



Freshwater Intake Screening

Why Screen Intakes?

Freshwater Fish Screening addresses the need for fish protection, as identified under the Fisheries Act, when water is taken from Lakes, Streams, Rivers and other bodies of water. Fish and other aquatic organisms are often destroyed when they are drawn into a water intake or become trapped at the intake (entrainment). Fish mortality can be reduced by proper siting and screening, according to the following recommendations.

Water intakes and screens should be located a minimum of 30 centimeters above the bottom of the watercourse to prevent entrainment of sediment, aquatic organisms, and the eggs and juvenile life stages of fish, associated with the bottom area.

The ends of pipes used to withdraw water must be screened. Typical recommended screens are shown in the following pictures.

All water intakes should be screened according to the Freshwater Intake End-of-Pipe Fish Screen Guidelines (Department of Fisheries and Oceans 1995) if flow is less than 125 litres per second.

If flow is greater than 125 litres per second, water intakes and screens should be professionally designed with

input from the Department of Fisheries and Oceans.

Water intakes and screens should be located in areas and depths of water known to have low concentrations of fish throughout the year. Avoid fish spawning, holding, migration and rearing areas.

On major rivers, small fish often inhabit quiet backwater areas and side channels; they are susceptible to entrainment by intakes in these locations.

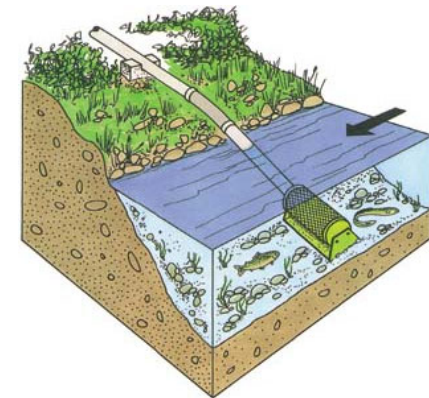
Water intakes and screens should be located away from, and not included in the design or construction of, natural or man-made structures that may attract fish (e.g. structures such as spillways that alter water flow or temperature).

Water intakes and screens located in reservoirs or lakes should be located as deep as possible to minimize exposure to juvenile fish.

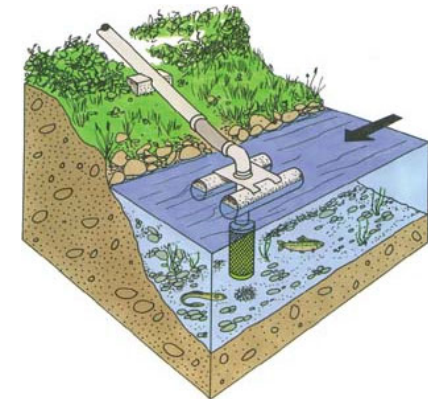
Winter Tip

Avoid icing in the winter and protect the screen from large debris year round by using a properly designed "trash rack"

Mounting Options



This streambed mount is more efficient in a shallow stream system



This floating screen is more efficient in a deeper stream system



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The information in this brochure is not intended to replace guidelines that exist in regards to the screening of freshwater intakes. This brochure displays examples of styles of freshwater intake screens. To acquire "The Freshwater Intake End-of-Pipe Fish Screen Guidelines" contact your closest Fisheries and Oceans Office.

Fisheries and Oceans Canada

BC Interior Area Office
1278 Dalhousie Dr.
Kamloops, B.C
V2C-6G3
250.851.4950

Online:

Fisheries and Oceans Canada

<http://www.dfo-mpo.gc.ca>

The Pacific Region

<http://www.pac.dfo-mpo.gc.ca/>

Screening Guide:

http://www-heb.pac.dfo-mpo.gc.ca/english/publications/PDF/guidelines/fishscreen_intake.pdf

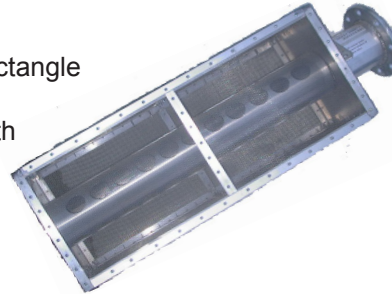
Design Tip

Oversizing your screen can reduce cost and frequency of maintenance by attracting less debris.

This screen example is for use by systems up to 1300 gallons per minute. Note, the center siphon is perforated in a way that disperses water flow throughout the screened area.

Dimensions:

37" x 17" x 17" rectangle
6" collar width
11.25" flange width



Design Tip

Design your intake so uniform flow can be maintained over the largest possible screen area. This can help reduce debris impacts and maintenance costs.

This is a representation of a domestic intake screen that will withdraw no more than 20 gallons per minute. The unit and screen size are both relatively small.

Dimensions:

8.25" diameter
8" depth
2.25" collar width
No flange



This cylindrical example of a high velocity intake is rated at approximately 500 gallons per minute.

Dimensions:

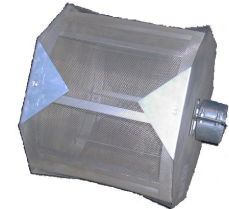
2' wide
9" diameter
7" collar width
No flange



This is an example of a drum screen for use with systems of up to 750 gallons per minute.

Dimensions:

22" octagon
20" depth
5" collar width
No flange



Design Tip

Maintain your screen regularly. A clean screen attracts less debris and can achieve a more consistent flow from your intake.