Nunavummi Qaujisaqtulirijikkut / Nunavut Research Institute
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May 28, 2002

NWB2SEP file

NOTIFICATION OF RESEARCH

PLEASE BE ADVISED THAT SCIENCE RESEARCH LICENCE No. 0300702N-A **HAS BEEN ISSUED TO:**

Linda Kah
Department of Geological Sciences
University of Tennessee
1412 Circle Drive
Knoxville, Tennessee
65211 USA

CEO
BRD
EXT.

TO CONDUCT THE FOLLOWING STUDY:
Reef Evolution and Basin Development, Dismal Lakes and Parry Bay Groups

SUMMARY OF RESEARCH:

Today's magnificent tropical reefs show distinct growth patterns depending onteh position of the reef relative to sea level, which controls the amount of sunlight that reaches the reef surface. Reefs that occur in deep water grow rapidly upward toward the ocean surface, where sunlight is more available, and in reefs that occur in shallow water spread outward. Over the lifetime of a reef, sea level changes are recorded in these growth patterns. By examining these growth patterns in ancient reefs, we can begin to understand the relationships between environmental and biological processes in the Earth's geologic past. The Dismal Lakes Group (Coppermine region) and Parry Bay Group (Kent Peninsula) contain some of the Earth's oldest fossil reefs. These structures are ~1.3 billion years old and are similar in size tot eh Great Barrier Reef in Australia. However, these ancient structures were built entirely from photosynthetic bacteria, rather than corals with hard skeletons. In order to understand how single-cell organisms could construct such massive reefs, we are trying to reconstruct reef growth and compare it to that of other reefs of similar age. Over 45 days, we will travel to four localities by float plane, set up mobile camps (4-person, 2-3 tents), and will follow standard low-impact backpacking practices (pack in, pack out). Our research will consist of measuring thickness of rock strata, photographing and mapping reef structures, and removing small (3x5x7 cm) rock samples from surface outcrops. These samples will be examined in the lab to determine how the reefs were cemented into rock. In commitment to both education and northern regions, I am designing a computer CD for local community schools that will show what these ancient geological formations, and similar ones elsewhere in the world, can teach us about the Earth's ancient past.

TERMS & CONDITIONS:
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THE STUDY WILL BE CONDUCTED AT: September Lake (67°06'N, 115°45'W); Dismal Lake (67°25'N, 117°03'W); Bebensee Lake (67°29'N, 118°32'W); Parry Bay (67°50'N, 107°30'W)
BETWEEN: June 01, 2002 - September 01, 2002.

Susan Ignace Woodley
per Mary Ellen Thomas
Manager, Research Liaison

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SCIENTIFIC RESEARCH LICENCE

LICENCE # 0300702N-A

ISSUED TO: Linda Kah
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1412 Circle Drive
Knoxville, Tennessee
65211 USA

TEAM MEMBERS: L. Kah; P.J. Schuneman; M. McInnish; 1 field assistant TBA

AFFILIATION: University of Tennessee

TITLE: Reef Evolution and Basin Development, Dismal Lakes and Parry Bay Groups

OBJECTIVES OF RESEARCH:
Today's magnificent tropical reefs show distinct growth patterns depending onteh position of the reef relative to sea level, which controls the amount of sunlight that reaches the reef surface. Reefs that occur in deep water grow rapidly upward toward the ocean surface, where sunlight is more available, and in reefs that occur in shallow water spread outward. Over the lifetime of a reef, sea level changes are recorded in these growth patterns. By examining these growth patterns in ancient reefs, we can begin to understand the relationships between environmental and biological processes in the Earth's geologic past. The Dismal Lakes Group (Coppermine region) and Parry Bay Group (Kent Peninsula) contain some of the Earth's oldest fossil reefs. These structures are ~1.3 billion years old and are similar in size tot eh Great Barrier Reef in Australia. However, these ancient structures were built entirely from photosynthetic bacteria, rather than corals with hard skeletons. In order to understand how single-cell organisms could construct such massive reefs, we are trying to reconstruct reef growth and compare it to that of other reefs of similar age. Over 45 days, we will travel to four localities by float plane, set up mobile camps (4-person, 2-3 tents), and will follow standard low-impact backpacking practices (pack in, pack out). Our research will consist of measuring thickness of rock strata, photographing and mapping reef structures, and removing small (3x5x7 cm) rock samples from surface outcrops. These samples will be examined in the lab to determine how the reefs were cemented into rock. In commitment to both education and northern regions, I am designing a computer CD for local community schools that will show what these ancient geological formations, and similar ones elsewhere in the world, can teach us about the Earth's ancient past.

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DATA COLLECTION IN NU:
DATES: June 01, 2002-September 01, 2002
LOCATION: September Lake (67°06'N, 115°45'W); Dismal Lake (67°25'N, 117°03'W); Bebensee Lake (67°29'N, 118°32'W); Parry Bay (67°50'N, 107°30'W)

Scientific Research Licence 0300702N-A expires on December 31, 2002.
Issued at Iqaluit, NU on May 28, 2002.

Mary Ellen Thomas
per Bruce Rigby
Science Advisor