

Jordan-Scotty

FISH EGG INCUBATOR SYSTEMS

Purpose

The critical need to enhance our salmon and fish stocks is well documented. Natural spawning has declined dramatically over the past few decades for many reasons. Many of the spawning areas no longer exist. The areas that do still exist are only partially effective and many of our original salmon stocks are now extinct. The need for enhancement programs by volunteers and organizations has never been greater. The availability of the Jordan-Scotty Fish Egg Incubator unity can be of great help for our precious salmon and other fish stocks and their eventual recovery.

The development of the Jordan-Scotty Fish Egg Incubator is the direct result of the desire by Scotty to make a contribution to the enhancement of the salmon, trout and walleye stocks in the streams and creeks around the world. Over the years, due to human interference, these habitats have lost their natural spawning and rearing capabilities. At Scotty, we hope that our efforts will assist bringing the fish back. With your help, future generations will be able to watch fish return to streams and rivers in historic quantities.

For use by everyone who is interested in enhancing salmon and other fish runs in any stream, river or lake. Perfect for streamkeeper groups, research applications and education projects.

History and Design

The original incubator prototype was designed and tested by Mr. Fred Jordan, a Salmonid Technician for many years. He conceived the idea for stream enhancement during the 1980's. The success of his early experiments with this unit led to research, development and further design of the incubator by Scott Plastics Ltd. Sidney, BC. This unit is extremely efficient and very compact. It is simple to use, durable, cost effective and practical, making it an excellent addition to enhancement projects.

The Jordan/Scotty Fish Egg Incubator is a scientifically designed and tested plastic incubation unit and was developed to provide an efficient aid in the stream incubating of fish eggs. The unique design either eliminates or minimizes most of the problems experienced by natural spawning.

Fungus infection is virtually eliminated and eggs are protected from predators and silt suffocation. Testing and usage indicates that survival rates from egg to fry is often better than 65-95% as compared to natural spawning survival rates of between 5-20%.

In nature, high egg loss rates can easily be caused by poor fertilization when deposited eggs not being successfully buried, fungus from dead eggs spreading to healthy eggs, attrition by predators, and silt suffocation. The Jordan-Scotty Fish Incubator addresses these issues and others. Egg quality can be checked during the loading process and all eggs are fertilized before loading. Eggs are quarantined from each other during development, limiting the spread of disease and fungal infection. Eggs are safe from predators and alevin are safely contained until their yolk sac have been absorbed, increasing survival rates.



How It Works

A pair of loaded plates are bolted together to create a “unit” designed to hold 200 single eggs or more, depending on species and size of egg. The plates are held together by nylon tie bolts and stainless steel nuts and can be grouped in up to 5 unit sets. Escape holes allow the hatched fry to swim free once they have developed

in their protected environment. The assembled egg units are anchored in streams by securing them to re-bar stakes or some other permanent holders.

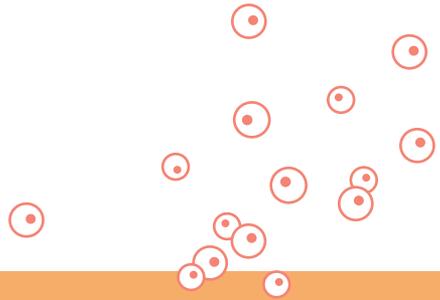
Incubator plates are available with three sizes of escape hole, use to be determined by using our Incubator chart.

SPECIES	EGG SIZE	PLATE COLOUR
Chinook/King Salmon	8.0-12.0 mm	Green
Chum/Dog Salmon	8.0 mm	Green/Red
Brown Trout	4.0-5.0 mm	Red
Coho Salmon	7.0 mm	Red
Eastern Trout	4.5 mm	Red
Pink Salmon	6.8 mm	Red
Rainbow Trout	5.2 mm	Red
Sockeye	6.0 mm	Red
Steelhead	5.2 mm	Red
Walleye	2.5 mm	Yellow

LOADING THE INCUBATOR

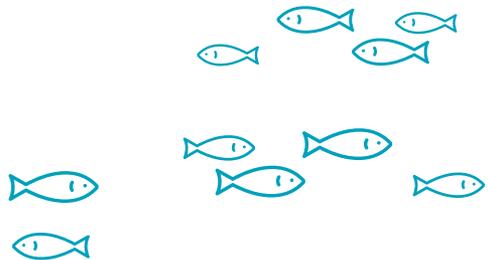
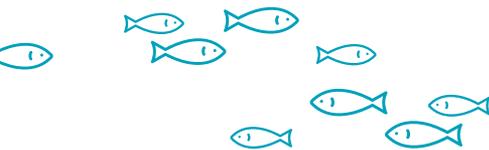
Incubators are intended for use with “eyed” eggs. A loading tray will help to load the incubator so that each cell is filled with the least damage to eggs in the process.

- ⦿ Place fertilized eggs into a water-filled basin.
- ⦿ Lower loading tray into basin of eggs.
- ⦿ Allow eggs to cover loading tray and lift gently to fill each cell with one egg.
- ⦿ Gently brush off surplus eggs. Remove or replace unhealthy or damaged eggs.
- ⦿ Place an empty incubator plate over loader plate and invert the two plates to transfer the eggs to the incubator plate.
- ⦿ Remove the empty loading tray and check that all cells are filled.
- ⦿ Top with second incubator plate and secure together with nylon tie bolt and stainless nuts.
- ⦿ Incubator units can be placed as singles or in groups of up to five. Simply cut tie bolts where appropriate and secure with extra nuts.



PLACING THE INCUBATOR

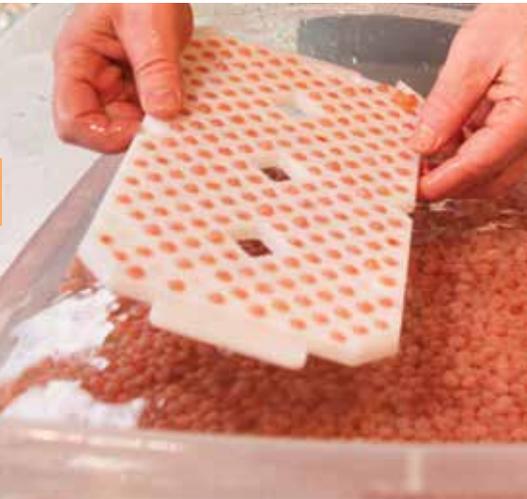
- Units must be placed in stream gravel so they are continually covered by a flow of water passing through gravel and cells.
- Submerge units so that hold tabs are on top, ensuring that the escape holes are at the bottom of the cells so that sand particles wash right through the compartment and silt does not build up to block cells.
- Escape holes should also face the water flow to ensure the maximum amount of oxygen rich water to flow through the unit.
- Incubators should be securely anchored to ensure that they remain in position. Avoid areas subject to flash flooding. A good location is downstream from a large boulder. You can also attach the unit to a section of embedded re-bar to help hold in place.
- Completely cover the units with 3 inches of gravel to help anchor and protect the units and fry once they escape. Make sure that the unit is placed in a silt free area. Larger gravel is preferred. Discretely mark or record location to assist in recovery of units.
- Incubator must be at a depth where it will be covered with water at all times. Be aware of the possible depth changes in your location. Make sure to not disturb or open the units until all the fry have escaped. Check with your egg provider for approximate length of incubation for the egg species used.



CARE AND MAINTENANCE IN LOCATION

If possible, incubators should be located in places where they are protected from vandalism or curiosity. During the incubation period, the incubators should be checked regularly to ensure that:

- They remain in position
- They are free of debris
- They are covered with a continuous flow of water
- Do not disturb or open the units until all the fry have escaped
- Check with your egg provider for approximate length of incubation for the egg species used



CHECKING YOUR RESULTS AND REMOVING INCUBATOR

When removing the incubator, care should be taken to not disturb the gravel, as this is where the fry are hidden.

Once removed, the incubator can be opened to reveal the success of the hatch rate. Wash incubators thoroughly and dry before storage.

Store in a dark, dry place. With proper care, the Jordan/Scotty Incubator units can be used season after season.

If possible, please submit results of your project to your local Fisheries Department or hatchery, as well as Scotty. We would appreciate any information or report you can provide in order to log success rates and use of these units.



WHERE AND WHEN TO OBTAIN EGGS

Contact your local Department of Fisheries & Oceans or similar agency. In Canada, contact the DFO Community Advisor. The disposition of salmonid eggs is carefully supervised and controlled by DFO to ensure that all enhancement activities meet all requirements and conform to the department standards. Protocols regarding the transfer of eggs must be approved by the federal-provincial Introductions and Transfers Committee. In British Columbia, a list of the community advisors in your area can be obtained by contacting the Habitat Enhancement Branch.



"We have been using Jordan-Scotty Incubators since 2003 and we absolutely love them. We use the incubators for lake trout studies as well as for increased lake trout survival and egg relocation." • **NADINE THEBEAU**-Ontario Ministry of Natural Resources, Red Lake District

"The new style of easy loader trays was amazing! Last time it took us 3 hours to do 6000 eggs. We did 10,000 eggs in 45 minutes this year! A great time savings." • **WAYNE SHERIDAN**-Canadian Angling, Upper Saugeen Habitat Restoration Association

"We are excited by the hatch rates achieved and feel confident that the use of the Jordan-Scotty Incubators will continue to play a major part in the replacement of the salmon runs in our major South Island rivers." • **PAM ELLIS** New Zealand Salmon Anglers Association Inc, Christchurch, New Zealand





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