

FISH SCREEN DESIGN

AVOID entrainment of fish and debris on municipal raw water intakes, irrigation pumps, gravity diversions and hydropower intakes.



Traditionally, placing a screen on an intake resulted in UNDESIRABLE, INEFFICIENT and COSTLY outcomes:

- ✘ **Installing a coarse screen;** This often delivers poor quality water, causing blocked lines and screens, resulting in high pump maintenance.
- ✘ **Installing a fine screen;** This method delivers unreliable flow volumes, with regular screen blockages that are difficult to clean.

There are **THREE** main design considerations when researching screen suitability;

1. APERTURE SIZE

Intake screens are available in a variety of aperture sizes. The size required is site specific based on the aquatic life present (including fish species and breeding patterns). Aperture size will be dictated by local specifications.

2. APPROACH VELOCITY

The velocity of the water approaching and passing through the screen should be as low as possible. This prevents entrainment and impingement of both debris and fish. The velocity must be evenly distributed across the entire screen area. Low approach velocities also reduce head loss.

3. SELF-CLEANING FUNCTIONALITY

Traditional intake screens require regular manual cleaning with significant operational and safety risks. Advances in intake screen technologies include innovative cleaning systems. A self-cleaning screen ensures efficient operation, with fish protection, without comprising flow. Additionally, a sustainably clean screen improves pump efficiency reducing energy consumption.

EFFICIENT SCREEN DESIGN

Internal baffling to control even flow over full screen area

Deliver full rated unobstructed flows

Approach velocity less than 0.12m/s

Aperture size less than 3mm

Integrated brush cleaning system

Screen life of 25+ years

Fish exclusion screen technologies are now guided by the USEPA 316(b) compliant design requirements and the NIWA Fish screening: good practice guidelines for Canterbury. Innovative screening technologies are now available, to ensure the sustainability of fish health and increased water extraction efficiencies.