

# Building a PVC underwater case for a bullet camera.

**This narrative is a companion to a PowerPoint presentation called *PVC underwater case* (*PVC underwater case* provides instruction for building a waterproof case for a high resolution bullet camera, and describes a method of underwater movie capture and streamside interpretation).**

**The following narrative describes MPEG files (self-contained computer movies) that were created using the methods described in *PVC underwater case.ppt*. The following descriptions give background on the enclosed movie clips: (Note, due to limited space on the DIY NatureWatch CD, we had to delete a few of the movie clips. Feel free to contact Ray Rivera or Dave Bickford at the Willamette National Forest, Oregon, for additional movies.) [BLUE TYPE LINKS TO MOVIE FILES.](#)**

**[BULL TROUT PAIR](#)** – a 30 second MPEG saved at the highest resolution available on our software for MPEG movie making. This video shows a ~17 inch female bull trout and ~23 inch male dig an egg nest in the McKenzie River. Exceptional water clarity of the McKenzie River is apparent. Female displays digging and male quivers and false releases. October 2001.

**spawning bull trout from above** – a 2 minute 19 second MPEG saved at moderately high resolution. This clip was shot through the camcorder's lens. A quick flip of the switch allows shifting from above water to an underwater view (**bull trout pair** and **satellite male bull trout**). Above water views can have sound. Below water views do not record sound in the field, but sound or narration can be added with editing software. This video shows the 17 inch female and 23 inch male described above. October 2001.

**[SPRING CHINOOK](#)** – 2:04 minutes long, shows spring chinook adults in Carmen Spawning Channel, a mitigation project for habitat lost with construction of Trail Bridge Dam on the upper McKenzie River. Smaller fish (rainbow and cutthroat trout) are visible in the background. September 2001.

**[LOOKING FOR PROTEIN](#)** – 1:13 minutes long, taken in Carmen Spawning Channel in the upper McKenzie River. A juvenile bull trout darts from beneath and back to a female spring chinook salmon. September 2001.

**looking for protein – slow motion** – 0:31 seconds long, a capability of editing software allows motion to be slowed and the image to be more easily examined.

**[BIG PAIR UNDER WOOD](#)** – 1:00 minute long, views a pair of bull trout in a spawning tributary of the McKenzie River. Both fish are located in the shadows of in-stream wood. The male, closest to the camera does a quiver display at about 0:45. Watch for yawns by both fish. This clip, taken by an earlier version of our PVC underwater case, was suffering from leakage and condensation inside the camera viewing window. The current O-ring method of sealing the case remains watertight on both cameras we operate. September 2001.

**[BULL TROUT IN BUBBLE CURTAIN](#)** – 1:00 minute long, views a ~12-13 inch bull trout (adult?) in a spawning tributary to the McKenzie River as it swims below the cover of a bubble curtain. September 2001.

**SMALL MALE DISPLAYS** – 0:14 seconds long, an ~11-12 inch male bull trout does a brief quiver display for an ~18-19 inch female in a spawning tributary to the McKenzie River. Look for the point in time when the male gets even with the female's eye for the quiver display. September 2001.

**bull trout in spawning tributary** – 1:00 minute long, views two ~11-12 inch bull trout (males?) as they swim below a bubble curtain. A larger adult (~16 inch female?) takes a close look at the camera. September 2001.

**satellite male bull trout** – 3:59 minutes long. A moderate resolution clip of the **bull trout pair** views a second male intruder unsuccessfully approaching the nest construction area. The female is estimated at 18 inches, male at 23 inches and intruder male at 17 inches. Upper McKenzie River, October 2001.

**FEEDING RAINBOW** – 0:41 seconds in Carmen Spawning Channel, upper McKenzie River. Numerous other species show up in this spawning area to feed on abundant drift. Here a rainbow trout about 10 inches long, feeds. September 2001.

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