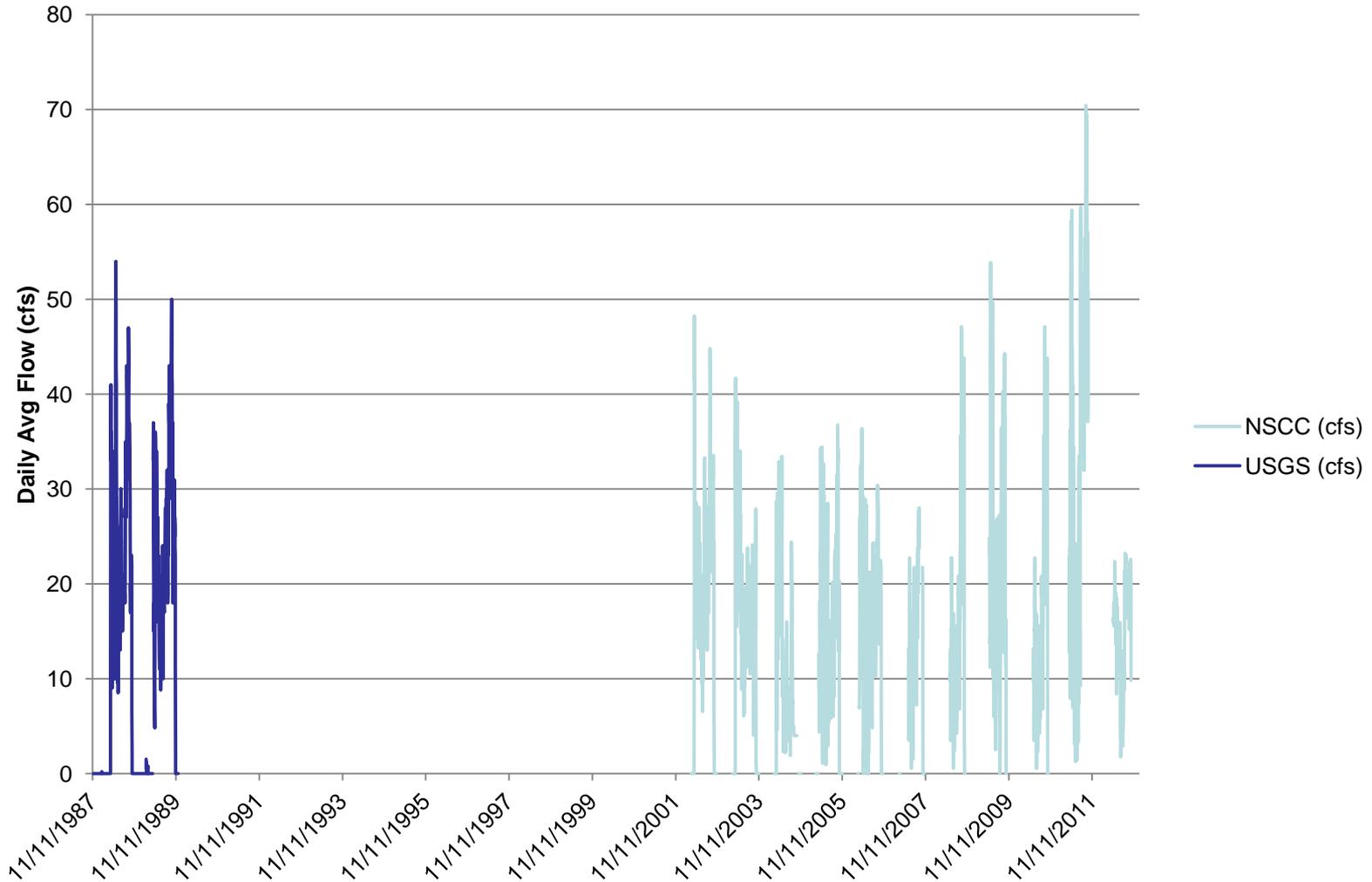
North Side



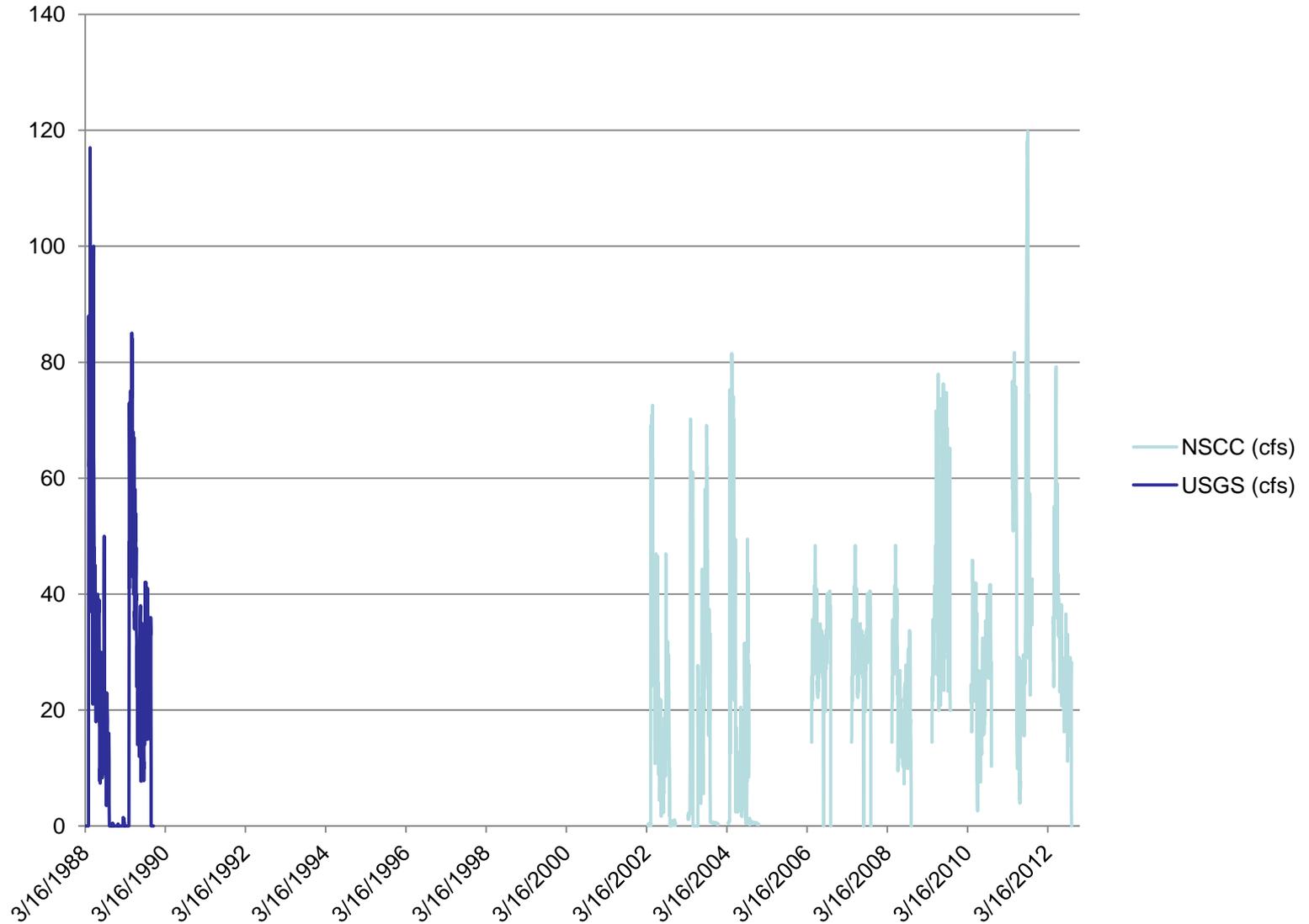
Jerome Golf Course Drain near Jerome K End (13091733)



Sonnickson Butte Drain near Jerome - N30 (13093150)



South Coulee near Wendell (13095360)

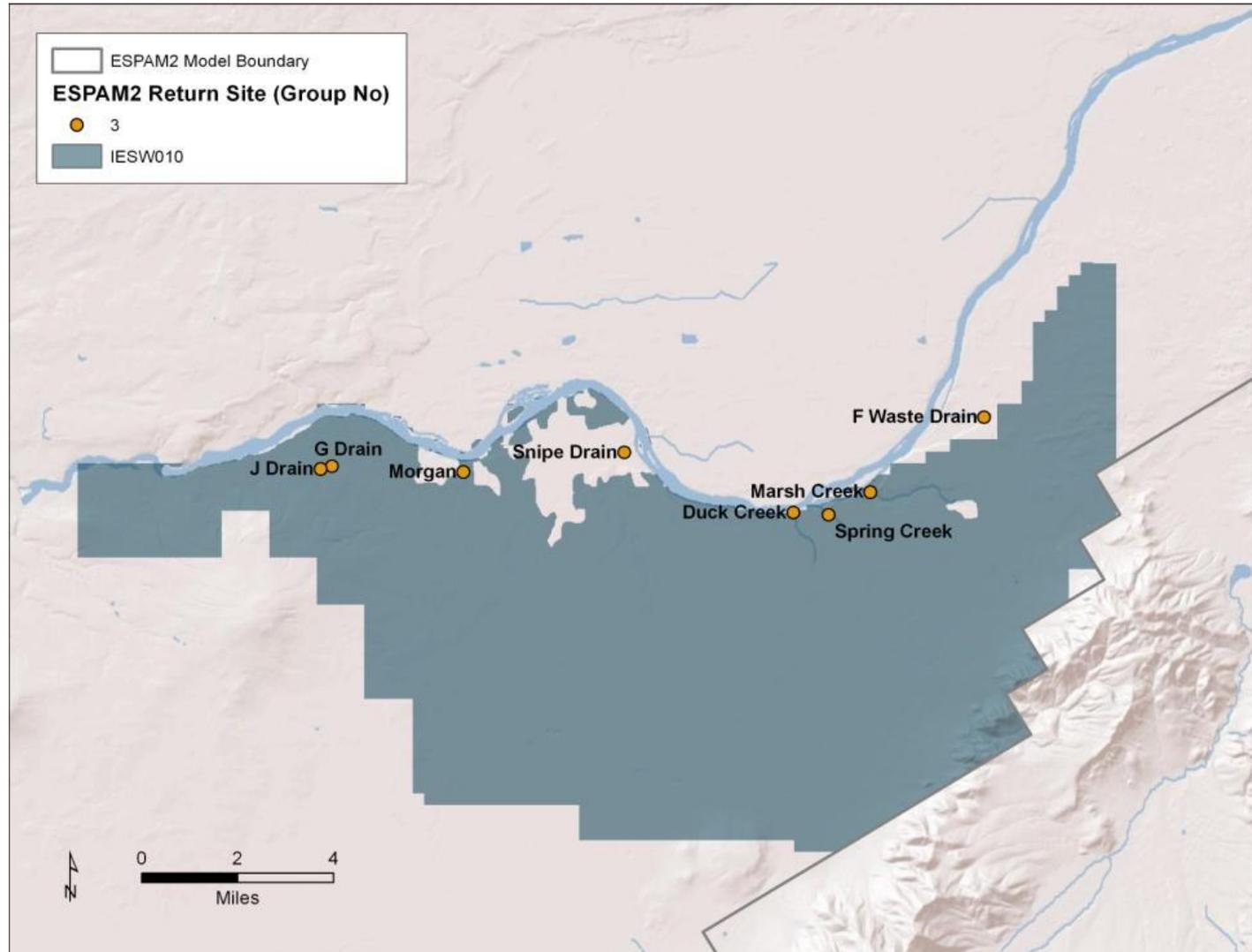


Group 1 Irrigation Entity – North Side

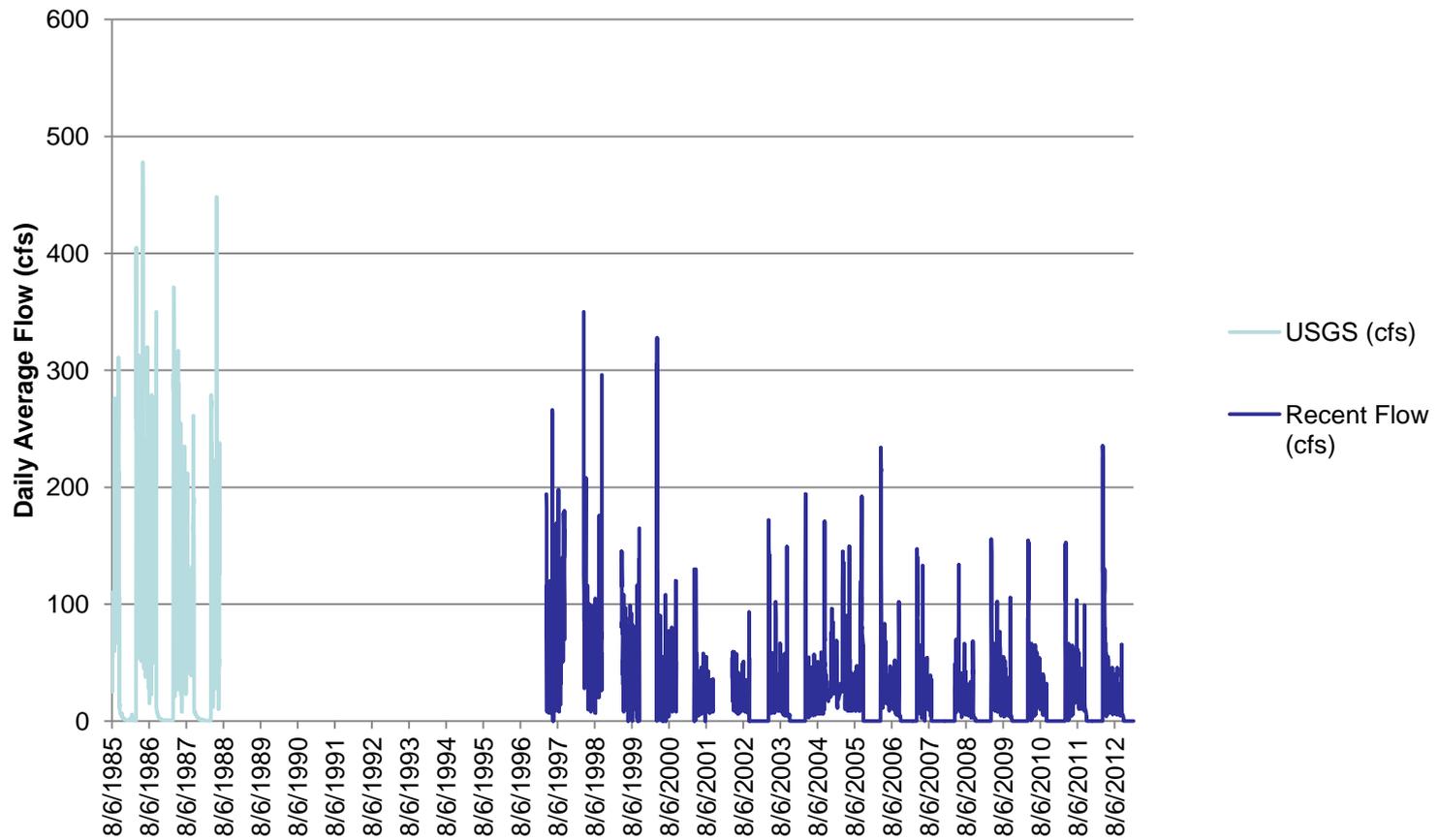
- Originally 8 sites from 2002-2007; 5 added in 2008
- Average portion of returns from new sites is 12%

Station Name (stations with 1980's USGS data)	Portion of Expanded Group Returns (2008-2012)	Estimated Portion of Group Return assuming 12% new site contribution for prior years (2002-2007)
Jerome Golf Course near Jerome (K End)	12%	8%
Sonnickson Butte Drain near Jerome (N30)	16%	16%
South Coulee near Wendell (S End)	32%	25%
Total	60%	49%

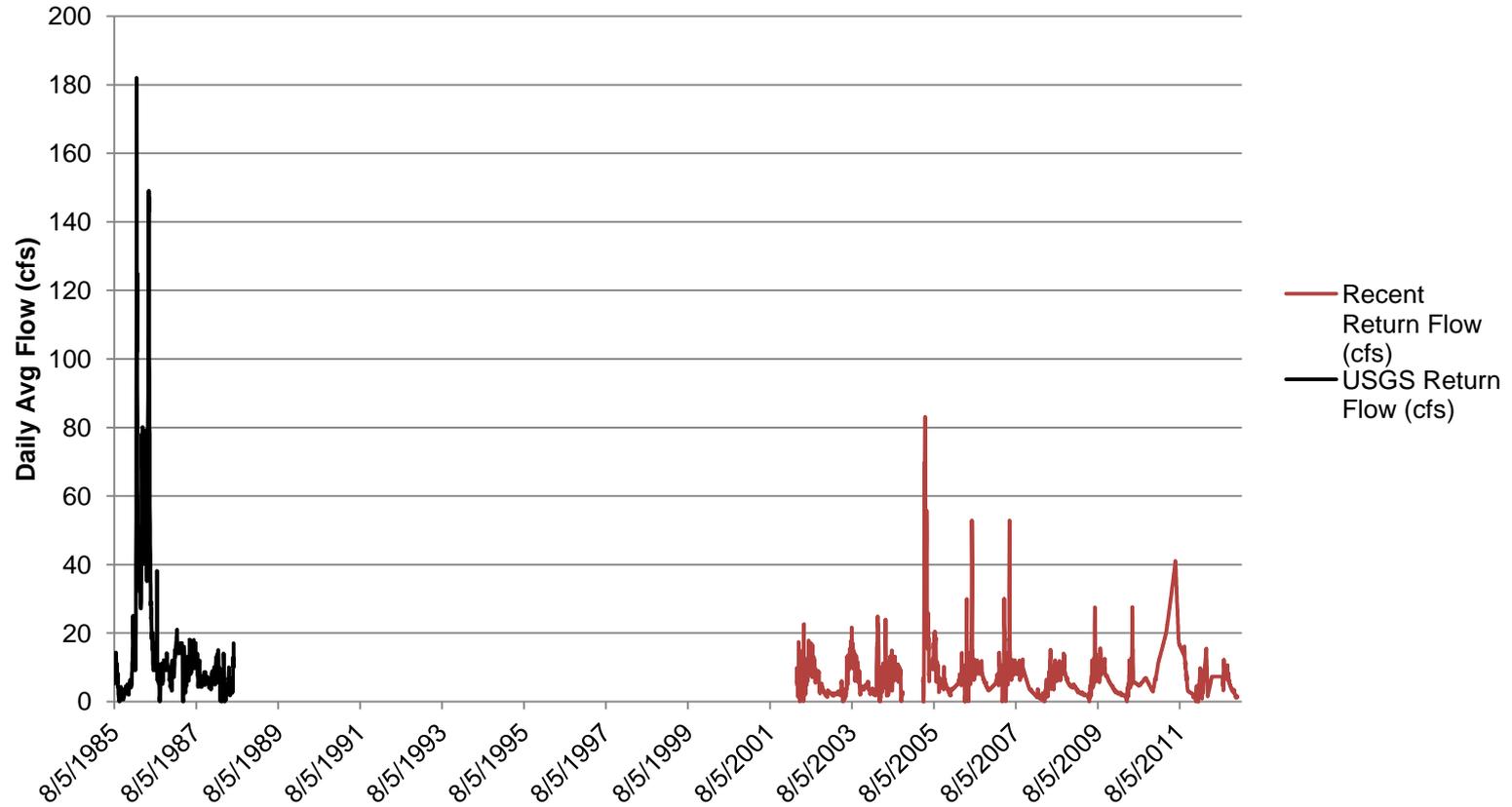
Burley



F-Waste Drain near Declo (13082060)



Marsh Creek near Declo Returns (13082320)

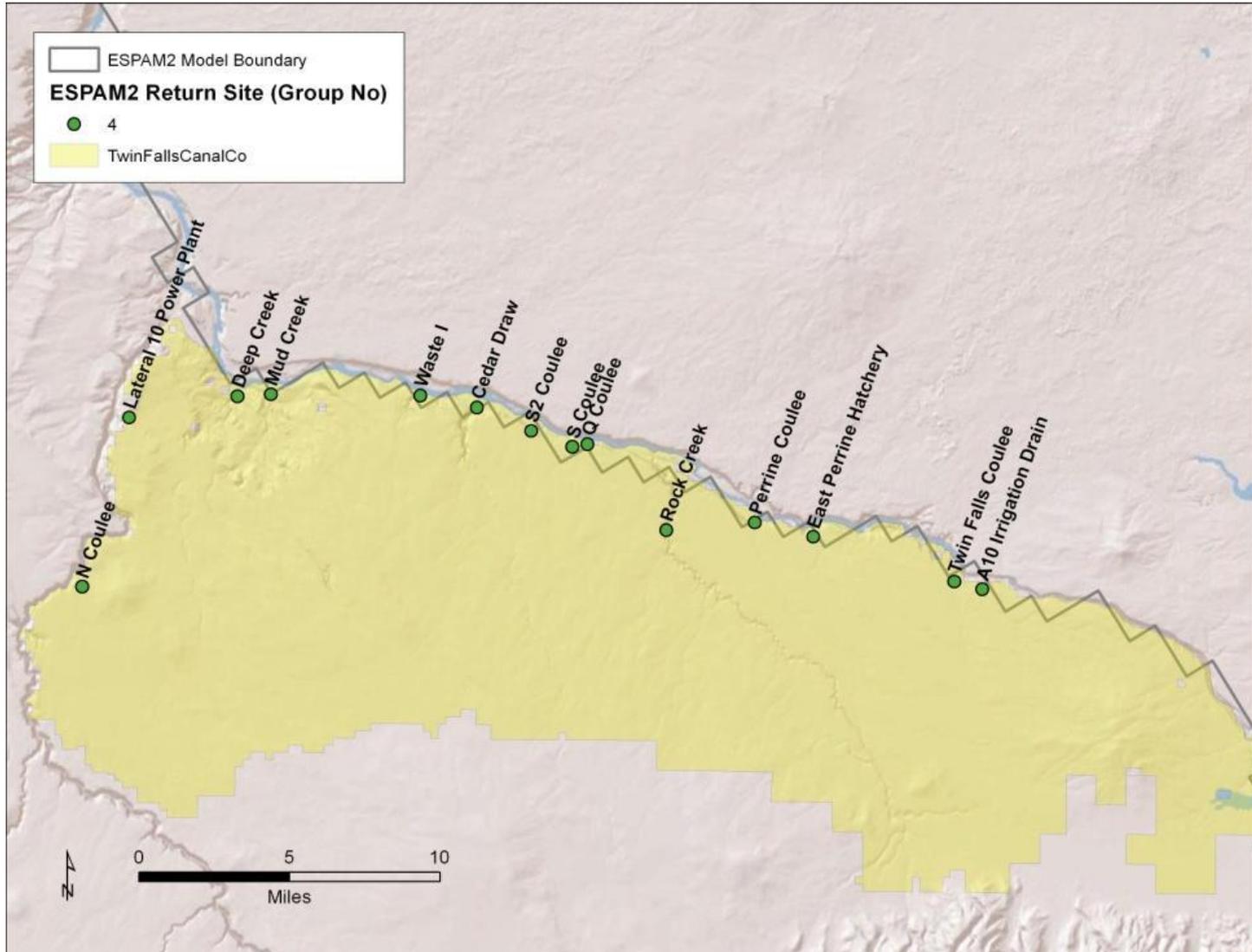


Group 3 Irrigation Entity – Burley

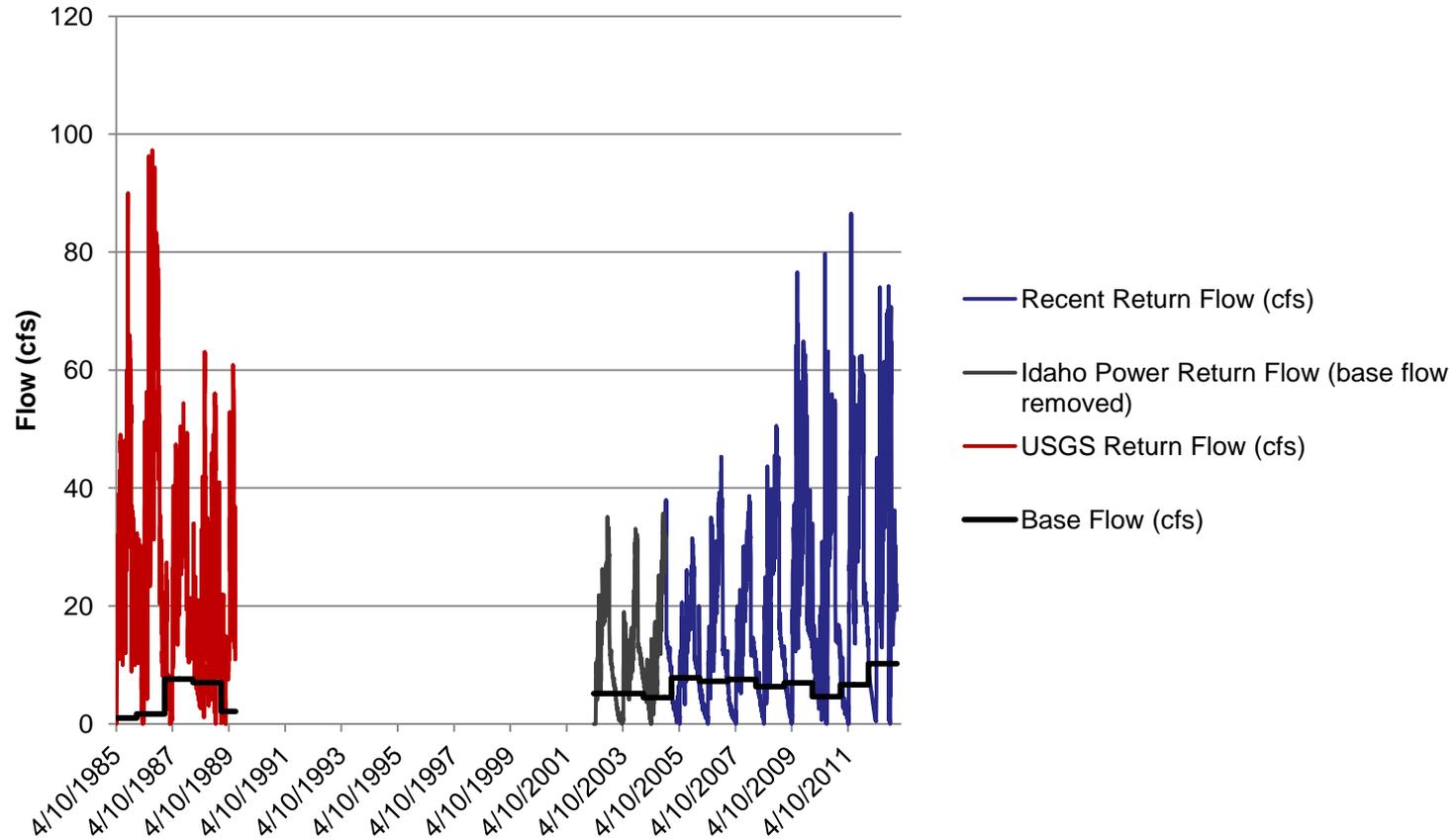
- Originally 5 sites from 2002-2010; 1 site added in 2011
- Average portion of returns from new site is negligible

Station Name (stations with 1980's USGS data)	Portion of Expanded Group Returns (2002-2010)	Estimated Portion of Group Return assuming 0% new site contribution for prior years (2011-2012)
F Waste Drain near Declo	34%	34%
Marsh Creek near Declo	12%	12%
Total	46%	46%

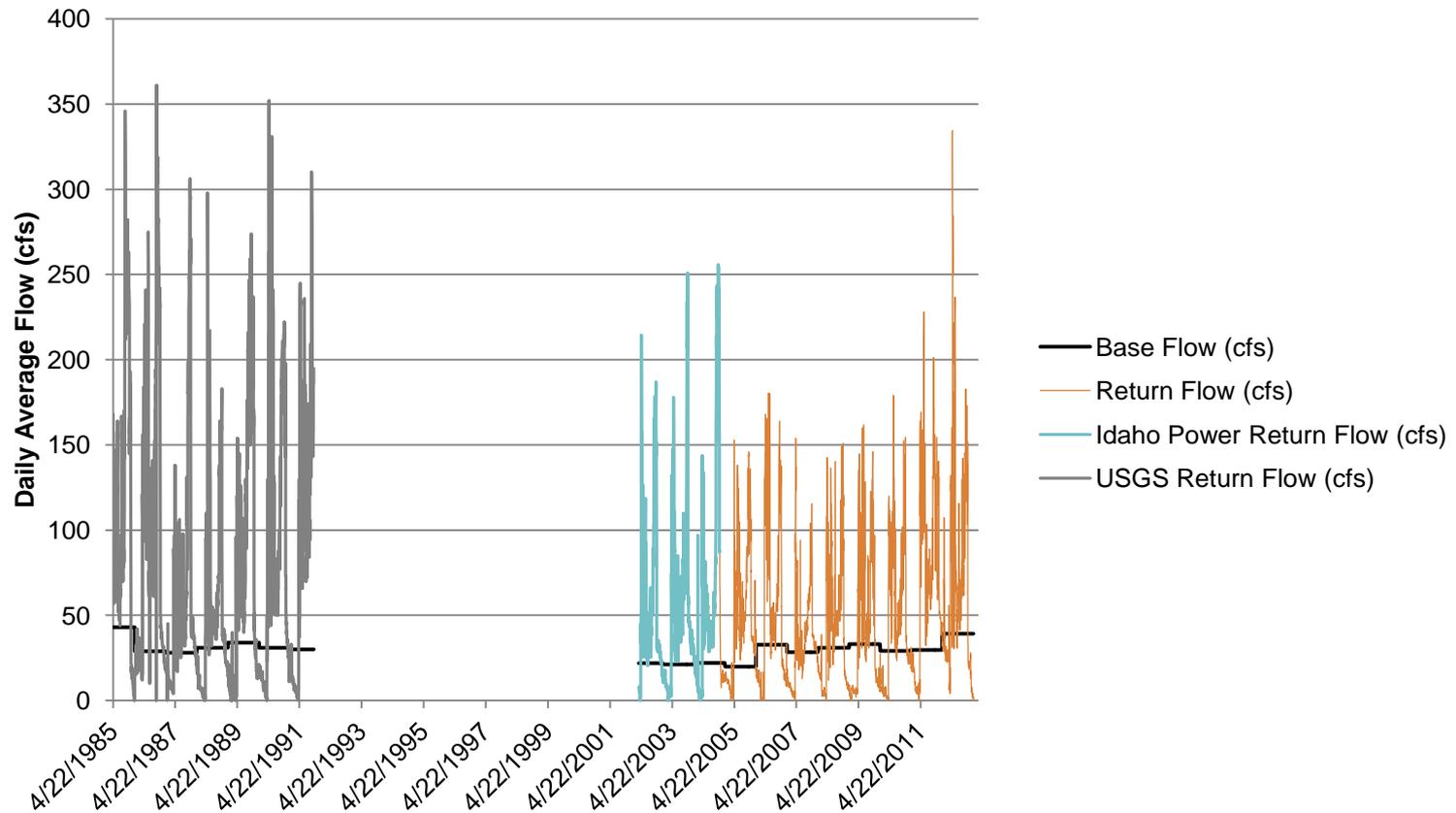
Twin Falls Canal Company



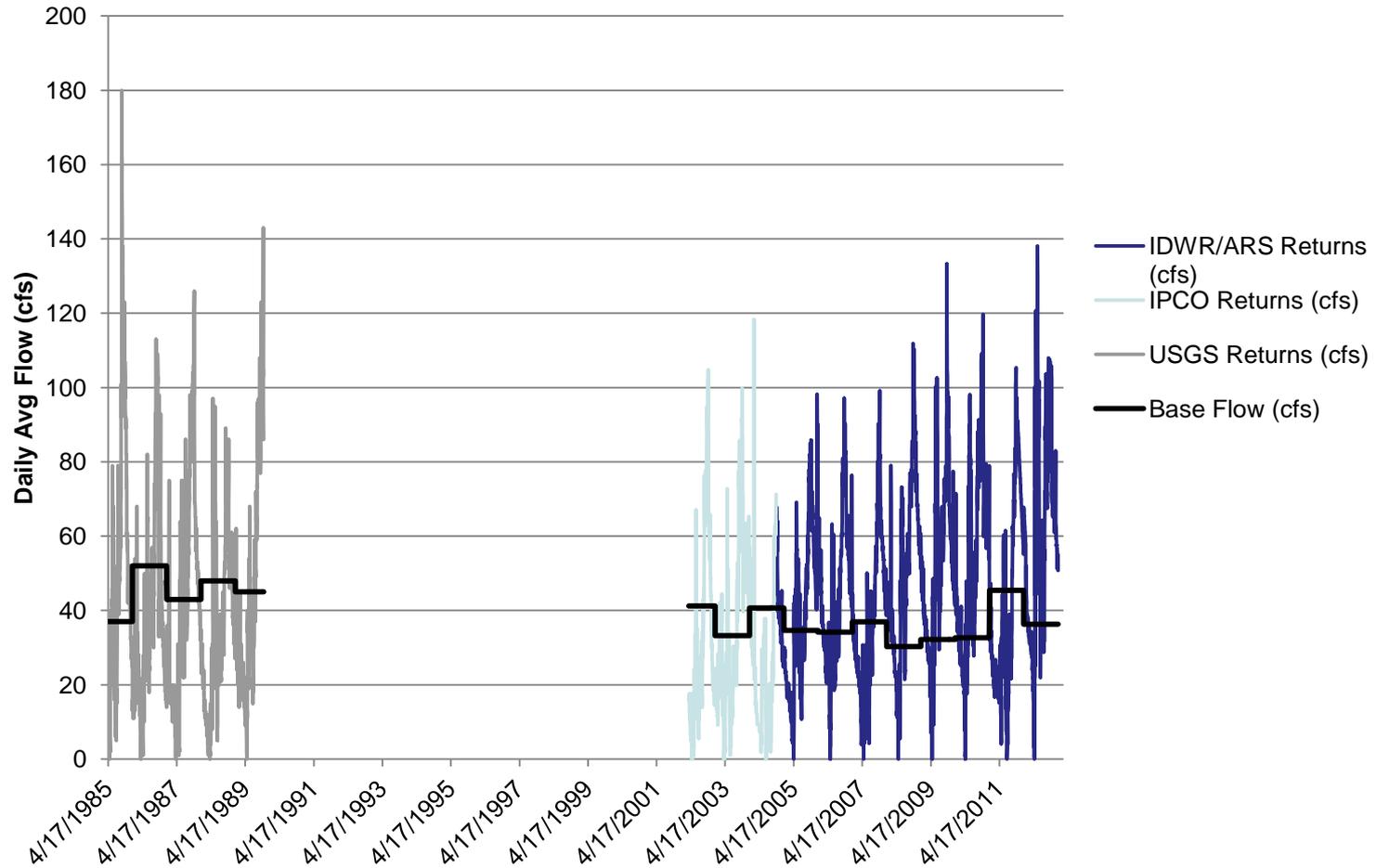
Fish Hatchery Waste near Twin Falls - East Perrine Coulee Returns (13090370)



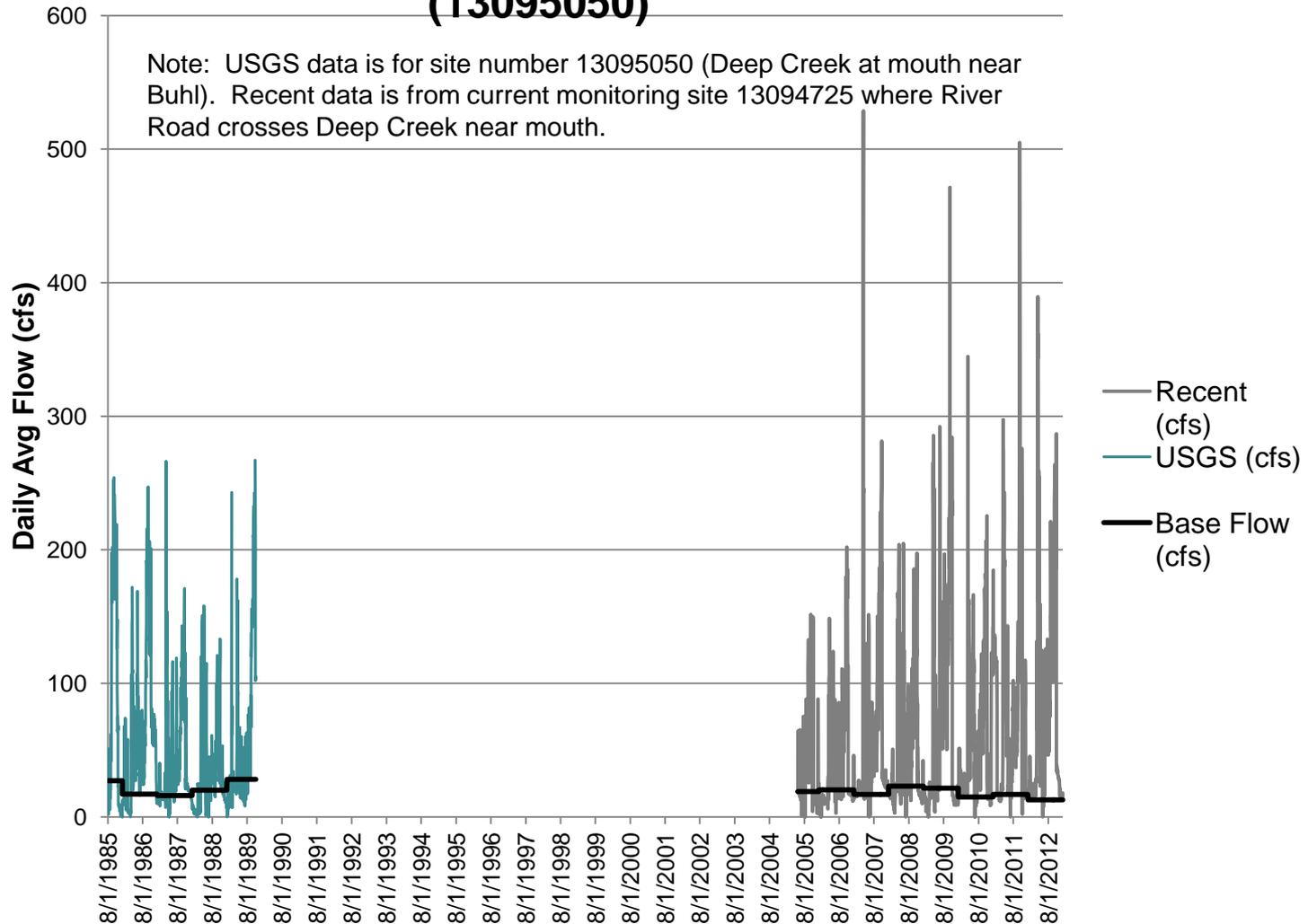
Cedar Draw Returns (13093550)



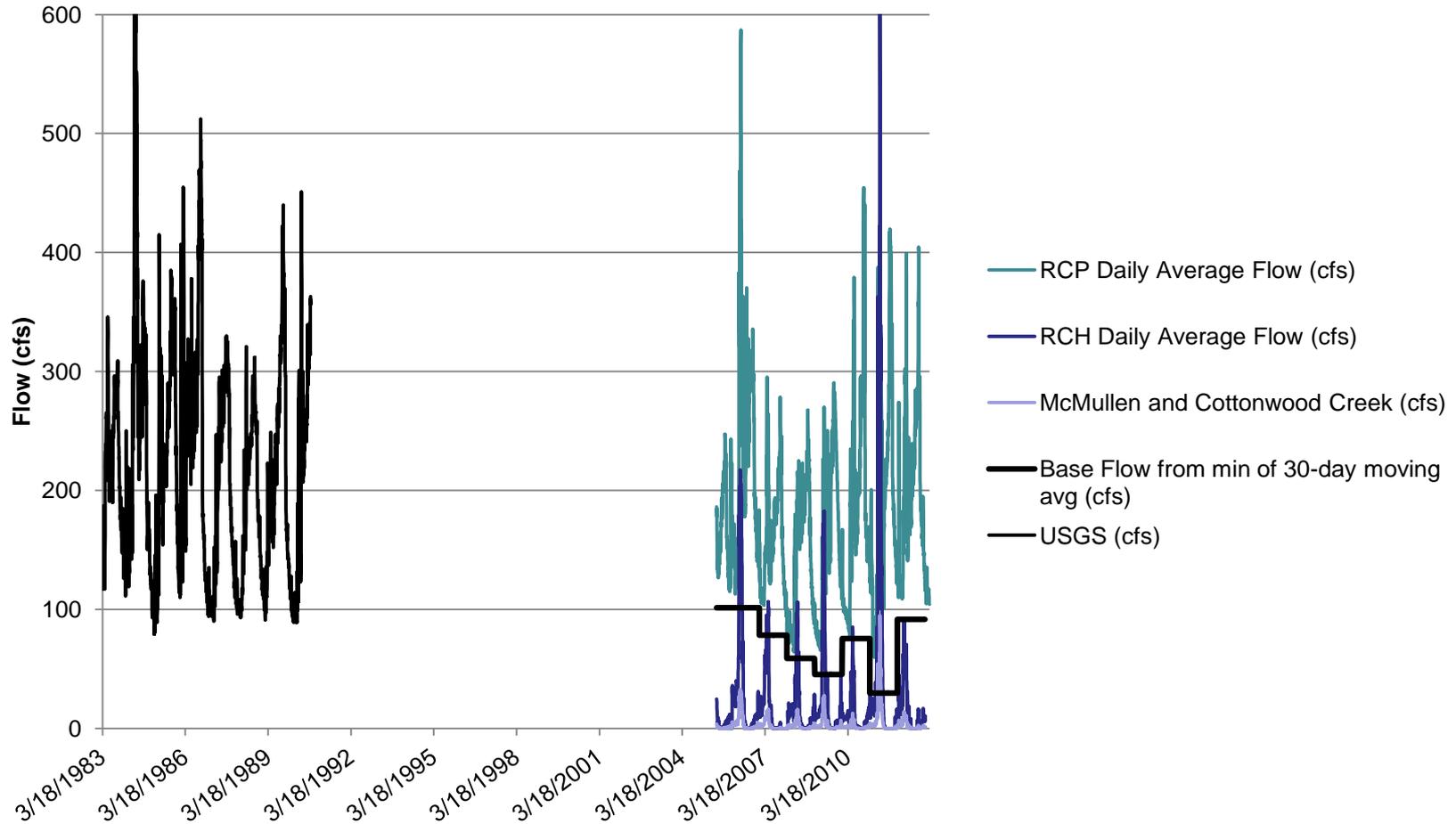
Mud Creek near Buhl (13094700)



Deep Creek at mouth near Buhl Returns (13095050)



Rock Creek near Twin Falls (Rock Creek at Poleline) (13093000)

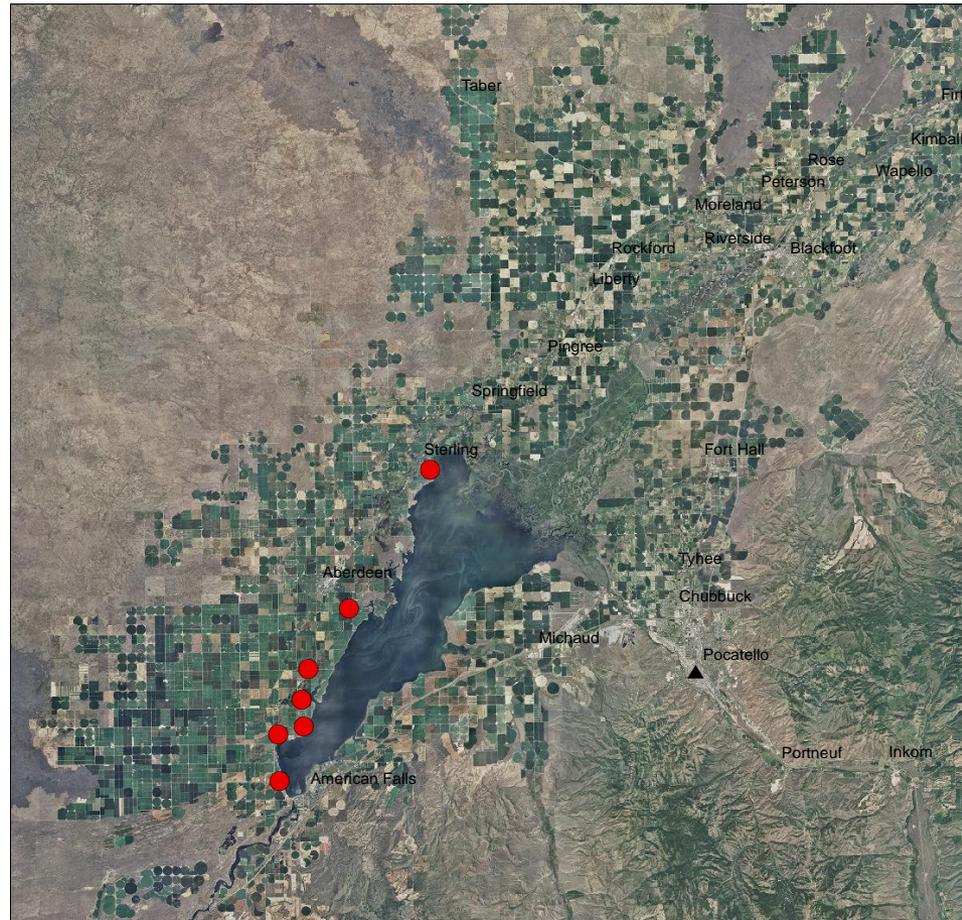


Group 4 Irrigation Entity – Twin Falls Canal Company

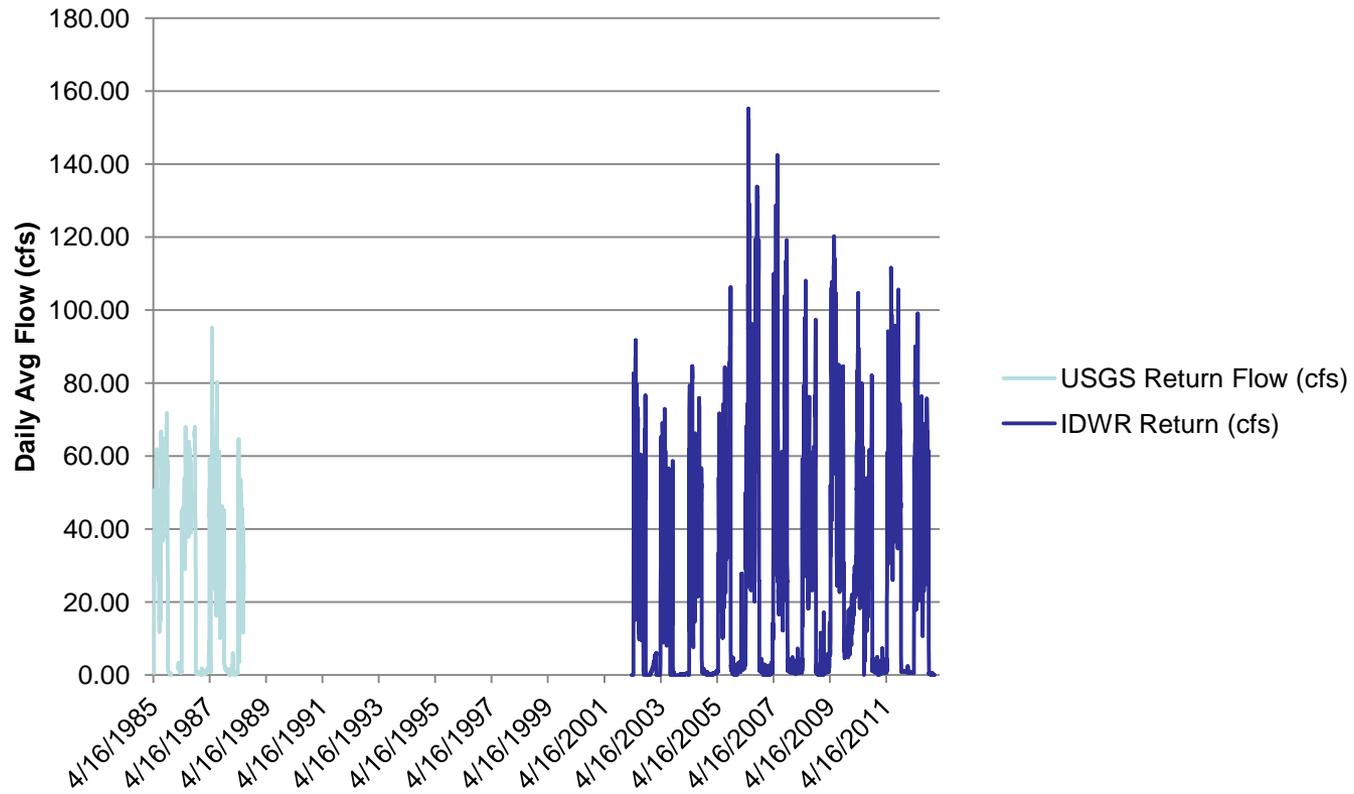
- Originally 10 sites from 2002-2004; 5 added in 2005
- Average portion of returns from new sites is 52%

Station Name (stations with 1980's USGS data)	Portion of Expanded Group Returns (2005-2012)	Estimated Portion of Group Return assuming 52% new site contribution for prior years (2002-2004)
Fish Hatchery Waste near Twin Falls (East Perrine Coulee)	5%	4%
Rock Creek near Twin Falls (Rock Creek at Poleline)	24%	TBD (new site in 2005)
Cedar Draw near Filer	15%	19%
Mud Creek near Buhl	14%	11%
Deep Creek at mouth near Buhl	18%	~14% (new site in 2005)
Total	76%	

Aberdeen Springfield



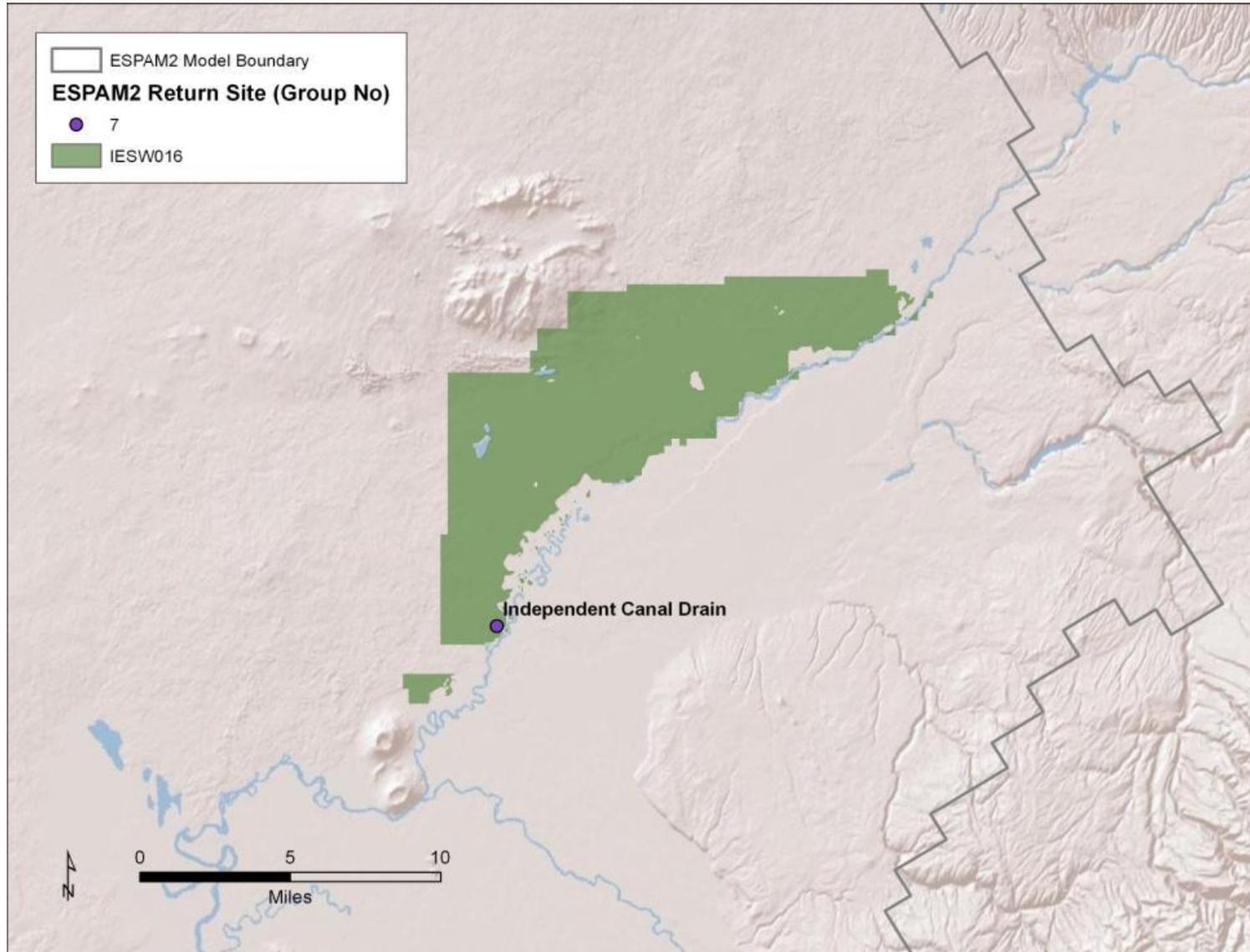
Aberdeen Wasteway near Aberdeen Returns (13069565)



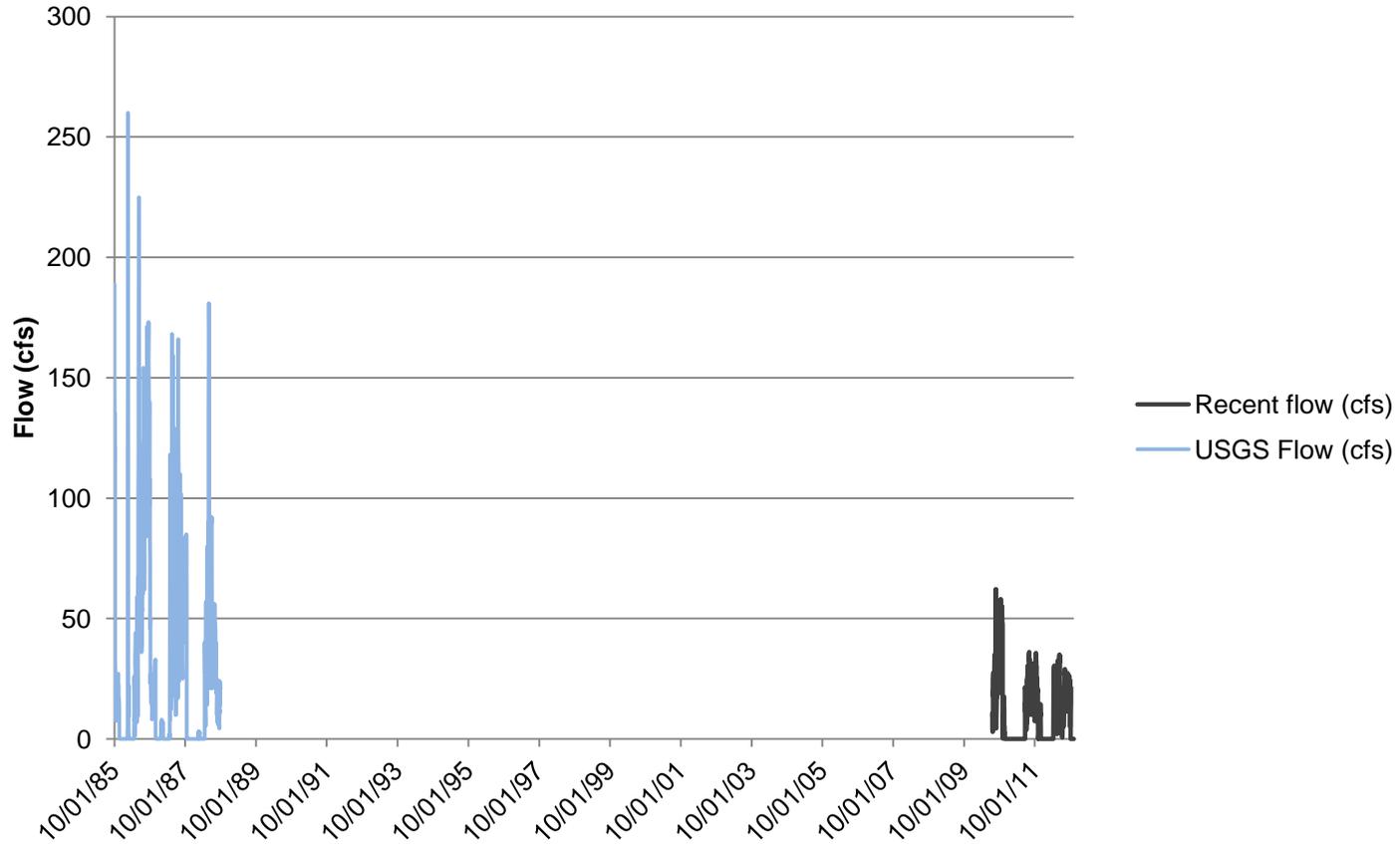
Group 5 Irrigation Entity – Aberdeen Springfield

- Originally 3 sites from 2002-2009; 4 sites added in 2010
- Average portion of returns from new sites is 35%

Station Name (stations with 1980's USGS data)	Portion of Expanded Group Returns (2010-2012)	Estimated Portion of Group Return assuming 35% new site contribution for prior years (2002-2009)
Aberdeen Wasteway near Aberdeen	48%	49%



Egin Canal - End of Canal Return

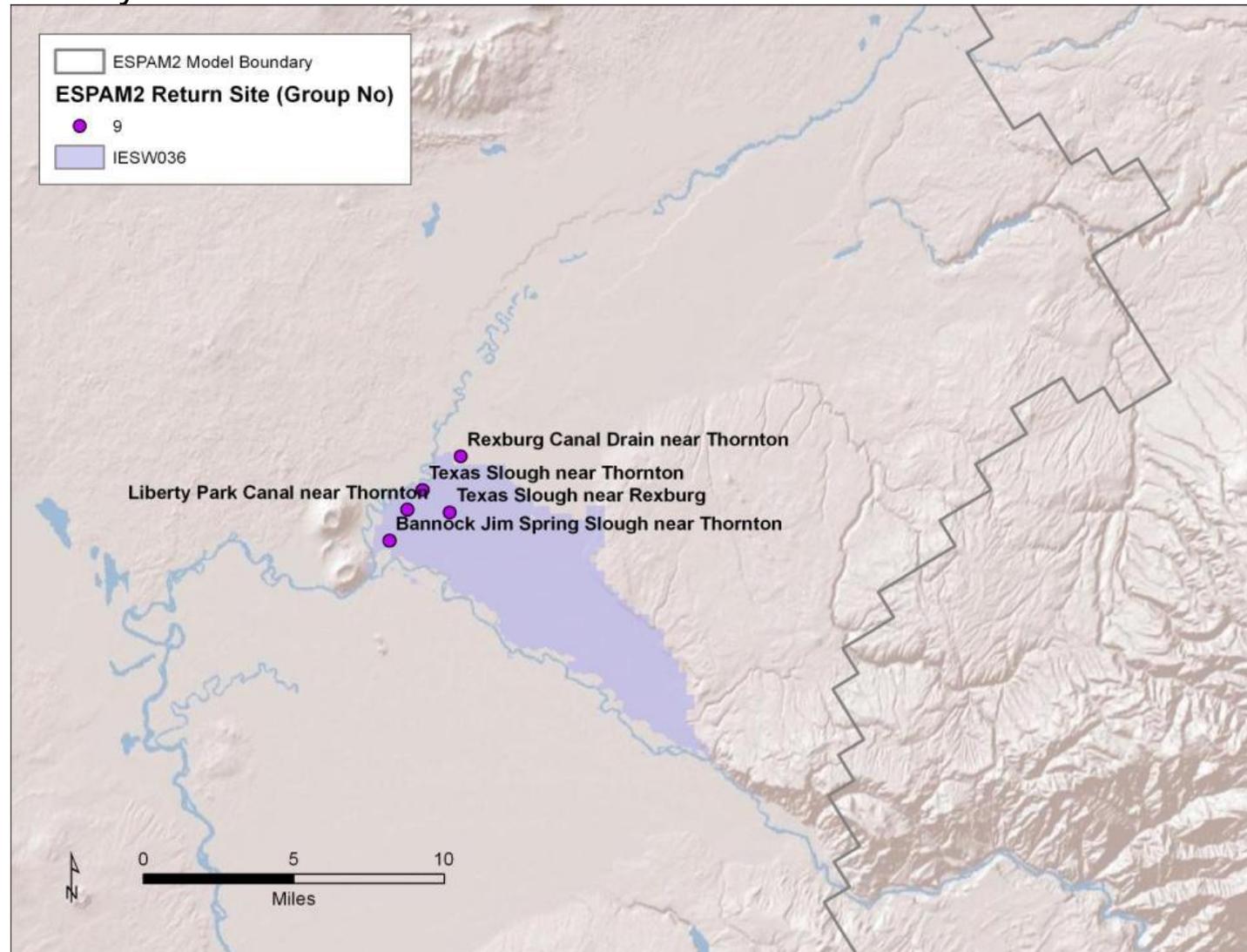


Group 7 Irrigation Entity – Egin

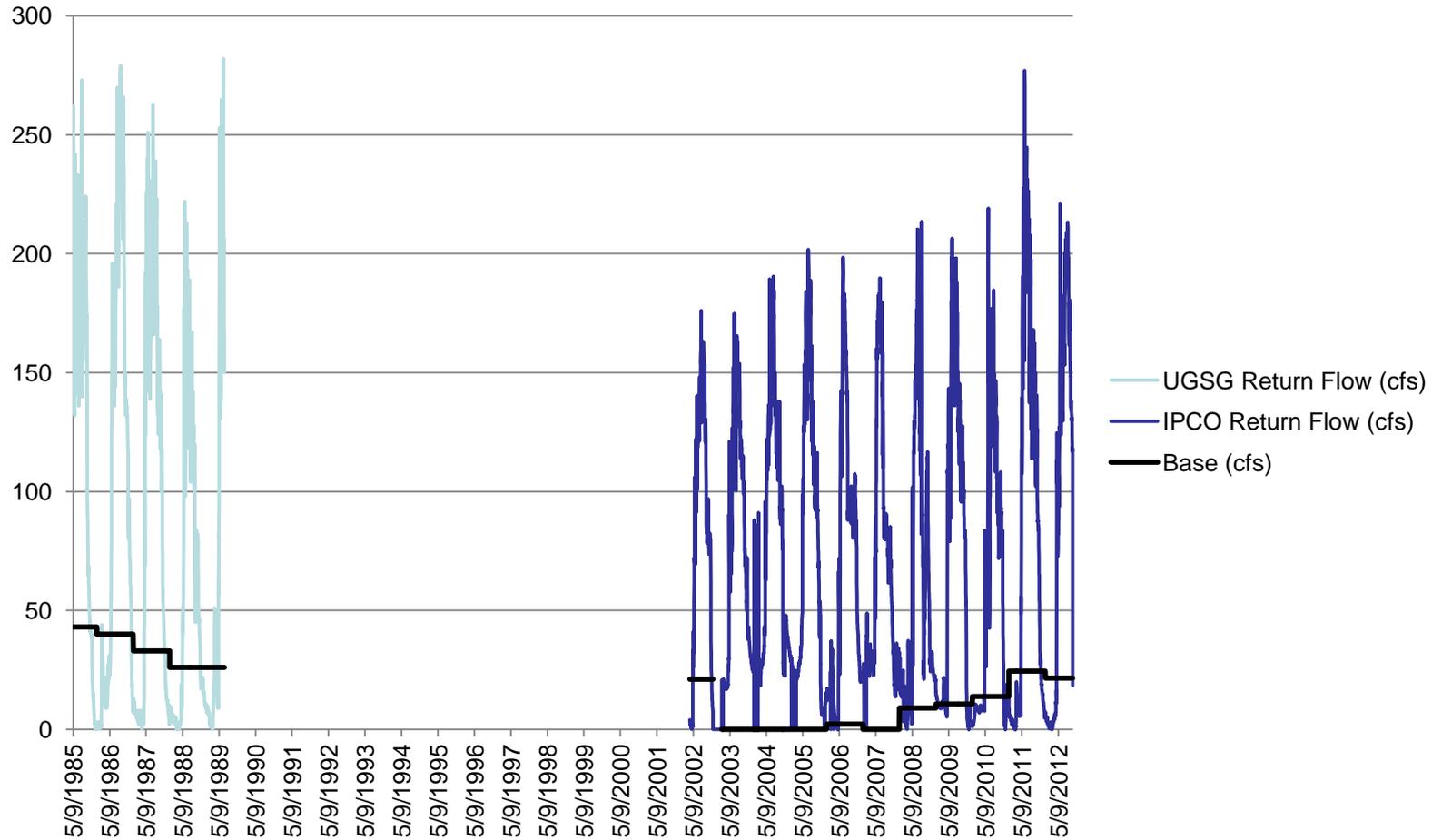
- Originally 1 site; no sites added
- Average portion of returns from new sites is 0%

Station Name (station with 1980's USGS data)	Portion of Expanded Group Returns (2011-2012)	Estimated Portion of Group Return assuming 0% new site contribution for prior years
Independent Canal Drain near Rexburg (Egin – end of canal)	100%	100%

Liberty



Texas Slough near Rexburg (13056600)



Group 9 Irrigation Entity – Liberty

- Originally 5 sites; no sites added
- 1 site has no data; 2 sites discontinued in 2004
- Average portion of returns from discontinued sites is 20%

Station Name (station with 1980's USGS data)	Portion of Original Group Returns (2002-2004)	Estimated Portion of Group Return assuming 20% discontinued site contribution for latter years (2005-2012)
Texas Slough near Rexburg	71%	67%

Group Irrigation Entity not yet assigned – New Sweden Irr. Distr.

- 3 sites came online in 2012; additional 2 in 2013
- End of Slough has the largest flow of the 5 sites
- One year's worth of data with all five sites running; not yet QA'd

Great Western Canal near Woodville

End of Slough (13061300)

