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Part 1: Remote tagging. We would like to use remote tags to gather information about the dive behaviour of narwhals. Our goal would be to deploy the tags on the whales before an aerial survey (NIRB File #23YN020) so that we can get locations of the whales at the same time the survey is being flown. Tags usually last a few weeks but have lasted for many months in the past. The tags provide information on location when the whale surfaces, as well as information on the depth and time of their dives. Our team would attempt to deploy tags on the narwhals backs using a crossbow, from either shore, boat, or kayak. Although we have never tried to remotely tag narwhals, we have had success with this method on belugas, killer whales and bowhead whales. We would like to try this method because it is less invasive and less stressful for the animals than capturing them in a net to put a tag on their back. In this way there would be no direct contact between the human and the whale.

Part 2: Drone work. We have two goals for the drone work: 1) To collect footage of narwhals swimming at and near the surface of the water, to follow them for as long as possible and get information on their dive behaviour and how long they stay underwater. If successful, this information can be useful in narwhal abundance estimate, by correcting for the time the animals spend underwater versus at the surface. 2) To collect footage of narwhals to look at their body condition by comparing their length to width at different points along the body. We can also determine the number of males, females and calves in groups. We would fly the drone from shore or boat at a height of 20 meters or more to ensure we do not disturb the animals. The drone will fly directly overhead to ensure we get a straight down view of the whales, and will follow the whales until they cannot be seen or the drone battery runs out, usually a maximum of 20 minutes.

▷ ΔΑΝΟΤ: N/A

[illegible]

Inuinnaqtun: N/A

**Personnel**

Personnel on site: 6

Days on site: 15

Total Person days: 90

Operations Phase: from 2023-07-15 to 2023-08-31

$\Lambda \subset \mathbb{N} \triangleleft \mathbb{N} \hookrightarrow \mathbb{D} \sigma \triangleleft^{\mathfrak{q}_b} \mathbb{D}^c$ 

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Camp Kakiak point	Camp	Inuit Owned Surface Lands	Important area for the harvest of narwhal by Arctic Bay Community members, and important area of narwhal habitat	None known	Approximately 65 km southwest of Arctic Bay
Potential Camp Bruce Head peninsula	Camp	Crown	Peninsula on the western shore of Milne Inlet overlooking Mary River's northern shipping route	None known	Approximately 115 km southwest of Pond Inlet
Eclipse Sound (potential camp at Bruce Head peninsula)	Researching	Marine	Established as Tallurutiup Imanga National Marine Conservation Area in 2019. Baffinland shipping operations in the area begun in 2015.	None known	Within the Tallurutiup Imanga National Marine Conservation Area. Adjacent to Sirmilik National Park and Bylot Island Migratory Bird Sanctuary.
Admiralty Inlet (camp at Kakiak point)	Researching	Marine	Established as Tallurutiup Imanga National Marine Conservation Area in 2019.	None known	Within the Tallurutiup Imanga National Marine Conservation Area.

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Δ <sup>b</sup> ∧◊ <sup>c</sup> ↯ <sup>d</sup>	Chris Mitchell	Arctic Bay Adventures	2023-05-08

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$a^{\dagger}r d^{ab} r^c \sigma^b \wedge c_n d n^e \Delta D \sigma d^{fb} D^c$   $\cap \cap f^f \omega r^c:$

## North Baffin

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ᐱᑭᐱᕐᓂᕐᓴᕐᓴᕐᓴᕐᓴᕐ ᐱᑭᐱᕐᓂᕐᓴᕐᓴᕐᓴᕐᓴᕐ	Authorization to Disturb a Marine Mammal	Active	2023-06-05	2023-08-31
ᐱᑭᐱᕐᓂᕐᓴᕐᓴᕐᓴᕐᓴᕐ ᐱᑭᐱᕐᓂᕐᓴᕐᓴᕐᓴᕐᓴᕐ	Approval of animal use protocol	Active	2023-06-08	
ᐱᑭᐱᕐᓂᕐᓴᕐᓴᕐᓴᕐᓴᕐᓴᕐ	Research Permits are not required for the 2023 season in Tallurutiup Imanga National Marine Conservation Area.	Active		
ᐱᑭᐱᕐᓂᕐᓴᕐᓴᕐᓴᕐᓴᕐᓴᕐ	Land Use License QLO - 2308	Active	2023-07-01	2023-08-31
Hunters and Trappers Associations/Organizations	Support letter from the Ikajutit HTA (Arctic Bay)	Active	2023-04-04	
Hunters and Trappers Associations/Organizations	Support letter from the Mittimatalik HTO (Pond Inlet)	Applied, Decision Pending		
ᐱᑭᐱᕐᓂᕐᓴᕐᓴᕐᓴᕐᓴᕐ ᐱᑭᐱᕐᓂᕐᓴᕐᓴᕐᓴᕐᓴᕐ	Licence to fish for scientific purpose (needed for tagging whales)	Applied, Decision Pending		

### Project transportation types

Transportation Type	Route / Description	Length of Use
Water	Transport from Arctic Bay to Kakiak and from Pond Inlet to Bruce Head peninsula point by boat. Contract is being put in place with Arctic Bay Adventures. If work goes ahead in Pond Inlet, boat dimension / driver will be determined by the Mittimatalik HTO..	

### Project accomodation types

## Temporary Camp



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Λ<sup>9</sup>d<sup>c</sup> d<sup>a</sup>b<sup>r</sup>z<sup>s</sup> d<sup>a</sup>b<sup>c</sup>d<sup>a</sup>σ<sup>a</sup>d<sup>a</sup>z<sup>s</sup> Δ<sup>c</sup><sub>ab</sub>r<sup>a</sup>d<sup>a</sup>n<sup>a</sup>o<sup>a</sup>r<sup>c</sup> ΔjCΔ<sup>c</sup>, Γ<sup>c</sup>→dPñ<sup>c</sup>, s<sup>b</sup><sub>bc</sub>Lc<sup>j</sup><sub>s</sub>, με<sup>a</sup>d<sup>c</sup> d<sup>a</sup>r<sup>b</sup>r<sup>c</sup>→

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Personal tent	6	50 sq ft	Sleeping
Canvas tent	1	8'x10'	Office for data analysis
Canvas tent	1	10'x12'	Cooking/kitchen tent
Generator	1	max 3000W	Charge electronics
Big buddy propane heater	1	N/A	Heat source
Camping stove	1	N/A	Cooking
Kayak	2	N/A	Could be used for potentially tagging from
Drone	2	N/A	Will be flown by licensed pilots to collect information on narwhal diving behaviour and body condition.
Wildlife Computers Motes	2	34 x 39 x 19 cm + tripod	Temporary installations that will log telemetry data from satellite tags on animals within reception range. This will allow us to log a lot more data from tagged narwhals than if we only rely on satellites.
Boat	1	N/A	Transport from Arctic Bay to Kakiak point. Boat dimension / driver will be determined by Arctic Bay Adventures.

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Gasoline	fuel	2	205	410	Liters	Drums for boat and generator
Other	fuel	4	1	4	Gallons	White gas for camp stove
Propane	fuel	3	20	60	Lbs	Small tanks for cooking / heating





$\triangleleft^b C d^c$ 
$$\Delta^b C d_{\sigma} \Delta^a \sigma^a$$
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4<sup>e</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

No adverse effects are expected based on this project. We will prevent potential fuel spills by storing all liquid fuels in a temporary berm located at least 30m above the high water mark. All liquid fuel transfer will be done within this berm using appropriate nozzles/funnels; and a spill kit will be readily available. Unused fuel and empty containers to be removed from site at the end of the program. The environmental impacts of the camp will be minimal. We will use the most durable surfaces when travelling, resting or re-filling water containers to avoid soil compaction/vegetation trampling. Biodegradable soap will be used (only when necessary) for dishwashing and bathing. The use of the motorboat and generator will be kept to a minimum to minimize noise and air pollution.

# **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

$\dot{L}^{\infty}_x \nabla \varphi \cap D^{1,p}_{\sigma}(\mathbb{R}^d) \subset L^{\infty}_x D^{1,p}_{\sigma}(\mathbb{R}^d)$ :  $\text{meas } D^{1,p}_{\sigma}(\mathbb{R}^d)$

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### Miscellaneous Project Information

1: Until recently, this project was to take place only at Admiralty Inlet (Arctic Bay). However, we were informed at the end of March that Baffinland was proposing to do very similar work in Eclipse Sound and that Pond Inlet's HTO would rather see DFO undertake the task. It is important for us to respond to community requests/concerns so we are trying to extend our work in Admiralty Inlet to Milne Inlet while trying to get official support from Mittimatalik HTO, but considering how little time we have left it's unsure if the project will go ahead.

2: The list of material includes 2 wildlife computers Motes, which are stationary, unattended ground-based listening stations that continually log telemetry data from satellite tags on animals within reception range. This would allow us to log a lot more data from tagged narwhals than if we only rely on satellites. Their installation will depend on local HTOs support. One Mote would be installed in Admiralty Inlet and the other one in Eclipse Sound (see project map). Engineering experts and local HTOs would be consulted for site-specific planning and installation, taking into account topography and making sure we do not impact any site of cultural importance. IOLs, National Parks and Protected Areas will be avoided. For more details about Wildlife Computers Motes, please visit <https://wildlifecomputers.com/our-tags/extras/wildlife-computers-mote/>

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No adverse effects are expected based on this project. We will prevent potential fuel spills by storing all liquid fuels in a temporary berm located at least 30m above the high water mark. All liquid fuel transfer will be done within this berm using appropriate nozzles/funnels; and a spill kit will be readily available. Unused fuel and empty containers to be removed from site at the end of the program. We will avoid causing stress to narwhals by sitting and waiting for whales to swim by us instead of chasing/following them. Following requirements from the Ikajutit HTA, we will not use drones during narwhal hunts in the area. Tagging and behaviour data collection procedures have been reviewed and

approved for 2023 by DFO's Freshwater Institute Animal Care Committee. These protocols include provisions to minimize short-term impacts narwhals, and long-term studies of several other marine mammal species have shown no long-term negative impacts of satellite tag deployment. The environmental impacts of the camp will be minimal. We will use the most durable surfaces when travelling, resting or re-filling water containers to avoid soil compaction/vegetation trampling. Biodegradable soap will be used (only when necessary) for dishwashing and bathing. The use of the motorboat and generator will be kept to a minimum to minimize noise and air pollution.

### **Cumulative Effects**

## Impacts

$\omega \rightarrow \omega \Delta^{\frac{1}{2}} C D \sigma^{\frac{1}{2}} r^C$      $\Delta \nabla \Gamma \triangleright C \dot{\sigma}^C \triangleright^C$      $\Delta^b \triangleright^{\frac{1}{2}} C D r L \dot{r}^C$

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## List of Project Geometries

- |   |         |  |
|---|---------|--|
| 1 | polygon | Admiralty Inlet (camp at Kakiak point)                 |
| 2 | polygon | Eclipse Sound (potential camp at Bruce Head peninsula) |
| 3 | point   | Camp Kakiak point                                      |
| 4 | point   | Potential Camp Bruce Head peninsula                    |