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Early Career Training Cruise

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Period of operation:	from 2024-07-29 to 2024-08-13
ᐱᓕᕆᐊᖃᖅᑭᒪᔪᖅ:	Lauren Juranek Oregon State University 104 CEOAS Admin Building Corvallis OR 97331 USA ᐅᖃᓗᓕᐅᑎᑦ: 1-206-303-8746, ᓯᑲᔪᓐᓇᑦ:

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ᖃᓄᐃᑦᑐᑎᓂᒃ ᐱᓕᕆᐊᖃᖅᓂᐊᕆᐊᖃᕐᓂᒃ

ᖃᓪᓗᓈᑎᑐᑦ: Northwest Passage Science and Early Career TrainingDr. Laurie Juranek and Dr. Emily Eidam, Oregon State UniversityThis project involves marine research and early career scientist training on the USCGC Healy transit of the Northwest Passage from Kugluktuk, Canada to Nuuk, Greenland. We aim to instill best practices in managing objectives of interdisciplinary science teams and working effectively with the US Coast Guard, international partners, and Indigenous communities in planning and executing a cruise and communicating results broadly to local communities and the public.Science research questions: (1) Can we fill gaps in data on Northwest Passage seafloor bathymetry and map navigational hazards? (2) How does transport of water through the Northwest Passage fit into the broader Arctic Ocean circulation? How do water parcels change chemically and physically? (3) How can we improve models of the growth and decay of sea ice based on meteorological, sea ice, and ocean surface condition data?For (1), we propose to fill critical bathymetric gaps, help work toward complete seafloor mapping, and aid navigational hazard identification. We will work with Canadian Researchers from NRCAN and GSC to prioritize mapping locations. We also propose to collect seabed samples to improve an atlas of seabed sediments in development by Canadian researcher Dr. David Mosher. We will use samples to help train early career scientists in sampling methods and allow them to collect benthos, genomic data, and nutrient data.For (2) we will monitor surface seawater while transiting using shipboard sensors, in order to understand how the chemical composition of seawater changes through the region with the flow of ocean currents. We will collect vertical profiles of water column properties as well as water samples to analyze properties including conductivity, temperature, nutrients, and other properties using a ship-based profiler at select sites and using small expendable sensors between stations. Water samples will be stored onboard and returned to individual laboratories for analysis.For (3), we will collect meteorological and ocean surface measurements (drift rates, wind speeds, ocean surface temperature and salinity, light profiles) near sea ice and from an ice-based station. We also plan to collect ice samples if possible by drilling small holes with an auger.We very much hope to build connections with regional hamlets and to reflect their knowledge and interests in our research and training efforts. We plan to visit Kugluktuk and Cambridge Bay this spring to connect with communities before the busy summer season. We also hope to organize a community event in Kugluktuk in late July to facilitate informal knowledge exchange among the community, our science party, and the USCG vessel officers prior to departure. We understand the importance of communicating our findings to local communities, and will plan an in-person follow-up trip in 2025.Data will be shared with the GSC and NRCAN and sent to Indigenous permitting authorities. Data collected in transit will be shared within 6 months of the survey. Data from discrete samples/measurements will be shared within 2 years of the survey (some require processing time).

ᐅᐃᓴᑎᑐᑦ: Etude du Passage du Nord-Ouest et formation de jeunes chercheursCe projet s’articule autour d’un projet de recherche et deformation de jeunes chercheurs sur le transit USCGC Healy allant du passage du Nord-Ouest, de Kugluktuk, au Canada, à Nuuk, au Groenland. Nous visons à inculquer les meilleures pratiques dans la gestion des objectifs d’équipes scientifiques interdisciplinaires et à travailler efficacement avec les Gardes Côtes américains, les partenaires internationaux, et les communautés autochtones, pour planifier et exécuter une campagne de recherche et communiquer les résultats aux communautés locales et au grand public.Questions de recherche scientifique : (1) Pouvons-nous combler les lacunes dans les données de bathymétrie des fonds marins du passage du Nord-Ouest et cartographier les dangers pour la navigation ? (2) Comment le transport de l’eau à travers le passage du Nord-Ouest s’intègre-t-il dans la circulation plus large de l’océan Arctique ? Comment les parcelles d’eau changent-elles chimiquement et physiquement ? (3) Comment pouvons-nous améliorer les modèles de croissance et de dégradation de la glace de mer sur la base des données météorologiques, de la glace de mer et de l’océan de surface ?Pour (1), nous proposons de combler les lacunes bathymétriques critiques, de contribuer à la cartographie complète des fonds marins et de faciliter l’identification des dangers pour la navigation. Nous travaillerons avec des chercheurs canadiens de RNCan et de la CGC pour prioriser les emplacements à cartographier. Nous proposons également de collecter des échantillons de fonds marins pour améliorer un atlas des sédiments des fonds marins en cours d'élaboration par le chercheur canadien David Mosher. La collection des échantillons aidera à former des jeunes chercheurs aux méthodes d’échantillonnage et leur permettre de collecter des données sur le benthos, des données génomiques et des données sur les éléments nutritifs.Pour (2), nous analyserons l'eau de mer de surface lors de son transit à l'aide de capteurs embarqués, afin de comprendre comment la composition chimique de l'eau de mer change dans la région avec le flux des courants

océaniques. Nous collecterons des profils verticaux des propriétés de la colonne d'eau ainsi que des échantillons d'eau pour analyser les propriétés, notamment la conductivité, la température, les nutriments et autres, à l'aide d'un profileur embarqué sur des sites sélectionnés et à l'aide de capteurs compacts et jetables entre les stations. Les échantillons d'eau seront stockés à bord et renvoyés aux laboratoires individuels pour analyse.Pour (3), nous collecterons des mesures météorologiques et de surface océanique (taux de dérive, vitesses du vent, température et salinité de la surface de l'océan, profils de pénétration de la lumière) près de la glace de mer et à partir d'une station basée sur la glace. Nous prévoyons également de prélever des échantillons de glace si possible en forant de petits trous avec une tarière.Nous espérons ardemment établir des liens avec les hameaux régionaux et refléter leurs connaissances et leurs intérêts dans nos efforts de recherche et de formation. Nous prévoyons visiter Kugluktuk et Cambridge Bay ce printemps pour établir des liens avec les communautés avant la saison estivale. Nous espérons également organiser un événement communautaire à Kugluktuk fin juillet pour faciliter l'échange informel de connaissances entre la communauté, notre équipe scientifique et les officiers du navire de l'USCG avant le départ. Nous comprenons l'importance de communiquer nos résultats aux communautés locales et planifierons un voyage de suivi en personne en 2025.Les données seront partagées avec la GSC et RNCan et envoyées aux autorités autochtones chargées de délivrer les permis. Les données collectées en transit seront partagées dans les 6 mois suivant la mission. Les données provenant d'échantillons/mesures discrètes seront partagées dans les 2 ans suivant l'enquête (certaines nécessitent un temps de traitement).

ᐃᓄᒃᑎᑐᑦ: ᑕᓪᓗᕈᑎᐅᑉ ᐃᒪᖓᓂᑦ ᖃᐅᔨᓇᓱᒃᑐᓕᕆᓂᖅ ᐊᒻᒪᓗ ᐃᖅᑲᓇᐃᔭᖃᓕᓰᕐᓂᕐᒧᑦ ᐊᔪᕈᓐᓃᖅᓴᐃᓂᖅᓘᒃᑖᖅ ᓘᓇ ᔪᕋᓂᒃ ᐊᒻᒪᓗ ᓘᒃᑖᖅ ᐃᒪᓕ ᐊᐃᑕᒻ, ᐆᓇᒐᑦ ᓯᓚᑦᑐᖅᓴᕐᕕᒡᔪᐊᖅᐱᓕᕆᐊᕐᒥᑦ ᐃᓚᐅᔪᖅ ᑕᕆᐅᕐᐅᑕᓂᒃ ᖃᐅᔨᓴᐃᓂᖅ ᐊᒻᒪᓗ ᐃᖅᑲᓇᐃᔭᓕᓰᖅᑐᖅ ᖃᐅᔨᓇᓱᒃᑎᐅᓂᕐᒧᑦ ᐊᔪᕈᓐᓃᖅᓴᖅᑐᖅ USCGC Hᐃᓖ ᑕᑉᓗᕈᑎᐅᑉ ᐃᒪᖒᕐᓂᖓᓂᑦ ᖁᕐᓗᖅᑐᕐᒥᑦ, ᑲᓇᑕᒥᑦ ᓅᒃ, ᐊᑯᑭᑦᑐᒧᑦ. ᐊᑐᕐᓂᐊᖅᑕᕗᑦ ᐱᐅᓛᒃᑯᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᓂᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐱᓕᕆᐊᒃᓴᕆᔭᐅᔪᓂᒃ ᐊᔾᔩᙱᑦᑑᑎᓂᑦ ᖃᐅᔨᓇᓱᒃᑐᓕᕆᔾᔪᒃᑯᓐᓂᑦ ᐊᒻᒪᓗ ᐱᓕᕆᖃᑎᒋᓗᒋᑦ ᐊᒥᐊᓕᑲᒥᑦ ᐃᒪᕆᓐᓂᑦ ᒥᐊᓂᖅᓯᔨᒃᑯᑦ, ᓄᓇᕐᓇᐊᕐᒥᑦ ᐱᓕᕆᖃᑎᒋᔭᐅᔪᑦ, ᐊᒻᒪᓗ ᓄᓇᖃᖅᑳᖅᑐᑦ ᓄᓇᓕᖏᓐᓂᑦ ᐸᕐᓇᐃᑎᓪᓗᑕ ᐊᒻᒪᓗ ᐅᒥᐊᕐᔪᐊᒃᑯᑦ ᐃᖏᕐᕋᔭᖕᓂᕐᒥᒃ ᐱᒋᐊᖅᑎᑦᑎᑎᓪᓗᑕ ᐊᒻᒪᓗ ᑐᓴᐅᒪᑎᑦᑎᓗᑕ ᖃᓄᐃᖓᓂᐅᔪᓂᒃ ᓄᓇᓕᖕᓄᑦ ᐊᒻᒪᓗ ᑭᑐᓗᒃᑖᓂᒃ.ᖃᐅᔨᓇᓱᒃᑐᓕᕆᓂᒃᑯᑦ ᖃᐅᔨᓴᐃᓂᕐᒧᑦ ᐊᐱᖅᑯᑏᑦ: (1) ᐱᑕᖃᙱᑦᑐᑦ ᓈᓴᐅᑎᓂᑦ/ᑎᑎᖅᑲᓂᑦ ᐋᖅᑭᒍᓐᓇᖅᐱᑎᒍᑦ ᐱᑕᖃᓕᖅᑎᓪᓗᒋᑦ ᑕᓪᓗᕈᑎᐅᑉ ᐃᓚᖓᓂᑦ ᐃᑎᓂᕐᒥᑦ ᐊᒻᒪᓗ ᓄᓇᙳᐊᓕᐊᕆᓗᒋᑦ ᐃᖏᕐᕋᔭᖕᓂᕐᒧᑦ ᐅᓗᕆᐊᓇᖅᑐᐃᑦ? (2)ᖃᓄᖅ ᐊᔅᔭᖅᑕᐅᓂᖓ ᐃᒪᖅ ᑕᓪᓗᕈᑎᐅᑉ ᐃᒪᖓᒍᑦ ᐋᖅᑭᐅᒪᕙ ᐊᖏᓂᖅᓴᐅᔪᒧᑦ ᐅᑭᐅᖅᑕᖅᑐᒥᑦ ᑕᕆᐅᑉ ᐊᐅᓚᓂᕆᔭᖓᒍᑦ? ᖃᓄᖅ ᐃᒪᕐᒥᑦ ᑲᑎᓯᒪᔪᑦ ᐊᓯᐊᙳᖅᑲᑦᑕᖅᐸᑦ ᐃᓗᐊᓃᑦᑐᓂᑦ ᐊᒻᒪᓗ ᐃᒪᕐᒥᑦ? (3) ᖃᓄᖅ ᐱᐅᓯᕆᐊᖅᓯᑎᑦᑐᙵᖅᐱᑎᒍᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᖓ ᐊᒻᒪᓗ ᓱᕋᒃᐸᓪᓕᐊᓂᖓ ᑕᕆᐅᑉ ᓯᑯᖓ ᒪᓕᒡᓗᒋᑦ ᓯᓚᓕᕆᓂᖅ, ᑕᕆᐅᕐᒥᑦ ᓯᑯ, ᐊᒻᒪᓗ ᑕᕆᐅᑉ ᐃᒪᖓᑕ ᖀᖓᓄᑦ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓄᑦ ᓈᓴᐅᑏᑦ/ᑎᑎᖅᑲᐃᑦ?(1)-ᒧᑦ, ᐱᓪᒪᕆᐅᔪᑦ ᑕᕆᐅᑉ ᐃᒪᖓᓄᑦ ᐃᑎᓂᐅᔪᑦ ᐱᑕᖃᙱᑦᑐᑦ ᐱᑕᖃᓕᖅᑎᑦᑐᒪᔭᕗᑦ, ᐃᑲᔪᕐᓗᑕ ᐱᐊᓂᒃᓯᓂᕐᒥᒃ ᑕᕆᐅᑉ ᐊᓗᐊᓂᑦ ᓄᓇᙳᐊᓕᐅᕆᓂᕐᒥᒃ, ᐊᒻᒪᓗ ᐃᑲᔪᕐᓗᒋᑦ ᐃᖏᕐᕋᔭᖕᓂᕐᒧᑦ ᐅᓗᕆᐊᓇᖅᑐᑦ ᖃᐅᔨᒪᔭᐅᓕᕐᓂᐊᕐᓗᑎᒃ. ᐱᓕᕆᖃᑎᒋᓂᐊᖅᑕᕗᑦ ᑲᓇᑕᒥᑦ ᖃᐅᔨᓴᐃᔩᑦ NRCAN-ᑯᓐᓂᑦ ᐊᒻᒪᓗ GSC-ᑯᓐᓂᑦ ᓯᕗᓪᓕᖅᐸᐅᑎᔭᐅᔭᕆᐊᓕᖕᓄᑦ ᓄᓇᙳᐊᓕᐅᕐᕕᐅᓂᐊᖅᑐᓂᒃ. ᑲᑎᑦᑎᔪᒪᖕᒥᔪᒍᑦ ᐊᓗᐊᓂᑦ ᐆᒃᑐᕋᕈᑕᐅᓂᐊᖅᑐᓂᒃ ᐱᐅᓯᕆᐊᕐᓂᐊᕐᓗᒍ ᓄᓇᙳᐊᖅ ᑕᕆᐅᑉ ᐊᓗᐊᓃᑦᑐᑦ ᐱᕙᓪᓕᐊᔭᐅᑎᓪᓗᒋᑦ ᑲᓇᑕᒥᑦ ᖃᐅᔨᓴᐃᔨᒧᑦ ᓘᒃᑖᖅ ᑕᐃᕙᑦ ᒧᔨ-ᒧᑦ. ᐊᑐᕐᓂᐊᖅᑕᕗᑦ ᐆᒃᑐᖅᐅᑎᑦ ᐊᔪᕈᓐᓃᖅᓴᖅᑕᐅᓂᖏᓐᓄᑦ ᐃᖅᑲᓇᐃᔭᓕᓰᖅᑐᑦ ᖃᐅᔨᓇᓱᒃᑏᑦ ᐆᒃᑐᖅᐃᓂᕐᒧᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᓂᒃ ᐊᒻᒪᓗ ᑲᑎᑦᑎᓂᐊᕐᓗᑎᒃ ᐆᒪᓂᖃᖅᑐᓂᒃ, ᐆᒪᓂᖃᖅᑐᑦ ᐋᖅᑭᐅᒪᓂᖏᓐᓂᑦ, ᐊᒻᒪᓗ ᓂᕿᑦᑎᐊᕙᓄᑦ ᓈᓴᐅᑎᓂᒃ/ᑎᑎᖅᑲᓂᒃ. (2)-ᒧᑦ ᖃᐅᔨᓴᕐᓂᐊᖅᑕᕗᑦ ᑕᕆᐅᑉ ᐃᒪᖓᑕ ᖀᖓ ᐃᖏᕐᕋᑎᓪᓗᑕ ᐊᑐᕐᓗᒋᑦ ᐅᒥᐊᕐᔪᐊᕐᒦᑦᑐᑦ ᐃᒃᐱᒋᑉᓗᑎᒃ ᖃᐅᔨᓴᐃᔾᔪᑏᑦ, ᑐᑭᓯᐊᓕᕐᓂᐊᕐᓗᒋᑦ ᖃᓄᖅ ᐃᒪᐅᑉ ᐃᓗᐊᓂᑦ ᐋᖅᑭᐅᒪᓂᖕᒥᑦ ᑕᕆᐅᑉ ᐃᒪᖓᓂᑦ ᐊᓯᐊᙳᖅᑲᑦᑕᕐᒪᖔᑕ ᐃᓂᐅᔪᒃᑯᑦ ᑯᕕᓂᖓᒍᑦ ᑕᕆᐅᑉ ᐊᐅᓚᓂᖏᑦᑎᒍᑦ. ᑲᑎᑦᑎᓂᐊᖅᑐᒍᑦ ᖁᒻᒧᑦ ᐃᒪᕐᒦᑦᑐᓂᑦ ᐊᒻᒪᓗ ᐃᒪᖅ ᐆᒃᑐᖅᓗᒍ ᖃᐅᔨᓴᕐᓂᐊᕐᓗᒋᑦ ᐃᓗᐊᓃᑦᑐᑦ ᐃᓚᐅᑉᓗᑎᒃ ᐃᑯᒻᒪᖅᑯᑎᖃᕐᓂᖅ, ᓂᓪᓕᓇᕐᓂᖓᓂᒃ ᐆᓇᕐᓂᖓᓂᒃ, ᓂᕿᑦᑎᐊᕙᒃᓴᐅᔪᓂᑦ, ᐊᓯᖏᓪᓗ ᐃᓗᐊᓃᑦᑐᑦ ᐊᑐᕐᓗᒋᑦ ᐅᒥᐊᕐᔪᐊᕐᒦᑦᑐᑦ ᐋᖅᑭᒃᓯᓂᕐᒧᑦ ᖃᐅᔨᓴᐃᔾᔪᑏᑦ ᐃᓚᖏᓐᓂᑦ ᐃᓂᐅᔪᓂᑦ ᐊᒻᒪᓗ ᐊᑐᕐᓗᑕ ᒥᑭᔪᓂᒃ ᕿᒪᒃᑕᐅᔪᓐᓇᖅᑐᓂᒃ ᐃᒃᐱᒋᖅᑲᑦᑕᖅᑐᓂᒃ ᐊᑯᓐᓂᖏᓐᓂᑦ ᐃᓂᐅᔪᑦ. ᐃᒪᕐᒥᑦ ᐆᒃᑐᖅᕈᑏᑦ ᑐᖅᑯᖅᑕᐅᓯᒪᓂᐊᖅᑐᑦ ᐊᒻᒪᓗ ᐅᑎᖅᑎᑕᐅᓗᑎᒃ ᖃᐅᔨᓴᐃᕝᕕᖕᓄᑦ ᖃᐅᔨᓴᖅᑕᐅᓂᐊᕐᓗᑎᒃ.(3)-ᒧᑦ, ᑲᑎᑦᑎᓂᐊᖅᑐᒍᑦ ᓯᓚᓕᕆᓂᕐᒥᑦ ᐊᒻᒪᓗ ᑕᕆᐅᑉ ᐃᒪᖓᑕ ᖀᖓᓂᑦ ᐆᒃᑐᖅᑕᐅᔪᓂᒃ (ᑎᑭᐅᑎᓂᕆᔭᐅᔪᓂᑦ ᐊᐅᓚᓂᕐᒥᑦ, ᐊᓄᕆᑐᓂᕐᓂᒃ, ᑕᕆᐅᑉ ᐃᒪᖓᑕ ᖀᖓᓂᑦ ᓂᓪᓕᓇᕐᓂᕐᒥᑦ ᐆᓇᕐᓂᕐᒥᑦ ᐊᒻᒪᓗ ᑕᕆᐅᒋᖕᓂᕐᒥᑦ, ᖃᐅᒪᓂᕐᒥᑦ ᐱᔪᓂᒃ) ᑕᕆᐅᑉ ᓯᑯᖓᑕ ᖃᓂᑖᓂᑦ ᐊᒻᒪᓗ ᑕᕆᐅᕐᒦᑦᑐᓂᒃ ᐃᓂᐅᔪᓂᑦ. ᑲᑎᑦᑎᔪᒪᖕᒥᔪᑦ ᓯᑯᓂᑦ ᐆᒃᑐᖅᕈᑎᓂᑦ ᐊᔪᕐᓇᙱᑉᐸᑦ ᐃᑰᑕᕐᓗᑕ ᒥᑭᔪᓂᒃ ᐊᖕᒪᔪᓂᒃ ᓯᑯᒥᑦ ᐃᑰᑕᕈᑎᒧᑦ.ᑲᑎᖅᑲᑎᒋᔪᒪᔭᕗᑦ ᐃᓂᐅᔪᒥᑦ Hᐋᓪᓚᐅᔪᑦ ᐊᒻᒪᓗ ᐱᑐᒥᑦ ᖃᐅᔨᒪᓂᖅᓴᕆᓪᓗᒋᑦ ᐊᒻᒪᓗ ᐱᔪᒪᓂᖅᑲᖅᕕᓯᔭᖅᒥᑦ ᖃᐅᔨᓴᐃᓂᑉᑎᓐᓂ ᐊᒻᒪᓗ ᐊᔪᕈᓐᓃᖅᓴᐃᓂᕐᒧᑦ ᐱᓕᕆᐊᕆᔭᑉᑎᓐᓄᑦ. ᖁᕐᓗᖅᑐᕐᒧᑦ ᐊᒻᒪᓗ ᐃᖃᓗᒃᑑᑦᑎᐊᕐᒧᑦ ᐅᐱᕐᖔᖑᓕᖅᐸᑦ ᑲᑎᖅᑲᑎᒥᓂᐊᖅᓗᒋᑦ ᓄᓇᓖᑦ ᐱᓕᕆᐊᓇᖅᑐᐊᖅᑳᖅᑎᓐᓇᑕ ᐊᐅᔭᖅᒧᑦ. ᐋᖅᑭᒃᓯᐃᔪᓕᔪᒍᑦ ᓄᓇᓕᖕᒥ ᖃᓄᐃᓕᐅᕐᓂᖅᓯᕐᓂᐊᕐᓗᑕ ᖁᕐᓗᖅᑐᕐᒥ ᓴᓪᓛᑦ ᓄᖑᑉᐸᓪᓕᐊᓂᖓᓂᑦ ᐱᓕᕆᐊᒃᓴᓂᐊᖅᑐᒍᑦ ᖃᐅᔨᒪᓂᖅᓴᐅᔪᓂᒃ ᑐᓂᓯᒃᑕᐅᑎᓂᕐᒥᒃ ᓄᓇᓕᖕᒥᐅᓄᑦ, ᖃᐅᔨᓴᐃᔨᓄᑦ ᐊᒻᒪᓗ USCG ᐅᒥᐊᕐᔪᐊᕐᒥᑦ ᐱᓕᕆᔨᓄᑦ ᐊᐅᓪᓚᕐᓂᐊᓵᖅᑎᓪᓗᑕ. ᖃᐅᔨᒪᔪᒍᑦ ᐱᒻᒪᕆᐅᓂᖓ ᑐᓴᐅᒪᑎᑦᑎᓂᖅ ᓄᓇᓕᖕᓄᑦ ᖃᐅᔨᔭᑉᑎᓐᓂᑦ, ᐊᒻᒪᓗ ᑕᕝᕙᐅᖅᑲᑎᒥᑐᒥᑦ ᖃᐅᔨᒋᐊᕐᕕᒋᔪᒪᔭᕗᑦ 2025-ᒥᑦ. ᓈᓴᐅᑏᑦ/ᑎᑎᖅᑲᐃᑦ ᑐᓂᔭᐅᓂᐊᖅᑐᑦ GSC-ᑯᓐᓄᑦ ᐊᒻᒪᓗ NRCAN-ᑯᓐᓄᑦ ᐊᐅᓚᖅᑎᑕᐅᓗᑎᒃ ᓄᓇᖃᖅᑳᖅᑐᓂᑦ ᐱᔪᓐᓇᖅᑎᑦᑎᓂᕐᒧᑦ ᐳᒥᑦᓂᒃ ᐱᔪᓐᓇᖅᑎᑦᑎᔨᓄᑦ. ᓈᓴᐅᑏ/ᑎᑎᖅᑲᐃᑦ ᑲᑎᑕᐅᔪᑦ ᐃᖏᕐᕋᑎᓪᓗᑕ ᑐᓂᔭᐅᓂᐊᖅᑐᑦ ᐊᕐᕕᓂᓖᑦ ᑕᖅᑮᑦ ᐃᓗᐊᓂᑦ ᖃᐅᔨᓴᐃᓂᖅᑳᖅᑎᓪᓗᑕ. ᓈᓴᐅᑏᑦ/ᑎᑎᖅᑲᐃᑦ ᐆᒃᑐᕈᑕᐅᔪᓂᑦ/ᐆᒃᑐᖅᑕᐅᔪᓂᑦ ᑐᓂᔭᐅᓂᐊᖅᑐᑦ ᒪᕐᕉᒃ ᐅᑭᐅᓂᑦ ᖃᐅᔨᓴᐃᓂᖅᑳᖅᑎᓪᓗᑕ (ᐃᓚᖏᑦ ᐱᕕᖃᕆᐊᖃᕐᓂᐊᖅᑐᑦ ᐱᓕᕆᐊᖑᓂᖏᓐᓄᑦ).

Inuinnaqtun: Northwest Passage (Ikaaqviuyuq) Ayuqnaqtunik Qauyihaiyit Havalihaaqtunullu Havaaghanut

IlihautitDr. Laurie Juranek taamnalu Dr. Emily Eidam, Oregon Aviktuqhimanianit IlihaqpaalliqviatHapkunani havaaghanit qauyihaivaktut taryumiutanik havalihaaqtunullu havaaghanut ilihautighanik USCGC Healy-mi ingilraviuyuq Northwest Ikaaqvianit Qurluqtuqmit, Kanatami talvunga Nuuk, Akukittuqmut. Havauhittianik atuqtittivalliayumayugut munariplugit inirumayaita havaqatigiiktut ayuqnaqtunik qauyihaiyut havaqatigittiarumaplugillu US-mi Taryumi Munaqtiuyut, nunaqyuami ikayuqtigiit, Nunaqaqqaaqhimayullu nunallaat parnaiyaiplutik aullaqtittiyuniklu ikaaqvighamik tuhaqtittiplugillu iniqhimayait nunallaarmiunut inungnullu.Qauyihaiyit qauyihautinit apiqhuutit: (1) ayuqhautauyut ihuaqhaqtauniaqqat naunaitkutainit Northwest Ikaaqvianit taryumi qauyihailutik nunauyaliuqlutiklu ikaaqtunut amirnautinik? (2) Qanuq ingilrautiyut imaqmik Northwest Ikaaqvianit iliuraqtauniaqqa talvunga angitqiyamut Ukiuqtaqtumi Taryuutaanit? Qanuq imautauyut nayukkanit aallannguqpakpat avugiingnit pitquhiigullu? (3) Qanuq ihuaqhivaalliqniaqqat maliktauyut aklivaalliqnianit huruqpalliayunullu taryum hikuanit ihumagiplugu hila, taryum hikua, taryuplu qaangata naunaitkutait?Taaffumunnga (1), iliurainahuaqhimayugut ayuqhautinut naunaitkutanik qauyihainiqmut, ikayuqlutiklu inirahuariamik taryum natianik nunauyaliurniqmik, ikayuqlutiklu ikaaqtunut amirnautinik ilittuqhautighanik. Havaqatiginahuaqtaqqut Kanatamiutat Qauyihaiyut NORCAN-mit GSC-millu iriniginahuaqlugit nunauyaliuqvighat. Katitiqniaqhimayugut taryum natianit qauyihaqtaghanik ihuaqhautighat naunaitkutainut katiqhuqhimayut hanayauliqtuq taaffuminnga qauyihaiyi Dr. David Mosher. Qauyihaqtaghanik atuqniaqhimayugut ikayuutighat havalihaaqtunut havaaghanit qauyihaiyinik qauyihailutik havauhiqnik katitiriamik katiqhuqhimayunik, pitquhiinik naunaitkutanik, niqittiarniinullu naunaitkutanik.Taaffumunnga (2) munarinahuaqtaqqut qaanganiqmiutat taryum imaanik ingilratillutik umiaqmiutanik qauyihautikkut, taimaa ilihimattiariamik qanuq avugiiktumik taryuq aallannguqpagiaghaat aviktuqhimayumi tagyaaqmit hangutitaugaangat. Katitiriniaqhimayugut naunaitkutaghanik imaqmit imaqmiklu qauyihaqtaghanik naunaittiariamik nanminiinik huanngautainik, uunarnianik, niqittiaqariaghait, nanminiiniklu tamatkiumayunik umaqmit naunaiyautinik qauyihautiqaqhutik kituni tikkuaqtauhimayunit nayugaqnit atuqhutiklu mikiyunik takkannguqtaqtunik qauyihautinik akunngani havakviit. Imaqmik qauyihaiyaghat tutquumaniaqtut umiaqmi aullaqtitaulutiklu ilikkuuqtunut qauyihaqvingnut qauyihaqtauyughat.Taaffumunnga (3), katitiriniaqtugut hilamit taryuplu qaanganit qauyihaqtaghanik (tighiqtut kayumingniit, anuqqim kayumingnia, taryum qaangani uunnaqnia taryuqarnialu, qaumayumitlu naunaiqhitinik) taryum hikuata haniani hikumiutanik havakviinit. Parnaihimayugullu katitiriamik hikumit qauyihaqtaghanik ikuutaqhutik mikiyunik putunik ikuutakkut.Katitpalliayumayugullu aviktuqhimayumi haamlatkullu ilittuqhitiyaamik qauhimayatuqainik ihumagiyainiklu qauyihaqtaptingnik ilihautiptingniklu. Pulaaqniaqhimayaqqut Qurluqtuq Iqaluktuuttiaqlu upinngaghami katinnahuaqlugit nunallaat auyami hulivallaaqtinnatik. Nunallaarmiuniklu katipkaiyumayugu Qurluqtuqmi July nungutinnagu ilittuqhitivighainik qauhimayatuqanik nunallaarmiunut, qauyihaqtiptingnut, USCG-milu umiaqmit havaktiinik aullaqtinnatik. Ilihimattiaqtaqqut aghuurnaqniit tuhaqtittiyaamik ilihimaliqtavut nunallaarmiunut, pulaaqniaqhimaplutik katimavighainik ilittuqhitivaalliriamik 2025-mi pulaaqvighaanit.Naunaitkutat ilittuqhitiyauniaqtut GSC-mut NORCAN-mullu tuyuqtaulutiklu Nunaqaqqaaqhimayunut aulapkainiqmut atannguyanut. Naunaitkutanik katitiriyut ingilratillutik ilittuqhitiyauniaqtut 6 tatqiqhiutit naatinnatik qauyihaqvianit. Naunaitkutat qauyihaqtaghanit/uuktuqtaghanit ilittuqhitiyauniaqtut malruk ukiut naatinnatik qauyihaqvianit (ilangi naahurinnaqtut iniqvighainut).

Personnel

Personnel on site: 120

Days on site: 10

Total Person days: 1200

Operations Phase: from 2024-07-29 to 2024-08-13

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ᓇᒥ	ᖃᓄᐃᓕᑦᑐᒥᑦ ᐱᓕᓐᐊᖃᖅᓂᐊᖅᓯ	ᑭᓱᑯᑦ ᓄᓇᕐᔪᒃᓴᓂ	ᑐᓴᐅᒪᓴᓴᑦ ᓄᓇᐅᓯ ᐊᑐᓴᐅᓪᓕᐅᖅᑭᒃᓯᒪᓐᓇᐊᖅᓱᓂᓂᓱ	ᐃᑦᓴᕐᓂᑕᖃᖅᑎᐅᓪᓕᐅᖅᓯ ᐃᓄᖅᓗᓄᑦ ᓇᔾᔨᑕᐅᖃᖅᑎᑦᑕᕐᓂᔪᓐᓇᖅ ᑕᐃᑦᓭᒪᓂᑐᖃᖅᓯᒪᓂᖅ	ᖃᓄᓐᓂᖅᓯᖅ ᓄᓇᑕᑭᐅᓴᐅᕐᖅ ᐊᓪᒪᓗ ᓴᓗᑎᑦᑎᐊᐅᓪᓕᐅᖅᓗᓂ ᓭᓇᓄᖅ
nominal cruise track (subject to ice conditions)	Scientific/International Polar Year Research	Marine	n/a	n/a	Science party plans to board via small boat transfer based out of Kugluktuk, all other activities are well offshore of communities
potential sampling location 1	Scientific/International Polar Year Research	Marine	n/a	n/a	All potential sampling locations are offshore and at a distance from communities

ᓄᓇᕐᑐᐅᓯ ᐃᓕᐅᖃᑕᐅᓂᖓᓄ ᓄᓇᓕᒻᒥᓗ ᐊᐃᑦᑐᖃᓕᐅᖅᓂᖓᓄᓕᒃ ᐃᑲᔪᑕᐅᔪᓂᖓᓄᑦ

ᓄᓇᕐᑎᓴᖅ	ᐊᑎᑦ	ᑲᑐᔾᔨᐊᖃᖅᑲᑎᑎᓴᖅ	ᖃᓄᐃᓕᑦ ᑐᓴᐅᒪᓂᕐᓂᐊᕐᓗᒍ ᓄᓇᕐᓂᑦᑐᐅᓪᓕᐅᖅᓯᒪᓂᖅ
ᐃᖃᓗᓐᔅᑕᓯᐊᖅ	email sent to Mia Otokiak re: potential participation as community rep on cruise	Nunavut Impact review board	2024-02-11
ᖃᐅᖅᓗᖃᖅ	multiple phone calls to Grant at Kikiak Contracting re: help with Kugluktuk logistics	Kikiak contracting	2024-04-05
ᐃᖃᓗᓐᔅᑕᓯᐊᖅ	Emails to David Hik at CHARS re: locating knowledge expert to sail on training cruise	Canadian High Arctic Research Station	2024-03-25
ᖃᐅᖅᓗᖃᖅ	email sent to Larry Adjun	Kugluktuk Angoniatit Association - Hunters & Trappers Organization	2024-05-02

ᓕᐃᓴᓐᓂᑦ ᐱᒍᓐᓇᐅᑎ ᐊᓐᑎᖅᑕᐅᓪᓚᕆᑦ

ᓇᒃᑎᐊᓐᑎᓂᓄᑦ ᐱᑕᓇᐊᓇᖅᓯᐅᓂᐊᖅᑐᑦ ᑎᑎᕋᖅᓯᑕᑦ:

ᓕᐃᓴᓐᓂᑦ ᐱᒍᓐᓇᐅᑎ ᐊᓐᑎᖅᑕᐅᓪᓚᕆᑦ

ᑲᕿᒪᑎᐅᐅᖏᑦ ᐊᐃᖅᑐᖅᓯᓪᓚᕆᓂᓄᓂ ᒪᑕᑲᕋᓇᖏᓂᓄ ᐱᕋᔪᓇᖏᓂᓗ ᖃᒪᒃᑕ ᐱᒋᓐᓇᐅᑎᑕᑭᓄᓄᑦ ᓕᐃᓴᓐᓂᓪᓚᕆᓄᓄᑦ ᖃᒋᓂᖅᑕᑦ	ᖁᓇᐃᑦᑐᓕᓇᐅᕐᓂ ᓕᐃᓴᓐᓂᓪᓚᕆᐅᑕᐅᖏᓐᓄᑦ ᐱᒋᓐᓇᐅᑎᑕᑭᓄᓄᑦ ᐊᐅᓚᓐᓂᖅᑕᐅᖏᓐᓄᑦ ᐊᓐᑎᖅᑕᐅᓪᓚᕆᓂᓐᓂᑦ	ᐃᓐᓇ ᖁᓇᐃᓕᓴᕐᓂᓂᐊᓂ	ᐅᓪᓗᒥ ᑐᓂᓗ/ ᑐᓴᖏᓐᑐᑕᐅᓪᓚᐅᑎᖏᓐᓄᑦ	ᑭᓪᓕᖁᓕᐊᓐᓂ
ᓄᓇᕗᒻ ᖁᐅᓴᓕᐊᓐᑐᓪᓚᓴᓕᑦ	will be submitting NRI application for this project very soon	Not Yet Applied		

Project transportation types

Transportation Type	ᓴᓇᒧᑦ ᐊᑐᒪᐅᓂᐊᖅᐸ	Length of Use
Water	Transit and Research via US Coast Guard cutter Healy	

Project accomodation types

ᓄᓇᓕᕆᔨᖅ

ᐊᓴᓐᒪ,

ᐊᑐᓚᐅᓂᐊᖅᑐᖅ

ᐱᖏᑦ ᐊᖓᔪᖅ ᐊᑐᖅᑕᐅᓂᐅᓴᖅ ᐃᓕᖅᑲᐅᑎᓗᔪᑦ ᐃᓱᒋᑕᐃᑦ, ᒥᓪᓗᐊᕐᑏᑦ, ᖃᖓᓕᑲᓱᖅ, ᓄᓇᔪᐅᑦ ᐊᔪᖏᔪᓪᓗ

ᐊᖓᔪᖅ ᐱᖏᑦ ᐊᑐᓚᐅᓂᐊᖅᑐᖅ ᖃᖓᓄᐃᓚᒋᑦ	ᖃᑦᔪᐅᓕᑦ	ᐊᖓᔪᓂᖓᑦ - ᐳᖅᑐᓂᖓᑦ	ᔪᓇᒧᑦ ᐊᑐᓚᐅᓂᐊᖅᐸ
3.5 KHz echosounder	1	attached to ship	seabed imaging
USCGC Healy	1	128 m	Research vessel
multibeam echo sounder	1	attached to ship	bathymetric data collection
CTD	1	2m x 1 m	Collect seawater property data throughout the water column
XCTD	30	0.3 m length	Collect temperature and salinity data while underway
Shipboard sensors for seawater properties	5	attached to vessel	Sensors measure temperature, salinity, dissolved oxygen, total dissolved gas pressure, and chlorophyll fluorescence
acoustic scattering	1	attached to vessel	echo sounder to detect biomass in water (fish finder) at 18KHz and 38 KHz
Acoustic doppler current profiler	2	attached to vessel	measure ocean current velocity
gravimeter	1	attached to vessel	measure Earth's gravity field

ᑎᑎᕋᐅᔪᓐᓇᔪ ᐅᖃᔪᓴᐃᑦ ᐊᑦᑕᓇᖅᑐᖃᖅᑕᐅᓪᓗ ᐊᑐᖅᑕᐅᓂᐊᕐᓂᖓᑦ

ᔪᓇᒧᑦ ᐅᖃᔪᓴᕐᓂᐊᖅ ᐊᑐᓚᐅᓂᐊᖅᐸ	ᖃᓄᐃᓕᑐᑦᑕᓪᓗᓂᒃ ᐅᖃᔪᓴᕐᓂᐊᖅ	ᖃᑦᔪᐅᓕᑦ ᐅᖃᔪᓴᖃᐅᑎᑦ	ᐳᖅᓴᐅᐸ ᐃᒪᖃᖅᑎᑦᑕᓇᕐᓂᖓ	ᑲᑎᓪᓗᔪ	ᐳᖅᓴᐃᑦ ᐊᒥᔪᓂᖓᑦ	ᔪᓇᒧᑦ ᐊᑐᓚᐅᓂᐊᖅᐸ
Diesel	fuel	1	12202915	12202915	Gallons	vessel has diesel electric propulsion and carries all the fuel it needs
ethanol	hazardous	1	1	1	Liters	preservative for plant pigment samples
Mercuric Chloride	hazardous	1	1	1	Liters	Preservative for samples collected to measure seawater pH and alkalinity for ocean acidification studies.
Hydrochloric acid	hazardous	1	1	1	Liters	processing plant pigment

						and micro plastic samples
Sulfuric acid	hazardous	1	0.5	0.5	Liters	Analyzing oxygen samples
Sodium hydroxide (base)	hazardous	1	0.5	0.5	Liters	analyzing oxygen samples

ᐃᒪᖅ ᐊᑐᖅᑕᐅᔨᒪᖅᑐᖅ

ᐅᓪᓗ ᑕᒧᖅ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᖅ	ᖃᓄᖅ ᐃᒥᖅᑕᖃᖅᑕᕐᓂᐊᖅᐸᑦ	ᓇᑭᑦ ᐃᒥᖅᑕᖃᖅᑕᕐᓂᐊᖅᐸᑦ
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ᐊᑲᑕᑯᑦ

ᐊᑲᑕᑯᓕᓂᐊᕐᓂᖅ

ᐱᓕᓇᐊᓚᐅᐅᔪᒪᔪᒍᑦ ᐱᓕᓇᐊᓚᐅᐅᓂᐊᖅᑐᖅ	ᖃᓄᐃᐢᑐᖅ ᐊᑲᑕᑯᖅ	ᖃᓄᐃᑎᒋ ᐊᑲᑕᑯᑦ ᓴᖅᑭᐊᓂᐊᖅᑐᓚᐅᐅᐳᑦ	ᖃᓄᐃᖅ ᐊᑲᑕᖅᑕᐅᓂᐊᖅᐸ	ᓴᓗᒪᖅᓴᐅᑎᑲᓴᖅᓂᐅᐅᓂᐊᖅᑐᑦ
Scientific/International Polar Year Research	ᐊᑲᑕᑯᑦ ᐃᑯᐊᓪᑕᐅᔪᓐᓇᖅᑐᑦ	0	All solid waste will be stored onboard for shoreside disposal in Nuuk, Greenland.	Healy garbage management plan attached in supplemental documents

ᐊᐸᑎᒥᐅᑕᓂᑐᑦ ᐊᑲᑐᖅᑕᐅᓱᒪᔪᑦ

no predicted environmental impacts associated with this activity.

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 I1: Municipal Development

ᐃᓕᓴᕆ ᐊᐸᑎᐅᐸ ᖃᓄᐃᓐᑐᑦᑕᕆᐅᓂᖏᓐᓄ: ᓄᓇᐅᐸ ᖃᓄᐃᓐᑐᓂᖏᓐᓄ

Our activities will not impact the physical environment. We will collect small quantities of seabed for sediment analysis. We will collect small quantities of seawater for a suite of analyses designed to understand micro plastics, microscopic plants, and nutrients in seawater. Our ship-based sensor measurements will provide information on seafloor depth and potential navigational hazards in areas that are not well mapped.

ᐃᓕᓴᕆ ᐊᐸᑎᐅᐸ ᖃᓄᐃᓐᑐᑦᑕᕆᐅᓂᖏᓐᓄ: ᐅᒪᔪᖅᑕᖃᖅᓂᖏᓐᓄ

Our intended route has been planned to avoid protected critical habitat for marine mammals, including the Northwester polynya. We will avoid all areas with noted marine mammal presence. We are seeking to employ a local knowledge expert from Kugluktuk or other Nunavut community who will assist with marine mammal sightings to avoid impacts.

ᐃᓕᓴᕆ ᐊᐸᑎᐅᐸ ᖃᓄᐃᓐᑐᑦᑕᕆᐅᓂᖏᓐᓄ: ᐃᓄᓕᓗᓂᖅᓯᓐᓇᖅᑎᑦ-ᐱᐸᑦᑕᐊᔪᑕᓗᓂᖅᓯᓐᓇᖅᑎᑦ

Miscellaneous Project Information

documents provided for Healy's garbage management, sewage management, and chemical and hazardous waste management plans

ᓀᓗᓀᐃᖏᑕᐅᓂᖏᑦ ᐊᒃᑐᖏᑕᐅᓯᒪᔪᑦ ᖃᓄᐃᓐᑐᓂᖏᓐᓄᑦ ᐸᓪᐅᒥᐅᔪᓯᖏᑕᐅᓂᐊᖅᓂᖏᑦᓗ

No anticipated environmental impacts. The vessel complies with all international waste management guidelines and is self-contained with respect to waste.

Cumulative Effects

Impacts

ᓇᓗᓇᐃᖅᑕᐅᓂᖏᑦ ᐊᐸᑎᒥᐅᑕᓄᑦᑐᑦ ᐊᖏᑐᖅᑕᐅᓯᒪᔪᑦ

		PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
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(P = ᐊᖏᐅᓭᑭᑎᔨᓇᓕᖅᑐᑦ, N = ᐊᖏᐅᖅᑎᔨᓯᑕᐅᔨᓇᓕᖅᑐᑦ <ᓪᓕᐅᒡᓯᔪᖅᑐᖅᑕᐅᔨᓇᓕᖅᑎᑦᑐᓪᓗ, M = ᐊᖏᐅᖅᑎᔨᓯᑕᐅᔨᓇᓕᖅᑐᑦ <ᓪᓕᐅᒡᓯᔪᖅᑐᖅᑕᐅᔨᓇᓕᖅᑐᓪᓗ, U = ᖃᐅᐅᒪᓇᓕᖅᑎᑦᑐᖅ)

ᓇᒋᒪᖏᓂᖅ ᐱᓕᕆᐊᒃᑲᐅᔪᖅ

List of Project Geometries

1	polyline	nominal cruise track (subject to ice conditions)
2	point	potential sampling location 1
3	point	potential sampling location 2
4	point	potential sampling location 3
5	point	potential sampling location 4
6	point	potential sampling location 5
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11	point	potential sampling location 10

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50	point	potential sampling location 49
51	point	potential sampling location 50
52	point	potential sampling location 51
53	point	potential sampling location 52
54	point	potential sampling location 53
55	point	potential sampling location 54
56	point	potential sampling location 55
57	point	potential sampling location 56

58	point	potential sampling location 57
59	point	potential sampling location 58
60	point	potential sampling location 59
61	point	potential sampling location 60
62	point	potential sampling location 61
63	point	potential sampling location 61
64	point	potential sampling location 62
65	point	potential sampling location TC12
66	point	potential sampling location TC13
67	point	potential sampling location TC14
68	point	potential sampling location TC15
69	point	potential sampling location TC16
70	point	potential sampling location TC17
71	point	potential sampling location TC18
72	point	potential sampling location TC19
73	point	potential sampling location TC20
74	point	potential sampling location TC21
75	point	potential sampling location 63