International Council for
the Exploration of the Sea
Conseil International pour
l'Exploration de la Mer

ICESCIEM

2004 ICES Annual Science Conference
22–25 September

92nd Statutory Meeting, 19–29 September, Vigo, Spain

Iain Young: Dundarach, Lochinver, Sutherland, IV27 4LF, UK [e-mail: iagyoung@aol.com]. G.J. Pierce, J. Wang, P.R. Boyle, J.M. Smith: University of Aberdeen, Tillydrone Avenue, Aberdeen AB24 2TZ, UK [tel: +44 1224 272866, fax: +44 1224 272396, e-mail: g.j.pierce@abdn.ac.uk]. N. Bailey: Fisheries Research Services, The Marine Laboratory, PO Box 101, Victoria Road, Aberdeen, AB11 9DB, UK [tel +44 1224 876544, e-mail: N.Bailey@marlab.ac.uk]

ICES CM 2004/CC:34

The disappearance of *Loligo forbesi* from the south of its range in the 1990s

C.-S. Chen, G. J. Pierce, J. Wang, P. R. Boyle, N. Bailey, J.-P. Robin, and I. Sobrino

Since the early 1990s, *Loligo forbesi* has apparently disappeared from much of the southern part of its former range, with catches off the Iberian Peninsula, for example, declining dramatically during the 1990s. The present paper assembles data from fishery and research cruise databases to examine the evidence for a shift in distribution and identify possible environmental correlates.

Keywords: *Loligo*, fishery, Moray Firth.

C.-S. Chen, G.J. Pierce, J. Wang, P.R. Boyle: University of Aberdeen, Tillydrone Avenue, Aberdeen AB24 2TZ, UK [tel: +44 1224 272866, fax: +44 1224 272396, e-mail: c.s.chen@abdn.ac.uk]. N. Bailey: Fisheries Research Services, The Marine Laboratory, PO Box 101, Victoria Road, Aberdeen, AB11 9DB, UK [tel +44 1224 876544, e-mail: N.Bailey@marlab.ac.uk]. J.-P. Robin: Laboratoire de Biologie et Biotechnologies Marines, I.B.F.A., Université de Caen, Esplanade de la Paix, 14032 Caen Cedex, France [te: +33 2 31 56 53 95, fax: +33 2 31 56 53 46, e-mail: robin@ibfa.unicaen.fr]. I. Sobrino: Instituto Español de Oceanografía (IEO), Unidad de Cádiz, Muelle pesquero s/n, CADIZ, 11006, Spain [tel: +34 956261333, fax: 34 956263556, e-mail: ignacio.sobrino@cd.ieo.es].

ICES CM 2004/CC:35

Interannual patterns of variation in concentrations of trace elements in arms of *Octopus vulgaris* in two localities on the Portuguese coast

S. Seixas, P. Bustamante, and G. J. Pierce

Concentrations of metals (manganese, iron, copper, zinc, arsenic, selenium, cadmium, lead and mercury) were measured in arms of *Octopus vulgaris* sampled from commercial fishery landings at two sites on the Portuguese coast in spring 2002 and 2003. Mercury was determined using an Advanced Mercury Analyser Spectrophotometer (AMAS) and other metals were measured using Inductively Coupled Plasma - Atomic Emission Spectrometry (ICP-AES). Since high levels of arsenic were detected, identification of the forms present was carried out using High Performance Liquid Chromatography (HPLC) followed by ICP-MS.

Concentrations of metals were in the following order: Zn > As > Cu > Fe > Cd > Pb » Se > Mn > Hg. Despite high As concentrations, this element was mainly under arsenobetaïne form whatever the origin. Compared with the other samples, and with literature values, the concentrations of several metals were generally high in samples from Viana in 2002. Cadmium concentrations were above the legal limit for human consumption in samples from Viana in 2002, and two of these animals also had lead concentrations that exceeded legal limits. Mercury appeared in all samples but levels were within legally defined safe limits. No relationship was detected between trace element concentrations and size or maturity of octopus.

Keywords: cephalopods, trace elements, metals, speciation, contamination.

Sónia Seixas: Universidade Aberta, Rua Escola Politecnica, 147. 1269-001 Lisboa. Portugal [tel:+351, fax: 351 21 4840555, e-mail: sonia@univ-ab.pt]
Paco Bustamante : Laboratoire de Biologie et Environnement Marins, FRE 2727 du CNRS, Université de La Rochelle, 22, Avenue Michel Crépeau, F-17042 La Rochelle Cedex, France [tel/fax: : +33-5-46500294, e-mail: pbustama@univ-lr.fr]. G.J. Pierce: University of Aberdeen, Tillydrone Avenue, Aberdeen AB24 2TZ, UK [tel: +44 1224 272866, fax: +44 1224 272396, e-mail: g.j.pierce@abdn.ac.uk].

ICES CM 2004/CC:36

Approaches to short-term and long-term stock assessment of *Loligo gahi* around the Falkland Islands

Rubén Roa and Alexander Arkhipkin

We define short-term, or in-season assessment, as the use of fisheries data from the on-going season to provide both immediate stock assessment estimates and management advice. Conversely, long-term assessment involves the use of the whole available history of the fishery to estimate the status of the stock and the exploitation rate at the end of the current season or at the beginning of the next season. Since 1987 the only approach to stock assessment in the *Loligo gahi* trawling fishery on the continental shelf off the Falkland Islands has been in-season analysis of catch and effort data using a generalized version of the Delury depletion method. The generalized Delury method was aimed at accounting for natural deaths and the existence of four fleets with potentially different catchabilities, but it only treated as free parameter the numbers of squid at the start of each season, while it treated the four catchabilities as nuisance parameters. A new (ADMB) implementation of the Delury method in which all 5 parameters were treated as free indicated its inability to provide statistically reliable estimates (variances tending to infinity). A modification of the method (also in ADMB) in which the four fleets are treated as one and thus there are only two free parameters to be