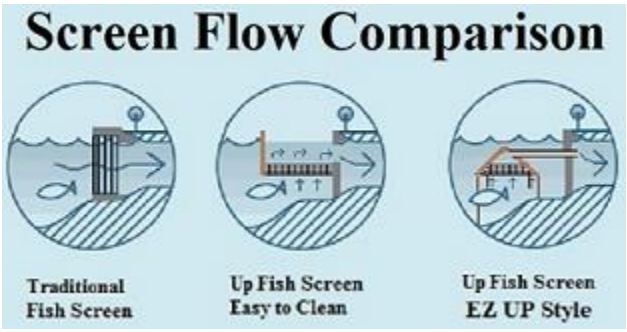
Fish Exclusion from Water Diversions and Intakes

UpScreen

Executive Summary of Proposed Solution

"UpScreen" with 1/3 or smaller screen holes and 1/3 or slower flow over screen than max allowed by Fish & Wildlife recommendation; all at low cost, low clogging and with automated Robotic gentle hydro solar powered pool cleaning. *Working with nature to exclude all floating & bottom tumbling debris (90+% of typical debris) while extracting all water **UP** through the horizontal screens from mid-water depth **UP** through the standard 18x16 or smaller STRONG and durable pet patio screen material at extremely slow speed, so as not to harm any aquatic life and/or clog the screens.*

UpScreen water process – Mid Depth of Stream with horizontal screens insure that 100% of floating debris and 100% of debris rolling on the stream bed will be excluded naturally. Suspended debris can get caught in the screen but the stream flow should dislodge it as quickly as it got stuck, because the stream flow is often faster than the 0.07 CFS intake flow across the screen due to the ***Extremely*** large screen area.



Screen Durability – 3 layer of screens with middle layer being the small fish screen and the outer layers of protection of plastic pet fence (like c-Flex Fencing) adding up to 900 lbs of safety for the strong pet patio screen material in the middle to keep out most of the aquatic life with minimal clogging. Typical screens are always moving, encounter lots of debris which requires constant harsh cleaning. UpScreens do not have hard debris and can be cleaned with a gentle hydro pressure with the water force going straight down.

Water Flow Speed – *Extracting water at the slowest speed over the screen is desired; the slower the better. 0.2 CFS is the MAX desired speed allowed by Fish & Wildlife(F&W), but with UpScreen I target for a speed of 1/3 (0.07 CFS), which allows for up to 2/3 clogging before reaching F&W max. All extraction locations that I have examined can accommodate 10 times or more screened area for horizontal screens as opposed to vertical type screens. Drastically higher screen area can be deployed, which in turn means slower water extraction speeds over the screens, near the banks, but with the underwater design which can be added or utilized in all areas*

Cost – *Low cost with high durability is the goal so that UpScreens can be easily deployed every where to help fish and people. "UpScreen" is all about using strong **standard** pet patio or window type screens that can be adjusted to customers preference on screen hole size and water flow rates. Standard screens have economies of scale so they are cheaper and the less used screens sizes adds costs because there is less demand. Example: 10'x10' screen will enable extraction of 4.9 to 14.8 CFS for under $1,000 in capital costs.*