

Standardizing AFSC bottom trawl surveys

Survey overview

Protocol compliance

Areas for further improvement

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Chartered stern trawlers



Protocol 1: Warp Measurement

2 independently calibrated systems

- Warps measured and marked
- Geometric counters in real time

Maximum offset = 7 m

Problems:
Rough weather
Grease



Protocol 2: Autotrawl



30-day window for
Calibration, maintenance of autotrawl systems
Testing, certification by authorized mechanic
Sea trials required



Protocol 4: Trawl construction & repair

AFSC Net loft (7 full-time employees)

Purchase and maintain trawl doors

Purchase net materials

Construct:

Trawls

Headropes

Footropes

Body

Codends

Rigging

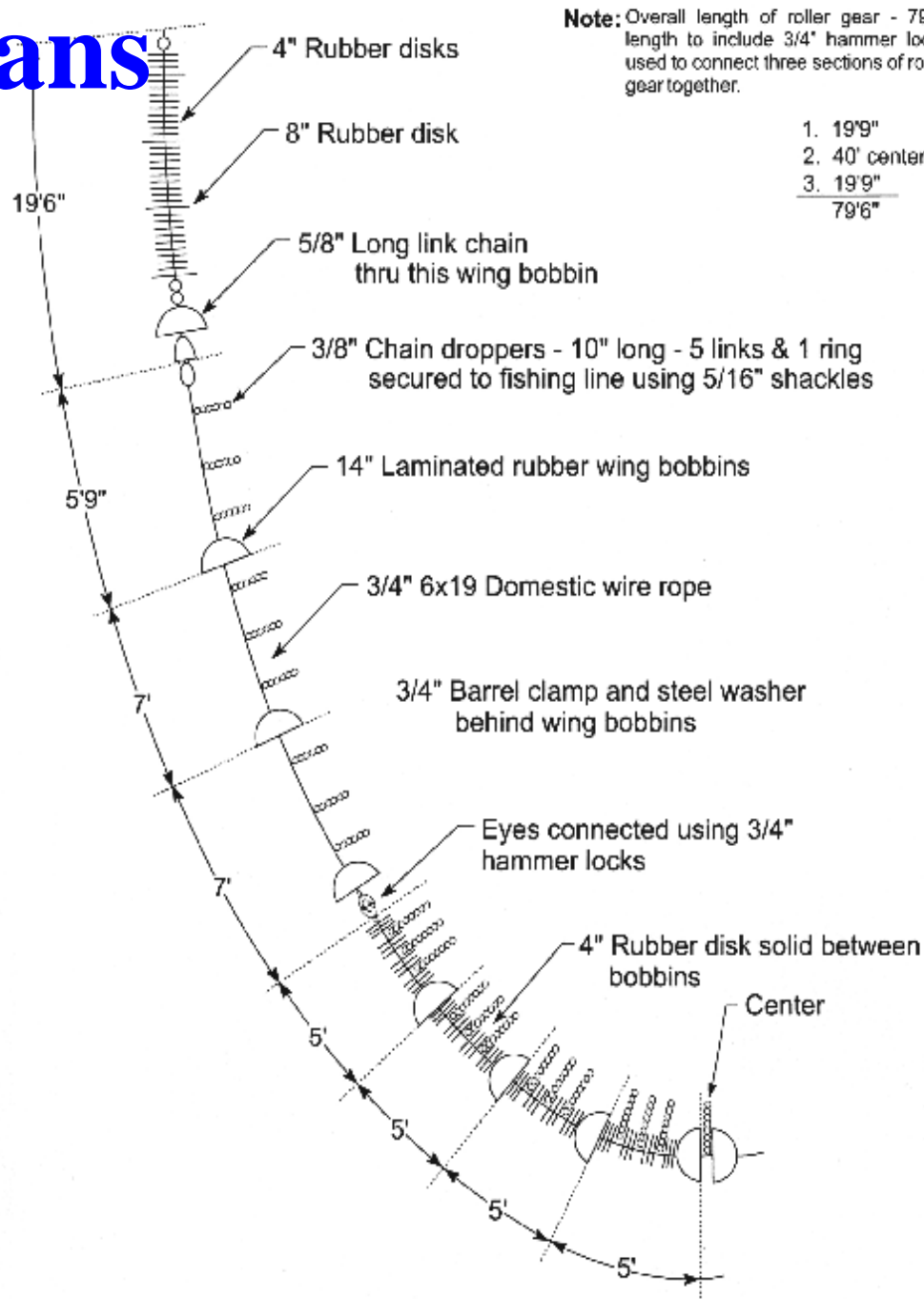
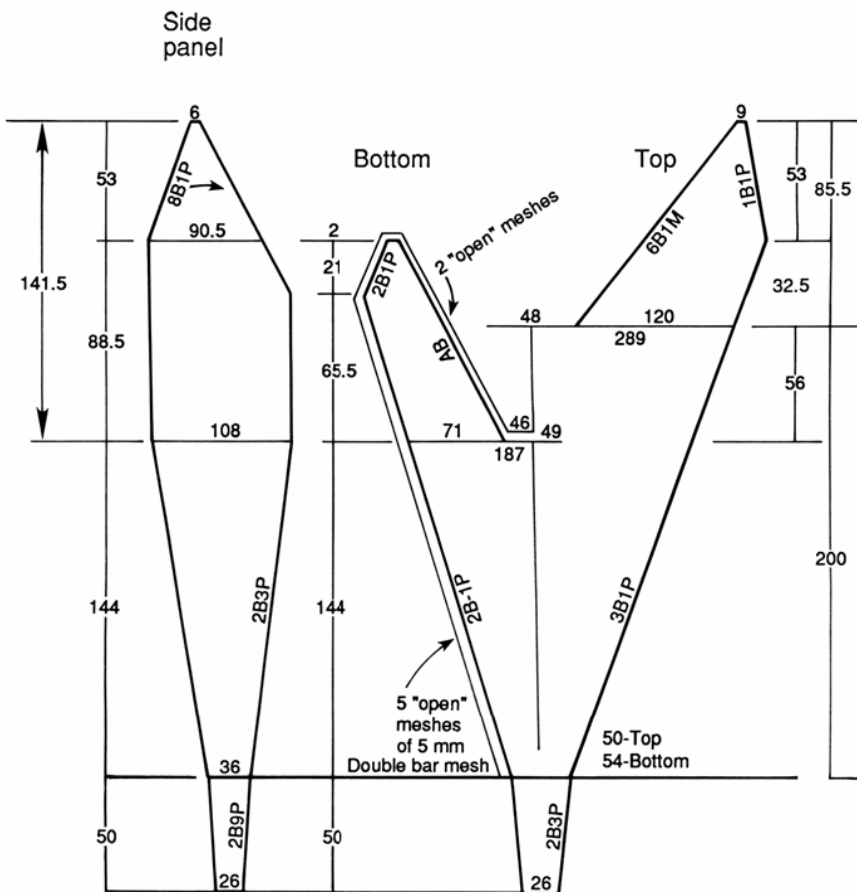
Total mesh counts

Twine sizes: top and sides 4mm
bottom and intermediate 5mm

Net plans

Note: Overall length of roller gear - 79'6"
length to include 3/4" hammer locks
used to connect three sections of roller
gear together.

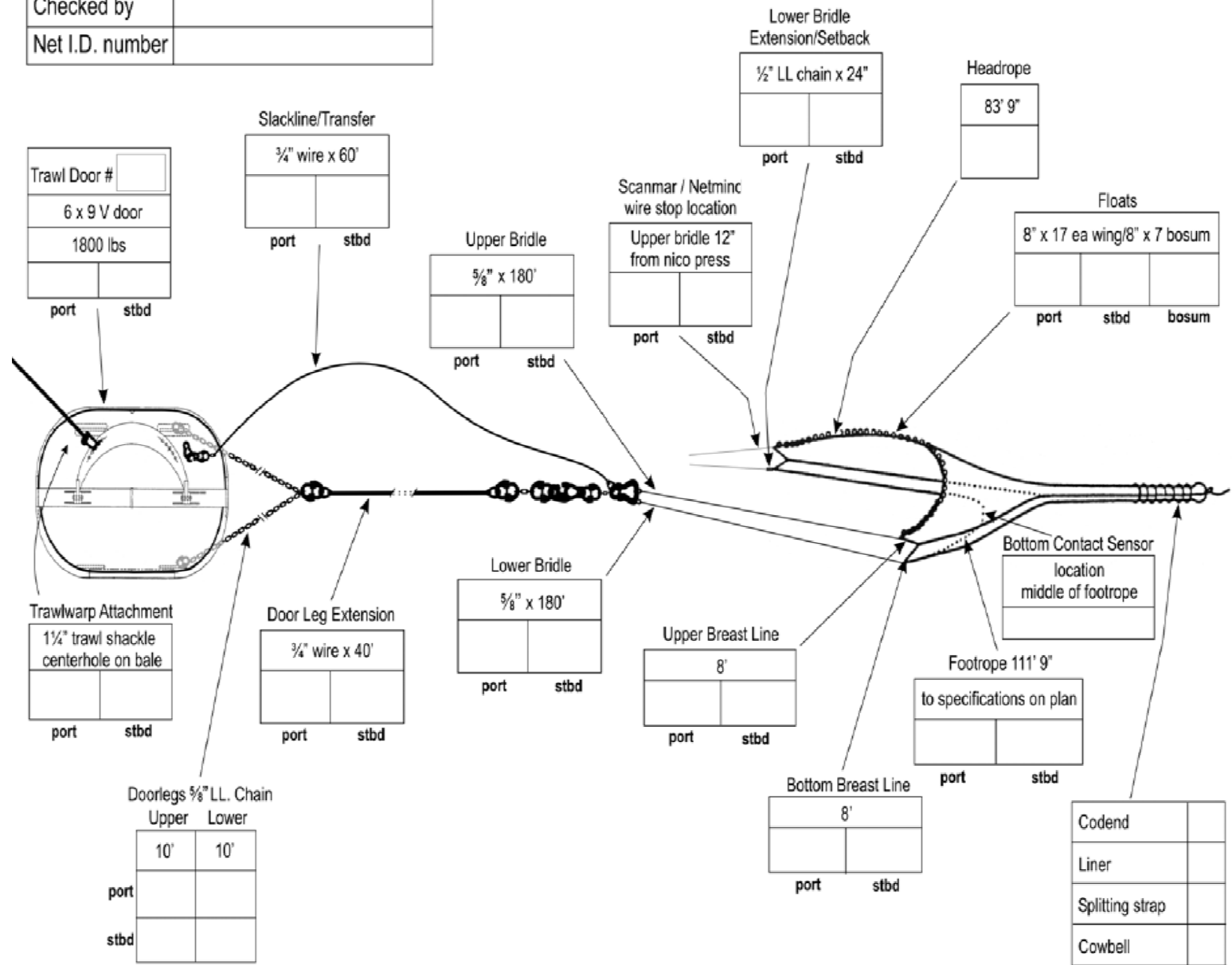
1. 19'9"
2. 40' center
3. 19'9"
- 79'6"



Web: Chaffing strip along inside of Bottom wings and Busom. Cut 8 meshes wide.
5 mm Double Bar mesh, goring 3 meshes on each side (leaving 2 open meshes).
Secure 3 mesh of gore on inside (Bar Cut) of Bottom wings, and securing
other gore to footrope (Bolsh).

Vessel	
Cruise	
Date	
Checked by	
Checked by	
Net I.D. number	

Certification checklist



Training and repairs

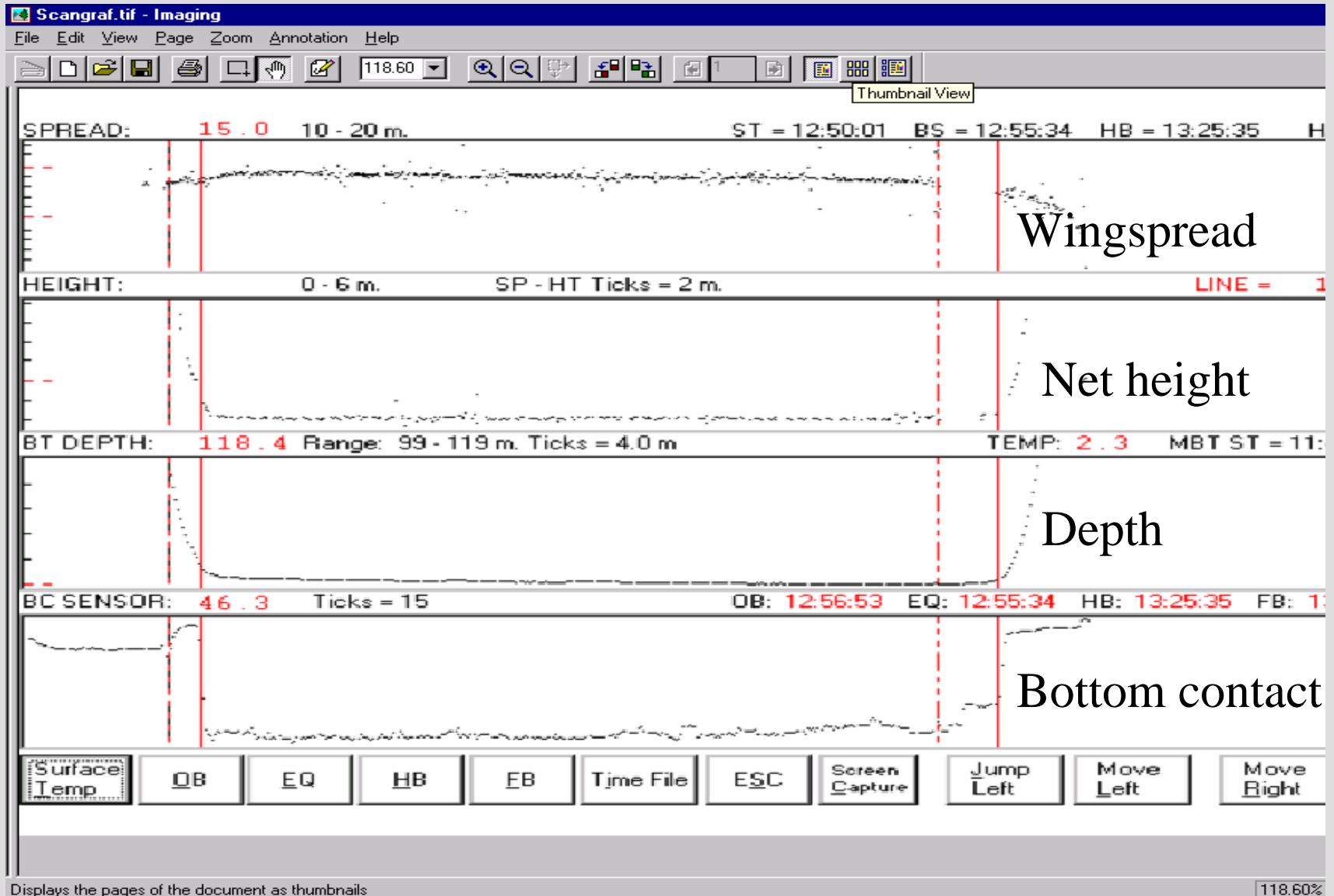


Protocol 3: Operational procedures

- Defining responsibility
- Warp measurement and scope table
- Deployment & retrieval of gear
- Tow speed
- Tow duration
- Tow location (search time, alternate sites)
- Tow direction
- Tow distance measurement
- Tow acceptance criteria



Monitoring trawl performance



Training:

The need for minimizing the human effect

Sources of bias

Chief Scientist effect

- Interpretation of ambiguous terms in tow acceptance language
 - “small tears unlikely to significantly affect catch rates”
- Time management
 - Tidal currents
 - Decisions late in the day
- Catch subsampling
 - Splitting of catch
 - Selecting samples for size and age composition

Captain effect

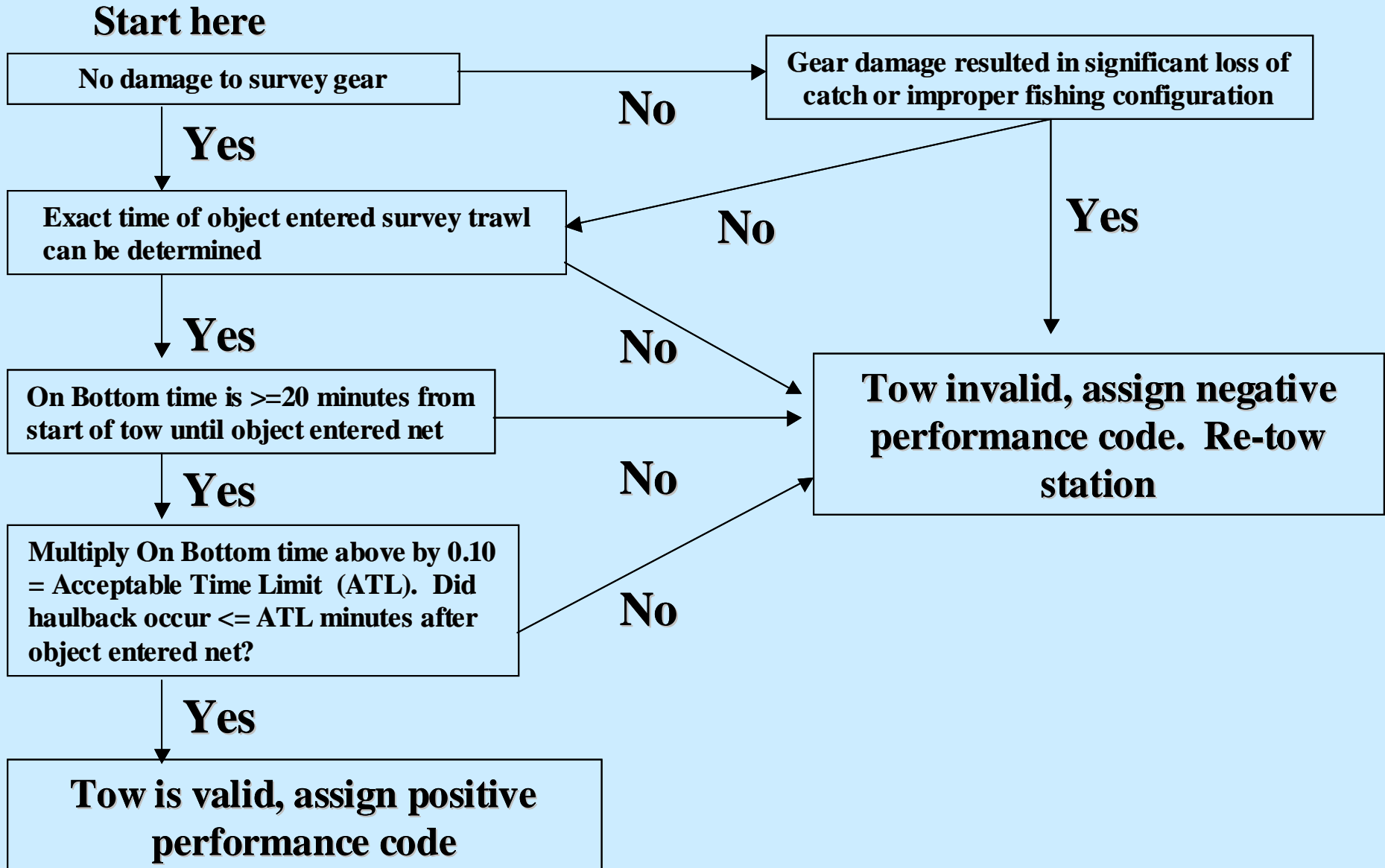
- Where to tow
 - Experience
 - Likelihood for gear damage
 - Influence of fish sign
- Attentiveness
 - Towing speed
 - Following depth contours

The end



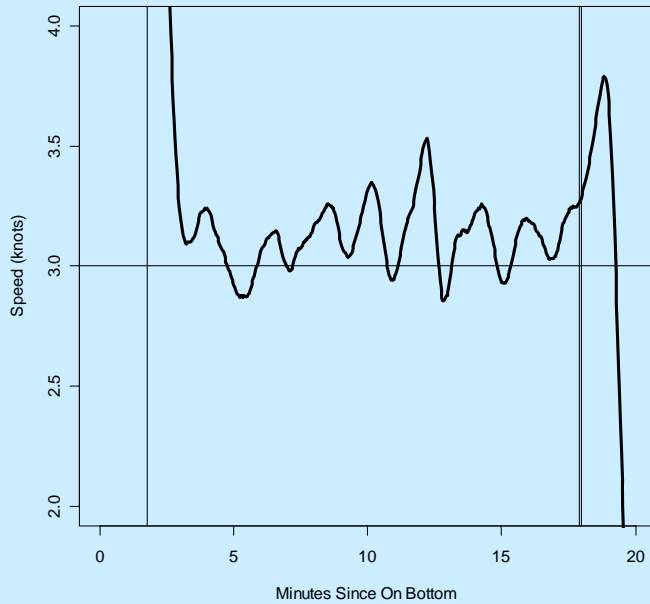
Criteria for Determining A Valid Tow When an Object is Caught in Net

Object is defined as a crab pot, fishing gear, large rocks, etc.

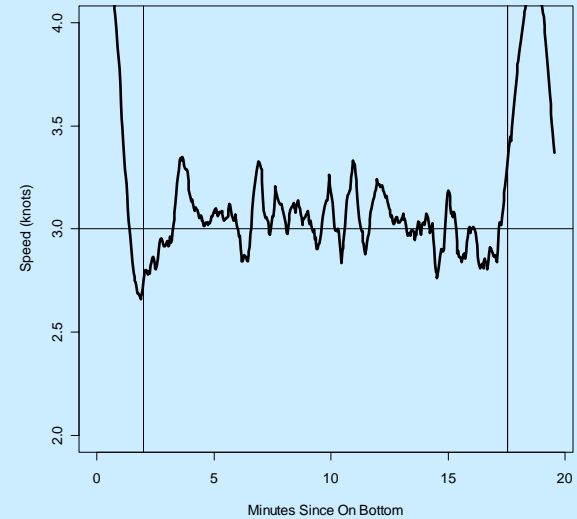


Vessel speed in moderate current

Speed Profile - Vessel 134 Cruise 200501 Haul 36



Speed Profile - Vessel 134 Cruise 200501 Haul 28



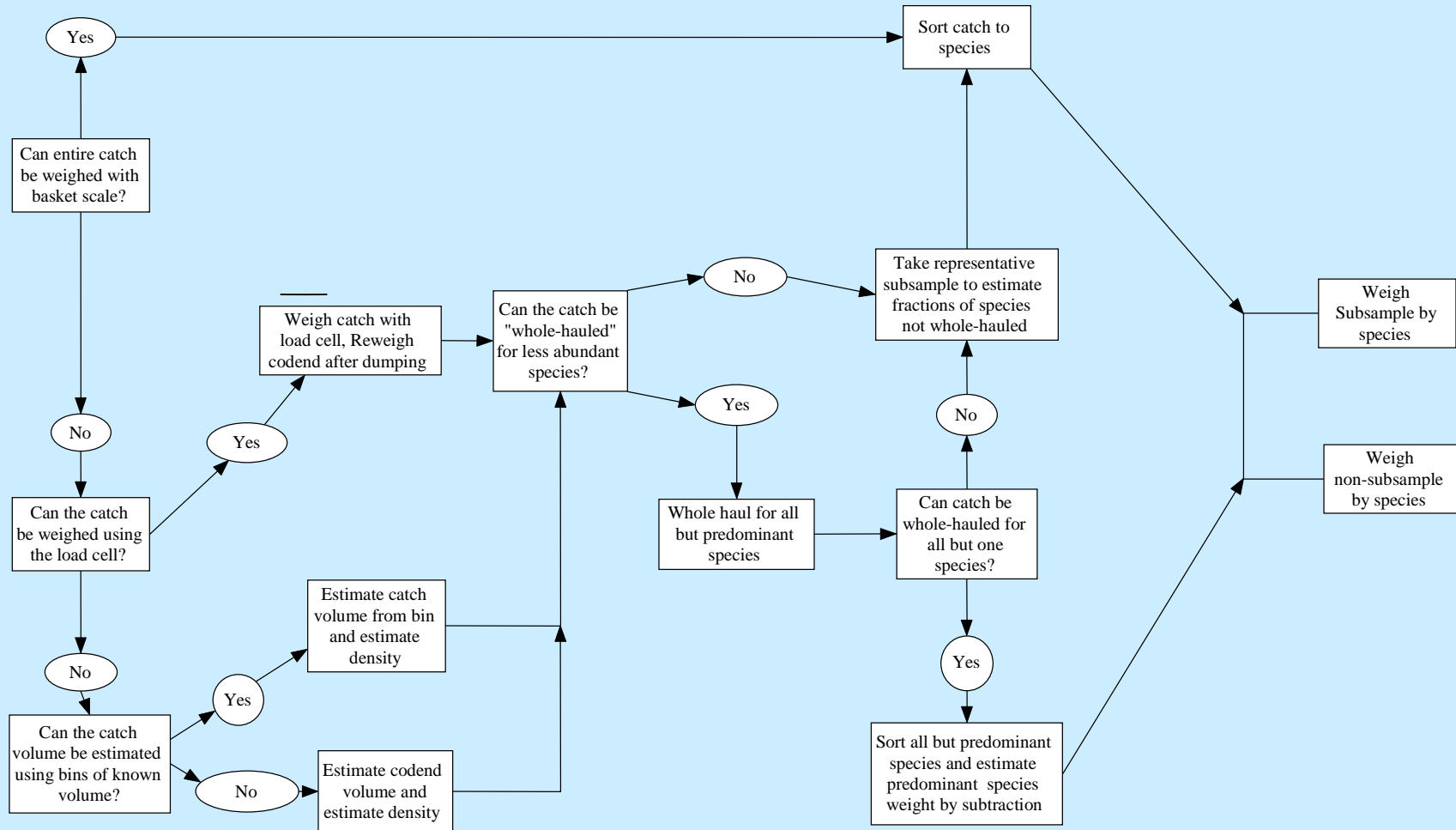
Catch subsampling

Estimating total catch weight

Sorting to species

weighing by species

Start
here



The end



Why do we use charter vessels?

**Only one NOAA research vessel:
used for acoustic & fish larvae surveys**

**Scope of operations too big for one vessel
5 vessels: 60-75 days each
2 boats in Bering Sea
3 boats in G. of Alaska**

