Barcoding Marine Life

CENSUS OF MARINE LIFE

CONSORTIUM FOR THE BARCODE OF LIFE

Barcoding Marine Life: a CoML / CBOL Challenge

DNA barcodes (short DNA sequences that can discriminate species and aid in the classification of unknown species) are being determined for many marine animal species in association with Census of Marine Life (CoML, www.coml.org) activities and ocean realm field projects. Efforts are underway to more fully coordinate CoML barcoding efforts with the Consortium for the Barcode of Life (CBOL, barcoding.si.edu). CBOL is an international initiative devoted to developing DNA barcoding as: 1) an accurate and useful tool for scientific research on the taxonomy of animal and plant species; 2) a practical, cost-effective aid to assigning unidentified specimens to their correct species; and 3) a system for expanding interest and activity in taxonomy.

In preparation for a planning workshop in May 2006, we are encouraging and challenging the CoML community to submit DNA barcodes to existing databases and/or provide identified specimens of marine fish and holozooplankton groups.

Got specimens? ***Prior to May 15, 2006***, projects with appropriately preserved (i.e., frozen or in alcohol) and identified specimens may arrange for DNA barcoding at no cost for the following groups:

FISH-BOL

1. Fishes: The ongoing FISH-BOL project (led by Paul Hebert, Bob Ward, and Bob Hanner; see www.fishbol.org/) will determine DNA barcodes for any identified fish specimen *sent to them prior to May 15, 2006*. For more information, contact Bob Hanner (rhanner@uoguelph.ca).

Census of Marine Zooplankton CMarZ

2. Marine zooplankton: The ongoing CoML field project, Census of Marine Zooplankton (CMarZ, see www.CMarZ.org) will barcode identified specimens of any animal holoplanktonic species. For more information, contact Rob Jennings (robert.jennings@uconn.edu).

Got data? Projects with DNA barcodes for any marine animal should submit the data and associated metadata to:

BOLDSYSTEM

Total Barcodes: 49255
Species: 9431

1. BOLD (the Barcode of Life Database): repository for barcode records, complete with analytical tools, which can serve as an online workbench for the DNA barcode community. See www.barcodinglife.org.

NCBI

2. BARCODE section of GenBank: contains DNA barcode sequences; links to a voucher specimen, species name, and literature citation; and trace files (i.e., raw data from the DNA sequencer). A beta version of the public submission tool is available at www.ncbi.nlm.nih.gov/BankIt/barcode; write to gb-admin@ncbi.nlm.nih.gov with comments and questions.

Why do this?

Our ultimate goal for the CoML barcoding initiative will be to establish a public archive of DNA barcodes linked to voucher specimens (and/or voucher DNA) for the species of marine life that are being identified or newly described, counted, and analyzed as part of the global CoML effort.

DNA barcoding will enable accurate identification of most marine species, including invertebrate and vertebrate animals. Importantly, a DNA barcoding approach can be applied to intact specimens, tissue fragments, or bulk samples. DNA barcoding will be a useful addition to established methods for species identification in each group. An illustrated brochure on the goals, rationale, and results of DNA barcoding is available at phe.rockefeller.edu/PDF_FILES/BLIllustrated26jan04print%20v1-3.pdf. Additional information is available at barcoding.si.edu/, and phe.rockefeller.edu/BarcodeConference/.

Why do this now?

A "DNA Barcoding for CoML" workshop is being organized for May 2006 by Ann Bucklin, Paul Hebert, and Bob Ward. The workshop goals are to coordinate ongoing DNA barcoding efforts and stimulate new efforts across CoML projects and activities. The workshop participants will seek to accurately assess progress toward the goal of barcoding all marine life. The workshop organizers hope to speed progress toward this goal by offering no-cost DNA sequencing and barcode submission services for species of two marine groups, fish and holozooplankton, for all identified specimens *received prior to May 15, 2006*.

Note: For information about the workshop, see www.barcodingmarinelife.org. Workshop participation is by invitation and space is limited; requests to participate should be sent to Ann Bucklin.

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