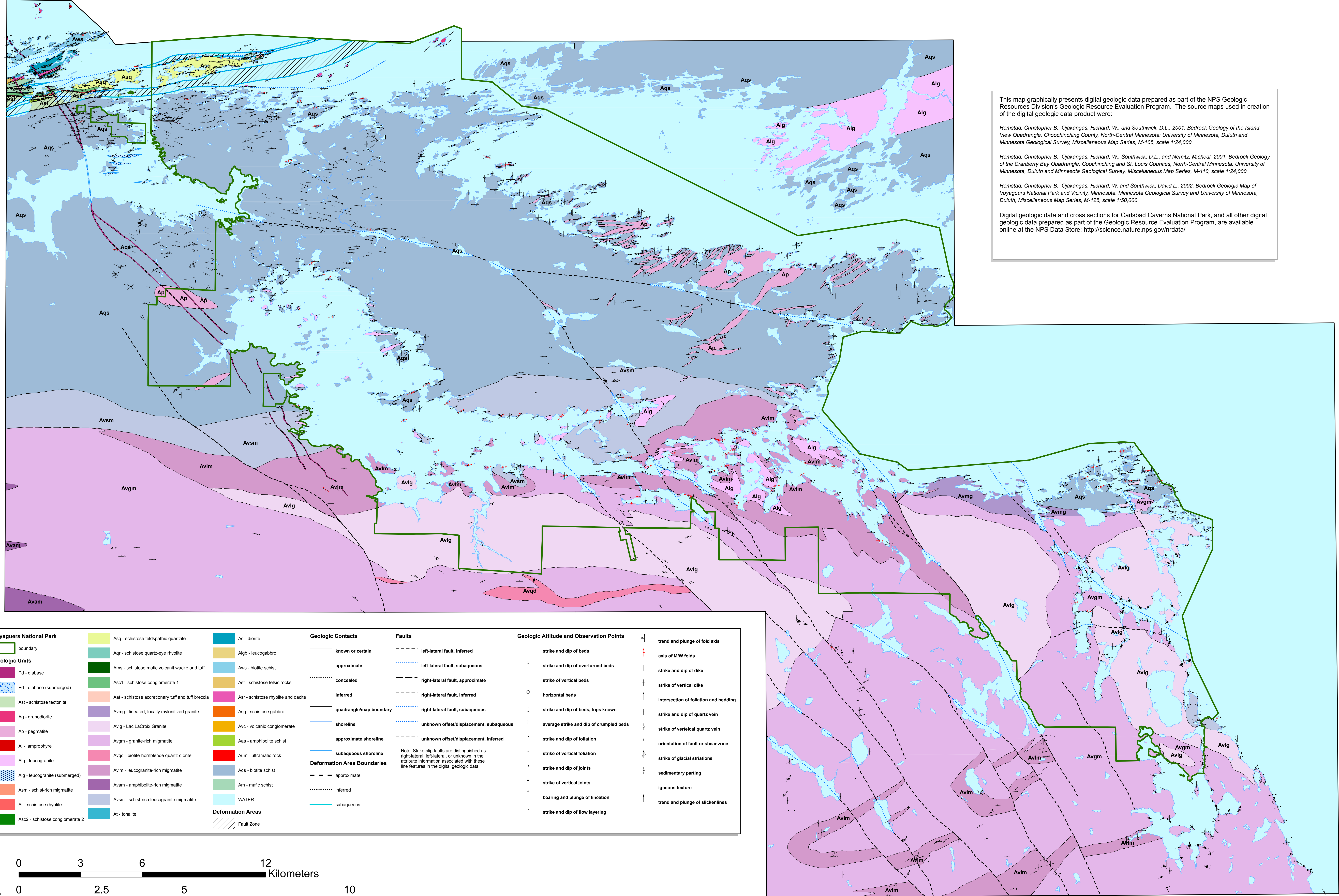




Geologic Map of Voyageurs National Park



This map graphically presents digital geologic data prepared as part of the NPS Geologic Resources Division's Geologic Resource Evaluation Program. The source maps used in creation of the digital geologic data product were:

Hemstad, Christopher B., Ojakangas, Richard, W., and Southwick, D.L., 2001, *Bedrock Geology of the Island View Quadrangle, Choochinchong County, North-Central Minnesota*, University of Minnesota, Duluth and Minnesota Geological Survey, Miscellaneous Map Series, M-105, scale 1:24,000.

Hemstad, Christopher B., Ojakangas, Richard, W., Southwick, D.L., and Nemitz, Micheal, 2001, *Bedrock Geology of the Cranberry Bay Quadrangle, Coochinchong and St. Louis Counties, North-Central Minnesota*, University of Minnesota, Duluth and Minnesota Geological Survey, Miscellaneous Map Series, M-110, scale 1:24,000.

Hemstad, Christopher B., Ojakangas, Richard, W. and Southwick, David L., 2002, *Bedrock Geologic Map of Voyageurs National Park and Vicinity, Minnesota*, Minnesota Geological Survey and University of Minnesota, Duluth, Miscellaneous Map Series, M-125, scale 1:50,000.

Digital geologic data and cross sections for Carlsbad Caverns National Park, and all other digital geologic data prepared as part of the Geologic Resource Evaluation Program, are available online at the NPS Data Store: <http://science.nature.nps.gov/nrd/data/>

Voyageurs National Park		Geologic Units		Geologic Contacts		Faults		Geologic Attitude and Observation Points	
[Green outline]	boundary	[Light green]	Asq - schistose feldspathic quartzite	[Black line]	known or certain	[Dashed line]	left-lateral fault, inferred	[Arrow]	trend and plunge of fold axis
[Pink]	Pd - diabase	[Dark green]	Aqr - schistose quartz-eye rhyolite	[Dotted line]	approximate	[Dotted line]	left-lateral fault, subaqueous	[Arrow]	axis of M/W folds
[Light blue]	Pd - diabase (submerged)	[Light green]	Ams - schistose mafic volcanitic wacke and tuff	[Dashed line]	concealed	[Dotted line]	right-lateral fault, approximate	[Arrow]	strike and dip of dike
[Light blue]	As1 - schistose tectonite	[Light green]	Asc1 - schistose conglomerate 1	[Dashed line]	inferred	[Dotted line]	right-lateral fault, inferred	[Arrow]	intersection of foliation and bedding
[Pink]	Aq - granodiorite	[Light green]	Aat - schistose accretionary tuff and tuff breccia	[Dashed line]	quadrangle/map boundary	[Dotted line]	right-lateral fault, subaqueous	[Arrow]	strike and dip of quartz vein
[Pink]	Ap - pegmatite	[Light green]	Avmg - linedated, locally mylonitized granite	[Dashed line]	shoreline	[Dotted line]	unknown offset/displacement, subaqueous	[Arrow]	strike of vertical quartz vein
[Red]	Al - lamprophyre	[Light green]	Avlg - Lac LaCroix Granite	[Dashed line]	approximate shoreline	[Dotted line]	unknown offset/displacement, inferred	[Arrow]	orientation of fault or shear zone
[Light blue]	Alg - leucogranite	[Light green]	Avqm - granite-rich migmatite	[Dashed line]	subaqueous shoreline	[Dotted line]		[Arrow]	strike of glacial striations
[Light blue]	Alg - leucogranite (submerged)	[Light green]	Avqd - biotite-hornblende quartz diorite	[Dashed line]	Deformation Area Boundaries	[Dotted line]		[Arrow]	sedimentary parting
[Light blue]	Asm - schist-rich migmatite	[Light green]	Avim - leucogranite-rich migmatite	[Dashed line]	approximate	[Dotted line]		[Arrow]	igneous texture
[Light blue]	Ar - schistose rhyolite	[Light green]	Avam - amphibolite-rich migmatite	[Dashed line]	inferred	[Dotted line]		[Arrow]	trend and plunge of slickenlines
[Light blue]	Asc2 - schistose conglomerate 2	[Light green]	Avsm - schist-rich leucogranite migmatite	[Dashed line]	subaqueous	[Dotted line]			
		[Light green]	At - tonalite	[Dashed line]		[Dotted line]			
		[Light green]	Ad - diorite	[Dashed line]		[Dotted line]			
		[Light green]	Algb - leucogabbro	[Dashed line]		[Dotted line]			
		[Light green]	Aws - biotite schist	[Dashed line]		[Dotted line]			
		[Light green]	Asf - schistose felsic rocks	[Dashed line]		[Dotted line]			
		[Light green]	Asr - schistose rhyolite and dacite	[Dashed line]		[Dotted line]			
		[Light green]	Asg - schistose gabbro	[Dashed line]		[Dotted line]			
		[Light green]	Avc - volcanic conglomerate	[Dashed line]		[Dotted line]			
		[Light green]	Aam - amphibolite schist	[Dashed line]		[Dotted line]			
		[Light green]	Aum - ultramafic rock	[Dashed line]		[Dotted line]			
		[Light green]	Aqs - biotite schist	[Dashed line]		[Dotted line]			
		[Light green]	Am - mafic schist	[Dashed line]		[Dotted line]			
		[Light green]	WATER	[Dashed line]		[Dotted line]			
		[Light green]	Deformation Areas	[Dashed line]		[Dotted line]			
		[Light green]	At - tonalite	[Dashed line]		[Dotted line]			
		[Light green]	Fault Zone	[Dashed line]		[Dotted line]			

