

PRELIMINARY CRUISE REPORT

U.S. Dept. of State CRUISE No.:	2003-128
SHIP NAME:	R/V Nathaniel B. Palmer
OPERATING INSTITUTE OR AGENCY:	National Science Foundation
PROJECT TITLE:	ICEFISH Cruise NBPO4-04
CRUISE DATES (INCLUSIVE):	17 May – 17 July 2004

CHIEF SCIENTIST:	
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CLEARANCE COUNTRIES:	Argentina, Norway, United Kingdom
FOREIGN PARTICIPANTS:	Australia, France, Germany, Italy, New Zealand, South Africa, United Kingdom

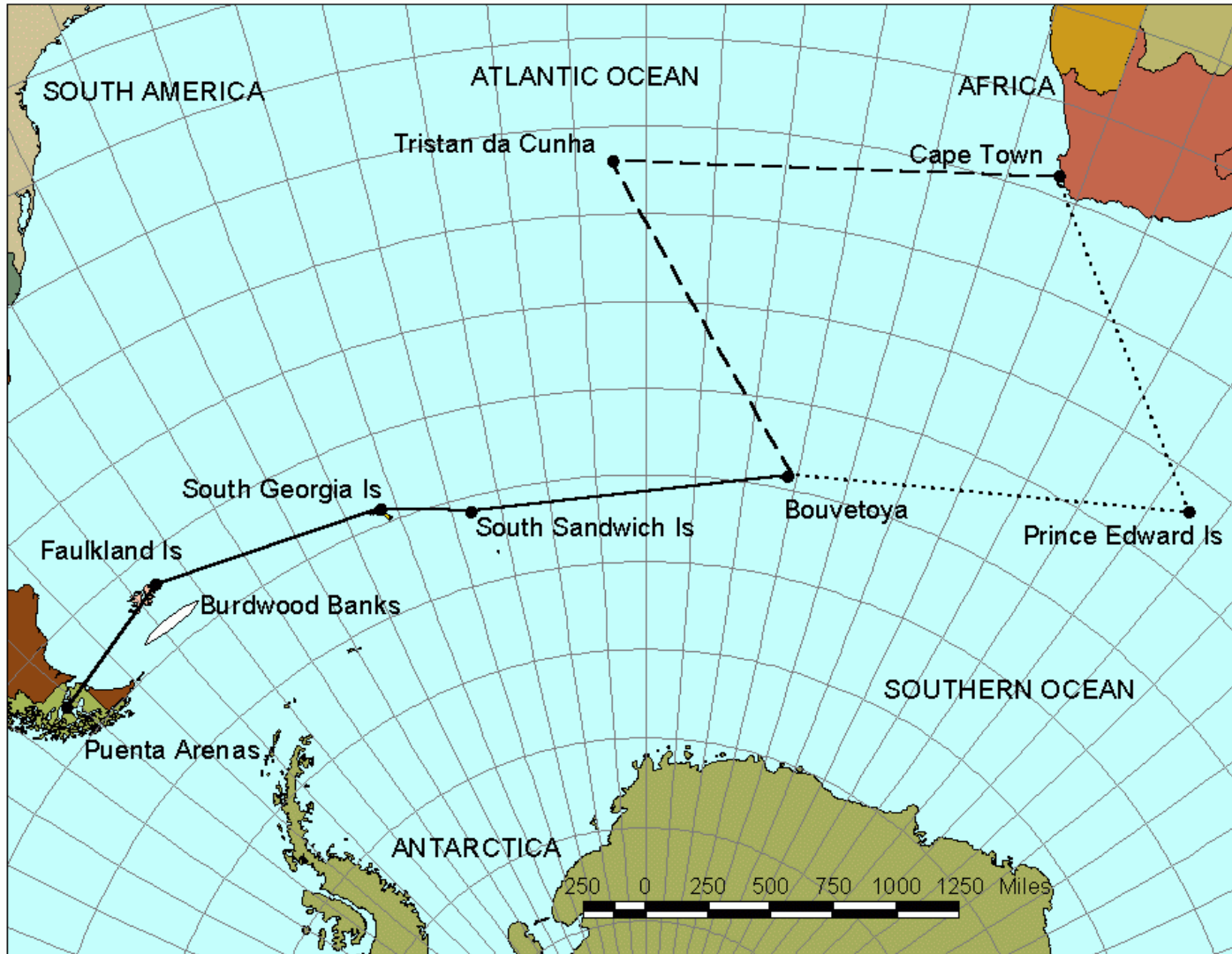
DESCRIPTION OF SCIENTIFIC PROGRAM(include page-sized chartlet showing cruise track):	
<p>The ICEFISH 2004 cruise has been conceived as an International Collaborative Expedition to collect and study Fish Indigenous to Sub-antarctic Habitats. Our overall goal will be to relate the evolution, eco-physiology, eco-biochemistry, and population dynamics of the Antarctic notothenioid fishes to the transitional fish fauna of the sub-Antarctic. Our specific aims are:</p> <p>1. Systematics and Evolutionary Studies. Using morphological, molecular, and cytological character analysis, we will relate the phyletically basal Sub-Antarctic notothenioid fishes to their Antarctic relatives to establish a complete notothenioid phylogeny. We will also use our data to evaluate rigorously hypotheses regarding the origin of the High Antarctic notothenioids.</p> <p>2. Life History Strategies and Population Dynamics. To understand the life-history strategies of Sub-Antarctic nototheniids, we will characterize the composition, distribution, habitat preferences, and diets of populations from geographically dispersed regions. Furthermore, we will evaluate the length of larval life and the extent of secondary pelagicism of the larval stages of Sub-Antarctic species to understand both recruitment to adult populations and the evolution of these characters in High Antarctic species.</p> <p>3. Physiological, Biochemical, and Molecular Biological Studies of Major Organ and Tissue Systems. Many unusual characters of High Antarctic fishes have been described as “adaptations” to their chronically cold environment. Are these characters truly adaptive or merely phyletically persistent traits? We will address this issue by comparing the regulation of cardiovascular tone and the control of globin and myoglobin gene expression by Sub- and High Antarctic fishes.</p> <p>4. Genomic Resources for the Sub-Antarctic Notothenioids. Nucleic acids (DNA and RNA)</p>	

from representative Sub-Antarctic fish species will be collected and archived for future comparative studies of the genomes of important high- and low-latitude notothenioids.

5. Ecological Studies of Transitional Benthic Invertebrates. Benthic invertebrates will be a significant bycatch from bottom trawling operations. A subsidiary goal of the proposal is to provide invertebrate biologists with access to this bycatch.

SCHEDULE OF DATA DELIVERY:	
Data Description	Date of Expected Delivery to Dept. of State
Data Reports NBP04-04 for Argentina, Norway, and United Kingdom	October 1, 2004
Simrad EM120 Multibeam Data for Argentina, Norway, and United Kingdom	October 1, 2004
Cruise Final Report: Volume of <i>Polar Biology</i> dedicated to ICEFISH Cruise Symposium	June 1, 2006

ICEFISH Cruise Track, 17 May – 17 July 2004



N.B. Cruise track followed the dashed line from Bouvetoya to Tristan da Cunha And on to Cape Town, South Africa. Prince Edward Island was not visited.