



New

## Scientific Research

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$${}^{\epsilon}\mathfrak{b}_{\Delta}{}^{\zeta}\mathfrak{N}_{\sigma}{}^{\flat} \quad \Lambda_{\tau}{}^{\flat}\mathfrak{d}^{\epsilon}\mathfrak{b}{}^{\epsilon}\sigma\mathfrak{d}{}^{\flat}\mathfrak{d}{}^{\flat}\mathfrak{L}{}^{\flat}\sigma{}^{\flat}$$

<sup>c</sup>٦؎فځډ<sup>c</sup>: See document attachment

▷ΔΛΠ▷<sup>c</sup>: See document attachment

$\Delta_{\mathfrak{D}^b} \cap \mathcal{D}^c$ : See document attachment

Inuinnaqtun: NA

## Personnel

Personnel on site: 3

Days on site: 25

Total Person days: 75

Operations Phase: from 2022-11-26 to 2023-03-26

$$\Lambda \subset \mathbb{N} \triangleleft \mathbb{N} \xrightarrow{\sigma} \mathbb{N}^{\mathbb{N}} \supset \mathbb{C}$$

Inuktitut	Eskimo	Finnish	Dutch	English	Norwegian
Designated stations within Frobisher Bay and Ward Inlet will be visited for sampling. The primary focus is in the head of Frobisher Inlet near Iqaluit town, See project description/map. We can provide specific coordinates too if desired	Marine Based Activities	Marine	Some sites overlap with historical and present DFO and Nunavut government sampling sites, others are areas of interest identified by community members	NA - data collection only occurs in the water column and does not disturb sea floor or extract physical samples	Between 3.5 - 80 km from Iqaluit Township

ಮೂಲದ  $\Delta$  ಮೇಲೆ  $\sigma$  ಉಂಟಾದಾಗ  $\Delta$  ಮೇಲೆ  $\sigma$  ಉಂಟಾದಾಗ  $\Delta$  ಮೇಲೆ  $\sigma$  ಉಂಟಾದಾಗ  $\Delta$  ಮೇಲೆ  $\sigma$  ಉಂಟಾದಾಗ

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Δᖅᔭᐃᑦ	Alex Flaherty	Polar Outfitting	2020-03-17
Δᖅᔭᐃᑦ	Harley Veevee	Polar Outfitting	2020-03-16
Δᖅᔭᐃᑦ	Noah Alookie	HTO	2020-03-16
Δᖅᔭᐃᑦ	Imoona Karpik	Polar Outfitting	2020-03-16
Δᖅᔭᐃᑦ	Kevin Kullualik	Polar Outfitting	2021-01-01
Δᖅᔭᐃᑦ	Kenny Merkosak	Polar Outfitting	2021-01-01

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உரிமையாளர் அல்லது அங்கீகரிக்கப்பட்ட நபர்:

## South Baffin

[illegible]

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ᐱᑦᓴᐅᑦᓴᐅᑦᓴᐅᑦ ᐱᑦᓴᐅᑦᓴᐅᑦᓴᐅᑦ	Funded project through DFO - no licence required due to nature of data collection being optical.	Active	2022-07-25	2023-03-31
Hunters and Trappers Associations/Organizations	HTA were approached with the project details and they signed approval for the data collection in the area.	Active	2022-05-26	2023-03-31
ᐱᑦᓴᐅᑦᓴᐅᑦᓴᐅᑦᓴᐅᑦ	Nunavut Research Institute are awaiting the outcome of the application we made to the Nunavut Planning Commission, which was then forwarded for NIRB approval.	Applied, Decision Pending		

## Project transportation types

[illegible]

## Project accomodation types

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△P<sup>00</sup>L.

◀▷↳◀<sup>96</sup>▷<sup>96</sup>

Λ<sup>9</sup>δ<sup>c</sup> Δ<sup>9</sup>ρ<sup>2</sup>Δ<sup>9</sup> Δ<sup>9</sup>CDσ<sup>9</sup>Δ<sup>9</sup>Δ<sup>9</sup> Δ<sup>9</sup>Δ<sup>9</sup>ρ<sup>9</sup>Δ<sup>9</sup> Δ<sup>9</sup>Δ<sup>9</sup>Δ<sup>9</sup>, Γ<sup>9</sup>Δ<sup>9</sup>Δ<sup>9</sup>Δ<sup>9</sup>, Δ<sup>9</sup>Δ<sup>9</sup>Δ<sup>9</sup>Δ<sup>9</sup>, Δ<sup>9</sup>Δ<sup>9</sup>Δ<sup>9</sup>Δ<sup>9</sup>

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Multi-parameter Sonde	1	100 cm H, 20 cm W	A multi-parameter oceanographic instrument (“sonde”) is equipped with sensors that are considered the foundational data to study oceanography. The sonde measures temperature, conductivity (salinity), and pressure (depth), and is also known as a conductivity-temperature-depth instrument or “CTD”. Water profiles are collected through “casts” where the sonde is lowered through the water column and records digital measurements of the water properties.
Tablet computer	1	30 cm x 20 cm	Used to operate the multi-parameter sonde
Snowmobiles	3	2 m x 0.75 m	To access sites on sea-ice
Boat	1	20 ft	If we are able to get in the water before freeze up it would be by boat access
ice auger	1	10 diameter	Ice auger that drills holes 8-10 ' in diameter to sample through

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Diesel	fuel	1	100	100	Liters	I am not 100% sure whether the boat is gas or diesel based. But if we use the boat as it is late in the season it



$\triangleleft^b C d^c$ 
$$\Delta^b C d_c \sim \sigma \Delta^q \sigma^q$$

Λ<ηΔηδΔLΔJ <sup>c</sup> Λ<ηΔηδσΔ <sup>qb</sup> Δ <sup>qb</sup>	ⁱᵇΔ <sup>c</sup> Δ <sup>qb</sup> Δ <sup>b</sup> CΔ <sup>j</sup> Δ <sup>qb</sup>	ⁱᵇΔΠΓ Δ <sup>b</sup> CΔ <sup>j</sup> <sup>c</sup> ⁱᵇΡΔσΔ <sup>qb</sup> ΔηδΔ <sup>c</sup>	ⁱᵇΔ <sup>qb</sup> Δ <sup>b</sup> C <sup>qb</sup> CΔσΔ <sup>qb</sup> <	ⁱᵇL <sup>qb</sup> ⁱᵇΔΠ <sup>b</sup> ⁱᵇΔ <sup>a</sup> σΔσΔ <sup>qb</sup> Δ <sup>c</sup>
Information is not available				

4<sup>a</sup> 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1

Documented in Additional info: - Noise from vessels and snowmobiles - mitigation is to try and be as efficient in data collection as possible to reduce the days in environment so as not to disturb wildlife frequently and or have more than needed carbon emissions - Sea-ice drilling (8 inch diameter hole) - holes are spread out as sample locations are distributed across the bay. The holes are as small as possible for the instrument to fit through into the water and reduce light penetration).

# **Additional Information**

**SECTION A1: Project Info**

**SECTION A2: Allweather Road**

**SECTION A3: Winter Road**

**SECTION B1: Project Info**

**SECTION B2: Exploration Activity**

**SECTION B3: Geosciences**

**SECTION B4: Drilling**

**SECTION B5: Stripping**

**SECTION B6: Underground Activity**

**SECTION B7: Waste Rock**

**SECTION B8: Stockpiles**

**SECTION B9: Mine Development**

**SECTION B10: Geology**

**SECTION B11: Mine**

**SECTION B12: Mill**

**SECTION C1: Pits**

**SECTION D1: Facility**

**SECTION D2: Facility Construction**

**SECTION D3: Facility Operation**

**SECTION D4: Vessel Use**

**SECTION E1: Offshore Survey**

**SECTION E2: Nearshore Survey**

**SECTION E3: Vessel Use**



## SECTION F1: Site Cleanup

## SECTION G1: Well Authorization

## SECTION G2: Onland Exploration

## SECTION G3: Offshore Exploration

## SECTION G4: Rig

## SECTION H1: Vessel Use

## SECTION H2: Disposal At Sea

## SECTION 11: Municipal Development

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This project is primarily in Frobisher Bay, but community members will transit to the sea-ice/ocean from Iqaluit community. The data collection is conducted in Frobisher Bay and falls within areas of hunting and fishing by the community, along with marine/sea-ice transit routes. The community members who are conducting the data collection live in Iqaluit and have advised the station locations and will not disrupt peoples hunting or travel while data collecting. The noise of the vessel and snow mobiles are one of the few physical impacts of this project, as these are community owned vehicles they would be used in the area normally, so the additional impact is the times they will be used for project specific work, which will be approximately 20-30 days of work. A second consideration for impact on the physical conditions is during the sea-ice period. To access the water column and lower an instrument through the water, community members will need to drill a hole in the ice (~8 inches in diameter), due to the dynamic nature of the tides and sea-ice these holes will more likely than not close within a 24hr period.

[illegible]

This project will have little to no direct impact on the biological environment as no physical sampling or extraction is occurring. However, it does occur in areas that are local marine habitats and likely are close to or overlap spawning regions (e.g. Arctic Cod and Char). Further the study area overlaps areas of cultural, environmental and archeological significance: traditional hunting and fishing regions, along with the data collection proximity to Qaummaarvitt Territorial Park near Peterhead Inlet. The disruption will be limited to the presence of the sampling crew (3 people) and their boat or snowmobiles in the area (along with sea-ice drilling in the sea-ice season). Each data collection event will take 10-30 minutes at the location.

[illegible]

This project is embedded within the community of Iqaluit in that community members play a vital role in both defining research objectives and stations, and in conducting data collection activities. This project contributes positively to the economic welfare of community members and to their collective role in, and understanding, the intended research. It also includes a concluding workshop to share data collected and information with community members over this project and other OPP aspects.

### Miscellaneous Project Information

$a \rightarrow a \text{ } ^{\text{fb}} \text{CD} \sigma \text{ } ^{\text{fb}} \text{r}^{\text{c}} \quad \text{d} \rightarrow \text{d} \text{ } ^{\text{fb}} \text{CD} \text{r}^{\text{c}} \text{ } ^{\text{fb}} \text{r}^{\text{c}} \quad \text{e} \rightarrow \text{e} \text{ } ^{\text{fb}} \text{CD} \sigma \text{ } ^{\text{fb}} \text{r}^{\text{c}} \quad \text{f} \rightarrow \text{f} \text{ } ^{\text{fb}} \text{CD} \sigma \text{ } ^{\text{fb}} \text{r}^{\text{c}}$

Employment will be positively impacted in that local community members in Iqaluit are paid to collect all of the oceanographic data. This is facilitated through a local contractor and through support from the Hunters and Trappers Association. · Noise levels will be negatively impacted but in an extremely minimal way. Community members are expected to travel to data collection sites by small vessel during the open water season and by snow machines when the sea-ice is safe to travel on. The mitigation is that this project relies on these standard, local means of transportation as opposed to other projects, which commonly use larger research or fishing vessels (that generate more noise and waste). Noise generation is therefore within the normal levels expected of community members. Activities are periodic and not sustained so will only generate noise for a few hours in a single day, one to four times per month. · As this is not a construction project and does not alter the physical or biological environment, overall impact on the environment is negligible. Data collection consists of digital recordings of instrument measurements of water properties (i.e. temperature, salinity, pressure, etc.) and of observational data of community members (e.g. weather and ice conditions); no physical samples are collected.

### **Cumulative Effects**

Positive cumulative effects include an increased capacity within the community to support future data collection activities and increased employment opportunities (both immediate and long-term) for community members. This is due to the fact that a substantial portion of the funding is set aside to pay community members and that the role of Ocean Networks Canada is to provide post-secondary education/training to community members in order to support their ability to participate in this project and others. Potential negative cumulative effects include fuel consumption and noise generation from small vehicle use. Neither of these effects are sustained nor are they serious in nature as they are within what is typical of community members traveling in their local region.

## Impacts

$\mathcal{L}(\mathcal{A}) \subseteq \mathcal{L}(\mathcal{B})$

[illegible]
$$(P = \langle b \rangle_{\Delta} p \cap r^{\perp} q^{\perp})^c, N = \langle b \rangle_{\Delta} r^{\perp} \langle D \rangle_{\Delta} q^{\perp})^c \langle C \rangle_{\Gamma} \langle r^{\perp} \rangle^q \langle D \rangle_{\Delta} q^{\perp})^c, M = \langle b \rangle_{\Delta} r^{\perp} \langle D \rangle_{\Delta} q^{\perp})^c \\ \langle C \rangle_{\Gamma} \langle r^{\perp} \rangle^q \langle D \rangle_{\Delta} q^{\perp})^c, U = {}^q b \rangle_{\Delta} L^{\perp} q^{\perp})^q)$$

1	polyline	Designated stations within Frobisher Bay and Ward Inlet will be visited for sampling. The primary focus is in the head of Frobisher Inlet near Iqaluit town, See project description/map. We can provide specific coordinates too if desired
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