



**PERMIT ISSUED UNDER SECTION 73 OF THE SPECIES AT RISK ACT  
FOR SCIENTIFIC RESEARCH RELATING TO THE CONSERVATION OF THE SPECIES/  
ACTIVITIES THAT BENEFIT THE SPECIES OR ARE REQUIRED TO ENHANCE ITS CHANCE  
OF SURVIVAL IN THE WILD/  
ACTIVITIES THAT INCIDENTALLY AFFECT A LISTED SPECIES**

**Permit Number:** SECT 08 SCI 002

**Permit Authority:**

- This permit is issued to the person(s) listed below under the authority of the Minister of Fisheries and Oceans pursuant to section 73 of the *Species at Risk Act* (SARA), and authorizes them, subject to the following terms and conditions, to engage in activities (described below) that are scientific research relating to the conservation of the affected species identified below; that benefit the said species or are required to enhance its (their) chance of survival in the wild; or that incidentally affect the said species.

**Authorized Person(s):**

Dr Catherine Peichel  
Kerry Marchinko  
Mirjam Barrueto  
undergraduate students working with Dr Schluter

Dr Dolph Schluter  
Dr Sean Rogers  
Rowan Barrett  
Joey Courchesne

Dr Matt Arnegard  
Jason Clarke  
Patrick Tamkee

**Species :**

100 mortalities of each type anticipated (600 total)

Benthic Paxton Lake Stickleback

Limnetic Paxton Lake Stickleback

Benthic Enos Lake Stickleback

Limnetic Enos Lake Stickleback

Benthic Vananda Creek Stickleback

Limnetic Vananda Creek Stickleback

**Area of Field Work:** British Columbia

**Activities:**

The overall research program involves observations and experiments on foraging, growth, survival, predator evasion, parasite resistance, cues used in mating, natural selection pressures, and genetics.

Goals of 2008 collections include: 1) laboratory crosses to identify the genes that distinguish populations and species; 2) association mapping in Enos Lake to identify genes that distinguish populations and species; 3) modest field collections to supplement local brood stocks; 4) measurements of body coloration in the visible and ultraviolet range; 5) studies of the adaptive significance of pelvic girdle loss in the benthic species.

This work continues to provide baseline ecological and genetic information for management of the stickleback species pairs, and to monitor changes occurring in the stickleback species pairs.

Minnow traps, as well seine and dip nets, will be used to capture the fish. The fish will be gently decanted from the minnow trap or net into a bucket of aerated, fresh lake water. Fish are raised from eggs using filtration, aeration, and feeding techniques. Fish used in genetic studies are raised to adult size.

Fish are killed with MS222. In the rare event of animal injury, the fish will be immediately euthanized with an overdose of MS222 and preserved in pure ethanol. These fish will still be useful for morphological study. Fish are preserved in ethanol for laboratory analysis.



**Terms and Conditions:**

Pursuant to subsection 73(6) of SARA, the following terms and conditions apply to this permit:

- This permit is only valid for the activities described above. It (or a copy) must be carried by a member of the field crew and be made available to a Fishery or Conservation Officer upon request.
- This permit does not replace any other permits required under provincial or federal legislation.
- The death of any individual of the affected species identified above, resulting from activities authorized by this permit, shall be reported immediately to the regional coordinator identified below.
- By January 31, 2009, a comprehensive report must be filed detailing any activity, authorized by this permit, which results in killing, harming, harassing, capturing or taking of any individuals of the affected species above. If the individuals were captured and are being held then you must also indicate where they are being held and what is planned for these captured individuals (death, release, etc.). The completed report shall be sent to :

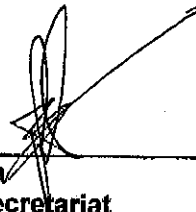
Courtney Druce  
200-401 Burrard Street  
Vancouver, BC V6C 3S4  
Bus: (604) 666-2792  
F: (604) 666-3341  
E-mail: [sara@pac.dfo-mpo.gc.ca](mailto:sara@pac.dfo-mpo.gc.ca)

**Duration of Permit:**

This permit is valid from the date of issue until December 31, 2008.

Date of issue: 4 April 2008

**Signature of Authorizing Officer:**

  
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Pardeep Ahluwalia  
Species at Risk Secretariat  
Department of Fisheries and Oceans  
/Ministère des Pêches et des Océans/  
200 rue Kent St, Ottawa, On , K1A 0E6

Further information about this permit is available from the above authorizing officer or from [forbest@dfo-mpo.gc.ca](mailto:forbest@dfo-mpo.gc.ca)