

YUKON COLLEGE

**YUKON RIVER SALMON & ENHANCEMENT FUND
EDUCATIONAL PROJECT CRE-132-11**

**YUKON FISHERIES FIELD ASSISTANT PROGRAM
FINAL REPORT**

6th Offering (2011)

Whitehorse/Minto Landing, Y.T.

Prepared by: Darrell Otto

September 2011

INTRODUCTION

The sixth offering of the Yukon Fisheries Field Assistant Certification Program or “fish tech”, developed and delivered through Yukon College, was conducted in Whitehorse and Minto Landing, Yukon between April 4 and June 10, 2011. The first portion of the course which ran from April 4 – May 20 was an online component originating from the Ayamdigut Campus in Whitehorse. The second portion of the course was delivered in a field camp format over a 12-day period between May 30 and June 10 at Minto Landing.

The overall goal of the Fish Tech program has been, and continues to be, providing students from a wide range of academic and employment backgrounds with basic skills and knowledge to work in both Yukon Pacific Salmon (anadromous) and freshwater fisheries as fisheries field technicians. Students completing the program are equipped with skills and knowledge related to salmonid biology, fish identification procedures, applied fisheries techniques including electro-fisher certification, as well as fish and fish habitat inventories, assessments and restoration techniques. The course is also intended to provide students with the opportunity to acquire skills related to project planning procedures, permit applications, project administration and proposal development pertaining to typical Yukon fisheries fieldwork. The original vision of the fish tech program was for the course to be offered on an annual basis in Yukon communities, with the goal of increasing the quality of salmon restoration projects within the Territory, as well as building community capacity in terms of stewardship and the move toward more community-based fisheries management.

The course has always been relatively intense, initially consisting of a combination of classroom lectures and fieldwork delivered over a 5-week period, with several extra weekend sessions. To date the course has been funded primarily through The Yukon River Panel Salmon Restoration and Enhancement Fund, student tuition, and in-kind contributions from Yukon College. The first offering of the course was in Dawson City, in August and September of 2003. A second offering was successfully completed at the same location in May and June of 2004. The third offering took place in Teslin in 2005, and the fourth in Pelly Crossing in 2007 and the fifth offering occurred in both

Whitehorse and Dalton Post in 2010. There had been a three-year gap in fish tech offerings previous to 2010.

Program History:

At the time of the first offering of the course in August/September of 2003, the Yukon-based fish tech curriculum had not been developed to a point where it could effectively meet student needs as outlined above. In order to permit the program to run that year, course coordinators in Dawson contacted Malaspina University-College's Fisheries and Aquaculture Extension Program, (now Vancouver Island University) who have for many years offered a Fisheries Field Technician Certificate Program. An arrangement was then made for two Malaspina instructors to come to Dawson to deliver the course in conjunction with a Yukon resident instructor who was to serve as an assistant and "instructor-in-training" for the second offering of the course. At the end of the course, successful students were awarded Malaspina's Fisheries Field Technician Certificate. Following the first offering further work was done by the Yukon "instructor-in-training" to attempt to complete a Yukon-based curriculum for the course over the fall of 2003. However, this curriculum was not completed to a point where it could be offered in 2004. Malaspina University-College instructors and curriculum were utilized again during the 2004 offering based in Dawson. The original intent of the program was to develop and deliver a wholly Yukon-based curriculum designed to specifically meet the needs of anadromous and freshwater fisheries, in a northern aquatic environment. The Malaspina curriculum, while appropriate for many fisheries located in southern jurisdictions, has been developed to meet the needs of a wide range of applications and is relatively "generic" in its approach. The Malaspina curriculum did not fully address some of the specific scenarios and problems unique to the Yukon.

The 2005 offering at Teslin was a joint offering between the two institutions, with a 50:50 split between curriculum developed and delivered by Malaspina University-College, and course materials developed and delivered by a Yukon College instructor. Since the 2007 offering at Pelly Crossing the fish tech program has consisted entirely of Yukon College curriculum. The Yukon College course was also developed specifically to

meet the needs of mature students, First Nation members and those who have been working as field technicians, but lacking formal training and wishing to expand their skills and abilities. Typical of many Yukon College courses, fish tech students span a wide range of ages and academic, or other learning backgrounds. The 2010 offering saw the launch of a conversion of the classroom-based portion of the program to online-learning format. This process continued with the current offering as more course modules were converted to, and delivered in, a web-based format. Development of the online learning component was initiated for several reasons, but the major impetus was to give individuals residing in rural communities throughout the Territory, especially those already employed on a full-time basis, an opportunity to complete the program successfully and increase their skills and employment options while spending a minimum amount of time away from their jobs and respective communities. The 2010 and 2011 offerings have clearly shown that this objective is being accomplished with the conversion of a large part of the program to online format. Several other interesting changes in student demographics have also occurred and these will be discussed further in this report.

The remainder of this report will summarize the 2011 offering of the Yukon Fisheries Field Assistant Program, and make recommendations for future offerings.

2011 Offering:

Prospective student interest in the fish tech program remains high. A total of 16 seats were made available. These filled quickly following the opening of course registration in early April, and we in fact allowed two extra students to register assuming there would be some attrition from the course. The number of applicants exceeded the seats available and qualified students were registered on a first-come-first-serve basis. Advertising in the local newspapers stimulated queries into the program which continued after the course had begun, and even after course completion in mid-June.

Of the 18 students initially registered in the course, 12 successfully completed the program.

Two of the successful students in the course came from Selkirk First Nation. In exchange for providing Yukon College with free use of their General Assembly grounds as our campsite during the field camp portion of the program, we offered SFN two free seats for their members in this year’s fish tech offering.

Students Registered	First Nation	Non – First Nation	Male	Female	Yukon Resident	Non-Resident
18	7	11	10	8	15	3

Table 1: Student demographics - Yukon Fisheries Field Assistant Program – 2011

First Nation	Teslin-Tlingit	Champagne-Aishihik	Selkirk	Dease Lake
#Students	2	2	2	1

Table 2: Fish Tech student representation by First Nation – 2011

As outlined in the introduction, the 2011 offering of the Yukon Fisheries Field Assistant Program consisted of two components. We have now completed the second year of a 3-year objective to convert as much of the amenable classroom-based portion of the fish tech curriculum to online format. This conversion process began in January 2010, and was continued up until the course began on April 16 of that year. At that time the first four course modules had been converted from text-based to web-based learning. Three of these modules were ready for online delivery and were offered in online format during the 2010 delivery of the program. Beginning in January 2011 an additional 4 modules were converted from text-based to online format. In addition to the 4 modules converted in 2010, these were offered to students as part of the fish tech program during this year’s delivery. The total time for delivery of the online portion of the program was increased to 7 weeks in 2011 from 5 weeks in 2010. During the first delivery of online materials we needed to gauge how much time the average student would require to complete each module. With the completion of the 2011 program we now know that rate is somewhere between 1 and 2 modules per week. This means that with the conversion of more

modules in the future we do not need to substantially increase the time allotted for the online portion of the course much beyond 8 weeks.

Feedback from students regarding the web-based portion of the course continues to be positive. With two exceptions, students enrolled in the course were all internet-savvy and very comfortable utilizing a web-based format. Overall, students' ability to access and absorb course materials was excellent. The use of quizzes installed directly in the website modules in conjunction with email as a medium for course evaluation allowed me to collect, mark and return assignments to the students very quickly. Providing students with this type of fast feedback allowed them to know how well they had understood and absorbed course materials, and also served to keep their interest levels high. The two students who lacked even basic internet skills were both employees of the Teslin Tlingit First Nation who required them to complete the program as part of their employment. One of these students chose to withdraw from fish tech very early after the program had started. TTFN hired a tutor for the second student to help him with the internet portion of the course. This seemed to work very well and this student was able to successfully complete the program.

The remaining course modules were delivered over a 12-day period in early June from a field camp located at the Selkirk First Nation General Assembly grounds at Minto Landing. This has proven to be an excellent location that allows us to utilize a number of streams feeding into the Yukon and Pelly Rivers as well as freshwater lakes located along the Tatchun Lake Road for our field practicums. These streams are easily accessed by road. This area was chosen for the course field camp as it allows us access to a variety of fish habitats and populations, and therefore many opportunities for students to gain practical field experience.

Modules 9 through 16 were completed during a busy 12-day field camp. Completing this many modules in this short time frame required students to be active during evening sessions and over the weekend. The class project (module 16) for this year consisted of a 3-day gill net survey targeting Cisco and Lake Whitefish in Tatchun Lake. Students

participated in the design and implementation of the field portion of the study. They participated in setting and pulling nets, sampling fish, and compiling data into tables.

Addressing Project Objectives:

The project proposal submitted to the Yukon River Panel Restoration and Enhancement Fund outlined 6 major project objectives. This section of the project final report will attempt to address how those objectives were addressed.

Objective 1:

Continue with conversion of classroom-based portion of the existing fish tech curriculum to online format to the largest degree possible. The rationale for this conversion is to minimize the amount of time students need to be away from their home and to provide opportunities for individuals from across the Territory to complete the program.

As mentioned above, a total of 8 of the 16 course modules have now been converted to online format. It should be kept in mind approximately half of the course modules are field-based and therefore not completely amenable to online offering. These will continue to be offered during the field camp portion of the course. The online format continues to work well for a majority the students allowing them to complete a significant portion of course materials from home and on their own schedule. Students in the course came from 4 different First Nations all outside of the Whitehorse area. (Table 2).

Five of the students in the course were employed on a full-time basis by their First Nation or had a job offer pending successful completion of the program. Many of the non-First Nation students were employed full-time in renewable resource management related jobs, or were post-secondary students studying in the field. Reducing the field portion of the course from 5 to 2 weeks minimized the time full-time working students needed to be away from their jobs. Without the online component of the course these students would have had to be away from their jobs for a longer period of time (5-weeks versus 3-weeks) and might not have been able to attend at all. This shift to online format has resulted in a major change in the type of student able to complete the program. While the early

offerings of fish tech saw a large number of seasonally-employed students who wished to work in fisheries field work, we now see young professionals who have full-time employment but wish to add fisheries capacity to their résumé. With much of the course online and the field component much shorter these students are able to complete the online modules during evenings and weekends. Sometimes their employers will give students time off work as part of work-related training to complete the field camp, while other students use their holidays. Conversion of fish tech to online format and reduction of the time students need to be away from their job was intended to make the program available to a wider range of students from across the Territory. We appear to have achieved that objective and are seeing an increasing number of highly motivated and capable students completing the program.

Objective 2:

To provide an opportunity for Yukon residents to complete a Yukon Fisheries Field Assistant certification program within the Territory.

The demographic breakdown (Table 1) and home communities of the First Nation students (Table 2) show that a cross-section of First Nation students from across the Territory were able to access and successfully complete the program. There was also a non-FN student from Haines Junction that successfully completed the program in 2011. The introduction of the online learning combined with the “hands-on” aspects of the course have proven to be important factors in achieving success with this objective. The continued availability of online learning in future offerings will minimize the time spent in field camp and make Fisheries Field Assistant certification available to more Yukon residents.

Objective 3:

To equip students with skills and knowledge of salmon biology, fish identification, stock assessment, fish and fish habitat inventories, assessments, and restoration techniques.

These are core skills developed in the Fish Tech program. The concepts related to these areas of fisheries work are initially introduced to students in the web-based/classroom portion of the program, and the related fisheries techniques are practiced in a field setting. There should be ongoing consultation with relevant fisheries-related government agencies and consultants to make sure the curriculum offered in the program is up-to-date and provides students with training that is relevant to current employer needs.

Objective 4:

To increase capacity within rural communities through training, and to provide residents with the skills necessary to conduct fisheries fieldwork and participate directly in salmon stewardship and fisheries-related projects.

We target Yukon First Nations and rural residents in our advertising program for fish tech. Before advertisements are placed in local newspapers we send emails and faxes with course information to First Nation Band offices within the Territory. The course provides students with the skills needed for fisheries field work, focusing on techniques and record keeping. We also run a project within the course so that students are able to see how fisheries projects are conducted from the conceptual phase through to completion.

In this year's offering we were given a project protocol by Yukon Territorial Government Fisheries that involved overnight netting for Cisco and Lake Whitefish in Tatchun Lake. Biologists in the department were interested in the status of these fish stocks as they had not been assessed in many years, but lacked the resources to complete the survey. This provided the 2011 cohort of fish tech students with an excellent opportunity to plan and complete a small fisheries fieldwork project.

Objective 5:

To draw on local knowledge and expertise to instruct and provide locally relevant material.

Two of the students in this year's offering were Selkirk First Nation members and familiar with the area. They were able to provide significant amounts of local knowledge to our field studies. Sean Collins from Fisheries and Oceans came to the camp and gave a half-day presentation on fish habitat assessment and monitoring in Yukon. Additionally, Nathan Millar and Oliver Barker from YTG Fisheries gave a half-day presentation on fish stock assessments in the Territory.

Objective 6:

To build on the knowledge and expertise gained during the 5 previous offerings of fish tech.

We have now completed 3 deliveries of the Fish Tech program utilizing curriculum developed entirely at Yukon College that focuses on issues and needs related to northern fisheries. By operating the field component of the program in different areas of the Territory we have increasingly come to understand which streams and other resources are available to us that can provide relevant and beneficial learning experiences for students. Having biologists from both Fisheries and Oceans, Canada as well as YTG Fisheries participate in the program helps us to remain abreast of current trends and issues in Yukon fisheries and to adjust our course materials accordingly. Feedback from students at the end of each delivery has also provided opportunities to refine and expand course curriculum. The 2011 offering, which expanded the online learning component, has allowed us to further develop our knowledge and expertise and improve the quality of future course deliveries. The online component has proven very popular and we will continue to convert more of the curriculum to this format in the future.

Suggestions for Future Offerings:

Based on experience gained in delivering the Fish Tech program this year combined with feedback from students, I would like to make the following suggestions for future offerings of the program.

1. In the last two offerings of fish tech we have had guest speakers from government agencies at both the federal and territorial level come and give guest lectures at our field camp. Additionally, this year YTG fisheries provided us with a fisheries field work project that provided them with important data. We should continue to build these relationships with government and other community members involved in fisheries work. They provide important and current information to the students and offer a breadth of knowledge beyond what Yukon College instructors would be able to provide alone.
2. In the last few years fish diseases have become an issue of increasing concern for fisheries managers, especially in Yukon River salmon. Fish tech currently does not address fish disease in any real depth. This is an area where students should receive training if they are to be properly prepared to work in fisheries. A module addressing fish parasites and diseases should be added to the current curriculum.
3. There appears to be interest within the State of Alaska for fisheries field assistant training similar to what we are offering through the fish tech program in Yukon. Alaska has many rural communities along the Yukon, and other major river systems where there are opportunities for fisheries fieldwork projects, but a lack of capacity within the population. We would like to investigate the possibilities for delivery a similar version of the fish tech program within the State of Alaska. With much of the course materials now available in online format this idea has become much more feasible. We would need to identify a post-secondary educational institution willing to undertake delivery of the program within the State and then discuss in detail any alterations to curriculum and the logistics of running a field camp.

Conclusions:

The 2011 offering of the Yukon Fisheries Field Assistant Program was delivered successfully. With each course delivery we are able to improve the quality and relevance of instruction. Based on feedback, student satisfaction with the course was high. As we have easily filled the program during the last two offerings, we are optimistic that interest and registrations in future offerings will remain high.

The conversion of course modules to online format is clearly meeting the project's longer term objective of allowing students from the communities and others with full-time employment to complete much of the course from home thereby reducing the time they need to be away from their jobs and from fieldwork during our relatively short open water season in Yukon. The program is very popular and continues to elicit inquiries from potential students. As in 2010, there were more qualified applicants than available seats (16) in 2011.

Utilizing government staff from government agencies responsible for fisheries management in the Territory as part of the fish tech program has improved the quality of the course and we would like to continue to build those relationships in the future.

There also appears to be opportunity for expansion of fish tech into the State of Alaska and we would like to explore those possibilities.

Our objectives for 2012 fish tech program involve completion of the conversion of course curriculum into online format, while keeping the field camp at 12 days duration. We would like to add a fish parasites and diseases module to the program and continue to develop our capacity to provide students interested in training for work in fisheries field work with relevant skills and knowledge.