The map extends the range of Dr. Peterson's ongoing project to map in the northern half of the South Kawishiwi Intrusion (SKI) and the bush of the Superior National Forest. Initial mapping of the Gabbro Lake and Bald Eagle Lake area was done on a scale of 1:31,680 (Green et al., 1966) and was limited to shoreline traverses. The field work performed for this map was the access to the 641 outcrops mapped for this project was provided by extensive canoe shoreline mapping and traverses in the north of Lake Superior. This study addresses the Nickel Lake Macrodike and its pertinence to Cu-Ni-PGE mineralization in the South Kawishiwi Intrusion (SKI). A multiply intruded complex of granitic rocks emplaced in supracrustal rocks of the Wawa subprovince of the Superior Province. Forms the footwall to the small exposure of the Biwabik Iron Formation and the extensive exposure of Duluth Complex rocks in the map area.

**Geological Contacts**
- In situ
- Fault - mapped, inferred from topography
- Geologic Contact - approximate
- Geologic contact with adjacent unit mapped
- Logging Road, Trail
- Drill Hole with vertical projection of trace
- Outcrop
- Jointing - tectonic banding
- Lamination of plagioclase and olivine parallel to modal layering is very commonly observed as well as igneous cross-bedding.

**Igneous Modal Layering**
- Inclined
- Steepening towards the top of the intrusion

**Relic Features**
- Flaser banding
- Lamellae
- Lenticular shapes
- Staircase

**Mineralogy**
- A multiply intruded complex of granite-gneiss to aplitic granite-gneiss.
- Contains an average of 42% plagioclase (An55-70), 46% augite, and 12% opaque minerals.

**Heterogeneous Troctolite (N-Th)**
- Light to dark grey, medium- to coarse-grained, inclusion-rich, heterogeneous troctolitic and melt-primitive gabbro.
- Contains 25% olivine (Fo28), 15% olivine (Fo32), 15% serpentinized olivine, 20% plagioclase, and 5% augite.
- Contains 20% sutured plagioclase, 30% olivine (Fo24-30), and 21% serpentinized olivine as cumulate minerals; augite and opaque minerals are interstitial.
- Augite and opaque minerals are interstitial.
- Contains 30% olivine, 25% plagioclase, and 25% augite; augite and opaque minerals are interstitial.
- Contains 20% olivine, 30% plagioclase, and 50% augite; augite and opaque minerals are interstitial.
- Contains 20% olivine, 30% plagioclase, and 50% augite; augite and opaque minerals are interstitial.

**Troctolite (B-T)**
- Grey, fine-grained, steeply-dipping to vertical, granoblastic, locally magnetic, massive to fine-grained, aplitic granite.
- Contains 20% olivine (Fo28), 15% olivine (Fo32), 15% serpentinized olivine, 20% plagioclase, and 5% augite.
- Contains 20% sutured plagioclase, 30% olivine (Fo24-30), and 21% serpentinized olivine as cumulate minerals; augite and opaque minerals are interstitial.
- Contains 30% olivine, 25% plagioclase, and 25% augite; augite and opaque minerals are interstitial.
- Contains 20% olivine, 30% plagioclase, and 50% augite; augite and opaque minerals are interstitial.
- Contains 20% olivine, 30% plagioclase, and 50% augite; augite and opaque minerals are interstitial.

**Anorthositic Series**
- Medium- to coarse-grained, foliated. Contains an average of 42% plagioclase (An55-70), 46% augite, and 12% opaque minerals.
- Contains 25% olivine (Fo28), 15% olivine (Fo32), 15% serpentinized olivine, 20% plagioclase, and 5% augite.
- Contains 20% sutured plagioclase, 30% olivine (Fo24-30), and 21% serpentinized olivine as cumulate minerals; augite and opaque minerals are interstitial.
- Contains 30% olivine, 25% plagioclase, and 25% augite; augite and opaque minerals are interstitial.
- Contains 20% olivine, 30% plagioclase, and 50% augite; augite and opaque minerals are interstitial.
- Contains 20% olivine, 30% plagioclase, and 50% augite; augite and opaque minerals are interstitial.

**Duluth Complex**
- Contains a highly magnetic block within the SKI adjacent to the Nickel Lake macrodike. Includes a highly magnetic block within the SKI adjacent to the Nickel Lake macrodike.
- Includes a highly magnetic block within the SKI adjacent to the Nickel Lake macrodike.
- Includes a highly magnetic block within the SKI adjacent to the Nickel Lake macrodike.

**References**
- Green et al., 1966
- Weiblen and Morey (1980)

Explanatory Text

The map is the result of several years of detailed mapping by the authors in 2007 and is based on a compilation of information published before and after the map was produced. The map shows the distribution of geology and topography within the Nickel Lake Macrodike and Northern Bald Eagle Intrusion. The sources of information include satellite imagery, aerial photography, field mapping, and geological data from previous studies. The map was produced by the Precambrian Research Center, University of Minnesota, Duluth, and is part of the Southern Minnesota Geological Field Camp Project. The authors wish to acknowledge the contributions of previous researchers and mapmakers whose work has provided the basis for this map. The accuracy of the information presented in this map is based on the best available data and the authors do not guarantee the accuracy of the information. The map is intended for use by geologists, educators, and the general public.