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Ridwan Akogun, MPP

Tradition and Transition on the Seward Peninsula:

Bridging the Gap Between Potential Mining Development and Indigenous Livelihoods

Summary

Alaska's Seward Peninsula communities are at a pivotal intersection of natural resource development and Indigenous subsistence livelihoods. As the demand for graphite, a vital component in the transition towards a decarbonized economy increases, a proposal has been made to establish a large graphite mine 60km North of Nome. Thus, these communities find themselves at the forefront of balancing economic development with environmental stewardship and cultural preservation. There remains a notable policy gap in accounting for the impacts of extractive industries on livelihoods in this region and this research integrates specific spatial and temporal land-use data to inform adaptive recommendations.

Policy Recommendation

This brief provides an overview of the background, methods, and analyses that informed the following policy recommendation:
develop a new resource management plan

for the Seward Peninsula. Modeled after the Ambler mining district access road plan that formed the basis of classification and permitting on 244,188 acres of state-owned land, the strength of this recommendation is grounded in its capacity to address emerging environmental concerns, incorporate the latest insights, and adjust to socio-economic shifts. By proposing the formulation of a management plan that is informed by updated resource information and land classification, this recommendation ensures that decisions are made based on the latest scientific data, stakeholder input, and adaptive management strategies. This approach not only maximizes economic benefits by promoting extensive job creation and maximized royalties and tax revenues but also places a strong emphasis on environmental stewardship, cultural sensitivity, and community engagement.

Background

Subsistence in the Seward Peninsula

Bridging the gap between tradition and transition, the following section of this study casts a focused lens on the Iñupiat communities of the Seward Peninsula. The subsistence practice of hunting, fishing, and wild resources gathering is fundamental to the well-being of rural Alaskans and Alaska Native people. These resources are used for the fulfillment of various needs such as; food, shelter, clothing, transportation, crafts and trade. Rural subsistence users gather an estimated 36.9 million pounds of wild foods each year (Alaska Department of Fish and Game, n.d.-b) and according to the Alaska Department of Fish and Game, subsistence hunting and fishing provide over 80% of the dietary protein for rural residents of the Seward Peninsula (Alaska Department of Fish and Game, n.d.-a).

The villages in the Seward Peninsula are particularly reliant on wild resources for subsistence needs (Moerlein and Carothers 2012; Cisneros-Montemayor et al. 2016; Huntington et al. 2020); for example, approximately 227 kg of wild foods are harvested per person annually (25%–30% of food intake) in northwestern Alaska, USA (Magdanz et al. 2011). The majority of households in the area live in a mixed cash-subsistence economy, with subsistence as a significant component of Iñupiat culture and economy. Families rely on the local subsistence food supply, but they also require cash for housing, fuel, heating, electricity, and non-subsistence food (Loeffler 2015).

Energy Transition and Sustainable Communities

Against this backdrop of traditional resource use lies a modern imperative: the quest for energy independence and environmental sustainability. Graphite is a critical mineral in the pursuit of the goal of “decarbonizing the

economy” in the US and currently, the United States imports 100% of its graphite from other countries (Colorado School of Mines, n.d.). In 2022, the US imported an estimated 82,000 tons of natural graphite and does not have a supply of graphite in the National Defense Stockpile. China controls the graphite market and accounts for more than half of the global supply in 2021 and a third of the total US graphite imports (US Geological Survey 2023).

The market growth for graphite comes from lithium-ion batteries and they represent the most significant demand driver for battery-grade graphite. The consumption forecast projects a significant increase from less than 600kt of graphite consumption in 2022 to nearly 1,800kt in 2030. This need has generated support for local production in the United States. The Biden administration—through the DoD—recently granted funding of \$37.5 million for graphite mining near Nome in Alaska and processing in Washington state as a strategic move to increase the influence of the United States in the global graphite supply chain (Graphite One 2023).

Mining and oil and gas exploration on Indigenous lands and areas traditionally used for subsistence has been a source of controversy, causing extractive companies to face widespread criticism for offering few benefits to local communities while inflicting serious environmental damage (Berman, Loeffler, and Schmidt 2020). These activities are known to increase human access through motorized traffic disrupting migratory patterns and habitats, introducing invasive species, contaminating air and water, and reducing access to important resources. In addition to local sources of pollution, the long-distance transport of manufactured materials and chemicals by ocean and land is increasingly responsible for degrading Arctic ecosystems

and impacting the way of life of Indigenous peoples.

Methods

Data: This study includes a literature review and utilizes historical harvest data from reporting zones or (Uniform Coding Units; UCUs) within GMU 22C and 22D. This data, spanning the reporting years 2001 to 2022, is specifically acquired for assessing the potential impacts of Graphite One mining activity on big game harvest of brown bear, muskox, caribou, and moose, and the distribution of harvests by residency (“Harvest Information, Alaska Department of Fish and Game, Alaska Department of Fish and Game” n.d.).

This study used the Anadromous Watershed Catalog (AWC) for the Arctic Region which contains the point and polyline data for Area W; all waters north of the Yukon River drainage, including all saltwater north and west of Pastol Bay in Norton Sound, and south of the Selawik River drainage. The data contains water body numbers, locations, extent of cataloged habitat, and species utilization of given streams (“W” Seward Peninsula/Norton Sound - Sport Fishing Survey (v2.3.2) - Sport Fish - ADF&G” n.d.).

Many streams located along the southern half of the Seward Peninsula between Koyuk and Teller, including the Fish, Niukluk, Eldorado, Nome, Snake, Sinuk, Feather, Tisuk, Pilgrim, and Kuzitrin rivers offer mainly year-round, sport fishing opportunity (Alaska Department of Fish and Game, n.d.). This informed the use of sportfishing data as proxy for subsistence data in this study.

The study also used economic data from the Graphite One pre-feasibility report (Graphite One 2022) and estimates were made using

2023 mining industry data from the Alaska Department of Labor and Workforce Development.

Analysis: Multiple ring buffers at 1-, 5- and 10-mile distances were created around the mine, industrial access trail, and Kougarok road on ArcGIS, to show the impact extent or mine footprint during the development and routine operation of the mine. The multi-buffers were also used to assess the overlap of the project impact area with important streams and subsistence harvest locations in the area at various distances. The assumption of the impact extent of mining operations leading to the selection of 1-, 5- and 10-mile buffers was derived from a review of existing literature on the impact extent of mining operations and industrial access roads in Alaska and across the country.

The multiple ring buffers around the mine, access trail, and transportation corridor estimate the extent of air pollution, ground disturbance, noise pollution, and water pollution that will potentially alter surrounding habitats, impact land harvests and affect the population and distribution of fish species depended upon for sportfishing. Since most subsistence and sportfishing locations are concentrated near travel corridors, mining operations will have a direct impact on those locations.

Economic analysis assesses project costs (capital and operating), net present value, internal rate of return and payback period, and personnel requirements during various phases of the mining operations.

The primary contribution of the research is to build on existing frameworks for evaluation of (1) the overlap of industrial activities with indigenous livelihoods (2) decision alternatives to achieve sustainable resource management.

Fig 1: Graphite Mine Buffer

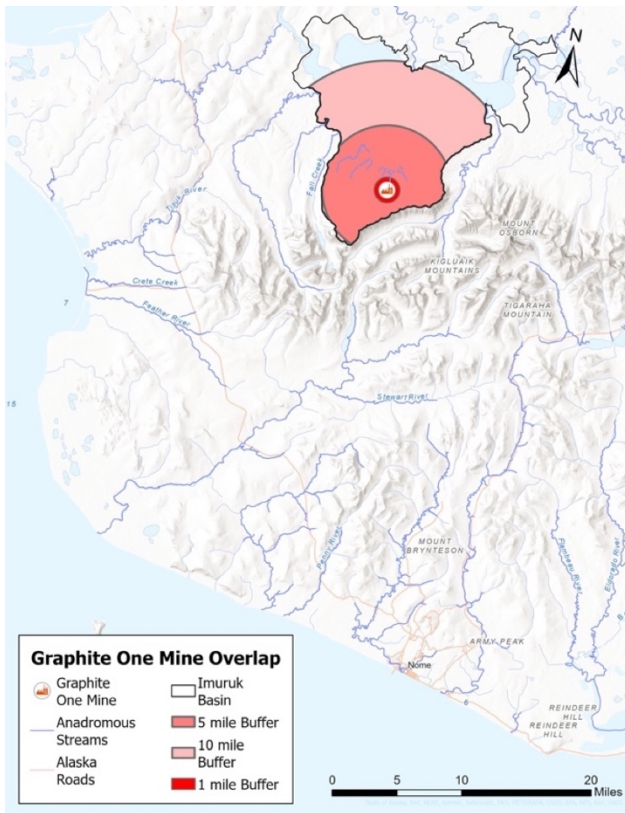


Fig 2: Industrial Access Road Buffer

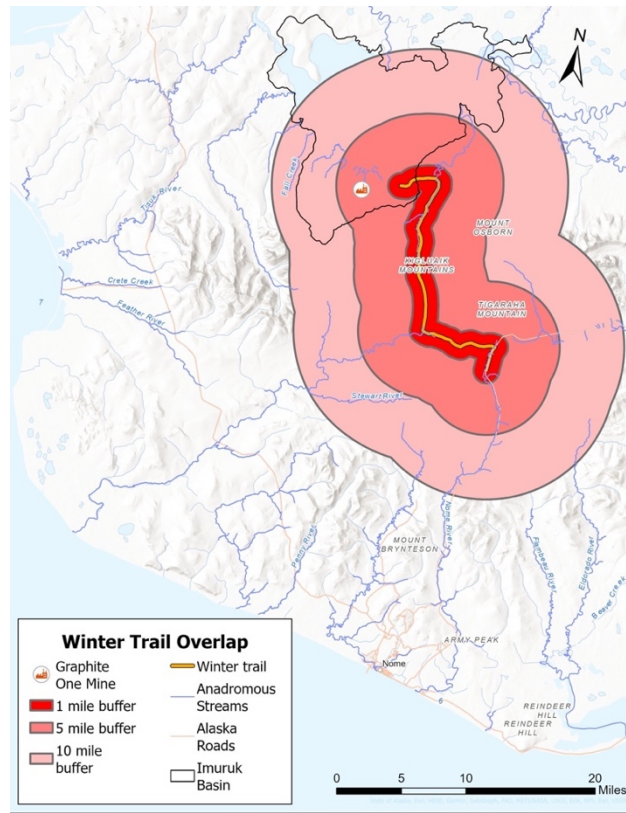
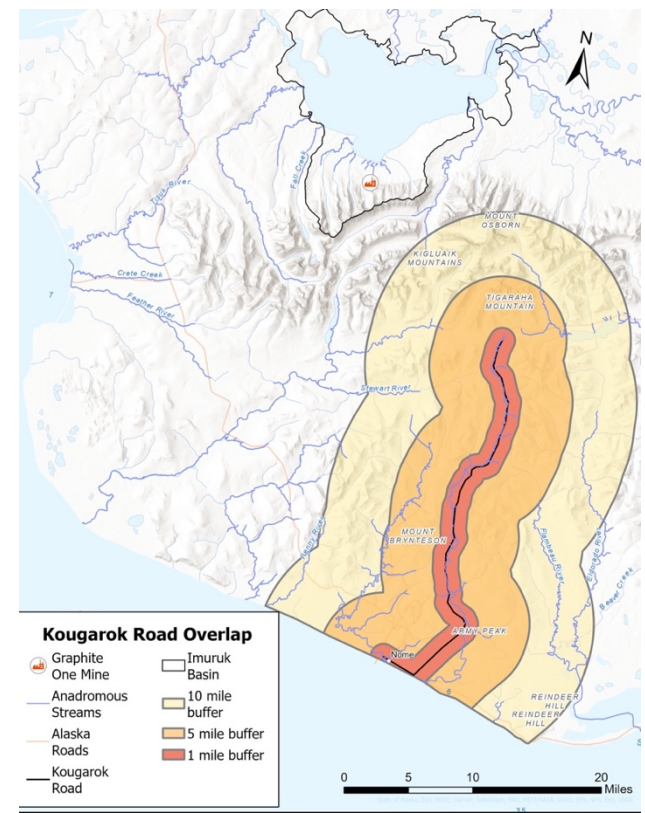


Fig 3: Kougarok Road Buffer



(Akogun, 2023)

Policy Alternatives

Table 1: List of policy alternatives

Alternative	Overview
Alternative 1: No action	Maintain current federal authorizations and multi-agency management based on the mining company’s plan of operation
Alternative 2: Apply the State of Alaska Large Mine Permitting Process	Plan of Operations and Reclamation Plan Approval, and Mill-site Lease
Alternative 3: Apply Northwest Area Plan (NWAP) management guidelines	General DNR management policies and guidelines for state uplands, shorelands, tidelands, and submerged lands in the Northwest Area Plan
Alternative 4: Develop a new management plan for the area	Authorizations based on management plan detailing updated resource information and land classification

Policy Analysis and Recommendation

Each alternative offers a distinct approach to sustainable resource management on the Seward Peninsula based on economic, environmental, implementability, sustained yield and access, and geoethics criteria. Policy alternatives were analyzed using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS)—under Multicriteria Decision Analysis (MCDA)—which operates on the premise that the optimal choice is characterized by its closeness to the ideal solution. Alternative 4, the development of a new resource management plan for the Seward Peninsula,

emerged as the alternative with the closest distance to the Positive Ideal Solution (PIS).

In comparison to the other alternatives, developing a new resource management plan offers a more comprehensive and balanced approach to mining development. While the NEPA alternative is inflexible and has implementation complexities, and the Alaska Large Mine Permitting Process (LMPP) and Northwest Area Plan (NWAP) Management Guidelines offer limited scopes in addressing all relevant concerns. The new resource management plan incorporates the best elements of adaptability, stakeholder engagement, and holistic resource management. This alternative has the capacity to mitigate the adverse impacts of mining operations and enhance the well-being of local communities and the integrity of natural ecosystems, making it the most forward-looking and sustainable choice among the alternatives considered.

Conclusion

Subsistence practices by communities in Alaska’s Seward Peninsula are critical to their livelihood and sustainability. Extractive companies have faced widespread criticism for the impacts of their activities on Indigenous lands and areas traditionally used for subsistence. Current policies and management actions do not effectively address this perennial and seemingly intractable challenge. This study shows the overlap of mining activities with Indigenous livelihoods, incorporating spatial data to bridge existing gaps and inform decision-making. The study further presents a viable recommendation based on a comprehensive analysis of policy alternatives.

Resources/Citations

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About the Author

Ridwan Akogun has a multi-disciplinary background with a B.Sc. in Biology and a Master’s in Business Administration. His professional journey is marked by a commitment to developing initiatives that advance sustainable development. The profound intrigue in the intricate interplay between social and ecological systems across local, national, and international spectrums lured him to the great state of Alaska—where he has been honing his expertise and is presently serving as a Natural Resource Specialist. This policy issue brief is based on an 80-page capstone report submitted to the Department of Public Policy and Administration at the University of Alaska Anchorage (UAA) in partial fulfillment of the requirements for a Master of Public Policy, in May 2024.

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