Cruise Plan and Itinerary

Division/Group: Ocean Science and Productivity
Cruise Identification: 2004-24
Cruise Location: Queen Charlotte Sound
Project Name: C^2BC^2 (Central Coast Britsh Columbia BioChemical study)
Chief Scientist: Debby Ianson
Vessel: CCGS John P. Tully
Cruise Date: August 11–18, 2004

Logistics:
Loading: August 10, 2004 (with Station P cruise)
Depart: August 11 (AM)
Crew change: August 16 (Port Hardy, early PM)
Return: August 19 (or late August 18)
Offloading: August 19

Scientific party and tasks

Doug Anderson	(IOS)	– CTD, oxygen titrations, watch
Kristina Brown	(UVic)	– trace metals, watch
Marina Chong	(UVic)	– trace metals
Miranda Corkum	(UBC)	– underway gas, watch
Jay Cullen	(UVic)	– trace metals, watch
Rana El-Sabaawi	(UVic)	– watch, bongo tows
Melissa Hennekes	(IOS)	– nutrient autoanalyzer
Debby Ianson	(IOS)	– chief scientist, watch
Jennifer Jackson	(UAb)	– watch
Paul Myers	(UAb)	– watch
Nina Nemcek	(UBC)	– underway gas, watch
Lindsay Richier	(UVic)	– incubations, ammonium
Marie Robert	(IOS)	– CTD, watch
Darren Tuele	(IOS)	– CTD, watch
Diana Varela	(UVic)	– incubations

Cabin assignments (tentative) attached.
Watch assignments will be available and posted in the lab.

Cruise objectives

Program objective: The objective of the program is to investigate the biogeochemistry of the summer downwelling or relaxation system in Queen Charlotte Sound. There is a strong focus on carbon dymanics relative to other nutrients such as nitrogen, silicic acid and micronutrients such as iron.

Cruise objective: The objective is to complete CTD-rosette and GO-Flo operations in two across-shelf transects (over a trough and a set of banks) extending into offshore waters and along-shore following the shelf break (19 stations total). In addition to the water column surveys, underway gas measurements (CO_2, O_2, Ar, N_2, DMS), on-deck incubation experiments and bioassays will be done.

Water from the Rosette will be sampled for salinity, TCO_2, total alkalinity, nutrients (nitrate, phosphate, silicic acid), ammonium, TOC, DOC, DON, CDOM, POC, PON, biogenic silica, phytoplankton identification, chl, dissolved oxygen, trace metals (Fe, Cd, Zn), water column isotopes (carbon, nitrogen, silicic acid) and uptake rate experiments (carbon, nitrogen and silicic acid).

Scientific equipment to be loaded

- CTD data aquisition system and spare
- rosette/CTD system with PAR sensor and spare
- oxygen titration system
- salinometer
- nutrient autoanalyzer
- freezer
- hydro winch, trace metal rollers, sheave, clean hydro block, fibreglass weights, kevlar line
- bongo nets
- incubators
- salinometer

Note we will need 3 winches (CTD, GO-Flo and Bongo).

Ship equipment

- depth sounder
- radar
- DGPS positioning
- sea water supply to lab and helideck
- walk-in cooler

Deck machinery

Tom Juhasz will supply a deck plan.

Itinerary (estimate only)

August 10	load at IOS jetty, set up scientific equipment
August 11	depart (AM), Saanich test station, steam up inside passage
August 12	steam to and complete GB stations
August 13	begin MB line starting from the outer stations and working in (outer MB must be done in the morning)
August 14	finish MB line (inner MB must be done in the morning) steam to SS line
August 15	sample SS line (outer to inner - outer done in AM) and CS3
August 16	sample inner SS for incubation in the early AM and steam to Pt. Hardy for crew change
August 17	finish remaining shelf break stations and travel outside VI returning to IOS, sample G-line
August 18	steam to IOS running along the shelf break with one across-shore track at the C-line for underway gas measurements, arrive late PM
August 19	unload

Station list

Note: stations are approximate and subject to change given current conditions determined by satellite imagery and on-board sample analysis. I will provide a detailed plan with exact stations and sampling protocol each day in advance.

lat	long	~depth(m)	station name
Goose Island Trough line (SS)			
50 58N	130 20W	2200	SS2.5
51 04N	130 00W	1400	SS3
51 12N	129 21W	280	SS5
51 21N	129 00W	240	SS6
51 28N	128 30W	180	SS7
Goose Island Bank (GB) station			
51 37N	129 20N	60	GB5
Middle Bank (MB) line (crosses Moresby Trough, MT)			
51 26N	131 13W	2200	MB2
51 34N	130 56W	2100	MT2
51 37N	130 46W	900	MB3
51 50N	130 14W	200	MB4
51 55N	129 58W	140	MB5
52 09N	129 30W	180	SP4
52 16N	129 03W	145	MB6
additional shelf break stations			
51 27N	129 47W	200	GB4
50 54N	129 25W	250	CS3
50 35N	128 40W	200	XB
G-line (Estevan Pt.)			
49 15N	126 43W	110	G3
49 11N	126 50W	200	G4
49 03N	127 00W	900	G6
C-line (Barkley Sound)			
48 44N	125 39W	170	C4
48 33N	126 00W	200	C7
48 26N	126 14W	800	C9

Note: depths are approximate. Stations from C-line are entered for the return cruise track for underway gas measurements. G-line will be sampled.

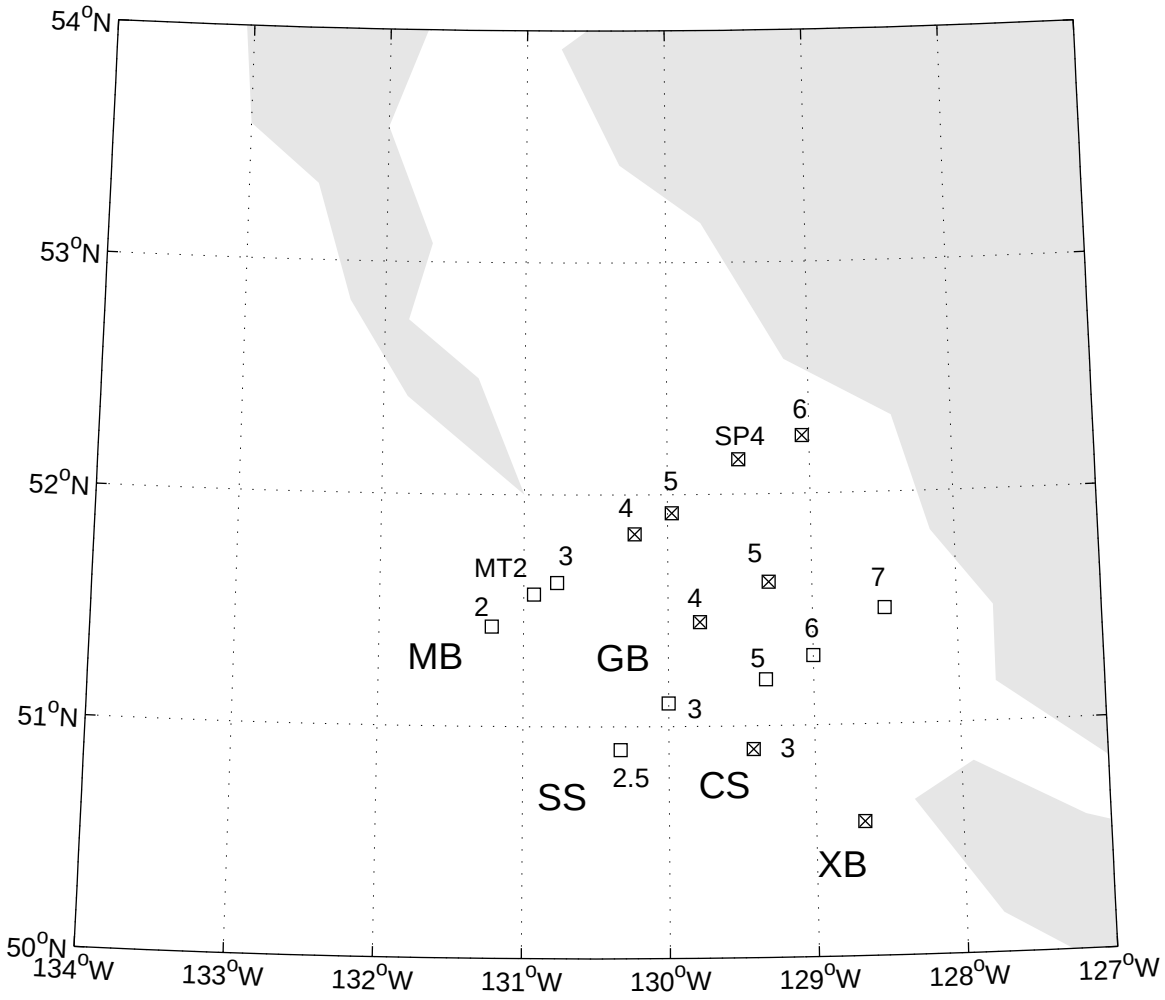

Figure 1: Approximate station map, stations marked with an "x" are on the shelf or at shelf-break.

Cabin assignments (tentative)

Scientist	**Cabin**
Kristina Brown Jennifer Jackson Lindsay Richier	A
Melissa Hennekes	B
Rana El-Sabaawi Nina Nemcek	C
Marie Robert	D
Diana Varela	E
Jay Cullen Paul Myers	F
Debby Ianson	G
Marina Chong Miranda Corkum	H
Doug Anderson Darren Tuele	Crew/Electronics