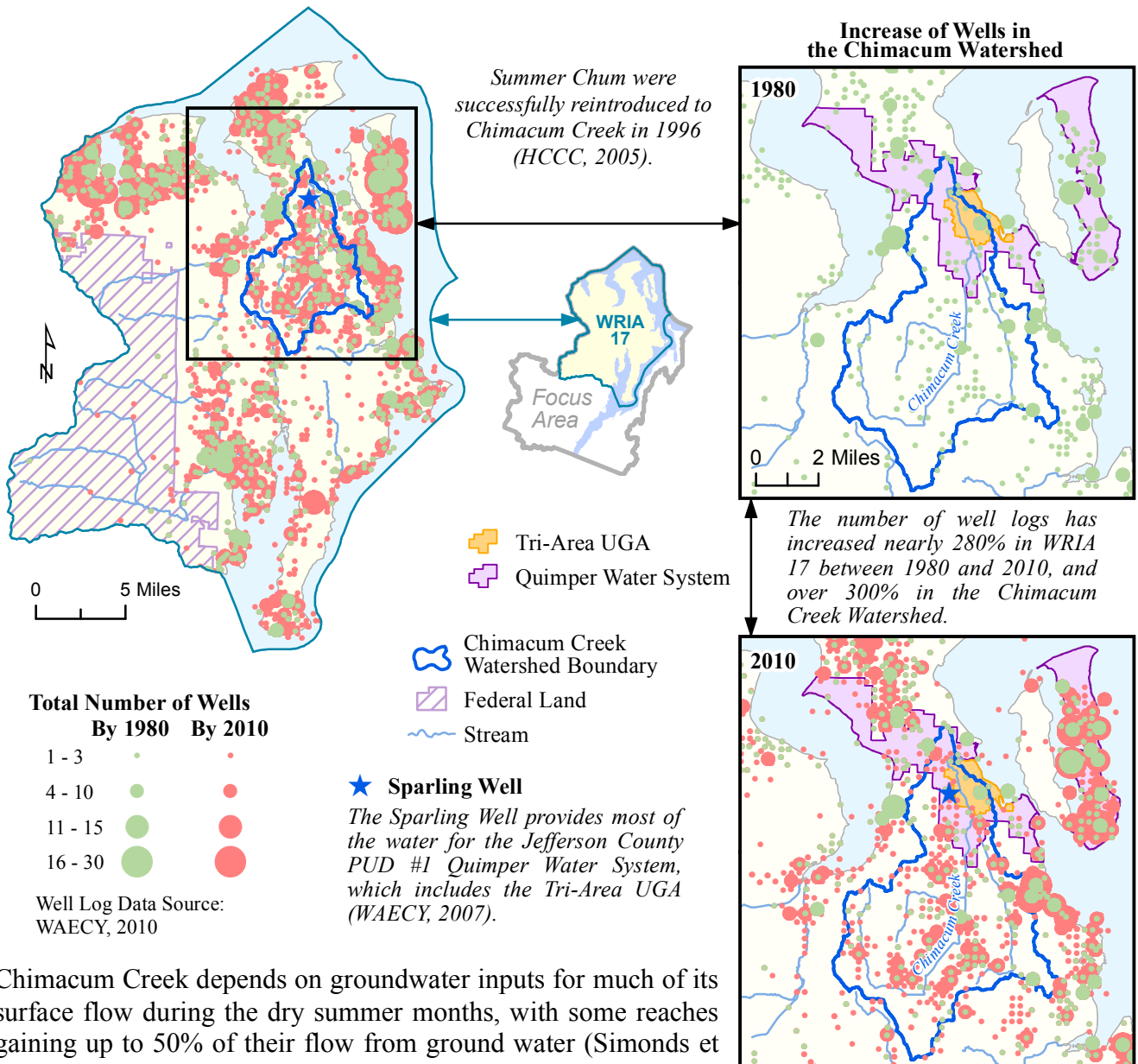


Water Extractions Impact Surface Flow and Fish Usage

The number of well logs has increased nearly 280% in WRIA 17 between 1980 and 2010. Wells extract ground water that contributes to streams, resulting in lower instream flows and increased water temperatures. Climate change is projected to increase summer air temperatures and prolong the stream low flow period during the salmon spawning season, intensifying the detrimental effects of water extractions on freshwater salmon habitat.

"Ground water and surface water are one resource": changes to one will impact the other (Winter, 1998). Exempt wells are entitled to withdraw 5,000 gallons of water each per day, potentially impacting the instream flow of Chimacum Creek (WAECY, 2007). Salmonid species, including Summer Chum, require adequate stream flows to access suitable spawning habitats and to maintain other quality habitat attributes such as appropriate water temperatures and stream substrate (Parametrix, 2000). The summer low flow period is expected to get longer and stream temperatures to increase due to climate change (CIG, 2009), amplifying the effects of groundwater extractions on freshwater habitats that salmon require for survival. Conservation of freshwater resources for instream and human uses is one of the five primary objectives in Puget Sound Partnership's Action Agenda (PSP, 2009).



Chimacum Creek depends on groundwater inputs for much of its surface flow during the dry summer months, with some reaches gaining up to 50% of their flow from ground water (Simonds et al, 2004).