

Farmers Screen Siting Criteria

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A potential screen site must have all of the following characteristics to be appropriate for installation of a Farmers Screen:

1. The proposed site must be located off-channel, and the flow to the screen must be controlled with a properly functioning head gate.
2. The water depth over the screen must be maintained at a minimum of 12 inches. There must be adequate flow in the stream to ensure that the proper amount of by-pass flow and diverted flow necessary for the particular screen to operate properly (as defined in the operation manual) is available 100% of the time that the screen is operating. The by-pass flow required is a direct function of the screen design and will be determined when the flow range of the screen is determined.
3. A screen owner/operator must be willing to agree to operate the screen as designed and as specified in the Operation Manual.
4. The water at the leading edge of the screen must be of steady uniform flow at a velocity of between 3 and 7 feet per second. In the case of modular screens, adequate entrance velocity is typically provided by utilizing freeboard in the conveyance canal upstream of the screen flume. The water surface elevation is simply increased in the conveyance system to induce a proper entrance velocity of 3 to 7 feet per second ~~to avoid turbulence inducing changes in the Froude Number~~ at the leading edge of the screen. In the case of custom designed screens, the conveyance to the screen must be capable of providing velocities of 3 to 7 feet per second at the leading edge of the screen by utilizing either gradient in the conveyance or head pressure on the upstream side of the head gate or a combination of the two.
5. A minimum total head differential (potential energy) of 0.32 feet, as measured from the flume water surface elevation to the attenuation bay water surface elevation is required for proper screen function in order to overcome head loss through the screen and into the attenuation bay.
6. The slope of the source river or stream must exceed the slope of the diverted water conveyance such that the elevation differential between the screen surface elevation and the stream (at the point where the by-pass water return pipe enters the stream) is sufficient to meet NMFS criteria regarding by-pass flow hydraulics.
7. There must be adequate land to locate the screen structure in a place that is protected from high flow events.