

Janay Martinez

From: Donald,David [Reg] <David.Donald@EC.GC.CA>
Sent: Friday, March 21, 2014 10:06 AM
To: Ramlal, Patricia
Subject: FW:
Attachments: Parasites of fish of the Red River and.ppt

-----Original Message-----

From: Terry Dick [mailto:tadick@ms.umanitoba.ca]
Sent: January 20, 2009 11:41 AM
To: Donald,David [Reg]
Subject: RE:

Here is the power pt.

Terry

At 09:32 AM 9/10/2008, you wrote:

>Perfect.
>
>Parasites in bull trout - Mudry and Anderson. 1977. Helminth and
>arthropod parasites of fishes in the mountain national parks of Canada.

>Journal of Fish Biology. 11:21-33.

>
>Bull trout in this paper are identified as Dolly Varden. However, the
>taxonomic split of Dolly Varden into Bull Trout and Dolly Varden
>occurred a few years after this publication (Carlander). For sure, the

>fish identified in this paper as Dolly Varden are Bull Trout.

>
>You owe me.

>
>David

>
>
>-----

>From: tadick@cc.umanitoba.ca [mailto:tadick@cc.umanitoba.ca]
>Sent: Tuesday, September 09, 2008 2:31 PM
>To: Donald,David [Reg]
>Subject: Re:

>
>Hi: Let me know if that works for you as I added quite a few more
>details.You May want to change punctuation.

>
>Terry
>

>At Tue, 9 Sep 2008 11:23:08 -0600, Donald,David [Reg] wrote:

>

>> Terry:

>>

>> I have revised the text you originally sent to me, removing the "the

>> overtime issue" and other minor points. If you could add some more

>> "methods" details to some or all of the points below, it would be

>> greatly appreciated by me and the procurement folks in Edmonton and

>> Ottawa.

>>

>> David

>>

>>

>>

>> 4. SCOPE OF WORK:

>> The Red River Delta fish parasite investigation in 2008 will

>> examine in detail 300 fish of 6 species (50 fish of each species)

for external and

>> internal parasites. The species of fish to be examined include

fathead

>> minnow, emerald shiners, walleye, sauger, whitebass and yellow perch.

>> There will be 150 fish collected in July and 150 fish collected in

>> September/October. Fish will be collected by Fisheries and Oceans

>> Canada. Twenty five of each species will be collected in July and

>> 25 of each species collected in Sept/October, 2008.

>> In addition to the extra time to examine fresh tissue for the

>> micro-parasites, the following activities will be completed for

>> individual fish:

>> (a) the length, weight, sex, and age of each fish will be recorded

>> (b) an external examination including fins for the abundance and

>> species of parasites: the procedure requires examining whole fish

> under a dissecting microscope using reflected light to locate

> ectoparasites on the fish surface, the removal of the parasites with a

> small barrel glass pipette and transferring through several washes of

> physiological saline prior to fixing in AFA. After fixing for 48 hours

> specimens are washed three times in 70% ethanol and store until stained with acetocarmine.

>> (c) a smear of the external surface for micro-parasites;

> the glass slide must pre-cleaned so that smear and parasite will

> adhere to the slide and the air dried. After air drying the smear is

> fixed with ethanol, stained with Geimsa and viewed with the aid of a

> compound microscope.

>> (d) examination of the eyes and brain for the abundance and species

>> of parasites; eyes are removed intact and then incised and the

> lens and remainder of the eye are placed in separate Petri dishes.

- > The lens is carefully rotated to locate larval trematodes embedded in
- > the outer layer, removed from the viscous layer, washed and fixed as
- > described above {see pt (b)}
- >
- >> (e) examination of the opercles and gills (first two arches)
- for the
- >> abundance and species of parasites; opercles are viewed with the
- > naked eye and/or with the aid of a dissecting microscope and
- > ectoparasites removed and treated as described in pt (c); gills are
- > removed and placed in a Petri dish in physiological saline; each gill
- > arch is separated and then examined with the aid of a dissecting
- > microscope by using a dissecting probe to separate each gill filament

- > and then examine along its complete length.
- > Individual ectoparasites are carefully removed from the gill filament
- > so that attachment structures are not damaged or lost as these
- > structures are important to identify the specimen to species specimens

- > are washed and fixed in hot ethanol or AFA (depending on the parasite
- > species) and stored in 70% ethanol prior to staining.
- >> (f) examination of the nasal cavity and mouth for abundance
- and
- >> species of parasites; done with the naked eye or with the aid of
- > a dissecting microscope; cleaning, fixing and staining is as described

- > above.
- >> (g) examination of the heart, swim bladder, body cavity,
- liver, gall
- >> bladder, spleen; the liver, gall bladder and spleen are
- > compressed between two glass slides in order to view the parasites;
- > heart and swim bladder are excised and the wall of the lumen and
- > contents examined with the aid of a dissecting microscope, the lumen
- > is scraped and the mucous disrupted by aspirating back and forth
- > through a pipette to separate parasites from mucous and other tissue
- > debris. Washing, fixing and staining is as described above
- >> mesenteries, gonads, esophagus, stomach, cecae (if present),
- >> intestine, muscle for the abundance and species of parasites:
- >> mesenteries
- > and gonads are examined with the naked eye and with the aid of a
- > dissecting microscope. The intestinal track is separated into sections,

- > incised and the lumen wall examined with the aid of a dissecting
- > microscope. The lumen of each section of the intestine is scraped
- > into a separate Petri dish and aspirated back and forth through a
- > pipette to separate parasites from mucous and other debris. Washing,
- > fixing and staining is as described above.
- >> (h) Tissues squashes for identification of myxosporidian and
- >> protozoan parasites. The tissue is handled as described in pt (c) and

- >> viewed
- > with the aid of compound microscope (dry or under oil immersion)
- >> Total cost for the parasite assessment is \$72,200.

- >>
- >> Also, the principal investigator is required to attend at least one
- >> meeting in March 2008 (and possibly two) to present results from the
- >> 2008 parasite assessment, and contribute to the discussion on plans
- >> for writing a final synthesis report, and final risk assessment
- >> report (expected cost - \$1000.00).
- >>
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- >>

Parasites of Fish of the Red River and Lake Winnipeg

Six species of fish examined: fathead minnows, emerald shiners, walleye, sauger, white bass and yellow perch

Twenty– five sample of each fish species collected during July and 25 samples collected during Sept/October.

Fish examined for Internal and external parasites: all metazoan, Myxosporidiera and Protozoan parasites to be recorded.

Fresh material requested but not always available

Data to date

130 fish examined to date

Length, weight, sex recorded for individual fish species. Age structures collected

Metazoan parasite species recovered and identified

Squashes made of tissues and identifications of Myxosporidean and Protozoan parasites currently being verified

PARASITES

Walleye
Sauger
White bass
Emerald shiner
Fathead minnow
Yellow perch

<i>Bothriocephalus cuspidatus</i> (T)	X	X		X		X
<i>Bothriocephalus claviceps</i> (T)			X			
<i>Bothriocephalus acheilognathi</i> (T)	X	X	X	X		
<i>Proteocephalus pinguis</i> (T)						
<i>Ligula intestinalis</i> (T)					X	X
<i>Proteocephalus pearsei</i> (T)	X	X		X		X
<i>Onchocleidus chrysops</i> (Tr)			X			
<i>Bucephalis</i> sp.(Tr)	X	X	X			
<i>Ornithodiplostomum ptychocheilus</i> (Tr)					X	
<i>Bolbophorus confusus</i> (Tr)					X	
<i>Camallanus</i> sp. (N)	X	X	X			
<i>Raphidascaris acus</i> (N)						X
Ascarid of birds (N)						
<i>Pomphorhynchus bulbicollis</i> (A)			X			
<i>Leptorhynchoides</i> sp. (A)			X			
<i>Ergasilus luciopercarum</i> (Cr)	X	X	X			
Myxosporidea				X		

- T= tapeworm ; Tr = trematode; N = nematode; A = acanthocephala; Cr = crustacean

