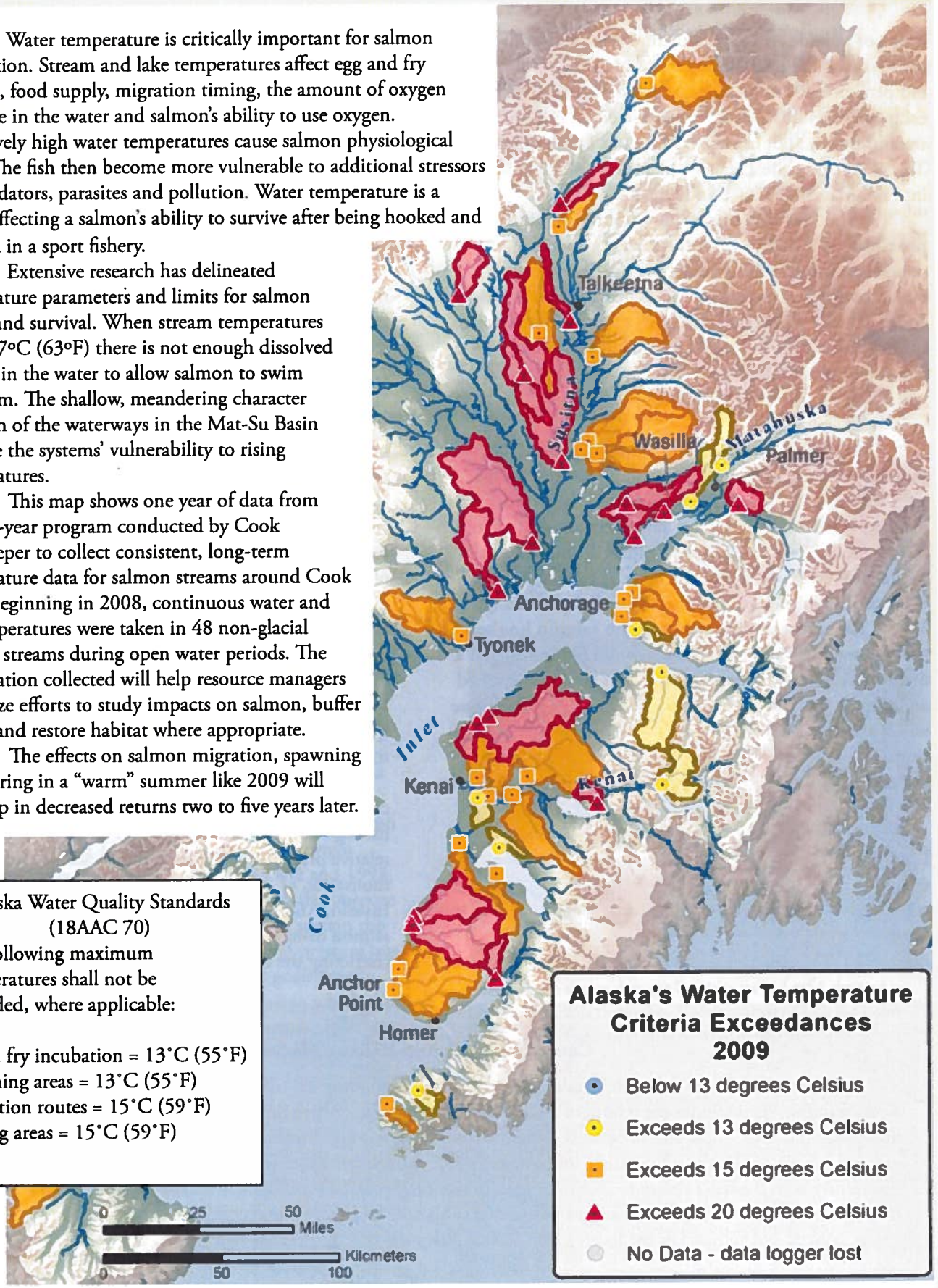
Salmon in Hot Water

Water temperature is critically important for salmon production. Stream and lake temperatures affect egg and fry survival, food supply, migration timing, the amount of oxygen available in the water and salmon's ability to use oxygen. Excessively high water temperatures cause salmon physiological stress. The fish then become more vulnerable to additional stressors like predators, parasites and pollution. Water temperature is a factor affecting a salmon's ability to survive after being hooked and released in a sport fishery.

Extensive research has delineated temperature parameters and limits for salmon health and survival. When stream temperatures reach 17°C (63°F) there is not enough dissolved oxygen in the water to allow salmon to swim upstream. The shallow, meandering character of much of the waterways in the Mat-Su Basin increase the systems' vulnerability to rising temperatures.

This map shows one year of data from a multi-year program conducted by Cook Inletkeeper to collect consistent, long-term temperature data for salmon streams around Cook Inlet. Beginning in 2008, continuous water and air temperatures were taken in 48 non-glacial salmon streams during open water periods. The information collected will help resource managers prioritize efforts to study impacts on salmon, buffer effects and restore habitat where appropriate.

The effects on salmon migration, spawning and rearing in a "warm" summer like 2009 will show up in decreased returns two to five years later.



Alaska Water Quality Standards (18AAC 70)

The following maximum temperatures shall not be exceeded, where applicable:

egg & fry incubation = 13°C (55°F)
spawning areas = 13°C (55°F)
migration routes = 15°C (59°F)
rearing areas = 15°C (59°F)

Mauger, S. 2011. Stream Temperature Monitoring Network for Cook Inlet Salmon Streams 2008-2010. Alaska Clean Water Action Grant 11-01, FY2011 Final Report. Cook Inletkeeper, Homer, Alaska.