Technical Memorandum

Date: **May 30, 2008**

To: **Amy Liu, DFO Iqaluit**

Cc: **Larry Connell and Rachel Gould, Agnico-Eagle Mines Ltd. (AEM)**

From: **Ryan Hill and Gary Mann (Azimuth Consulting Group Inc.)**

Re: **Fish-Out Program for the Meadowbank Gold Project**

The purpose of this memorandum is to provide details of the fish-out program for the northwest arm of Second Portage Lake (2PL), and to discuss general fish-out plans for the future Bay Zone, Goose Island and Vault Lake impoundments at the Meadowbank Gold Project.

The fish-out program is guided by the draft document "General Fish-out Protocol for Lakes to be Lost Due to Mining Development", provided by DFO in January 2008. AEM is committed to the collection of key scientific information to help improve the understanding of fish productivity in northern lakes. To this end, and in addition to standard reporting requirements, AEM supports the publishing of relevant results in the peer-reviewed scientific literature to maximize access to the information.

The fish-out program has incorporated inputs from DFO and the local community (public presentation in Baker Lake on 16 April 2008). All dates included herein are estimates and assume that all relevant regulatory permitting is completed by 1 July 2008.

The following elements of the program are elaborated in this document:

1. Community consultation
2. Permitting
3. Personnel
4. Isolation of 2PL northwest arm.
5. Limnology
6. Mark-recapture
7. CPUE phase
8. Habitat mapping
9. Final removal
10. Reporting
11. General planning for Bay Zone, Goose Island and Vault Lake impoundments

The schedule for implementing key elements in 2PL is shown in **Table 1**. Commencement of the fish-out program is directly related to spring breakup.

1.0 Community Consultation

A presentation of the Meadowbank Gold Project Fish-Out Program for the Northwest Arm of Second Portage Lake was given to the community of Baker Lake on 16 April 2008. In addition to general questions regarding the program, one person expressed concerns regarding consuming fin-clipped fish. Informal discussions with other attendees suggested that this was not a general concern, so the program was not modified. No other concerns were raised.

2.0 Permitting

In advance of the fish-out program for the northwest arm of 2PL, AEM will seek permits from DFO (i.e., Authorization and Application for a License to Fish for Scientific Purpose); it is our understanding that a permit will not be required from the Nunavut Research Institute. Permits for the fish-out for the Bay Zone, Goose Island and Vault Lake impoundments will be sought when detailed construction plans are finalized – the fish-out program in these cases will follow the same general approach (pending any DFO-approved improvements resulting from previous fish-out operations) as that for the northwest arm of 2PL.

One of the requirements of the DFO permitting process is an estimation of the fisheries inventory that will be removed during the fish-out. This was looked at in terms of estimated abundance and biomass, as described below:

- **Estimated abundance** - Past gill net surveys in 2PL are summarized in the Baseline Aquatic Ecosystem Report (Cumberland, 2005); catches were dominated by lake trout (*Salvelinus namaycush*) (i.e., two-thirds to three-quarters of total catch), while the remainder of the catch was split between round whitefish (*Prosopium cylindraceum*) and arctic char (*Salvelinus alpinus*). Burbot (*Lota lota*) have been caught in very low numbers. Other species such as lake cisco (*Coregonus artedii*) and arctic grayling (*Thymallus arcticus*), while present in the region, have not been caught in 2PL or nearby project lakes and are not expected to be present. While caught infrequently in gill net surveys due to their small size, both slimy sculpin (*Cottus cognatus*) and nine-spine stickleback (*Pungitius pungitius*) are expected to be present.

- **Biomass** – There are a number of models that have been developed to estimate fish productivity or biomass based on a range of factors (e.g., lake morphology, nutrients, zooplankton biomass, benthos biomass, and/or morphoedaphic index). However, given the published account of the complete fish-out within the dike A154 impoundment at the Diavik mine, we extrapolated those results to derive a reasonable estimate of the potential biomass of fish in the proposed 2PL East dike impoundment. At the Diavik mine[1], the total biomass of fish caught (gill nets, trap

[1] The Diavik data may underestimate fish biomass; some fish may have left the impoundment area due to construction-related disturbance.

nets, and angling) in the impounded area was about 550 kg (McEachern et al. 2002). While not specified by McEachern et al., Azimuth Group estimates the surface area of the A154 impoundment to be roughly 1.5 km^2. The 2PL East dike impoundment area is 1.3 km^2, which we can conservatively round up to 1.5 km^2 to be consistent with the Diavik A154 impoundment area. Assuming a roughly proportionate relationship between surface area and biomass of fish, the estimated biomass in the northwest arm of 2PL would be approximately 550 kg.

Combining both the estimated abundance and biomass parameters together, along with additional information from the Baseline Aquatic Ecosystem Report (Cumberland 2005), we provide the following predicted breakdown of fish biomass/abundance by species:

- Lake trout: 85% of total fish biomass = 468 kg. At mean weight of 1.24 kg, this would be 377 fish. *Note* - Given the large average size of lake trout, their relative contribution to total biomass will be even larger than their contribution to total abundance.
- Arctic char: 10% of total fish biomass = 55 kg. At mean weight of 1.14 kg, this would be 48 fish.
- Round whitefish: 5% of total fish biomass = 28 kg. At mean weight of 0.50 kg, this would be 55 fish.
- Burbot, sculpin and stickleback: probably 1% or less of total biomass.

As mean fish weights were derived from past gill net data, the estimated numbers of fish in the northwest arm of 2PL do not reflect the potential catch of smaller fish in trap nets. Nevertheless, the overall biomass estimates for each species should be reasonable approximations.

3.0 Personnel

The 'Project Manager' role for the fish-out program will be shared by three senior staff from Azimuth Consulting Group. Azimuth's staff have led the aquatic monitoring program at Meadowbank since 1997. Azimuth's senior biologists (i.e., Randy Baker, Gary Mann or Ryan Hill) will be overseeing the fish-out program and at least one will be on site for the majority of its undertaking. The 'Project Biologist'(s) for the fish out program will be fisheries biologists from North/South Consultants Inc. (Winnipeg, Manitoba). All of the Project Biologists from North/South will be experienced personnel, many of which have worked in the arctic and/or previously conducted fish salvage operations. In consultation with the Project Manager, crew training, fish-out implementation, and in-field quality control will be the primary responsibility of the Project Biologist(s). Data analysis, liaison with the DFO Project Authority (i.e., Habitat Biologist, DFO Iqaluit), and reporting will be primarily the responsibility of the Project Manager.

Several field technicians will be needed for water quality sampling, fish-out activities, and boat operations. Azimuth anticipates that these field technicians will be Inuit hired

from the Baker Lake community. Training of technicians will occur during field activities to ensure that future work can occur increasingly under the direction of local people.

4.0 Isolation of 2PL Northwest Arm

The fish-out program can only be initiated once the northwest arm of 2PL has been isolated from the rest of the lake. Barring unforeseen delays, completion of the Western Channel and East dikes to the point where physical isolation has been established (i.e., installation of the rock walls) is anticipated to occur by the first week of August. However, given the short open water season (i.e., mid-July through early October), the chance of construction delays and Azimuth's desire to complete the mark-recapture and CPUE phases of the fish-out program in 2008 prior to the onset of winter weather, Azimuth proposes to use a cut-off net (i.e., barrier net) to contain fish in the northwest arm immediately after ice-out. Azimuth estimates that the additional three weeks (at least) that this strategy provides will allow us to complete the scientific components of the program in 2008 in advance of winter conditions.

Silt curtains will be deployed on both sides of the east dike footprint. The cut-off net will be set immediately upwind (northwest) of the impoundment-side silt curtain. Deployment is currently scheduled to take 8 days and be completed by July 15th 2008. The cut-off net will have the following specifications:

- **Material/mesh** – 210/40 x 1-inch stretched mesh nylon (100-lbs new break strength).
- **Length** – Given the distance across the lake at this location, there are 13 sections of 50m each for a total of 650m. Additional panels will be included as a contingency.
- **Depth** – Net depth will be sufficient to span the entire water column. The 50-m sections will vary in depth (3.5m to 8.5m) according to local bathymetry and predicted wave heights.
- **Weight** – The 50-m sections will weigh between approximately 100 and 250 kg depending on the depth.
- **Construction** - All lines will be 5/8" Poly Steel, except the bottom line which will be lead line. The top line will have 6" floats installed one after another for the entire length (50m). Sections will be joined by fastening cable ties every 10 cm top to bottom during deployment. A ¾" rope will be used as the main line across the lake.

Net selection involved consideration of several key trade-offs. Larger mesh sizes result in nets that are less susceptible to drag (important in rough conditions), therefore reducing the chances of breaching during storm events. However, while the net material is of sufficient thickness to ensure good visibility, there is a chance that some small fish may be trapped should they attempt passage through the net. Smaller mesh sizes reduce passage or incidental capture of small fish, but result in much higher stress loading on the net structure and anchors, effectively increasing the probability of failure. The 1-inch stretched mesh size was considered a good compromise to address these trade-offs. The

sizing is from knot to knot; given the thickness of the netting material the size of the openings will be smaller (about ¾ inch).We do not expect significant incidental fish catches (e.g., by acting as a gillnet) because the material will be much thicker, stiffer and visible than material used in gill nets. The cut-off net will be deployed only until the dike walls are completed, at which time the net will be removed.

5.0 Limnology

Limnological data will be collected once per month during July, August and September 2008, in each of the three basins located in the northwest arm of 2PL. Benthos will be collected in August only.

The July and August sampling trips will be conducted by the AEMP monitoring team that will be on-site at those times. The September sampling trip will be conducted by either the Project Manager or a Project Biologist with support from one of the fish-out teams. The fish-out crews may also assist with the benthos sampling in August depending on their availability.

The proposed data collection form for limnological data is attached as Annex B. The data to be collected include:

Water quality parameters measured in the field

- Dissolved oxygen and temperature profiles at 1m intervals in each basin during each sampling period.
- Secchi disk depth at each basin during each sampling period.

Water quality parameters to be sent for analysis to ALS Laboratory Group (ALS)

- total phosphorus
- total nitrogen
- total dissolved solids (TDS)
- dissolved nutrients (ammonia, nitrate, nitrite, ortho-phosphate, silica)
- total dissolved nitrogen
- total and dissolved organic carbon (TOC, DOC)
- chlorophyll a.

These parameters will be collected at both 1m depth and mid-water column. Water samples will be collected using a diaphragm pump with Teflon-lined tubing. Jars types and preservation will be as follows:

- 1 x 1-L plastic bottle for total phosphorus, total nitrogen, TDS, dissolved nutrients, and total dissolved nitrogen (keep cold; no preservative)
- 1 x 250-ml amber glass bottle for TOC (keep cold; preserved with hydrochloric acid).
- 1 x 250-ml amber glass bottle for DOC, unpreserved (keep cold; samples will be filtered and preserved at the lab).

- 1-L plastic bottle filtered in the field with few drops of magnesium carbonate on the filter (prior to filtration); filter to be wrapped in aluminum foil and frozen.

Given that there are three basins, three sampling events, and two depths, there will be 18 samples for each of the parameters. Samples will be sent to ALS in Vancouver, B.C. Trip blanks and field duplicates will be included as field QA/QC samples (one each per event) to augment the laboratory duplicates conducted routinely by ALS.

Zooplankton
Four vertical tows (1m from bottom to surface) for zooplankton will be taken in each of the three basins during each of the three sampling periods. The four samples will be independent field replicate samples (not composited) in order to give an understanding of variability (i.e., a total of 36 zooplankton samples will be collected – 3 basins x 3 time periods x 4 replicates). Samples will be collected using a net conforming to DFO's requirements (i.e., 25-30cm diameter net that is at least 220cm in length with 70 to 100 micron mesh). All samples will be uniquely labeled, and placed in a 10% buffered formalin solution in plastic jars. Labeling will include water proof paper labels (marked with pencil) placed inside the jars as well as permanent marker labeling on the outside of the jars. All jars will be screwed tight and taped to prevent leakage. Samples will be submitted to North/South for analysis of biomass (mg/m^3). Taxonomic composition will not be assessed as there is already considerable taxonomic information in the work completed in previous years.

Benthos
Twenty grab samples will be collected from each of the three basins, in August only. Fifteen samples will be collected for benthic community biomass analysis across a range of depth intervals: six will be collected in the 5-10m depth interval; four in the 10-15m interval; three in the 15-20m interval; and one in each of the 20-25m and >25m intervals. Five samples, one from each of the depth intervals listed above, will be collected for taxonomic analysis. Each grab sample will be washed through a 500-micron sieve, then placed in a 10% buffered formalin solution in plastic jars. Labeling will include water proof paper labels placed inside the jars as well as permanent marker labeling on the outside of the jars. All jars will be screwed tight and taped to prevent leakage. Given that there are three basins, there will be a total of 15 benthos samples for taxonomy, and 45 benthos samples for biomass. The samples for taxonomy will be sent to Zaranko Environmental Assessment Services and the samples for biomass will be sent to North/South.

The DFO Protocol calls for use of an Ekman grab. In Azimuth's experience, an Ekman grab is too light to work effectively in the often windy conditions prevailing in the project lake area. Consequently, Azimuth proposes to use a Petite-Ponar grab, which covers the same surface area (6" x 6") as an Ekman grab, but is heavier and therefore easier to control at depth prior to deployment in the sediments. While the volume of a Petite Ponar is less than the Ekman (i.e., 2.4 L compared to 3.5 L, respectively), the latter is unlikely to penetrate deeper into sediments than the Petite Ponar, thus making this extra volume inconsequential.

6.0 Mark-Recapture

In accordance with the DFO fish-out protocol, Azimuth proposes to begin a mark-recapture phase as soon after ice-out as possible, once the cut-off net is in place (see Section 4).

Azimuth will use two types of fish capture methods for this phase:

- Trap nets - two trap nets[2] will be set perpendicular to shore targeting fairly shallow areas where smaller fish would be expected.
- Gill nets – only 38-mm index gill nets will be used for this phase. Each boat crew should be able to fish with 4 to 8 net panels, set only for a short time (i.e., 30 to 60 minutes). Gill nets will be moved around to set to cover a range of habitats.

All nets and traps will be moved regularly (every day or two) to cover all available habitats, with an emphasis towards shallow water habitats. Partial fin clips will be used to mark fish, without the use of antiseptic. We propose to mark lake trout (the most abundant species) and arctic char. A consistent series of fins (e.g., adipose then left pelvic then right pelvic) will be clipped to distinguish multiple captures of the same fish. We do not plan to mark slimy sculpin, nine-spine stickleback or burbot as their contribution to total fish biomass is expected to be extremely small (see Section 1). We also do not plan to mark round whitefish because they are known to have reduced survival rates after marking. When necessary, bins or holding tanks will be used to give stressed fish some recovery time prior to release back into the lake.

Details of each set will be recorded using the fields provided in the forms appended to the DFO Protocol. We propose to combine the two forms "Gear Set Data and Fish Sample Record" and "Gear Set Data and Fish Count Record" so that the set data only need to be recorded once. In effect, the form will have 3 elements – an initial section with set data, a second section with fish count data by species, and a third section with detailed biological information for mortalities. In the case of lake trout, we will divide the fish count data into categories based on length (<35cm; 35-65cm; >65cm) in an attempt to gather rough age-class data. Baseline data for 2PL indicated that lake trout have followed a slightly bimodal distribution, with a peak at around 30cm and another around 50cm (Cumberland 2005 – Baseline Aquatic Ecosystem Report). A summary of the changes we propose for the field data collection forms is provided in Annex A.

Fish that do not survive during the mark-recapture phase will undergo a biological assessment (see next paragraph) before being placed in freezers and, later, made available

[2] DFO's trap nets were unavailable for use in the Meadowbank program. Trap net designs were modified slightly from those described in the DFO General Fish Out Protocol. Specifications for our trap nets: house and leads are to be constructed with the same material (6-mm square mesh), house (1.23 x 1.23 x 1.23 m), center lead (2 x 100 foot pieces for a total of 200 feet; 1.83 m depth), side leads (30 feet x 1.83 m depth).

to the local community. It is anticipated that the community will use larger fish for human consumption and smaller fish for dog food.

Biological assessments will be limited to fish mortalities. This will enable us to limit the physical damage to fish that are designated for distribution within the community (i.e., maintain aesthetics). We will record species; weight; fork length (total length for slimy sculpin, stickleback and burbot) for every fish. We will also physically "milk" each fish to identify, where possible, sexually active males or females. More detailed biological assessment (e.g., aging structures, etc.) of a subset of fish will take place during the CPUE phase.

The mark-recapture phase will continue until the 2-day moving average recapture rate of marked and released fish is 10%, or to a maximum duration of 14 days. After 7 days, if it seems there is a possibility that we will not reach the 10% threshold, we will consider increasing the mark-recapture effort for the remaining 7 days, either by increasing the number of sets, establishing a night shift to capture fish that are more active at night, and (if necessary) bringing in additional staff to allow round-the-clock efforts. The final decision to end the mark-recapture phase will be made in consultation with DFO.

The 10% threshold will apply to the combined data for lake trout and arctic char, as well as to lake trout individually. We do not propose to apply the 10% threshold to arctic char separately – there is likely to be significant imprecision for char as their contribution to total fish biomass is much less than for lake trout.

If for some reason the cut-off net does not work as planned, thus delaying the start of the fish-out until the dike rock walls are completed, we would propose that, in consultation with DFO, the mark-recapture phase be omitted, in order to ensure that the CPUE phase can be completed as planned in 2008.

7.0 CPUE Phase

Following the DFO Protocol's recommended minimum 3-day break after the completion of the mark-recapture phase, we will begin the CPUE phase of the fish-out program using the same two trap nets, plus gill nets of stretched mesh sizes 126, 102, 76, 51, 38, and 25mm (this differs slightly from the DFO Protocol in that the 126mm panel replaces a 22mm panel; the change was made to more closely match the mesh size range used in baseline studies). The mesh sizes will be fished in constant proportions, with an increasing total number of nets/panels deployed as CPUE declines over time. The panels will be 6 ft (1.8 m) deep by 25 yds (22.7 m) long, so that the maximum length of a six-panel gang would be 150 yds (136.4 m). Nets will be moved every day or two to ensure coverage of the all areas of the northwest arm.

In addition to the two types of nets, angling gear will be on hand, time permitting, to target large lake trout in the deeper basins. Based on the Diavik results (McEachern et al. 2002), we do not expect high catch rates but may be able to catch a few large individuals that provide significant food value per fish.

The Diavik results (McEachern et al. 2002) also found minnow traps to be largely ineffective. Notwithstanding, they will be on hand to use as a supplementary measure to the trap nets if needed.

All data from sets will be recorded using the same form used during the mark-recapture phase. The fish count data will be much simpler since no fish will be released. All captured fish will be identified to species, weighed and measured for fork length (total length in the case of burbot, sculpin and stickleback). We will also physically "milk" each fish to identify reproducing males or females. More detailed biological assessment will be conducted for a subset of fish as:

- **Aging structures**[3] will be taken from 150 fish (50 arctic char, 50 round whitefish, 50 lake trout) across a range of expected size classes. These same fish will be subject to more invasive measurements/sampling (see below). Unless deemed acceptable for consumption by the community, these fish will be provided to the Meadowbank camp for use as food (or used as dog food by the community).
- **Stomach contents** will be collected from the same 150 fish. We will either analyze stomach contents in the field (e.g., whole fish can easily be counted) or preserve them if more detailed analysis is needed. In the latter case, samples will be uniquely labeled (and associated with a uniquely identified fish), and placed in a 10% buffered formalin solution in whirl-pac bags. Stomach contents will be processed on site by a biologist or sent to North/South in Winnipeg.
- **Detailed internal and external examinations** will be conducted on each of the 150 fish to determine sex, reproductive status, parasite presence, and overall apparent health (e.g., DELT - deformities, erosions, lesions or tumours).
- **Gonad weights and fecundity** (female only) will also be measured for the same 150 fish. Ovaries will be preserved in buffered formalin (or modified Gilson's solution) and analyzed for fecundity (on site or at North/South in Winnipeg), where a subsample of at least 100 eggs will be weighed to allow the estimation of the total number of eggs.
- **Liver weights and metals** samples will also be taken. Livers will be weighed in their entirety and a subset of the 150 livers will be frozen for shipment to ALS for analysis.
- **Tissue metals** samples (including mercury), while not required in the DFO Protocol, will be collected from a subset of the 150 fish, frozen and shipped to ALS for analysis.

Fish guts not retained for analytical sampling will be incinerated on site, as requested by DFO.

CPUE data will be analyzed daily using both the Leslie and DeLury methods. Raw data and graphs will be sent to DFO daily (as available) by email or posted to an AEM ftp site.

[3] The aging structures will be both otoliths and fins for lake trout and char, and will be otoliths only for burbot and whitefish. No aging structures will be collected from sculpins or sticklebacks.

We propose that the CPUE phase be ended when: (a) there has been a consistent, statistically significant (e.g., $p<0.10$) decline over a 10-day or greater period (for at least one of the two CPUE methods) for gill nets and for trap nets; and (b) overnight sets are catching very few fish regardless of the location of deployment. This decision will be made in consultation with DFO.

8.0 Habitat Mapping

After dewatering has been sufficient enough to expose the habitat (expected summer 2009), and after snowmelt has occurred, low level photogrammetric aerial photographs will be taken to document the habitat. The aerial photos will enable us to confirm earlier estimates of habitat quality in the impounded area, and will allow derivation of a relationship between habitat area and fish biomass. These relationships could be extrapolated to provide information about the expected value of any reconstructed fish habitat features in terms of fish biomass production.

The aerial photography is expected to occur in July 2009. There will have been no physical alteration of the impounded arm with the exception of the stormwater dike, which will be installed during the early winter months of 2009. The footprint of that dike is relatively small, and occurs in water that is less than 4m below current water levels. The substrate and habitat value of this area (and any areas less than 6m depth) has already been evaluated[4] by stereoscopic interpretation of pairs of 1:10,000 colour aerial photos, visual observations, and groundtruthed using underwater video cameras.

9.0 Final Removal

Final removal will take place after ice-out in 2009, sometime between July and September (exact dates to be determined). During this phase, gill nets, trap nets, seine nets and/or angling will be used to capture all remaining fish. We will also consider using electrofishing as an option, but will not make a final decision on that until after the catch data from the CPUE phase are evaluated (i.e., depending on the number of fish we expect to remain after the CPUE phase, and their expected distribution spatially and vertically).

We do not expect to be able to recover all marked fish because: (a) smaller marked fish may be eaten by larger fish during the time year between marking and final removal, particularly as fish become more concentrated during dewatering; (b) other natural mortality may occur over the period; and (c) stress-related mortality may occur from the marking event.

[4] Habitat mapping of the project lakes has already been completed as part of the environmental assessment for the mine (i.e., to support baseline monitoring and the development of habitat compensation plans).

Consequently, although we will track total recovery of marked fish, the removal objective will be based primarily on catch data. That is, we will continue with the removal phase until either:

1. no fish are caught for 48 hours, and then after a 24 hour break, no fish are caught for an additional 48 hours; or
2. catch has declined to near zero and the total catch has reached at least 95% of the estimated initial abundance from the CPUE data.

All captured fish will be identified to species, weighed and measured for fork length (total length in the case of burbot, sculpin and stickleback). We will also physically "milk" each fish to identify reproducing males or females. More detailed biological assessment will be conducted only if the numbers targeted for detailed assessment were not achieved during the CPUE phase.

10.0 Data Analysis and Reporting

According to the DFO Protocol, DFO has developed data input forms to match the data collected during fish-out activities. We will use these forms to enter the field data into an MS Access database. If for some reason the database is not made available, we will enter the data into an MS Access data table directly, using the codes provided in the Protocol. Data entry will not be finalized until all results are available.

Data analysis and reporting will include an interpretative report as well as raw data tables (in appendices) and summary statistics of data (in tables and/or figures). Specifics will include, but not be limited to, the following:

- Introduction and objectives, including inputs from the community
- Review of methodology, including maps showing where gear was placed.
- Analysis of mark-recapture data using the Schnabel method, including best estimates of population sizes and consideration of uncertainty.
- Analysis of CPUE data according to the Leslie and DeLury methods, including best estimates of population sizes and consideration of uncertainty.
- Analysis of limnological data
- Comparison of fish and limnological data to baseline data collected for 2PL and other area lakes
- Copies of field data sheets and photographs (as appendices)
- Copies of lab reports (as appendices)

11.0 General Planning for Other Fish-Outs

Construction scheduling for the Bay Zone, Goose Island and Vault Lake impoundments are not yet finalized. We propose to take the same approach to fish-out at these impoundments as will be used for the northwest arm of 2PL, with the exception of DFO-approved changes incorporated from any previous fish-out activities (i.e., adopting the adaptive management approach integral to managing all aspects of the environment at the

site). While the spirit of this protocol will be followed, specific details may vary depending on the situation; these will be identified and provided to DFO for review once construction schedules are known.

Table 1. Schedule for fish-out of the Northwest Arm of Second Portage Lake, Meadowbank Project.

	Timing							Approximate Dates
	Feb-Jun 2008	**July 2008**	**Aug 2008**	**Sept 2008**	**Oct 2008**	**Nov 2008-Jun 2009**	**July-Dec 2009**	
Permitting	X							As soon as possible
Field gear acquisition	X							As soon as possible
Isolation of 2PL (NW arm)		X						July 7-15, 2008
Mark recapture		X						July 16-28, 2008
Limnology		X	X	X				July – Sep, 2008
Dike construction monitoring		X	X	X				July – Oct, 2008
CPUE phase			X	X				Aug 1 to Sep 30, 2008
Dewatering and monitoring					X	X		Start Oct 10, 2008
Final removal							X	July / August 2009
Habitat mapping							X	July / August 2009
Reporting							X	Sept – Dec 2009

Annex A. Proposed Changes to Field Data Collection Forms

The draft DFO fish out Protocol includes two data forms for recording information on net sets, fish counts and fish samples. We propose to follow the forms as provided with the following modifications:

1. Two forms would be combined into one, to avoid duplication of the information regarding the set. Thus the form would have three sections – one on the set and general information, one on fish count categories, and one on biological data for individual fish.
2. The current form has one field for depth. We propose to add more detail by specifying depth at each end of the set.
3. For fish count data, we will divide lake trout into three size categories (<35cm; 35-65cm; and >65cm).
4. The Protocol recommends using the 'comments' box to record wind (direction and speed), cloud cover, air temperature and surface water temperature. We propose to specify individual fields for these parameters to ensure that they are recorded.

In addition, each boat crew will carry a map of the impounded arm (clean copy each day) and indicate the location & direction of each set.