

FINAL FIELD REPORT

C.S.S. PARIZEAU

(Arctic Surveys - N.W.T.)

4 July to 11 September, 1972

Oceanographic factor - 20%

and

SHORE BASED PARTY

(British Columbia)

April to June; September to November, 1972

Oceanographic factor - Nil

*R. W. Sandilands
Hydrographer-in-Charge*



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STAFF ASSIGNMENTS

Ship Based

R.W. Sandilands	Hydrographer-in-Charge	4/VII	Victoria	31/VIII	Victoria
E.B. Clarke	Senior Assistant	4/VII	Victoria	11/IX	Victoria
J.B. Larkin	Hydrographer	4/VII	Victoria	31/VIII	Victoria
C.R. Tamasi	Hydrographer	4/VII	Victoria	31/VIII	Victoria
G.H. Eaton	Hydrographer	4/VII	Victoria	31/VIII	Victoria
S. J. Statham	Hydrographer	4/VII	Burlington	31/VIII	Burlington
F.A. Coldham	Hydrographer	4/VII	Victoria	31/VIII	Victoria
A.R. Raymond	Hydrographer	4/VII	Victoria	11/IX	Victoria
T.J. Soutar	Elect. Technician	4/VII	Victoria	31/VIII	Victoria
J.S. Wallace	Elect. Technician	27/VII	Victoria	11/IX	Victoria
D.A. Clattenburg	Sediment Tech.	27/VII	Dartmouth	11/IX	Dartmouth
D. Seeman	Magnetometer Tech.	2/VIII	Vancouver	31/VIII	Vancouver

VISITORS

D. Monahan	H.Q. Staff	2/VIII	Ottawa	9/VIII	Ottawa
A.J. Kerr	H.Q. Staff	9/VIII	Ottawa	14/VIII	Ottawa
R. Wills	Reg. H.Q. Staff	24/VIII	Victoria	28/VIII	Victoria

List of Craft and Major Equipment
(Arctic)

- 4 Bertram 25 foot launches
BOLD; BRAVE; BRISK; BRIGHT
- 1 Decca Lambda positioning chain c/w receivers
- 4 Ross Echo sounders. 0 - 400 m (Launches)
- 2 Alpine Echo sounders. 0 - 4000 fm (Ship)
- 2 Barringer magnetometers
- 1 PDP8_e computer

Objectives

The surveys assigned the PARIZEAU for the season were a continuation of the 1:100,000 charting programme in the Beaufort Sea, these surveys butting into the PARIZEAU's 1971 and BAFFINS's 1970 work. These surveys are metric and are controlled by Decca Lambda, the chain being operated under the aegis of P.C.S.P. with sites at Hooper and Baillie Islands (Slave stations) and Atkinson Point (Master). (Reference Project Instruction WA-71-01).

As alternative areas, Dolphin and Union Strait and Coronation Gulf were designated. (Reference Project Instructions WA-71-02 and 03).

If and when time permitted three minor projects were assigned, namely:

- 1) Sachs Harbour. Range survey and examination of a O₅ shoal. Depending on time available and conditions, more extensive coverage.
- 2) Clapperton Island. Reconnaissance for possible port development.
- 3) Harrowby Bay. Additional soundings.

Projects 1 and 3 were at the request of N.T.C.L. and project 2 was outstanding from a request several years ago from D.P.W. (Reference Hydrographic Instructions of 6 April).

On passage north from Victoria to Unimak Pass every opportunity was to be taken to obtain further GEBCO bathymetry and magnetic lines, with the overall proviso that the ship rendezvous in the vicinity of Icy Cape with C.C.G.S. CAMSELL, our ice breaker escort.

Magnetometer was to be towed from Juan de Fuca Strait to Unimak Pass.

The hydrographic surveys were scheduled till the end of August when the main party would return to Victoria. At that time a party from Geological Survey under Mr. J. Shearer would join the ship for seismic investigations. This party to be supported by three hydrographers.

Finally one hydrographer was to make passage from the Arctic to Japan and back to Victoria for GEBCO bathymetry.

Narrative

The ship sailed from Victoria on the morning of 4 July and on clearing Juan de Fuca Strait the magnetometer was streamed and GEBCO sounding commenced.

The ship arrived at Unimak Pass on the morning of the 9th and on 11 July we crossed the Arctic Circle with suitable initiation ceremonies for all "neophytes".

The first bergy bits were encountered on 12 July and that evening the ship anchored off Point Lay to await C.C.G.S. CAMSELL. She arrived about noon the following day and we sailed in company making Wainwright, Alaska, that night. On the 14th, passage was made to Barrow where the ships anchored about 1400. A meeting was held with the Master of CAMSELL and ice reports were examined. These showed 10/10 ice from Barrow to Herschel Island and it was decided to wait at Barrow at least over the weekend till the next ice reconnaissance flight. However, shortly after arrival back aboard PARIZEAU the pack moved in rapidly, CAMSELL had to break out our anchor and both ships had to hurriedly retire south and drift off Peard Bay. Bad ice conditions persisted and CAMSELL tried twice unsuccessfully to get back to Barrow and eventually made it alone on 21 July. We followed that afternoon and on 22 July we set out east in company. We broke out of the ice off Barter Island on the evening of 25 July and parted company with CAMSELL. Steaming overnight we reached the survey area about 1600 on 26 July.

Ice conditions in the survey area were not good with lots of bergy bits drifting along the coast and the pack about 10 miles offshore.

Personnel joining from Tuktoyaktuk and mail were collected from a helicopter on the beach rendezvous and calibration was commenced.

Sounding and mud sampling were commenced on 27 July and with assistance from the P.C.S.P. helicopter further calibrations were carried out on 28 July and reference buoys were laid.

Due to the amount of ice offshore we were not able to commence ship sounding till 1 August and during this period the launches sounded the clear water between the ice and the shore whilst the ship picked up the bottom stations immediately offshore this area, dodging through the ice.

Bergy bits continued to pass through the survey area till 5 August when a good blow finally took them clear. It is interesting to note that these bits were not in a random pattern but followed fairly well defined streams coming out of Amundsen Gulf. Thus we were able to work the launches from shore to the first stream, pass the ship through this stream and have an area of open water suitable for about ten mile long shiplines before the next stream. However after the 5th we were able to butt ship and launch lines.

Poor weather caused cancellation of launch work part day on the 2nd, all day on the 5th, part day 6th and 9th, and all day 10th.

On the 10th the ships accommodation filled with diesel fumes and operations had to be discontinued for sixteen hours while the ship anchored off Cape Bathurst and cleaned injectors.

The magnetometer technician joined the ship on the 2nd and after the clearance of the ice on the 5th we were able to tow the magnetometer for the remainder of the survey.

Our operations from the 10th till the 18th were partly governed by the need for bunkers.

On 22 July when we left Barrow and could start to estimate our fuel consumption we advised N.T.C.L. that we would require bunkers on 15 August. Our estimated consumption was running fairly well as predicted on the 10th at which time we were informed that fuel would not be available till the 17th. The extra two days was straining our reserves so the Beaufort Sea survey was broken off and the ship proceeded to Sachs Harbour for a resurvey. The ship could then anchor and only use launches, thus husbanding our reserves.

The survey of Sachs Harbour on a scale of 1:10,000 was completed on the 14th and the ship sailed for the Beaufort Sea surveys that evening but had to heave to on account of weather about midnight. By 0900/15 the weather had abated sufficiently to commence ship sounding and we were faced with the problem of only being able to ship sound but having to closely watch our fuel supplies. On the 16th the weather had further abated and we were able to start launch sounding but had to shut down the ship operation as N.T.C.L. informed us that there would be a further delay in our bunkering till the 19th. By this time we had reached the stage where we could only manage one days launch sounding with the ship drifting in the survey area.

This information was passed to N.T.C.L. who then agreed to send our fuel barge out by river tug if we could make an anchorage close in to the delta.

We then worked the launches only on the 17th and anchored off Tuktoyaktuk on the morning of the 18th.

We were fortunate with the weather as if it had been bad we could not have made the anchorage in shallow water nor would N.T.C.L. have been able to send the barge out. The day was calm, we bunkered and left the anchorage at 1800 and by 1000 on the 19th we had to heave to in bad weather. A lucky break for us as gale force winds prevailed for the next two days with the ship hove to for portions of the 20th and 21st; and continuing strong winds and heavy swell causing cancellation of launch work till the 27th.

The remainder of the season was spent clearing up shoal examinations.

The ship proceeded to Tuktoyaktuk anchorage to rendezvous with the M.V. NORTH STAR bringing out Mr. Shearer's party and equipment for the G.S.C. surveys.

Mr. Sandilands and six of the staff departed for the south on the 31st leaving Mr. Clarke, two hydrographers, an electronic technician and the sediment technician to co-ordinate the GSC work, provide navigational expertise and obtain additional bathymetry.

Seismic towing operations commenced on the evening of the 31st and continued for ten days when weather and sea conditions permitted. Seismic lines were run throughout the area from Mackenzie Bay to Franklin Bay. In addition, eleven cores were obtained, five on or around pingo-like features (P.L.F.'s) and six on a line to give a sampling of the shelf. The weather throughout this period was poor except for a total of thirty-six hours when conditions improved slightly. Generally the winds were east to northeast 20-30k but during the evening of 1 September peaked to a reported 65 mph at Tuktoyaktuk and the ship had to seek shelter at Booth Island anchorage.

Operations were completed on the evening of 10 September and the ship proceeded to Herschel Island where all survey personnel were

landed on the following day and at noon on the 11th the PARIZEAU departed for Tokyo, Japan.

Launches

The only major downtime experienced was due to the lack of spare alternator belts for the launches, and it is recommended that prior to Arctic cruises all rubber, i.e. belts and hoses, be renewed. Time lost in one breakdown due to belt or hose failure will more than pay for the parts involved.

Complete launch battery renewal is also recommended.

I am concerned at the loss of speed in the launches. We are definitely getting less speed out of them than during the first two seasons with no major alterations in equipment carried. By the end of the season they were down to about 14k despite the efforts of the engine room staff in checking the engines, trying different propellers etc. Estimating a drop in speed of 5k since new in 1970, three launches operating 15 hours per day represents $5 \times 3 \times 15 \times 7 = 1575$ miles per week. Obviously this loss of speed should be investigated and rectified.

However, within the limitations of this reduction in speed, the launches ran well and credit is due to Mr. Marr, Chief Engineer, and his staff for their efficient maintenance and quick turn round of the launches on crew changes.

Communications

In general communications were good with little downtime. As I gather is usual, some confusion reigned in periods of poor reception with the similarity in launch names, viz. Brisk, Brave, Bright and Bold. There was also a period of about one week with intensive sun spot activity when c/w communication was not possible.

Echo Sounders

Minimal downtime was experienced with the Ross sounders during the season.

Decca Lambda

Some minor delays in referencing were experienced in the initial days of the survey but once we settled into a routine no problems arose during the operating season. Rain squalls on the 6 August caused temporary loss of lock in the launches, otherwise the system worked well.

Tides

The Regional Office made the necessary arrangements for the installation of tide gauges to give us the required coverage in the area.

Consequently we were able to receive daily records of tidal heights at the end of each day. This system worked extremely well and enabled us to immediately process our days work and keep the field sheets up to date.

It is recommended that similar arrangements be continued in future surveys.

Weather

The weather for passage to Point Barrow was good. However this undoubtedly was a bad year for ice and as previously noted, we were badly delayed at Point Barrow till conditions were favourable for breaking into the Beaufort Sea. The ice reconnaissance reports were sparse, mainly due to poor reconnaissance conditions. Generally, ice conditions, by the time we arrived in the area, were good east from Herschel Island to Atkinson Point. However, in the survey area there were many bergy bits debouching from Amundsen Gulf. As noted, it may be of interest that these bergy bits issued in quite well defined

streams with clear water between them so that the area could be considered clear for route navigational purposes but with the constraint of running survey lines could not be considered clear for us till 5 August. The weather broke on 19 August and was generally poor from then on with one series of blows from the 19th till the 27th and another from 1 September till the end of the season. Passage westward was unescorted and in clear water though the pack was reported to be closing in rapidly.

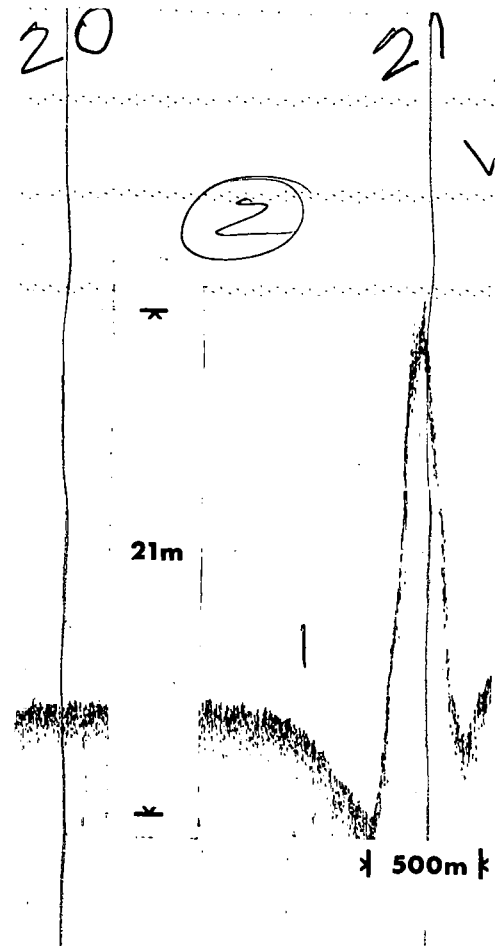
From our experience this season and previous reports it would appear that launch operations after the end of August are fairly minimal due to weather.

Ship operations this year were only possible in September as Mr. Shearer could run his lines with the sea. In hydrography, with predetermined lines considerable time loss would have been experienced.

Pingo Like Features (P.L.F.'s)

Mr. Shearer will be reporting his findings on P.L.F.'s elsewhere. However, from a charting point of view the following comments are of interest.

They appear to have random distribution on the shelf, though as far as our findings this season are concerned they generally occur in depths greater than 30 m. This cannot be taken as a hard and fast rule however, as a depth of 9 m 4 was obtained on one P.L.F. in surrounding depths of about 22 m.



Example of P.L.F. - Launch Sounder

It seems that they can occur singly but that there are areas of high concentration. One such area was found in the vicinity of $70^{\circ} 50'N$; $131^{\circ} 15'W$ in general depths of 45-55 m where a total of 42 P.L.F.'s were found in an area of approximately 24 sq. n.m. The least depth found in this concentration was 20 m 8.

Despite close sounding lines the safety of deep draught shipping in this area cannot be guaranteed until the area has been swept.

At present, no professional hydrographer, within the limitations of Arctic operating time, equipment available, scale of survey and weather conditions, can guarantee 100% location of P.L.F.'s in our recent surveys.

To date I can find no warning on any chart, nor in our general description of the Beaufort Sea (Pilot of Arctic Canada, Vol. III; Chapter 1, pp 1-3). In fact it would appear that the potential dangers only exist in Departmental Reports, periodicals and in correspondence.

Therefore I strongly recommend that we warn shipping, on the charts and in the Pilot of the possibility of P.L.F.'s existing within certain areas in the Beaufort Sea.

A possible approach to such warnings was the subject of a separate memorandum recently forwarded to headquarters. Typical examples of P.L.F.'s picked up on the ship sounder are shown on pages 33 and 34.

GEBCO (see illustration page 32)

In consultation with Mr. L. Murdock a sounding track paralleling the coasts of Vancouver and the Queen Charlotte Islands at a depth of about 1,000 fathoms was agreed upon as the initial course on leaving the Straits of Juan de Fuca. Thence a westerly course to Unimak Pass was followed. These tracks gave coverage not previously on record and the dog leg was such that with the PARIZEAU's

extra speed over the CAMSELL, it still allowed us to rendezvous in the Bering Sea before going in convoy into the ice.

On leaving the Arctic GEBCO sounding was again commenced for the passage to Tokyo, the course being determined by the Master, bearing in mind his required ETA, Tokyo.

Further sounding was obtained on passage from Japan back east to Victoria, the course in this case being predicated by the Ocean Chemistry cruise requirements.

Visitors - Policy

Hydrographic survey parties are well known for their hospitality and it is always a welcome break to have a visitor onboard from the "outside", especially during long periods afloat and away from civilization. I have no wish to break with our traditional hospitality and my comments in no way reflect on our visitors this season. We enjoyed having them onboard and in varying measures profitted from their knowledge.

Operationally and logistically, visitors in the arctic present problems. They arrive at Tukoyaktuk base and join the ship by helicopter, landing on a desolate beach and being picked up by a ship's boat. The ship has to break off operations to get to the rendezvous and inevitably the weather has turned sour somewhere in the process. In an area of sudden weather changes everything can look suitable at take off or break off time but can deteriorate rapidly to being impossible for personnel transfer. The ship is off area; the visitor is circling a beach in a helicopter. The situation with its many permutations can be appreciated. Therefore unless some particular aspect of the survey is peculiar to the arctic, consideration should be given to using more accessible parties for familiarization and other non-operationally required visits.

Helicopter Pad

The difficulties mentioned in the preceding paragraph would be overcome with the provision of a temporary helicopter pad while the ship is in the arctic. This would also facilitate landing of sick personnel. In point the landing of a crewman with a back injury was quite a problem this season. Also mail, stores, emergency spares, etc. call for a better system of transportation than is presently available. It is therefore recommended that Ship Division give this matter their consideration. Such a facility would also be of considerable help in operations off the West Coast of Vancouver and the Queen Charlotte Islands during the proposed Natural Resource charting surveys.

Staff

The staff assigned for this season represented a nicely balanced team and worked well together. Morale was good and a healthy spirit of competition arose between the launch surveyors. We were spared the dispiriting effect of an overtime moratorium and a feeling of having a relatively short operating period and therefore every hour must count reflected in production.

Ship's Personnel

This feeling mentioned above also infected the ship's personnel and it is acknowledged that we were given active demonstration of full co-operation by Captain Chamberlain, his officers and crew. They took a keen interest in our work and in our progress. The deck officers stood sounding watches when hydrographers were not available and ran the bottom sampling grid for the sediment technician. The Chief Engineer, Mr. Marr and his staff worked hard at any time of the day and frequently under miserable climatic conditions to keep our launches operational. The Chief Steward Mr. Clarke and his staff provided an appetizing and varied menu throughout the season.

In general the keynote of a team approach was emphasized during the cruise and I consider that during our period onboard all responded well to this approach.

C.C.G.S. CAMSELL

The assistance given us by the CAMSELL under the command of Captain Lennie when breaking in to the Beaufort Sea is gratefully acknowledged.

Polar Continental Shelf Project (P.C.S.P.)

Our thanks is due to the P.C.S.P. staff at Tuktoyaktuk for their assistance during the season. They provided accommodation for personnel in transit, expedited equipment and stores and arranged for mail deliveries. Their co-operation in providing helicopter support and in supporting the Decca Lambda Chain is appreciated.

Future Surveys

At the time of writing the Beaufort Sea surveys have been postponed. This is regrettable as it leaves part of the Beaufort Sea charting in virtually a reconnaissance survey state and I recommend that completion of this area remain high on our priority list if we consider that shipping is likely to increase in volume, and probably in draught in this area. In general the water is shoal, with potential P.L.F. areas and lies off the area of intensive oil exploration ashore, thus liable to a sudden increase in shipping for which I consider we should be ready.

Prior to the postponement of a continuation of these surveys I had recommended that the Lambda Chain be moved to Atkinson Point (Green); Baillie Island (Master) and Duck Hawk Bluff on Banks Island (Red). This set up would seem to give good coverage to complete the area. At present planned scale of survey, given the breaks in weather and ice conditions, one good season should suffice to complete coverage though this would depend on the occurrence of P.L.F.'s requiring examination. However the remaining area is offshore and it is essential that the launches are capable of sustained higher speeds than we achieved this year if completion is to be within this time frame.

It should be noted that our alternate areas in Dolphin and Union Strait and in Coronation Gulf were, due to ice, not clear for surveying till about the second week in August. This being a bad ice year might be a considerably later date than is usual but should be borne in mind when planning is afoot to implement these surveys. For these surveys, we will be independent of P.C.S.P. for our positioning system and it is recommended that we obtain ice reconnaissance reports early in the spring and assess the probability of having clear water by comparison with long range records. If the possibility of clear water on our arrival in late July looks poor, then these surveys should be planned in conjunction with a survey where the area is more likely to be open on our arrival to take up the slack and ensure full productivity for the already short arctic season.

Recreational Facilities

Generally the quality of movies was poor this season.

The ship is equipped with a record player and TV set. At sea there is no TV reception and the record player is useless in most weather due to ship movement. Radio reception is poor to non-existent.

It is recommended that additional recreational equipment in the form of a tape recorder be acquired and that the possibility of obtaining a better standard of movies be investigated.

Staff Assignments

Shore Party

<i>R. W. Sandilands</i>	<i>Hydrographer-in-Charge</i>
<i>E. B. Clarke</i>	<i>Senior Assistant</i>
<i>L. B. Larkin</i>	<i>Hydrographer</i>
<i>F. A. Coldham</i>	<i>Hydrographer</i>
<i>C. R. Tamasi</i>	<i>Hydrographer</i>
<i>G. H. Eaton</i>	<i>Hydrographer</i>
<i>A. R. Raymond</i>	<i>Hydrographer</i>

Electronic and engineering support from base staff.

List of Craft and Major Equipment
(Shore Based)

- 1 *Launch TERN*
- 1 *Launch DOVE)* *one of*
- 1 *Boston Whaler #2)*
- 1 *Vehicle - from vehicle pool, as required*
- 1 *Motorola RPS system*
- 1 *Hydrodist system*
- 1 *Sounder EDO 9040*
- 1 *Sounder Raytheon DE719*

Objective

The project involved was a resurvey of Esquimalt Harbour for a new edition of chart 3416.

The scale of survey was 1:8,000 but the wharf and dock stretch line surveys of 1970 were considered to be adequate if checks proved that they were still valid.

Narrative

Due to the fragmented nature of the triangulation control with sections ranging from 1918 to recent years it was decided to re-run control for the whole area from a geodetic base, wherever possible recovering old marks and including them in the new control.

Operations commenced on 13 April.

Sounding outside the harbour was controlled by Motorola RPS in various chain setups and inside the harbour using Hydrodist.

At the beginning of June this survey was gradually stepped down and we commenced our pre-arctic workup period for launches and crew.

During this period a rented Mini-Fix system was set up on a local chain of Trial Island, Albert Head and William Head. New coxswains and staff were familiarized with sounding operations using an electronic positioning system in the hyperbolic mode. Launches were worked up and all possible equipment was tested and debugged. As in previous years this routine paid dividends in the arctic surveys.

On return from the arctic the survey was recommenced and proceeded at a varying speed depending on availability of staff and equipment. Gradually we were beaten by the weather which ground operations to a halt at the end of November with about 95% of the survey completed.

Tides

Tidal reductions were from a gauge set up alongside the Government Graving Dock at Esquimalt. A second gauge was set up in Esquimalt Lagoon. Records have been submitted to the Regional Tidal Officer.

Equipment

Various minor breakdowns occurred to launches and sounders during this operation. Few were major but they totalled ten days over the operating period.

Weather

The weather was average during the pre-arctic period but at the end of the season we were bedeviled by fog, rain and strong winds and eventually snow and freezing temperatures.

Staff

Staff numbers on this project varied from a starting total of five with additions as two surveyors returned to duty from the Hydrography I course and subtractions as staff were required for preparations for the arctic season and at the end of the arctic season, took educational courses, attended various conferences and meetings and after mid-October, took annual leave.

Divers

The availability of Departmental divers was again most useful. They confirmed interpretation of side scan sonar graphs; were detached to assist Tidal Section in placing and recovering a bottom tide gauge; assisted in the erection of tide scales and gauges on the survey; assisted Research and Development in placing bottom targets for side scan sonar evaluations and graph interpretation.

In the arctic the staff diver was assisted by a ships crew certified diver in evaluating ice damage to the hull after our passage

into the arctic. A total underwater time of 8 h 40 m was logged by the one diver permanently attached to the party.

Side Scan Sonar

This piece of equipment which was operated for us by Research and Development proved to be a useful tool. It was used occasionally on our survey during evaluation and as mentioned in the next section was most valuable in our investigation of the logging debris in the harbour.

Log Debris

At the request of the Captain G. R. Newell, Harbour Master, Victoria through the Ministry of Transport, Mr. C. E. Brooks, Harbours and Wharves Administrator, our attentions were directed to an investigation of log debris in Esquimalt Harbour.

The sounding lines in Plumper Bay NW of the Inskip Islands showed signs of a most irregular bottom. Our Research and Development section recently procured a Klein MK 400 side scan sonar and they ran several lines through the area for us. Interpretation of the sonar graphs indicated severe log debris and this was confirmed by divers whose report stated "Logs were lying at random directions, overlapping and piling 5 and 6 logs deep. Numerous logs projected 10 and 12 feet from the bottom as a result of the piling up. Sedimentation of bark and debris was estimated at 2 feet deep at the bottom."

M.O.T. was informed and supplied with original graphs and are in discussion with the Victoria Mill Owners Association with a view to having the area cleared. When this has been completed the area will have to be resurveyed.

In the meantime a Notice to Mariners has been issued warning of the danger of less water than charted due to log debris.

Recommendations

- a) That N.T.C.L. be appraised of the necessity of providing bunkers on our requested date or in consultation, before this date.
- b) That the loss of speed in our launches be investigated.
- c) That launch engine rubber and launch batteries be completely renewed immediately prior to the arctic operating season.
- d) That the Regional Tidal Section continue to set up gauges in advance of our arrival in the arctic and arrange for daily reports to the ship from the gauging station.
- e) That warnings of P.L.F.'s in the Beaufort Sea be promulgated on our charts and in the Pilot.
- f) That contact be maintained with Mr. C. E. Brooks, Harbours and Wharves Administrator, M.O.T., telephone 566-3230, for developments in the clearance of log debris in Esquimalt Harbour so that the resurvey of the affected area may be scheduled.
- g) That Ship Division investigate the feasibility of fitting a temporary helicopter pad onboard PARIZEAU.
- h) That steps be taken to improve the recreational facilities onboard PARIZEAU in view of her cruises of approximately 80 days continuously at sea.

FIELD REPORT STATISTICS:- MONTHLY ... PROJECT ... FINAL FIELD ...

YEAR 1972

FROM April 72

TO November 72

Establishment <u>C.H.S.</u>					
H.I.C. <u>R.W.Sandilands</u>					
	Project Number	Project Number	Project Number	Project Number	
Project Name <u>ESQUIMALT HARBOUR</u>	PZ-2				
Project Name <u>BEAUFORT SEA</u>		WA-72-01			
Project Name <u>SACHS HARBOUR</u>			PZ-3		
Project Name <u>HAAPS</u>				N.A.	
<u>Resources :</u>					Total
Number of Hydrographers *	5/418	6/500	8/24	1/4.5	7/946
Number of Scientists *		1/11			1/11
Number of Electronic Technicians *		2/117	2/6	1/4.5	2/128
No. of Student Assistants and Casuals *					
No. of Support personnel (Ship's Crew etc.) *	1/47	35/2413	37/111	1/8	38/2579
Total Personnel *	6/476	44/3030	47/141	3/17	48/3664
Number of ships		1	1		1
Number of Launches	1	4	4	1	5
Number of Land Vehicles	1		1	1	2
Number (and type) of Aircraft					
Number of Minor Support Staff		2	2		2
Other (specify)					

* Should provide two figures separated by a slash. The first figure being the average number on strength and the second being the man days. e.g.-number of Hydrographers:5/100 (an average of 5 Hydrographers spent 100 man days on the project).

FIELD REPORT STATISTICS:- MONTHLY ... PROJECT ... FINAL FIELD ...

YEAR 1972 FROM April 72 TO November 72

Establishment	C.H.S.	Project Number	Project Number	Project Number	Project Number	To
H.I.C.	R.W.Sandilands	PZ-2	WA-72-01	PZ-3	HAAPS N.A.	
<u>Sounding (Linear Nautical Miles/KM):</u>						
Ship Sounding			3154			3154
Launch Sounding		340	6043	40		6423
Other (specify)			GEBCO			1542
Total sounding		340	9197	40		9577
<u>Reconnaissance (Track) sounding</u>						
Area sounded (N.M ²) (Km ²)		814	2324			2333
<u>Shoals Examined :</u>						
Shoal Examinations (Ship)						
Shoal Examinations (Launch)		80	121	1		202
Shoal Examinations (Sweep)						
Shoal Examinations (other) specify						
Shoal Examinations (Total)		80	121	1		202
<u>Navigational Aids:</u>						
Shore Aids Positioned (including ranges)		5		2		7
Floating Aids Positioned		5				5
Navigational Ranges Sounded		1		1		2
Navigational Ranges Drifted						
Sector Ranges Positioned						
Navigational Aids Established						

FIELD REPORT STATISTICS:- MONTHLY ... PROJECT ... FINAL FIELD ...

YEAR 1972

FROM April 72 TO

November 72

Establishment _____ C.H.S.	Project Number	Project Number	Project Number	Project Number	Tot
H.I.C. R.W.Sandilands	PZ-2	WA-72-01	PZ-3	HAAPS NA	
<u>Time:</u>					
Total operational days.	117	67	3		187
Days actual field work.	67	16.5	3		86.5
Days lost (weather)	14	2.5			16.5
Days lost (Sat. Sun. Holidays)	20				20
Days lost (Equipment failure)	10	1			11
Days lost in Transit		15.5			15.5
Days lost in port for Supplies, Bunker, etc.		1			1
Days lost, other causes	.5	9			9.5
Total Man days in period (staff)	460	576			1036
Total Man days worked (staff)	435.5	535.5			971
Man days:- (staff)					
(a) Sounding	121	143	6		270
(b) Shoal Examinations	32	16	.5		48.5
(c) Wharf surveys					
(d) Oceanography		15			15
(e) Geophysics		20			20
(f) Tides & water levels	10	1			11
(g) Collecting bottom samples	11	12			23
(h) Horizontal Control	41		12		53
(i) Shorelining & Low Watering	16				16
(j) Data processing & office admin.	216	239.5			455.5
(k) Sailing directions	.5				.5
(l) Place Names					
(m) Current observations					
(n) Photo-Ident.	3				3
(o) Others (specify) Staff on Leave	10.5				10.5
Staff on Educational Leave	14				14
Diving	1				1
Stadia	10				10
Launch Training		18			18

FIELD REPORT STATISTICS:- MONTHLY ... PROJECT ... FINAL FIELD ...

YEAR 1972 FROM April 72 TO November 72

Establishment	C.H.S.	Project Number	Project Number	Project Number	Project Number	Total
H.I.C.R.W.Sandilands		PZ-2	WA-72-01	PZ-3		
<u>Tide and Current Data:</u>						
Recording gauges established		2				2
Recording gauges recovered		1				1
Staff gauges established		1		1		2
Bench Marks Recovered		4		4		8
Bench Marks Established		3				3
Bench Marks Levelled		3				3
Distance Levelled (N.M.) (KM)		.6		.3		.9
No. of Current Meters Set Out						
No. of Current Meters recovered						
No. of hours of Current Measurements (Other than with Moored Meters)						
<u>Oceanography:</u>						
No. of Oceanographic stations						
Gravity Profiles-survey (N.M.) (KM)						
Gravity Profiles-track, (N.M.) (KM)						
Magnetic Profile-survey (N.M.) (KM)						
Magnetic Profile-track, (N.M.) (KM)			5067			5067
Seismic Profile-survey (N.M.) (KM)		85				85
Seismic Profile-track (N.M.) (KM)		925				925
Number of Water Samples						

FIELD REPORT STATISTICS: MONTHLY ... PROJECT ... FINAL FIELD ...

YEAR 1972 FROM April 72 TO November 72

Establishment: <u>C.H.S.</u>	Project Number	Project Number	Project Number	Project Number	Total
H.I.C. <u>R.W.Sandilands</u>	PZ-2	WA72-01	PZ-3		
<u>Data submitted from the field:</u>					
(Include file numbers:)					
Compilation Files ESQUIMALT HARBOUR	723				
BEAUFORT SEA		10075			
SACHS HARBOUR			10074		
Field Books ESQUIMALT HARBOUR	3127				
	3128				
	3129				
	3130				
	3131				
	3132				
	3133				
	3134				
	3135				
BEAUFORT SEA		1074			
		1075			
		1076			
		1077			
		1078			
		1079			
		1080			
		1081			
		1082			
		1083			
		1084			
		1085			
		1086			
Harrowby Bay		1088			
SACHS HARBOUR			1087		

