

Upgrading infrastructure of the Molecular Genetics Laboratory at the Pacific Biological Station

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Nanaimo, BC
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Abstract

The objective of the project was to upgrade the infrastructure of the Molecular Genetics Laboratory at the Pacific Biological Station. This was accomplished by purchasing an Applied Biosystems capillary DNA sequencer (model 3730) and robotics from Beckman Coulter Canada used in sample processing. The combination of applying robotics to processing samples through the capillary DNA sequencer has led to a 30% decline in costs for analysis of microsatellite variation for individual fish.

Introduction

The Northern Endowment Fund of the Pacific Salmon Commission provided funding to upgrade the infrastructure of the Molecular Genetics Laboratory (MGL) at the Pacific Biological Station, Fisheries and Oceans Canada. The funding was to be used to purchase a capillary DNA sequencer (model 3730) from Applied Biosystems, as well to purchase robotics used in DNA extractions and sample processing. This report will provide confirmation that the equipment has been purchased.

Results and Discussion

The automated DNA capillary sequencer (model 3730) was obtained from Applied Biosystems in 2005 and is in daily use in the MGL. The capillary sequencer replaced older slab gel sequencers (model 377) that had previously been in daily use in the MGL. Standardizations of microsatellite allele sizing between the model 377 and model 3730 sequencers have been completed for all salmon species.

Robotics for DNA extraction and sample processing were obtained from Beckman Coulter Canada in 2005 and are in daily use in the MGL. There was a considerable learning curve in applying robotics to sample processing, but once technical knowledge became available, robotics were instrumental in exploiting the capabilities of the capillary sequencer.

The combination of the capillary sequencer and robotics for DNA extraction and sample processing has led to increasing efficiency in the processing of samples. The capillary sequencer and robotics have allowed the implementation of sample processing in a 384-fish format, resulting in higher productivity for each technician and reduced chemical costs per fish in the laboratory analysis of microsatellite variation. This has resulted in a 30% reduction in cost per fish analysis being passed on partners in stock identification analysis. Increasing automation of procedures could potentially lead to lower costs of analysis.

Appendix Record of Expenditures

Report: ALYD100E

FY: 2005-2006

Fiscal Period: 11

**Assets and Liabilities
DETAILED TRANSACTIONS**

by Responsibility Centre, Project, Allotment and Line Object

Report as of February 22, 2006

Page: 1 of 2
Date: 22/02/2006
Time: 11:46 AM

Vendor Name / Customer Name	Invoice Number/ Misc Receipt	Transaction Description	PO Number / Receipt Number	Invoice Date / Misc Receipt Date	Bus. Line	Allot Code	Lobj Code	Invoice Amount
REGION: Pacific								
RESPONSIBILITY CENTRE: 51510 Salmon Genetics Section								
PROJECT: 58204								
AMEX BANK OF CANADA	0665801006112605	373590665801006-752348-KUJ219456-BEACHAM		26-11-2005	850	760	0205	1,437.69
AMEX BANK OF CANADA	0665801006112605	373590665801006-752348		26-11-2005	850	760	0205	40.58
AMEX BANK OF CANADA	0665801006112605	373590665801006-752348-KUJ219456-BEACHAM		26-11-2005	850	760	0205	15.00
BEACHAM, TERRY D.	24-NOV-05C	JTC TRAVEL		20-11-2005	850	760	0205	800.06
BEACHAM, TERRY D.	24-NOV-05C	JTC TRAVEL		20-11-2005	850	760	0205	16.92
		TOTAL LINE OBJECT:	0205 U.S.A. Travel					2,310.25
INVITROGEN CANADA INC	664471	FREIGHT CHARGES	F1007-050165	03-01-2006	850	760	0247	156.52
		TOTAL LINE OBJECT:	0247 Surface-Freight & Cargo Services					156.52
APPLIED BIOSYSTEMS	93341436B	F1007-050037 APPLIED BIOSYSTEMS DNA ANALYZER (PARTIAL)		01-07-2005	850	760	0904	14,700.00
APPLIED BIOSYSTEMS	93341436B	F1007-050037 APPLIED BIOSYSTEMS DNA ANALYZER (PARTIAL)		01-07-2005	850	760	0904	356,571.41
APPLIED BIOSYSTEMS	93341436B	F1007-050037 APPLIED BIOSYSTEMS DNA ANALYZER (PARTIAL)		01-07-2005	850	760	0904	4,672.00
BECKMAN COULTER CANADA INC.	0537318	Journal Import Created		30-06-2005	850	760	0904	51,611.29
BECKMAN COULTER CANADA INC.	0537319	Journal Import Created		30-06-2005	850	760	0904	108,388.68
BECKMAN COULTER CANADA INC.	0540281	Journal Import Created		13-07-2005	850	760	0904	29,999.93
		TOTAL LINE OBJECT:	0904 Measur/Control/Lab Instruments					565,943.31
		BECKMAN COULTER CANADA			850	760	1227	422.19
		TOTAL LINE OBJECT:	1227 Interest & Charges on Overdue Accounts					422.19
PAC SALMON COMMISSION	53090810N	MICROSATELLITE VARIATION AND UPGRADING MOLECULAR GENETIC LABORATORY INFRASTRUCTURE PAYMENT REC'D. CHQ. #0062	53090810N	14-07-2005	850	760	3239	(590,000.00)
		TOTAL LINE OBJECT:	3239 SPA-Miscellaneous Accounts - Credit					(590,000.00)
INVITROGEN CANADA INC	664471	SS PLUS INDIRECT CDNA MOD 30RXNS	F1007-050165	03-01-2006	850	760	7314	6,408.00
	1188895	INVITROGEN-CANADA94176248//TUCK DEBRA//Platinum Taq DNA polymerase//Acquisition Card -		08-DEC-05	850	760	7314	5,984.45

This report provides a listing of all year-to-date assets and liabilities by Responsibility Centre, Project, Allotment and Line Object.

Filter used to generate Report: NBX.RC_CODE = '51510' AND NBX.PRJ_CODE = '58204'

Report: ALYD100E

FY: 2005-2006

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Assets and Liabilities
DETAILED TRANSACTIONS
 by Responsibility Centre, Project, Allotment and Line Object
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Page: 2 of 2
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Vendor Name / Customer Name	Invoice Number/ Misc Receipt	Transaction Description	PO Number / Receipt Number	Invoice Date / Misc Receipt Date	Bus. Line	Allot Code	Lobj Code	Invoice Amount
REGION: Pacific								
RESPONSIBILITY CENTRE: 51510 Salmon Genetics Section								
	1194718	cartes d'achat INVITROGEN-CANADA94937414//TUCK DEBRA//Rnaseout, Dnase, Superscript//Acquisition Card - cartes d'achat		20-DEC-05	850	760	7314	3,427.50
	1194719	INVITROGEN-CANADA94937413//TUCK DEBRA//Rnaseout, Dnase, Superscript//Acquisition Card - cartes d'achat		20-DEC-05	850	760	7314	808.18
	1203527	INVITROGEN-CANADA96068404//TUCK DEBRA//Platinum QPCR supermix//Acquisition Card - cartes d'achat		13-JAN-06	850	760	7314	3,601.27
	1195313	INVITROGEN-CANADA95010925//TUCK DEBRA//proteinase K solution//Acquisition Card - cartes d'achat		21-DEC-05	850	760	7314	423.70
	1196020	INVITROGEN-CANADA95090668//TUCK DEBRA//proteinase K solution//Acquisition Card - cartes d'achat		23-DEC-05	850	760	7314	7,308.41
	1196021	INVITROGEN-CANADA95090667//TUCK DEBRA//Proteinase K solution//Acquisition Card - cartes d'achat		22-DEC-05	850	760	7314	397.20
		TOTAL LINE OBJECT: 7314 Inorganic & Organic Chemicals, incl. Plastics, Rubber & Products (excl. Tires &						28,358.71
	1200161	MJS BIOLYNX INC95683585//TUCK DEBRA//full skirted 96 well plates//Acquisition Card - cartes d'achat		05-JAN-06	850	760	7354	957.00
	1201188	VWR SCIENTIFIC PROD (CAN195861863//TUCK DEBRA//200ul filtered tips//Acquisition Card - cartes d'achat		09-JAN-06	850	760	7354	1,606.25
		TOTAL LINE OBJECT: 7354 Scientific Supplies Miscell						2,563.25
		TOTAL ALLOTMENT: 760 Miscellaneous Project Deposits						9,754.23
TOTAL PROJECT: 58204 PSC NF 2005 I 3&4 - T. Beacham								9,754.23
TOTAL RESPONSIBILITY CENTRE: 51510 Salmon Genetics Section								9,754.23
TOTAL REGION: Pacific								9,754.23
Grand Total:								9,754.23

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