

## Survey Issues

1. What aspects of the survey gear have been changed since the last “calibration” of the gear? Items that come to our mind include:
  - a. Trawl wire markings issues
  - b. Trawl wire counter issues
  - c. Unusual wear on the doors indicating improper adjustment
  - d. Change in the method of utilizing the traveler
2. When was the last “calibration”? Were the nets inspected and compared prior and during that calibration?
  - a. If the last “calibration” was before the change in the traveler, what tests were done to determine the effect of this change on
    - i. The net’s ability to tend bottom
    - ii. Changes in procedure needed to assure that the increased spacing on the footrope did not lead to floats caught in the footrope.
    - iii. Change in catch rates of bottom tending species?
3. What is the schedule of maintenance for all of the trawl gear?
  - a. Is there a regular schedule for maintenance of doors?
    - i. If so, how long has it been since the set of doors used in the video cruise were tuned?
    - ii. The backstraps were noted to be twisted and when asked the length the answer was given in links.
      - How long has one of the backstraps been twisted?
      - When was the last time the backstraps were measured?
      - Is it normal to measure their length in links? If so, on what schedule is the chain replaced?
  - b. It was noted that the wings had different quantities of cookies and differed in length. How long has it been this way?
4. How will the issue the disproportionate length of the sweep be addressed?
5. How will the issue of floats being caught under the headrope be addressed?
6. When was the trawl survey speed of 3.85 knots determined?
  - a. What criteria was used to chose this speed?
  - b. What changes to the trawl gear design have been made since that time?
7. What percentage of the trawl stations in the last three years were sampled in winds more than 20 knots? How many was that?
8. What are the criteria used to avoid hard bottom and wrecks?
  - a. When were these instituted
  - b. Have they changed over time? If so, how?
9. Has the gear’s ability to get over certain bottoms changed in recent years? If so in what manner?
10. What percentage of tows are made with the trawl wire marks not visible?
  - a. How long has the current system of deploying wire between marks been used?
  - b. Has any other system been used?
  - c. Was there a time that the marks were set visually, either deploying more or less wire to match marks?

### **Questions not directly related to observations on the Albatross IV**

1. What level of Commercial Fishing training is required of the “fishing master” on NOAA ships?
2. What number of crew are required to have training in commercial gear?
3. Is there a manual describing trawl procedure?
4. Were “calibration” tests performed when new or improved navigational equipment was installed?
5. Have changes to the ship itself been made? And if so, were “calibrations” done?
6. How do you assure that the gear is equivalent from one set of surveys to the next?