



## Thinking Like a Fish

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# Thinking Like a Fish

It is thought that Gold Fish have memories that last 3 seconds





Wrong!!!

**Studies** have shown that Gold Fish have memories that last up to **5 months**





## Key Points

- Fish passage through pipes can be accomplished by sediment/rock in the bottom of the pipe or by backing water into the pipe.
- Try to install a pipe as large as the stream width.
- Countersinking pipes can be tricky. Make sure the previous pipe has not changed the natural bed levels (profile) of the stream.
- Look at bridge options if large or steep pipes are needed..... But don't be cheap!!!















# Forest Practices Requirements

**629-625-0320**

## **Stream Crossing Structures**

(2) Operators shall design and construct stream crossings (culverts, bridges, and fords) to:

- (a) Pass a peak flow that at least corresponds to the 50-year return interval. When determining the size of culvert needed to pass a peak flow corresponding to the 50-year return interval, operators shall select a size that is adequate to preclude ponding of water higher than the top of the culvert; and
- (b) Allow migration of adult and juvenile fish upstream and downstream during conditions when fish movement in that stream normally occurs.

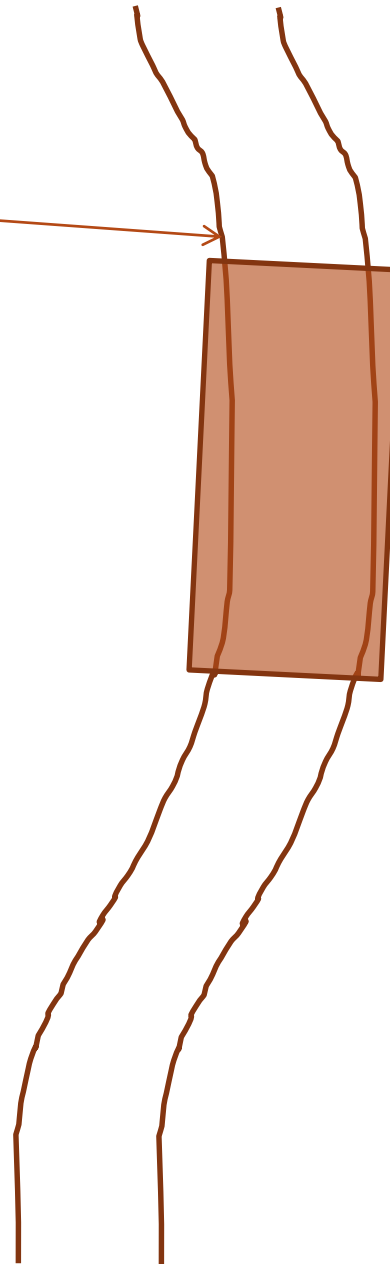




Try To Install a  
Pipe as Large as the  
Stream Width

High Water Mark

Culvert wider than  
maximum stream  
width is the  
desired condition

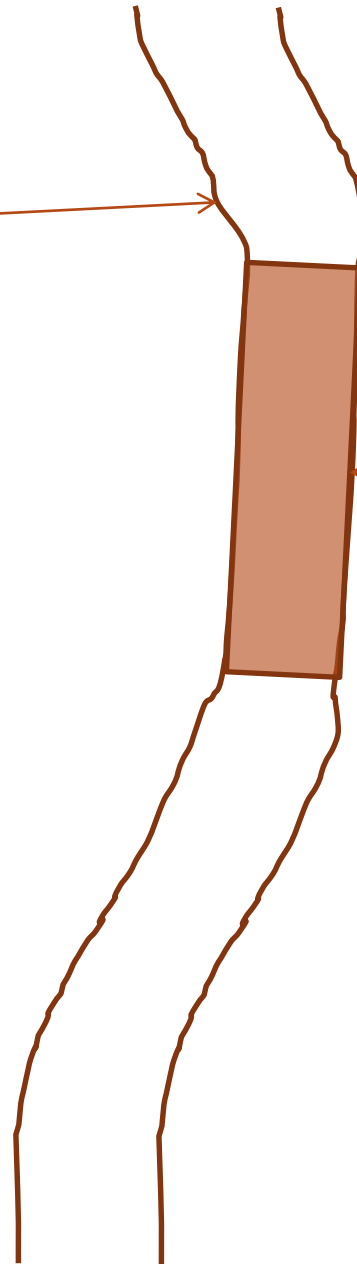




High Water Mark

But often we see culverts narrower than the natural stream width

This accelerates flow velocity making sediment trapping more difficult and creates an outflow scour pool







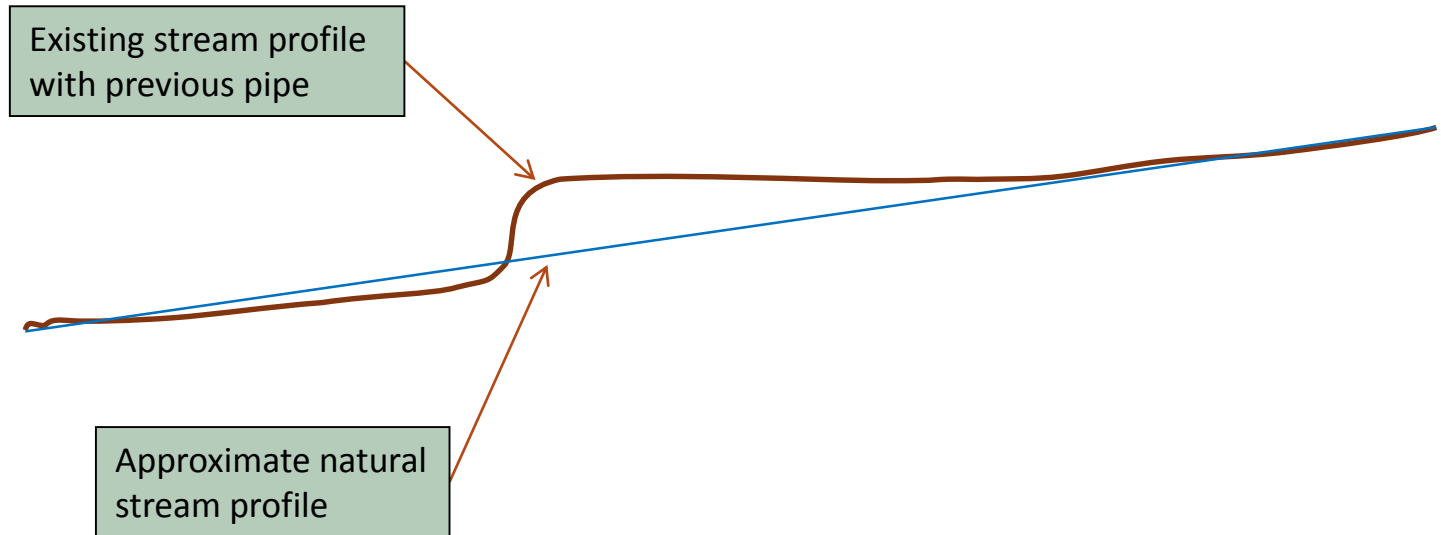
# Countersinking Can Be Tricky

Existing stream profile  
with previous pipe





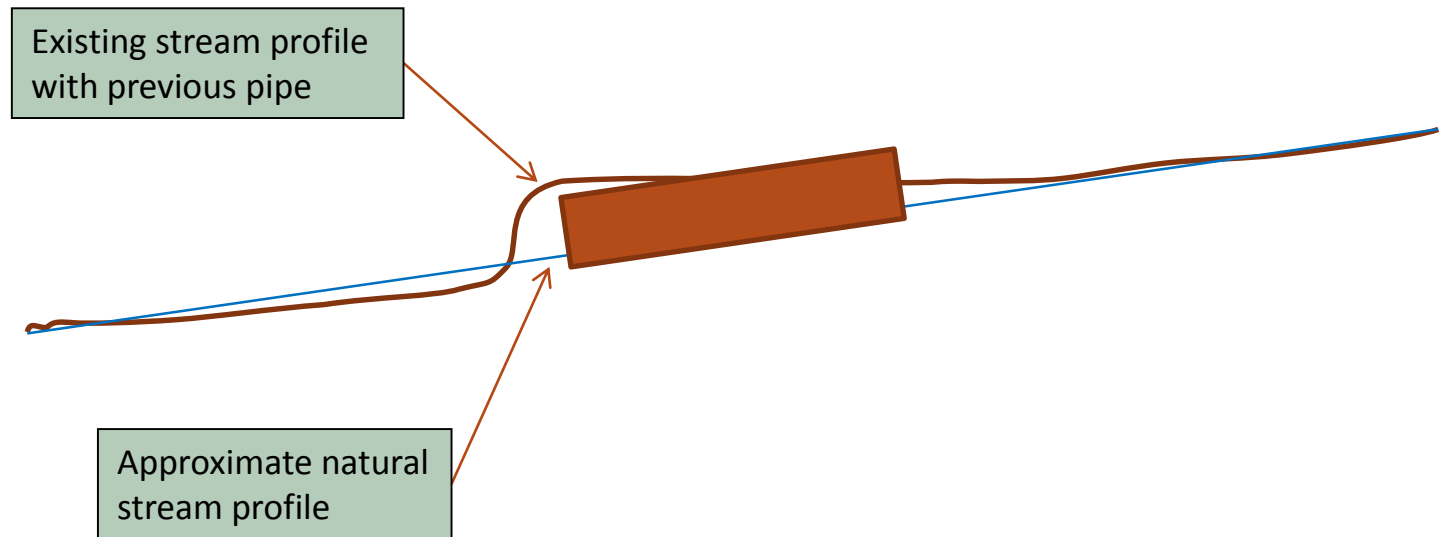
# Human Caused Stream Profile Compared to the Natural Profile







# Install New Pipe on the Natural Stream Profile and Countersink to Allow Sediment Buildup



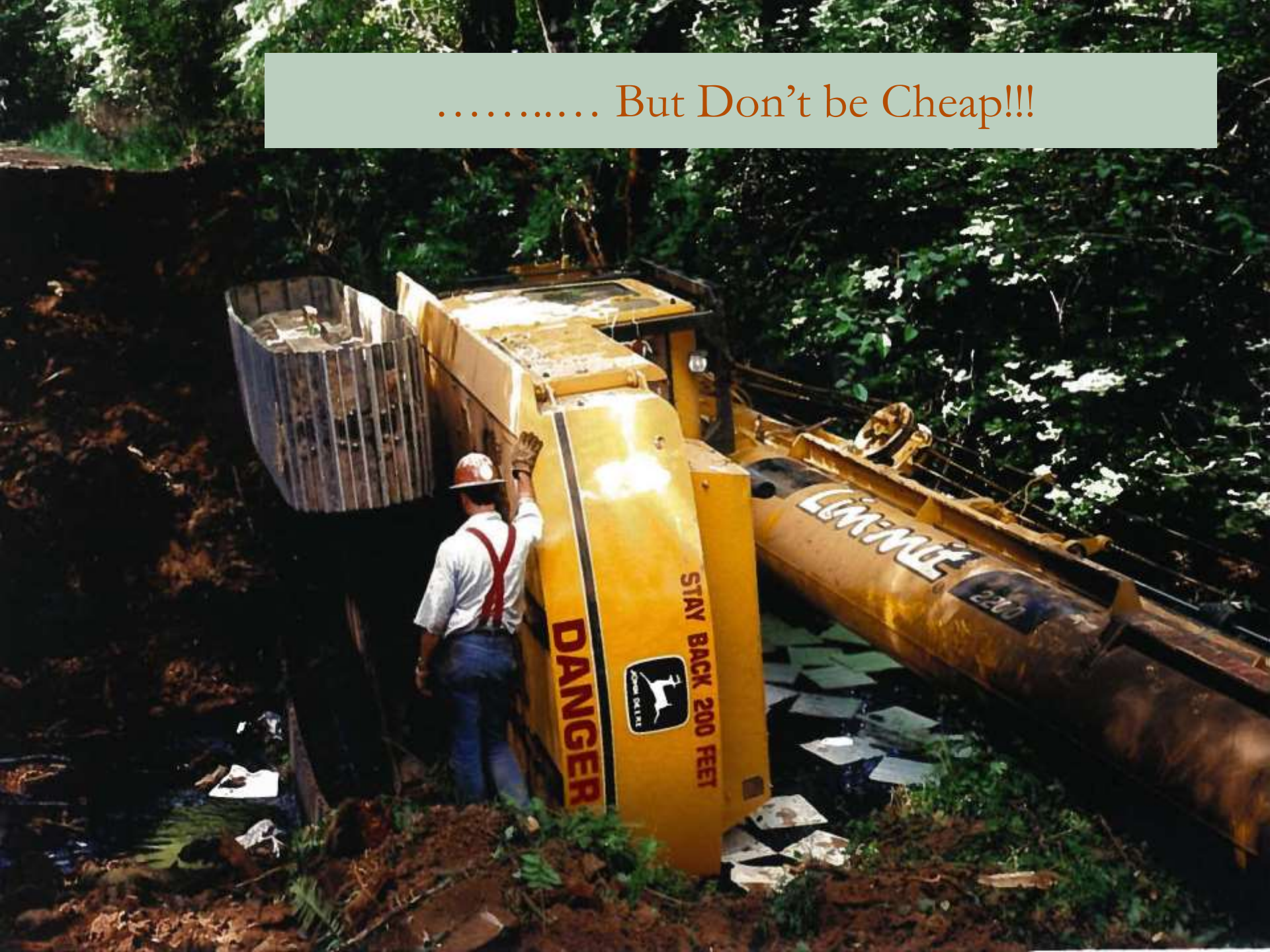


## Look at Low Cost Bridge Options





..... But Don't be Cheap!!!





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An aerial photograph of a runway, looking down the center. The runway is paved with asphalt and has white dashed lines for the centerline and solid white lines for the edges. There are several white rectangular markings on the runway, including a large set of four rectangles in the middle. In the foreground, there are white arrows pointing forward. The runway is flanked by green grass. In the background, there are mountains and a small town. The word "Questions?" is overlaid in large, orange, serif font in the center of the image.

# Questions?

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