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Outline for Manual on Groundfish and Shellfish Surveys in the NW Atlantic

by

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A sub-group of STACREC was formed to revise Doubleday's 1981 Manual on groundfish surveys in the Northwest Atlantic (*NAFO Sci. Coun. Studies*, No. 2). The justification is that the 1981 manual does not reflect the current status of surveys in the NAFO area. The emphasis of the new manual would be on surveys in the 21st century. Following correspondence among group members, a draft outline for a revised manual on groundfish and shellfish surveys in the Northwest Atlantic was presented in STACREC in September 2007, and agreed as follows:

Table of Contents**1. Introduction**

- 1.1 Need for survey information, objectives of a coordinated survey program.
- 1.2 General History of surveys by area, to include discontinued surveys in NAFO area, listed in a table, for the period 1981-2006
 - Brief reference to Doubleday Manual, other survey manuals
 - Restrict manual coverage to Subareas 0-3
 - Include in Table, the start and end dates (eg. some surveys started before 1981, and some are no longer conducted)
 - Data availability eg. set by set basis, electronic format, accessible upon request, etc.

2. Current Subarea 0-3 surveys, by individual survey (eg. EU survey 3M, Canadian spring survey 3LNO, etc.) (Bill to circulate a Canadian survey series as an example)

2.1 History of survey

2.2 Survey Design

- Stratified random or some other design + any changes
- Include stratification charts or other charts used in current design + describe any changes
- Type of survey, 24 hours or day only surveys
- Adaptive sampling

2.3 Fishing position (haul) allocation

- Sets per sq n mile
- how sets are chosen)

2.4 Vessel characteristics

- Length, tonnage, horsepower stats in a table, for all vessels used in the survey – chronological order
- Facilities for fish handling

2.5 Survey gears

- History of gears used in the survey
- Current survey gear construction and rigging, with diagrams
- Tables and Figures necessary to describe current fishing gear
- Trawl survey standards (gear mensuration programs)

2.6 Monitoring trawl geometry

- Instruments used – when, what type, etc.
- Use of recorded data in assessment

2.7 Standard fishing method (include list of instruments currently used)

- Tow duration, tow distance, speed, start and end of tow (determination of bottom contact
- Warp to depth ratio in Table form (and/or figure?)
- Depth determination (sounder, CTD, depth sensor, other)
- Environmental parameters such as recording winds, amount of light, wave height, trawl mounted CTD or CTD deployment before or after each tow
- Criteria for repeating a tow
- Soak times, number of gillnets in a fleet, number of fleets, number of hooks, etc (for fixed gears)

2.8 Oceanographic data collection and processing

- History of oceanographic data collection (MBT, XBT, CTD, etc.)

3. Brief description of basic biological sampling

- Sorting catch by species
- Estimation of catch numbers and weights by species or sp. Group
- Sample sizes (for otolith collection, length measurement, etc.)
- Basic descriptions of sampling for length and age
- Electronic data capture (electronic measuring boards & calipers, ship-board computer systems), evolution from paper records

4. Data verification and processing

- Data checking at the set and trip levels (at sea)
- Adjustments made to tow duration, distance based on analysis of trawl measuring devices, or CTD traces
- Adjustment made to catches based on tow duration or tow distance (or soak times for fixed gears)? If so, at sea or in the lab

- Data checking and archiving in the lab

5. Statistical Analysis

- For trawl surveys: basic description of calculation of stratified mean per tow, swept area abundance and biomass, estimation of abundance at age and length, etc.
- Error estimation.
- How to estimate indices from fixed gear surveys.

6. Inter-calibration (between surveys, gears and/or vessels)

- Design of the comparative fishing experiments (Conditions, target species, number of paired fishing sets, etc.
- Estimation of the conversion factors and their error. Methodologies and their advantages and disadvantages.
- Conversion of length distribution data and abundance data (numbers at length/age).
- Conversion of biomass data

7. References