

Salmon Farming and the Kitasoo/Xaixais Nation

“The Business of Sustainability”

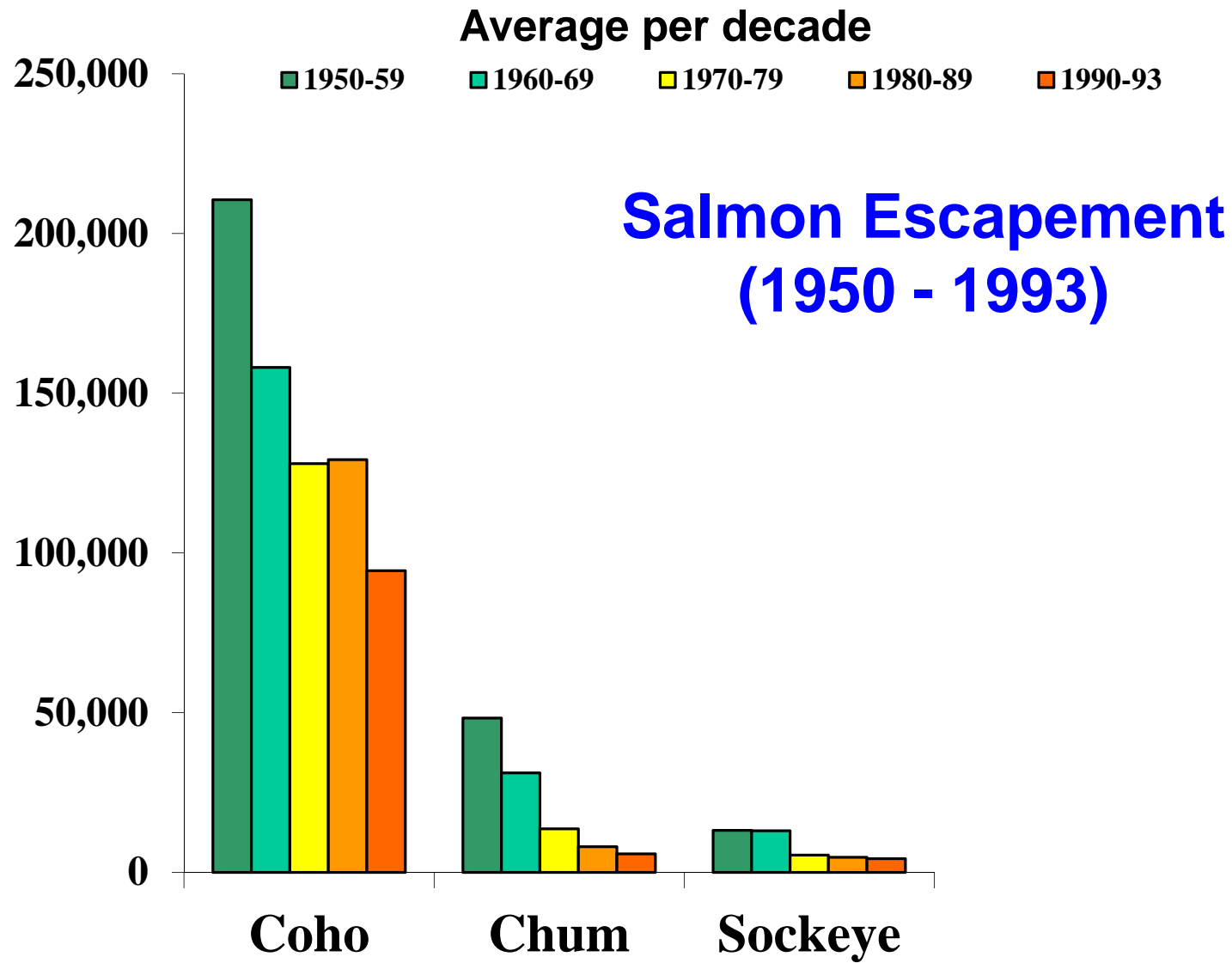












THE GOVERNMENT
APPROVED YOUR
SALMON FARMING
LICENCE!





Early Salmon Farming in Klemtu in the 1980s



Salmon farming agreement with Marine Harvest Canada in 1998.

Kitasoo Priorities

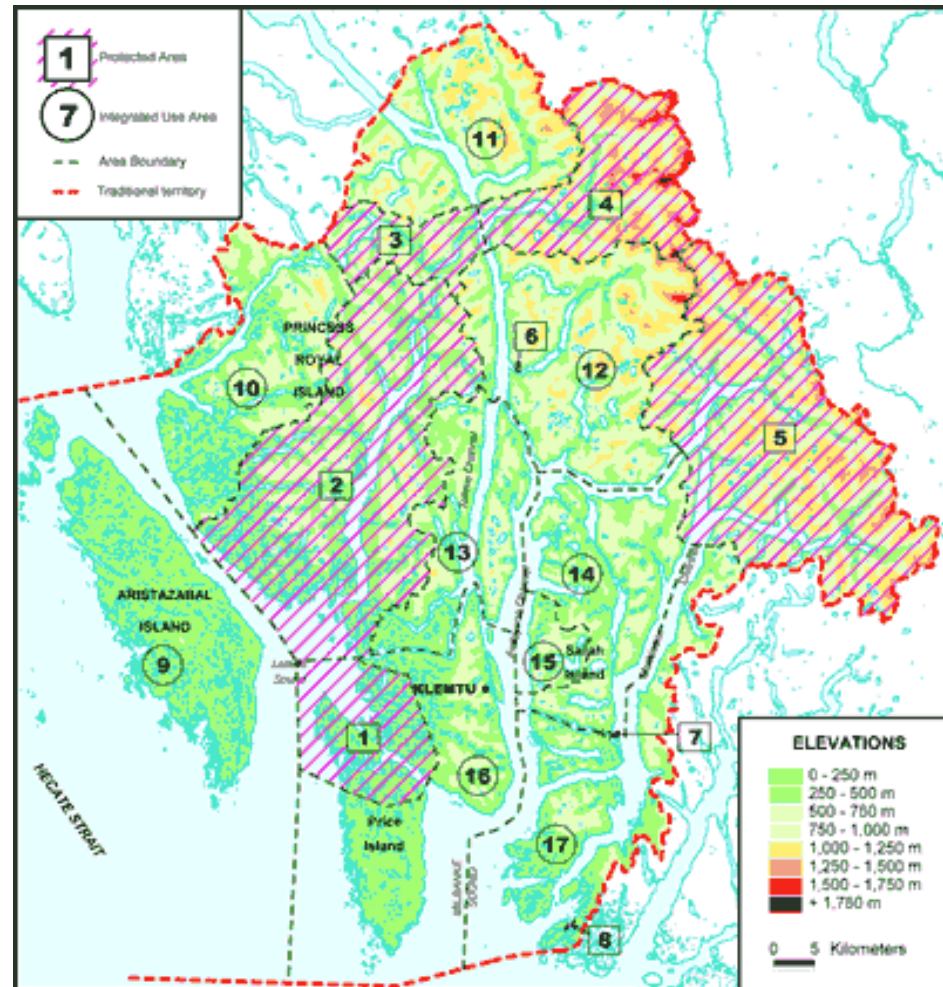
1. Control
2. Environmental Sustainability
3. Employment/Capacity
4. Royalties



Key elements to Protocol Agreement

- Community holds tenures – Company holds license
- Community chooses sites
- Set # sites
- Best practices – Community and ASC certification
- Environmental Measures
 - One company model
 - No first generation smolts
 - Access to all information
 - Notification of treatments
 - Community environmental monitoring
- Employment targets – Training
- Harvest, Transport and Processing
- Community holds hammer

Kitasoo/Xaixais Land and Marine Planning – FN TECHNICAL CAPACITY





Heiltsuk, Kitasoo/Xai'Xais,
Nuxalk, Wuikinuxv Nations &
Province of British Columbia

CENTRAL COAST MARINE PLAN

2015



Spatial Planning Group 3 (Tolmie)

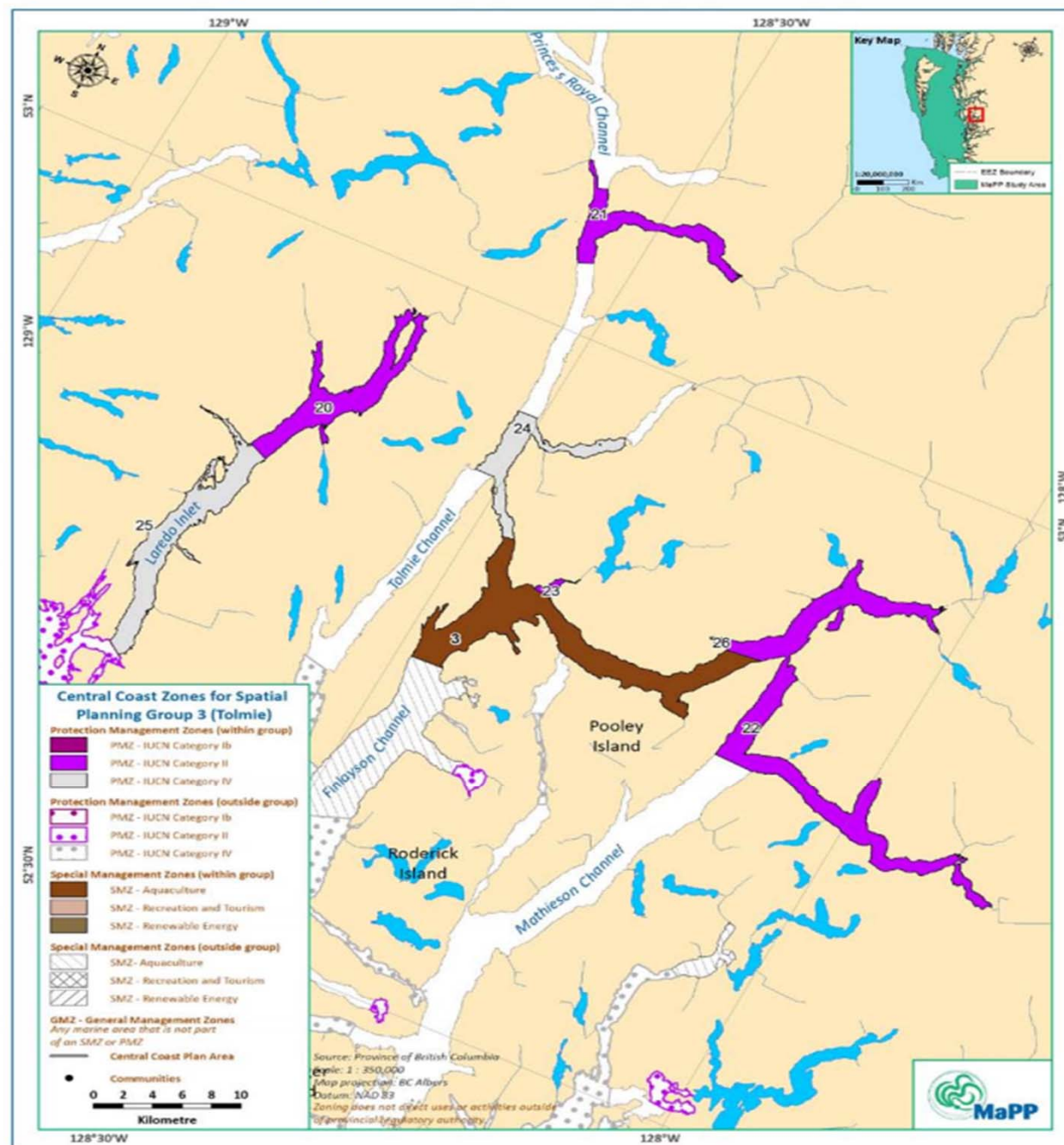


Figure 11. Spatial Planning Group 3 (Tolmie)

Table 26. Group 3 (Tolmie) Recommended Uses and Activities Table

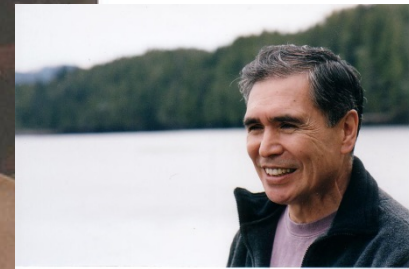
	Site Name	General Management Zone	PMZ-20, 21, 22, 23	PMZ-24	PMZ-25	PMZ-26	SMZ-3
Category	Zone Type	GMZ	PMZ	PMZ	PMZ	PMZ	Aquaculture SMZ
Aquaculture	Bottom Culture Aquaculture Siting – Plants, Shellfish, Other Invertebrates	A	N	N	C ⁶	N	A
	Off-Bottom Aquaculture Siting – Plants, Shellfish, Other Invertebrates	A	N	N	C ⁶	N	A
	Off-Bottom Aquaculture Siting – Finfish	C ¹	N	N	C ¹	N	C ¹
Energy	Renewable Energy Generation	A	N	N	C ⁶	C ⁶	C ¹⁵
Industry	Forestry Operations – Log Handling and Storage	A	N	C ⁶	C ⁶	C ⁶	C ¹⁰
	Forestry Operations – Helicopter Log Drop Sites	A	C ⁶	A	A	A	C ¹⁰
	Mining Operations	N	N	N	N	N	N
Infrastructure	Commercial and Recreational Anchorages*	A	C ³	C ³	C ³	C ³	A
	Float Homes	C ²	N	N	N	N	N
	Floating Lodges	A	N	N	C ⁶	C ⁶	N
	Level 1 Docks, Wharves and Facilities	A	C ⁶	C ⁶	C ⁶	C ⁶	C ¹⁵
	Level 2 Docks, Wharves and Facilities	A	N	N	N	N	N
Recreation and Tourism	Commercial Recreation and Tourism	A	C ⁸	C ⁸	A	A	A
	Public Recreation and Tourism	A	C ⁸	C ⁸	A	A	A
Research	Research	A	C ⁵	C ⁵	A	A	A
Utilities	Linear Utilities	A	C ⁶	C ⁶	C ⁶	C ⁶	A
	Point Source Utilities	A	N	N	N	N	N

Where a use/activity is outside provincial regulatory authority, the approval of that use/activity is subject to the decision-making process(es) of the responsible authorities. Absence does not imply that the use/activity was not considered or evaluated or is of no interest. The reader should contact the appropriate management authority(ies) for direction on uses/activities in such circumstances. Zoning does not direct uses or activities outside of provincial regulatory authority.

*Anchorage restrictions do not apply to commercial towboat reserves and provincially designated boat havens, nor do they apply to vessels in distress or other emergency situations.

Key:

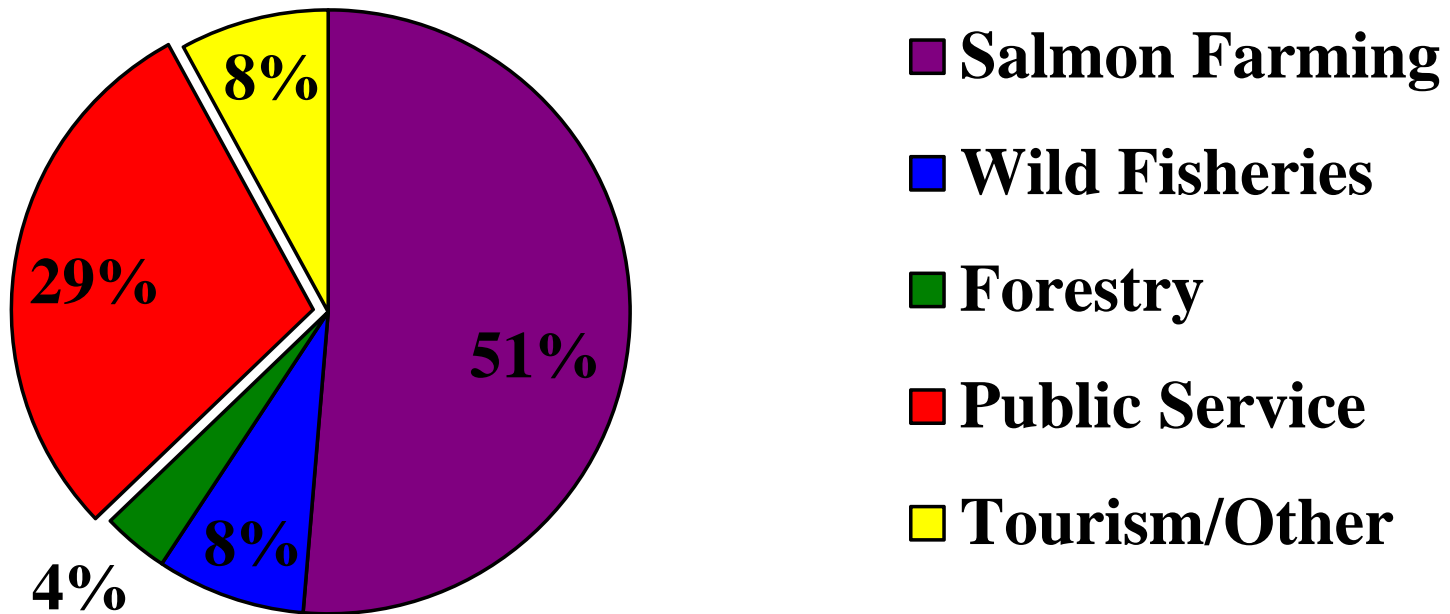
A	Uses and activities are considered to be 'acceptable' subject to applicable laws, policy and relevant agreements. Acceptability of any use/activities does not guarantee that a use/activity will be approved.
C	Uses and activities are considered to be 'conditionally acceptable' subject to applicable laws, policy and relevant agreements, and provided they are consistent with (adhere to) the plan conditions. Conditional acceptability of any use/activities does not guarantee that a use/activity will be approved.
N	Uses and activities are considered to be 'not acceptable' and should not be approved.



Community Consultation/Review to Site Farms

1. Community preliminary approval
2. Technical reviews (Company and Band)
3. Final Community approval

Employment by Sector, Klemtu 2015



* Klemtu has 70% employment when plant is operating. 70 FTE's

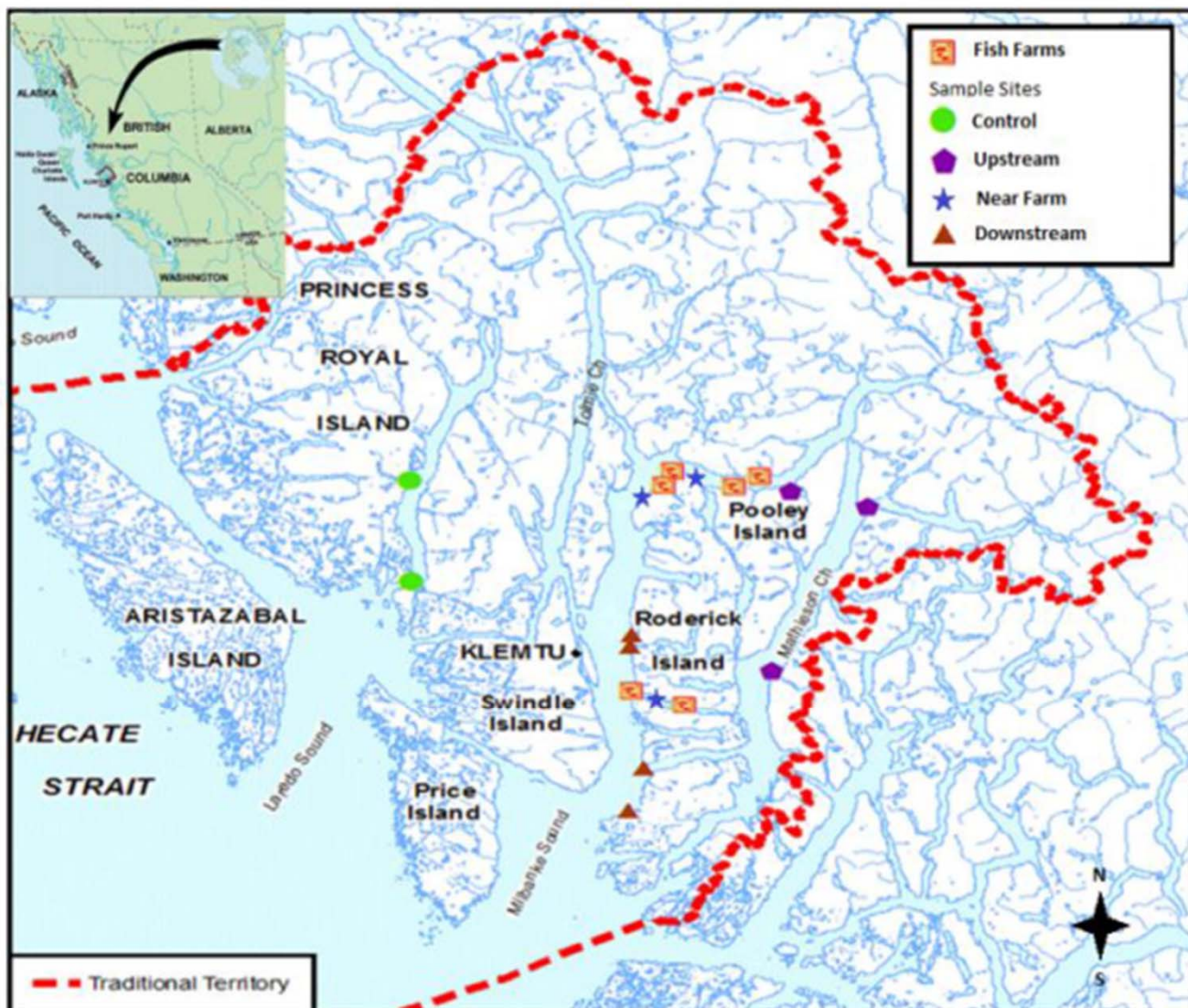
* Salmon farming accounts for \$1.9 million in annual wages. 60% from harvest/processing

KITASOO BASED MONITORING PROJECTS

1998 - 2016

Sea Lice Monitoring in Kitasoo Territory





KITASOO FOOD CONTAMINANT SAMPLING

REPORTED TO: Kitasoo Fisheries Program

REPORT DATE: March 5, 2010

GROUP NUMBER: 110218097

CANTEST

Avermectins in Sample Type submitted

CLIENT SAMPLE IDENTIFICATION:	CANTEST ID	Emamectin
2004 Site A Clams	1002180393	2.35
2004 Site A Prawns	1002180396	1.20
2004 Site A Sea Cucumber	1002180398	<
2007 Site A Clams	1002180401	1.68
2007 Site A Prawns	1002180403	1.54
2007 Site A Sea Cucumber	1002180405	<
2009 Site A Clams	1002180409	1.48
2009 Site A Prawns	1002180412	1.30
2009 Site A Sea Cucumber	1002180415	<
REPORTING LIMIT UNITS		0.5 ng/g



Kitasoo Fisheries

Maxxam Job #: B378364

Report Date: 2013/07/02

RESULTS OF ANALYSES OF SEAFOOD

Maxxam ID		RP7148	RX7882	RX7883	RX7884	RX7885	RX7886	RX7887	
Sampling Date									
COC Number		08371000	08371000	08371000	08371000	08371000	08371000	08371000	
	Units	SITE A PRAWN	SITE C PRAWN	SITE D PRAWN	SITE F PRAWN	SITE A CLAM	SITE C CLAM	SITE D CLAM	RDL

Amphenicols									
Florfenicol	ng/g	ND	ND	ND	N/A	ND	ND	ND	0.10
Endectocides									
Enamectin	ng/g	ND	ND	ND	ND	ND	ND	ND	0.5
Sulfonamides									
Sulfadiazine	ng/g	ND	N/A	ND	N/A	ND	N/A	ND	2
Trimethoprim	ng/g	ND	N/A	ND	N/A	ND	N/A	ND	2

ND = Not detected

N/A = Not Applicable

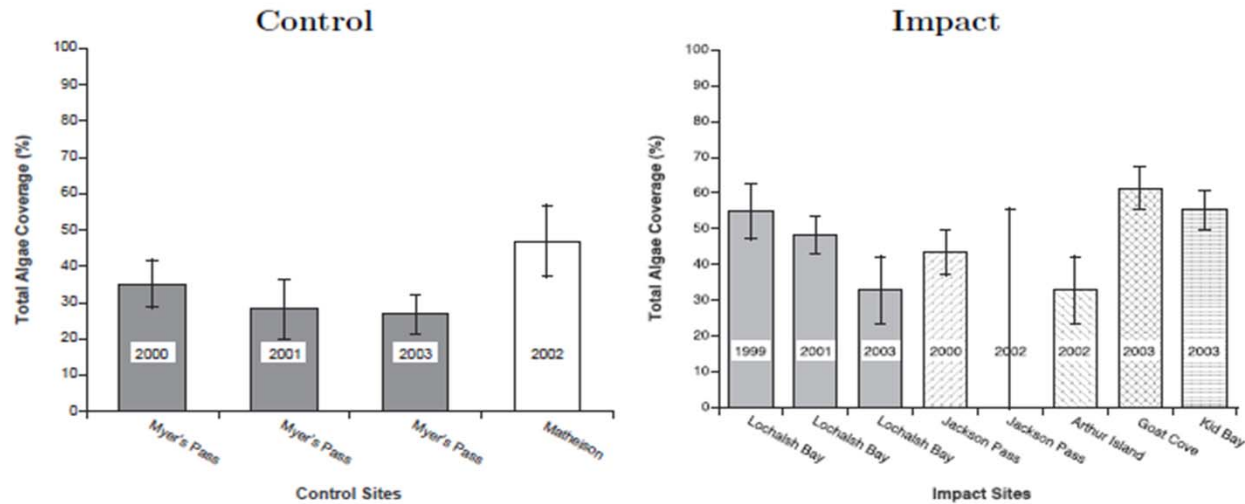
RDL = Reportable Detection Limit

Maxxam ID		RX7888	RX7889	
Sampling Date				
COC Number		08371000	08371000	
	Units	SITE G CLAM	SITE F CLAM	RDL

Endectocides				
Enamectin	ng/g	ND	ND	0.5
ND = Not detected RDL = Reportable Detection Limit				

BIO-DIVERSITY SURVEYS

A) Total Algae Coverage



B) Invertebrate Abundance (Natural Log Transformed)

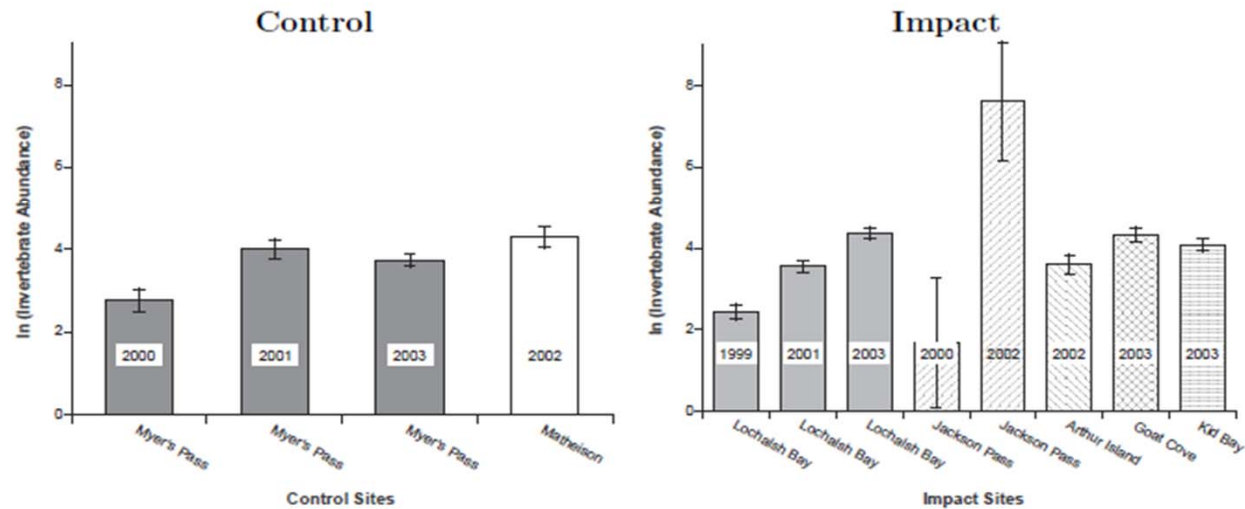
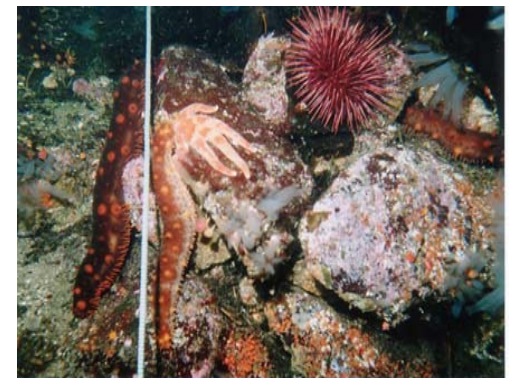
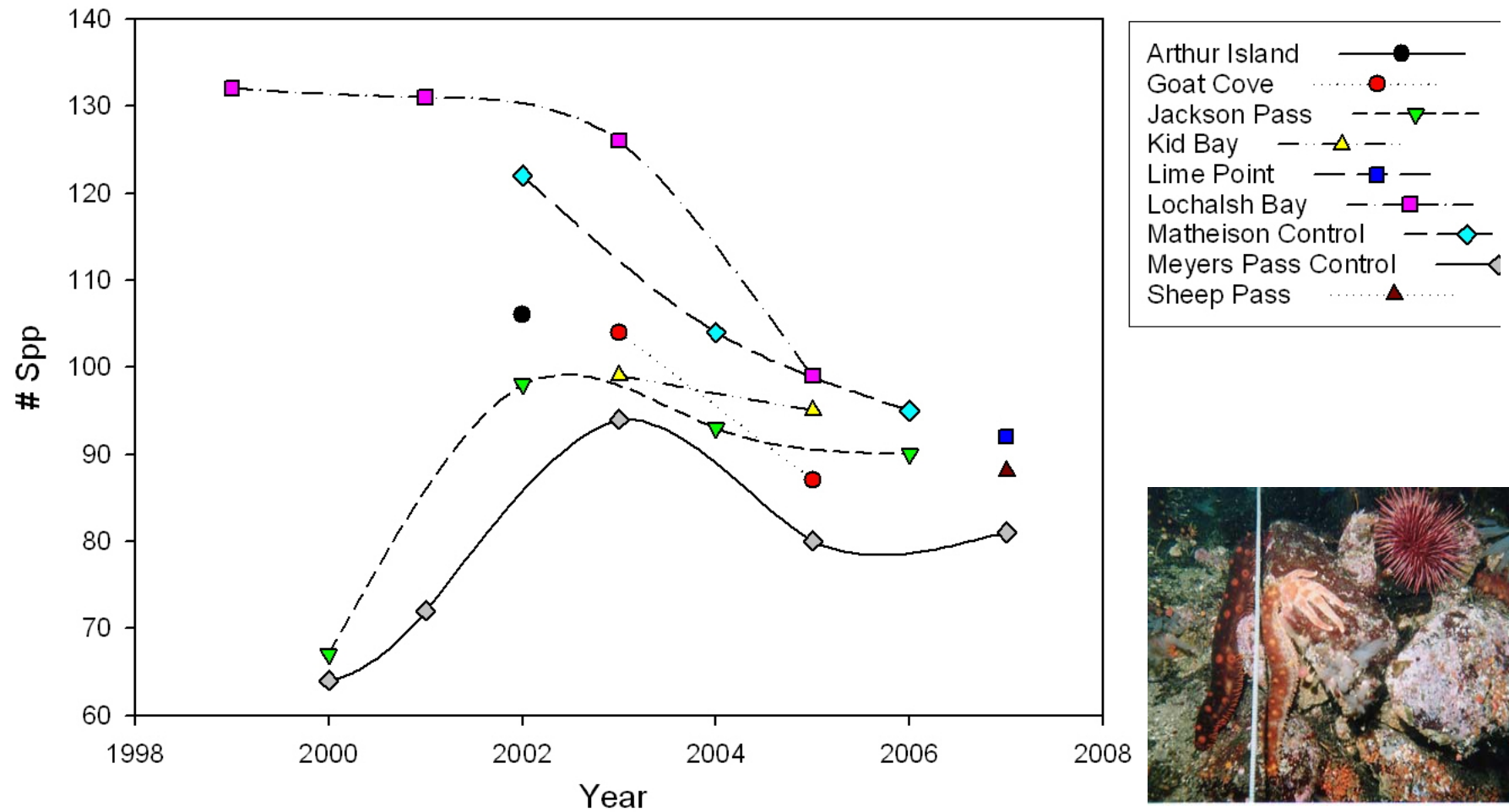


Figure 5.6: Estimated average A) total algae coverage and B) invertebrate abundances for control sites and impact sites. Averages are estimated mean response of the *site* effect from the split plot model. Error bars are $\pm S.E.$

Species Count By Site By Year Kitasoo Fisheries Program Impact Surveys 1999-2007



Salmon gill erosion studies

- In partnership with DFO/MHC
- Recent higher prevalence of gill damage in year 2.
- Looking at possible cause disease/parasite or environmental condition. (plankton, jellyfish)
- Looking at wild and farmed samples.



NEW MULTI-YEAR PHD STUDY PROPOSED

2016 - 2019

**Understanding patterns and processes behind salmon populations in the
Kitasoo/Xai'Xais territory to inform conservation and management.**

Partners.....

CCIRA

University of Toronto

University of Victoria

DFO

PSF

Keys to Sustainability

1. **Maintain community control....**
2. **Educate and listen to the community..**
3. **Practice Eco-system Based Management...** 
4. **Hold the company to highest environmental standards..**
5. **Develop credible independent monitoring...**
6. **Take a risk adverse approach...**
7. **Understand the impacts...**
8. **Practice adaptive management...**
9. **Understand the business/network effectively...**
10. **Find the sweet spot for development...**



Douglas Neasloss