

MODIFIED REVIVAL TANK CRITICAL DESIGN ELEMENTS & POSITIONING

**Originally from Jake Fraser/SFU – June 1, 2000
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(*This revival tank design has been scientifically proven to reduce coho mortality rates. Changes to design may reduce recovery rates of coho)

CONSTRUCTION MATERIAL:

- The drawings provided are for a revival tank constructed mainly of plywood. The revival tank may be constructed of other materials, such as welded aluminium, PVC or plastic. If materials other than plywood are used then the critical requirement is to maintain the same inside dimensions of the compartments, sliding release doors, and the same locations, sizes and flow rates of the water inflow and outflow.

WATER FACTORS:

- Cold, clean water is required, avoiding jelly fish, oil, etc. in the box.
- Forced ventilation of fish: It is critical to maintain a **flow rate of .6L/sec.** for each fish compartment of the revival tank to ensure forced ventilation of the fish regardless of it's condition. This is approximately **475 gal/hr per fish compartment**, or 950 – 1000 gal/hr for 2 compartments in the double coho revival tank to maintain of minimum required water flow. Note that this flow is measured at the revival tank, not the pump end. Selection of an adequate pump must also take into account the resistance factor of bilge flex hoses, valve fittings & through-hulls.
- Warm water should be flushed from revival tank prior to use.
- Air bubbles in water can stick to fish & float it away from the water jet; this may kill an exhausted fish.

REVIVAL TANK CONDITION:

- Fish seem more at ease with a small amount of light in the tank. This is why the sliding door is made of transparent material.
- Smooth inside of tank reduces scale and slime loss.
- Tank must be clean; no oil, bleach or soap residue.

TANK FITTINGS & POSITION:

- **Size** ¾" through-hull type inflow fitting (approx. 1" – 1 1/16" outside diameter). The through-hull acts as a water jet; size, flow and placement of fitting is very important to fish recovery. The inflow fitting must be placed at 1 ¾" from center-point of the fitting to the bottom of inside box for water flow to be optimally directed at recovering fish.
- 1 ½" outflow through-hull fitting (or approx. 2" hole).
- One rubber chute for each sliding door is best; if only one big chute is used the fish turn around in the chute and swim back into box or get jammed in chute.
- A slit in chute aids in removing fish if it becomes turned around in rubber chute (see drawings).
- If tank doors are facing forward on boat, released fish are less likely to go back into net.
- Tank needs to be slightly sloped toward door and above or outside bulwarks so release chute is downhill and outboard from tank. No chute may be needed if tank is on outside of the rail or bulwarks.
- Position tank fore & aft; fish repeatedly hit end of tank if tank is across boat and boat is rolling.
- **Rule** 1 ½" wash down pump may work to maintain .6L/sec or 475 gal/hr minimum water flow per fish compartment (950 – 1000 gal/hr for two compartments) through revival tank if resistance of plumbing is kept to a minimum. Through-hulls, seacocks & strainers all resist flow. A 1 ½" seacock & through-hull is probably minimum for water pick-up. For some pumps, such as the **Rule** 1 ½" electric wash down pump, the pump intake must be well below waterline. A bilge pump hanging over the side does not work well if the vessel is travelling (it sucks air) and gets hung-up in net.
- Many pumps such as **Rule** washdown pump will not work properly if there are air pockets in the feed water hose.
- Loops in hoses where air can be trapped can dramatically reduce flow from pump; sloping the hoses to the pump will minimise this problem.
- Pump through-hull needs very large screen to reduce kelp & jelly fish clogging.

- Pumps do not usually produce the advertised flow.
- A 1000 gal/hr pump usually will not produce enough flow to supply one double or two single revival tanks.
- Release fish away from nets.
- Keep gloves & rain gear clean when handling by-catch; this will help reduce bacteria & disease transfer from fish to fish.