
Concluding Remarks

The relationship between humans and fish has a long history and a fish skin culture emerged as a result. Across different periods, Amur River Native Peoples used the materials available in their immediate environments, making careful use of animal remains. Animal skins were transformed into garments to provide body warmth and into containers for food preservation.

This book has explored the role of fish and fish by-products in the material culture of Native communities from the Amur River via Hokkaido to Sakhalin Island, highlighting how fish skin was crafted into clothing, footwear, storage items, tents and window coverings, drawing on its breathability, insulation and translucency. Fish remains, including bones, bladders and oils, were made into tools, adhesives, organic tanning agents and adornments. Fish skin technologies document Indigenous responses to environmental demands, colonial disruption and material abundance across the Circumpolar North.

Fish skin garment making relied on a gendered partnership. Men supplied fish and tools while women could independently catch fish, process skins and construct garments. Tools carefully produced by men were used by women over a lifetime. Sewing skills were transmitted through female kinship lines and were essential to survival, mobility and household stability. Garments were tailored to the wearer, adapted to weather conditions and designed for repair and reuse. Fish skin belongings also structured social identity. Garment shapes and embellishments signalled age, gender and group affiliation, operating as visible expressions of kinship, labour and continuity.

Despite their shared reliance on fish skin as a primary material, the Ainu, Hezhe, Nivkh and Nanai developed different traditions of fish skin processing, garment construction and decoration. The fish species selected

varied according to local environments and cultural practices. Nivkh and Nanai makers used female salmon, whitened carp and pike, while the Hezhe relied primarily on northern cold-water fish species and the Ainu on river and lake fish including humpback salmon, chum salmon, hucho salmon and Sakhalin taimen. Processing methods also differed. Nivkh and Nanai tanners prepared skins using pounding and kneading techniques. The Hezhe used cornmeal to absorb fish oils and soften skins, while Ainu makers smoked salmon skins during the preparation of footwear.

Garment shapes reveal different histories of exchange and adaptation. Nivkh and Nanai fish skin robes followed a Manchu-inspired T-cut design with a wide overlapping front panel opening on the right side, while Hezhe garments, consisting of a jacket and trousers, reflected Han Chinese dress styles. Ainu fish skin robes incorporated wide kimono-like sleeves connected with Japanese attire. Fish skin accessories also varied. Nivkh and Nanai boots featured curved pleated toes and characteristic Y- or T-shaped heel seams, Hezhe boots were ankle-length and loosely shaped, and Ainu salmon skin boots retained the dorsal fin to improve traction on snow and reinforce the structure of the sole. Nivkh and Nanai artists produced fire-making pouches from Sakhalin sturgeon skin to carry flint lighters and other tools, while the Ainu used salmon skin for similar objects. Fish skin painting, however, is documented only among the Hezhe.

Decorative practices likewise differed. Nivkh and Nanai garments incorporated appliqué, embroidery and painting in blue, black and red, making them the only groups to develop a polychrome fish skin tradition. Motifs included spirals, scrolls and animal forms. A black-painted border running along the hem, neck, front overlap panel and sleeves was placed to protect the wearer by sealing openings through which harmful forces might enter. Hezhe garments employed tone-on-tone fish skin decoration, with motifs of mountains, waves, clouds and animals such as lizards, hedgehogs and wild pigs placed along collars, plackets and cuffs. Shells, bronze bells and fish skin fastenings further embellished garments and footwear. Sakhalin Ainu garments incorporated embroidered double-thread braids positioned along the back for protection and marking boundaries between different realms. Across all three traditions, decoration served practical, social and protective functions alongside visual ornamentation.

These variations demonstrate how a shared fish skin technology developed into regional traditions shaped by ecology, exchange and cultural practice. While all four groups relied on fish skin as a primary material, they differed in the fish species selected, processing methods, garment construction, decorative styles and protective symbolism associated with dress.

Amur River Peoples experienced sustained colonial intervention from the eighteenth century onwards, beginning with the ruling dynasties and followed by traders, missionaries and state administrations. Russian, Chinese and Japanese authorities suppressed Indigenous shamanic practices, banned animal skin clothing and imposed new borders that fragmented Native communities and economies. Colonial authorities restricted Indigenous access to fishing grounds and enforced labour regimes, affecting Ainu, Hezhe, Nivkh and Nanai communities in the late nineteenth century. These policies disrupted subsistence economies yet did not erase fish-based technologies, which continued under altered conditions. Despite these pressures, Native communities adapted by incorporating traded materials, adopting technologies and maintaining cultural practices through art.

The geopolitical division of the Amur River continues to affect the livelihoods of local fishing communities. Chinese and Hezhe fishers are confined to the southern bank of the Amur River and the western bank of the Ussuri River, while Russian and Nanai fishers are restricted to the northern and eastern banks of the Amur. This division limits access to traditional fishing grounds and demonstrates how national borders continue to disrupt Indigenous fishing practices and cross-border cultural relationships. The history of fish skin garments presented in this book serves as a reminder that rivers, fish and knowledge move across political boundaries, linking communities across the region through shared fish skin heritage.

Museums collected fish skin artefacts through colonial expeditions, missionary activity and scientific research, separating objects from their makers and surroundings. Inter museum exchanges further dispersed collections. Recent collaborative practices have sought to reassess acquisition histories and support Indigenous interpretation and access. This research builds on such collaborations to document and sustain fish skin knowledge.

The crafting of garments from fish skin illustrates a form of material innovation that predates industrial outerwear materials. This practice demonstrates the ecological knowledge and resourceful use of local materials, an economy based on material sufficiency rather than excess, with clear relevance to current sustainability debates in the fashion sector. The process of tanning fish skin with fish oil, without the use of harsh chemicals such as chrome, aligns with modern efforts to reduce toxic waste in leather production. In recent years, fashion designers and material researchers have increasingly turned to fish leather and other bio-based materials as alternatives to petroleum-based synthetics. These practices form part of a living cultural heritage as expressions of Indigenous worldviews.

Materials carry meaning and agency, and material connections were also part of the legacy of the Hezhe, Nivkh, Nanai and Ainu world, across Asia. Their methods for harvesting and preserving fish resources, their understanding of the seasonal movements of fish was part of their local ecological knowledge, a valuable resource for today's researchers and wider society. Traditional knowledge has ensured that fish are harvested to support ecosystem health. The sustainability of these practices reflects long-standing cultural practices. As the fashion industry confronts the limits of globalised production and the environmental cost of fast fashion, fish skin offers a culturally specific model of material use that is efficient, ethical and enduring. By attending to the knowledge of the use of fish skin and other by-products, as well as the cultural values that shape their transformation, this book contributes to rethinking contemporary anthropology and sustainable fashion as fields that must draw on Indigenous histories of care and ecological balance.

