ADMINISTRATIVE OPERATING PROCEDURE

PROCEDURE TITLE:

Procedure for providing data for calculation of stream treatment costs

APPLICABILITY:

Procedures pertain to calculations based on records of stream treatments conducted in the United States and Canada by Sea Lamprey Control personnel.

PURPOSE:

Procedures provide a consistent, program-wide approach to estimation of staff effort and lampricide usage for calculating treatment costs.

PROCEDURE:

I. To annually generate the stream selection list, Control staff compile necessary data to estimate staff effort and lampricide usage for each stream being considered for treatment. These data are used in the ESTR (Empirical Stream Treatment Ranking) model in conjunction with larval assessment data to provide a basic cost comparison for managers to use when selecting a suite of streams for treatment.

A. Staff days

Staff days are recorded for all hours worked while conducting all activities associated with a stream treatment. Hours are categorized under four headings: regular hours, overtime, travel, and shop hours. All expenditures of time are recorded in hours and reported in staff days for use in the ESTR model. For calculation purposes a staff day is
8 hours (U.S.) and 7.5 hours (Canada). The staff day estimates from all available treatments, with a minimum of three treatments, are averaged to provide an estimate of staff days required for treatment of a given stream. If outliers are present, they can be excluded if appropriate rationale is provided. If sufficient data are not available the treatment supervisor makes the best estimate possible. Staff day data is then entered into ESTR to generate or update Chem Opts to be used in the stream ranking process.

1. Staff hours

   Staff hours are the sum of hours expended while conducting a stream treatment and hours before and after treatment spent in treatment-related activities in the shop. Hours spent in travel to and from the treatment and overtime/compensatory time/ holiday time are recorded separately, but not included in the calculation. Data to be compiled to determine staff days of effort for a treatment are recorded on a “Staff hour allocation form” (attachment). Treatment-related activities in the shop include: analysis of stream water samples, communication pertaining to a particular treatment, and collection of larvae for toxicity testing. Rain delays are not included in staff hours attributed to a stream treatment. Rain delays are designated by the treatment supervisor when treatment activities cannot continue due to weather conditions and inclusion in staff hours would bias the data set.

2. Overtime

   This category includes overtime, compensatory time, and holiday time, and is not included in staff hour calculations. Hours for this category are recorded separately for potential inclusion in calculations of treatment costs, however compensation varies between personnel systems of Department of Fisheries and Oceans and Fish and Wildlife Service. Overtime is often used to compensate for personnel shortages.

3. Travel

   Time spent traveling from the office to a work site when an overnight stay is required and time spent returning is classified as travel. Time spent traveling to a work site when working from the office and traveling from temporary quarters to the work site is not included in travel. Travel is not included in staff day estimates, but is recorded.

4. Shop time

   Hours spent in all other activities not related to treatment are classified as shop time. As examples, time spent creating treatment maps, loading lampricide, equipment maintenance and repair, and paper work are considered shop time. Rain delays are designated as shop time.
B. Lampricide use

TFM use is recorded in Kg active ingredient. TFM bars are recorded in number of bars used. Formulations of Bayluscide are reported in Kg product. Data on lampricide use are compiled from treatment summaries on the basis of the following guidelines:

(A) If three or more treatments from 1990 to present, use average (scrutinize outlying data points).
(B) If one 1990 treatment and not typical, use only 1980 data factored by 0.75.
(C) If one 1990 treatment, average with 1980 or 1970 data factored by 0.75.
(D) If no 1990 treatments, use average of 1980 treatments factored by 0.75.

Treatment supervisors provide the most accurate estimate possible when no data or insufficient data exist, or when averaging treatments with and without application of Bayluscide formulations.

II. Treatment cost estimates for previously untreated streams (US)

A. Start with a strong understanding of the area you are estimating.

B. Use mean flow USGS data during optimal treatment time window to estimate stream discharge.

C. If no historical water chemistry data is available for the system, use that from a neighboring stream to estimate mlc values.

D. Use staff effort from a neighboring stream with historical lampricide treatments, hopefully in the same watershed, to estimate staff day cost. Otherwise, use a similar sized drainage that is currently treated to compare with the stream miles and tributaries you are trying to estimate.

E. Use current larval detection surveys to estimate possibility of tributary infestations based on the presence of native lampreys.

F. Use current knowledge of drainage areas and complexity of treatments to include attenuation estimates.

G. Routinely include the following statement at the end of each treatment estimate narrative:

‘Without any additional data it is difficult to determine if the estimates for chemical and effort costs are under or over inflated. The best available data was used in the rough estimate of the treatment cost of named system.’

III. Treatment cost estimates for previously untreated streams (CAN)

A. New Stream

1. If possible obtain discharge data via recording staff gauges to plan optimal treatment period.
2. If RSG data is not available use data from a nearby stream and compare areas of drainage to obtain estimate of stream discharge.
3. Use water chemistry data from neighboring stream and stream discharge estimate to estimate lampricide requirements.
4. Estimate staff days by using flow time estimates (hours per km), total distance to be treated and pretreatment requirements. A neighboring stream with historical treatment data could be used to obtain flow time estimates.
B. Removal of a barrier

1. Assume same water chemistry, total discharge and flow time rates as lower reach.
2. Estimate additional infested area using presence of native lamprey & natural barriers on main and tributaries.
3. Estimate the number of additional staff days required using flow time estimates in days and available crew size.
4. Add 20% on to lampricide use to cover the possible need for additional trib AP’s and boosts.

This procedure has been reviewed and approved by the undersigned representatives of the U.S. Fish and Wildlife Service and Fisheries and Oceans Canada.

REVIEWED/APPROVED

Aaron P. Wood
Field Supervisor (U.S.)

DATE 04/08/2016

REVIEWED/APPROVED

Date
Division Manager (Canada)

DATE Apr 12/16
### STAFF HOUR ALLOCATION FORM

**Employee ID #:** __________  
**Name:____________________________**

**Trip Start Date:** __________  
**Trip End Date:** __________

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<thead>
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<th>Date</th>
<th>Office</th>
<th>Lake</th>
<th>Stream</th>
<th>Chem Opt ID</th>
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**Office Codes**

1 – Marquette  
2 – Ludington

**Lake Codes**

1 – Superior  
2 – Michigan  
3 – Huron  
4 – Erie  
5 – Ontario

**Activity Codes**

1 - Travel  
2 - Treatment hours  
3 - Shop (related to trmt)  
4 - Shop (NOT related to trmt)  
5 - Leave (annual, sick, comp)  
6 - Comp/overtime worked

**Notes**

One activity code per row.  
The sum of codes 1-5 must equal 8 hours for one day.  
OT starts after 8-hr shift.  
Treatment related activities in the shop must pertain to a particular treatment (Lake, Stream, and Chem Opt ID are required).

Examples include the following:  
Stream sample analysis  
Lamprey ID  
Landowner access

Do **NOT** include Lake, Stream, and Chem Opt ID for codes 1, 4, or 5.
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<th>DAY</th>
<th>STREAM #</th>
<th>REG HRS</th>
<th>NIGHT DIFF (for use on time sheet only)</th>
<th>COMP</th>
<th>OT</th>
<th>HOLIDAY</th>
<th>3 SHOP related to trt</th>
<th>4 SHOP not related to trt</th>
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## STAFF HOUR ALLOCATION FORM

**NAME:**

**YEAR:**

**START DATE:**

**END DATE:**

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**DUTIES =**

- GB—Granular Bayluscide
- PRE—Pre-Treatment
- AN—Analysis
- SEC—Secondaries
- AP—Applications
- SU—Supervision

**ACTIVITY CODES (A/C) =**

- R—Regular Hours
- O—Overtime
- S—Shop
- T—Travel
- L—Leave
- N—Non-Treatment Duties
- TR—Training
- PO—Public Outreach
- M/C—Meeting/Conference

**NOTES:**

1) One Activity Code Per Row
2) Overtime Starts After 7.5 Hr. Shift
3) Rain Delays Are Designated As Shop Time