

Purse Seine Fishing Procedures & Gear



Introduction

- 30% global catch

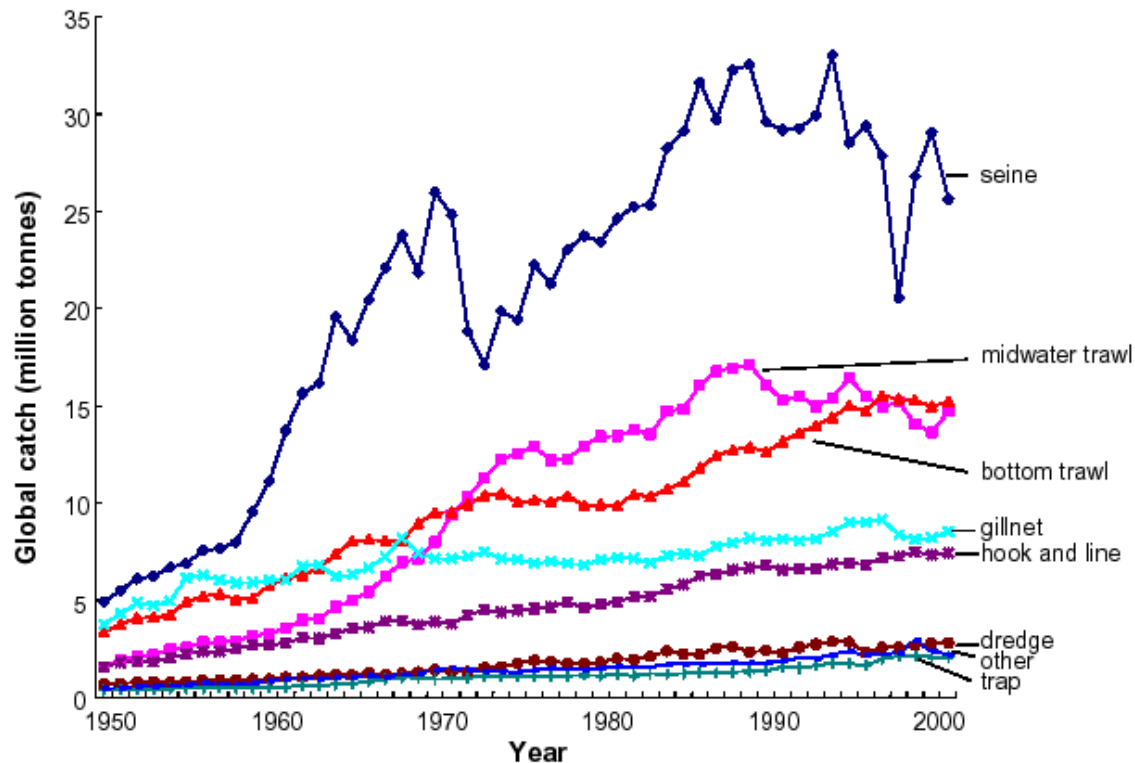
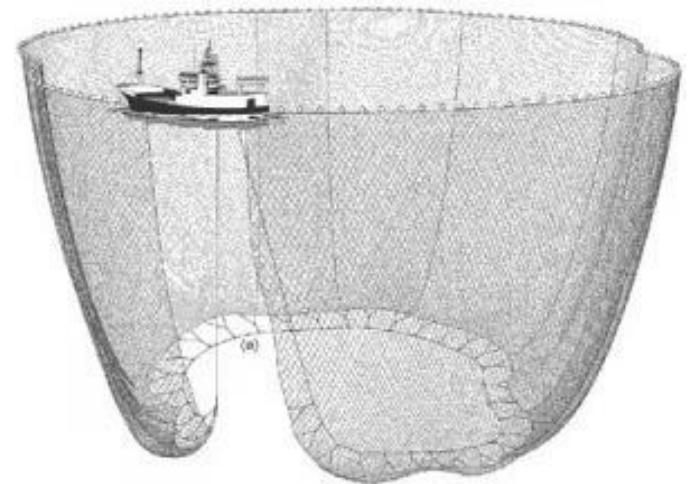
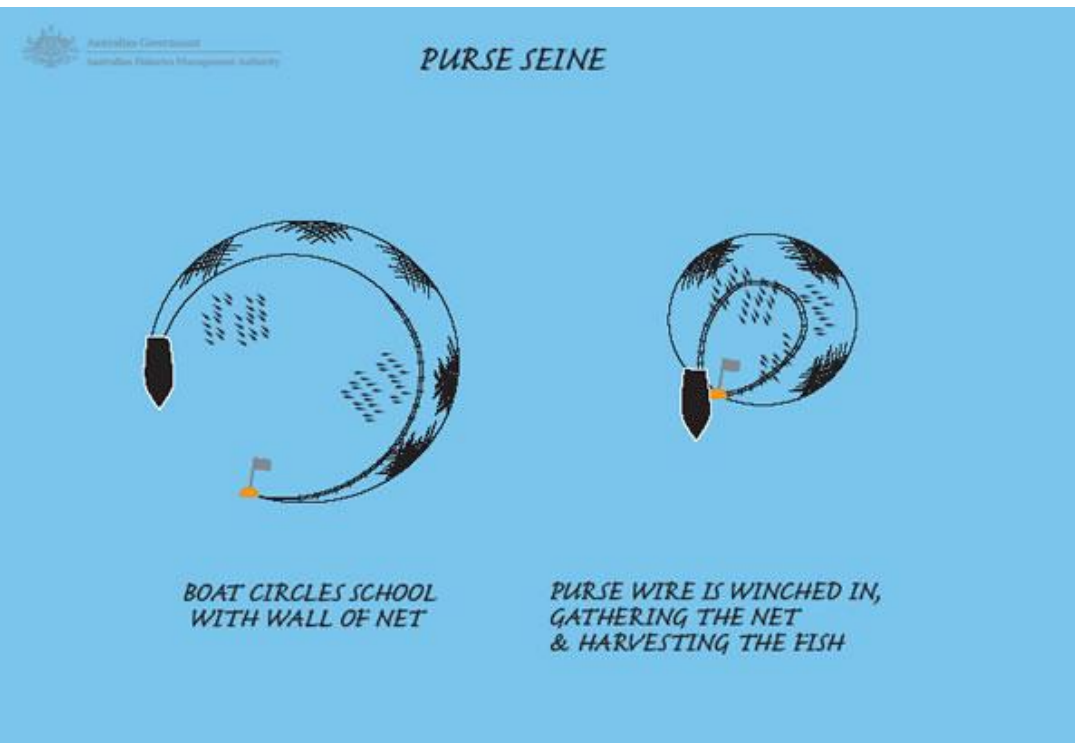


Figure 1. Annual global catch (million tonnes) taken by general fishing gear types

Watson et al. 2004

Introduction

- 30% global catch
- Wall of net encircles pelagic fish



[Introduction

- 30% global catch
- Wall of net encircles fish
- Usually fish close to surface
- Inland, coastal & high-seas





<http://afishblog.com/>



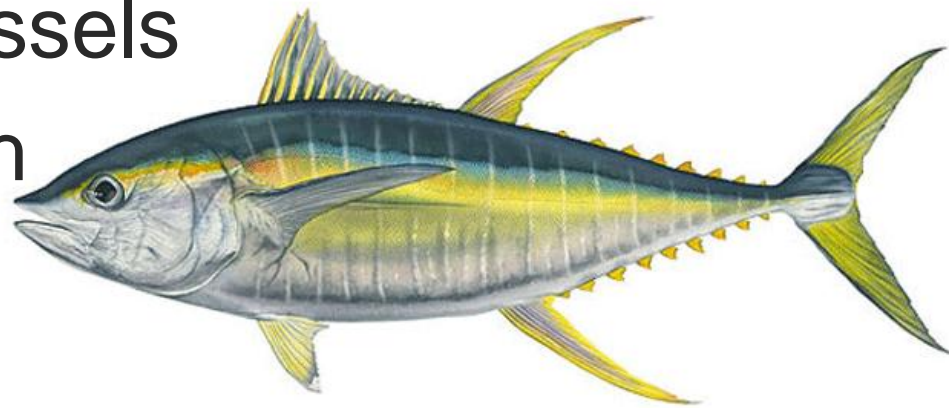
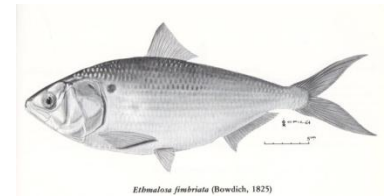
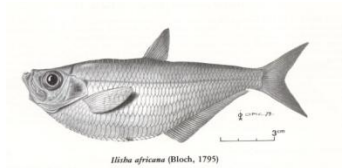
<http://www.inpesca.com>



<http://whyfiles.org>

Introduction

- 30% global catch
- Wall of net encircles fish
- Usually fish close to surface
- Inland, coastal & high-seas
- Small & large vessels
- Small & large fish



Introduction - impacts

- No bottom impact
- Bycatch – mammals, turtles, sharks
- Juvenile fish issues with FADs



[Objectives]

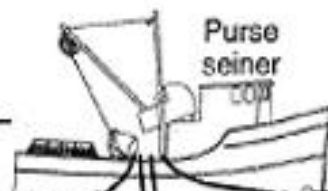
- Describe how purse seine gear works
- Explain how marine mammals can be released safely
- List 4 components of a purse seine and 2 pieces of specialized equipment
- Demonstrate ability to complete the gear description form

[Sampling priorities]

1. Record vessel activity continuously each day on board;
2. Estimate total catch for each gear deployment;
3. Collect random samples for catch composition of each set and document species retained and discarded;
4. Describe all floating objects sighted, especially those involved in a fishing set;
5. Subsample catch for lengths;
6. Record all sightings and interactions with marine mammals and sea turtles;
7. **Record fishing gear characteristics.**

[Activity #1]

- Grab a piece of scrap paper
- Complete as much of the following diagram as you can
- You have 3 minutes



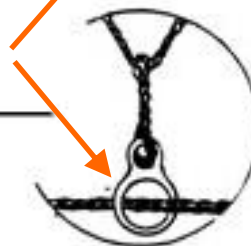
1. _____

2. _____

3. _____

4. _____

5. _____

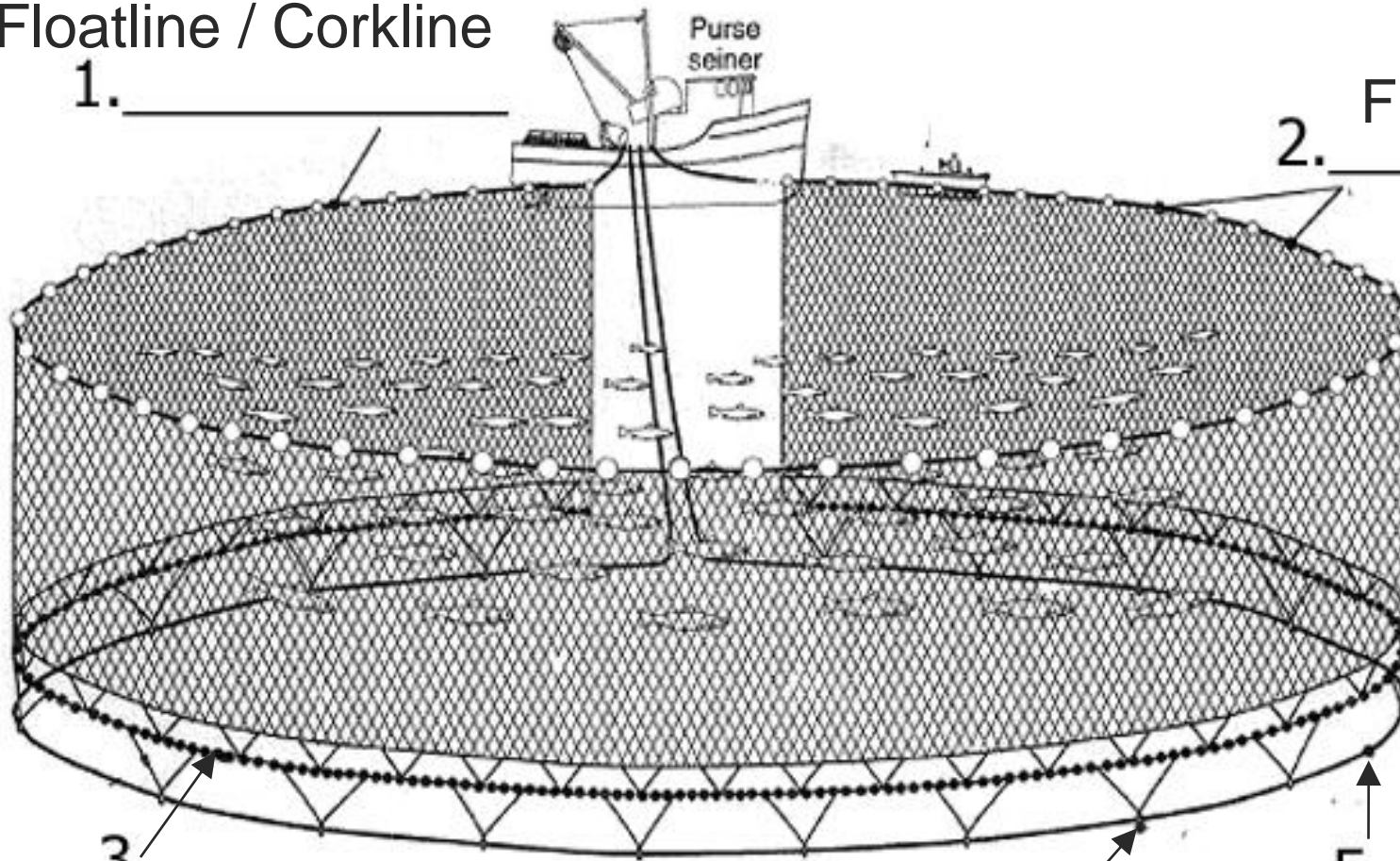


Floatline / Corkline

1. _____

Floats / corks

2. _____



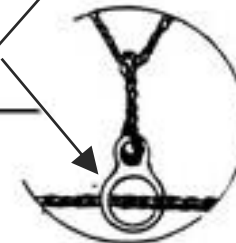
3. _____

Leadline

4. Purse ring

Purse line

5. _____



Gear description – float line (cork line)



Gear description – lead line, purse line, purse rings

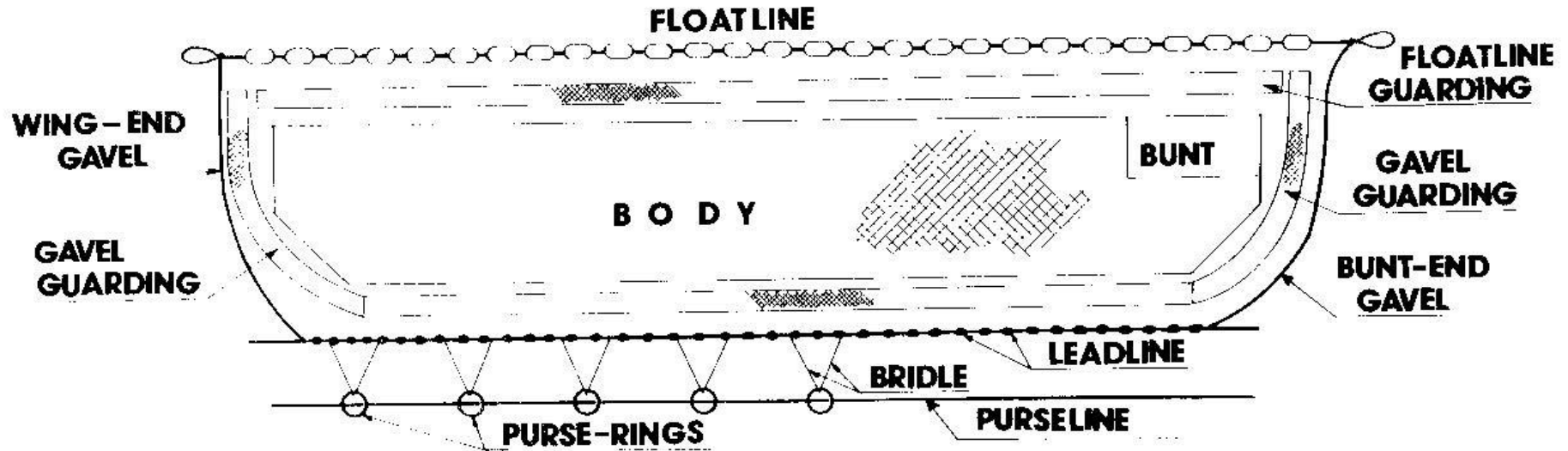


Figure 13. The parts of a purse-seine

BenYami 1987

[Gear description]

Lead line

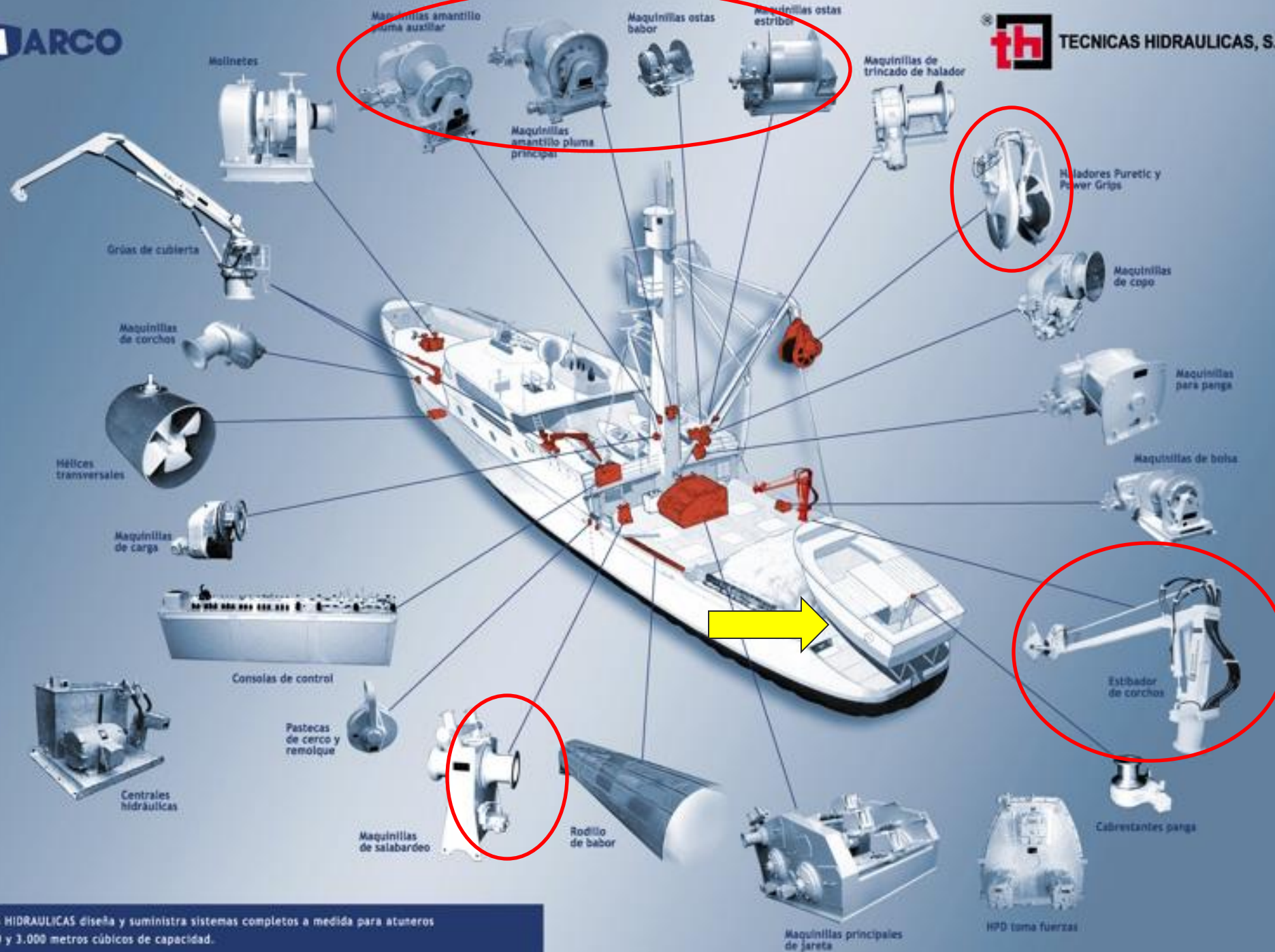


Purse ring



Purse line





Purse seining locating fish



Purse seining – locating fish - cues



©WAYNE DAVIS



<http://forums.marlinmag.com/>



©WAYNE DAVIS

<http://oceanaerials.com/Tuna.html>

Purse seining – locating fish

Bird radar

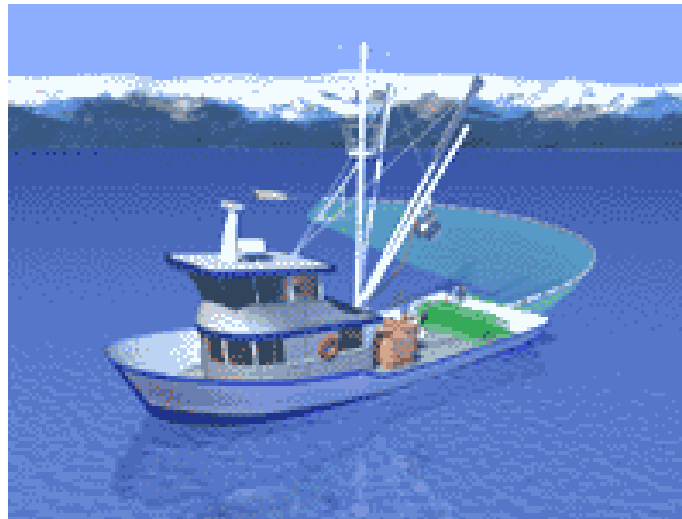


Sonar



[Purse seining – how it works]

- Gear deployment
- Gear retrieval



[Purse seining – how it works]

- Video #1
- Video #2 (alternate)

Gear retrieval – net hauling systems



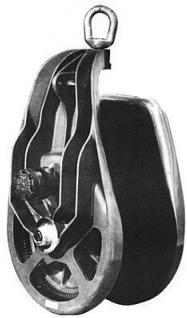
“Duplex” style double sheave power block. (Figure 13 in Itano 2003)



Triplex power block (Gillett) (Figure 14 in Itano 2003)



Petrel_V-type Networkinch
(<http://www.petrel.co.za/default.asp>)



Power block
<http://tunaseiners.com/blog/es/2009/02/king-of-purse-seine-fishing/>



Double block system
<http://whyfiles.org>

Gear retrieval – net hauling systems



Retractable deck mounted power block (Figure 19 in Itano 2003)



Sacking up with rail roller and pinch hauler on Japanese group seiner (Figure 23 in Itano 2003)



Side rail rollers
© Alex Hofford
(<http://www.alexhoffordphotography.com>)

Gear retrieval – purse line winch & capstan



CMT Capstan
(<http://www.cmtwinches.com/>)



[Gear retrieval – purse rings]



Old style steel rings with chain bridles (Figure 3 in Itano 2003)



Securing rings to the ring stripper prior to net retrieval (Figure 4 in Itano 2003)



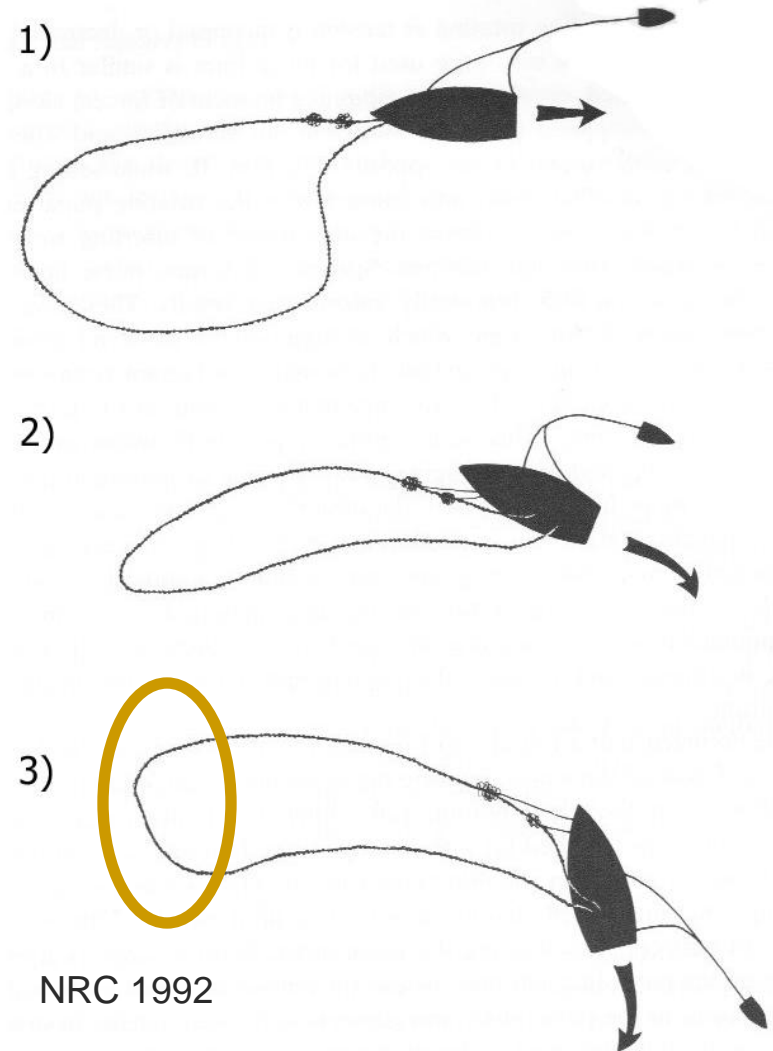
Stainless steel roller snap rings (Figure 5 in Itano 2003)



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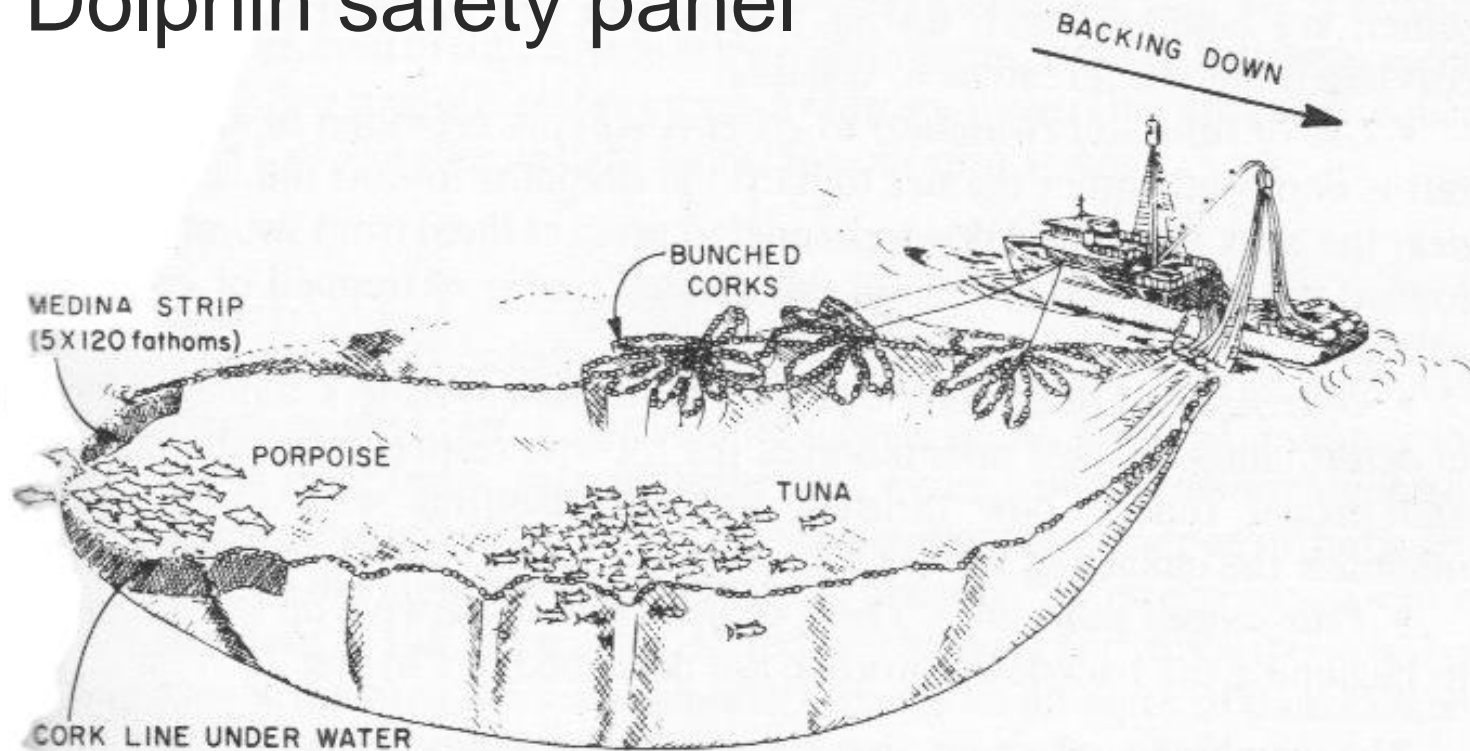
[Marine mammals]

■ Backdown procedure



[Marine mammals]

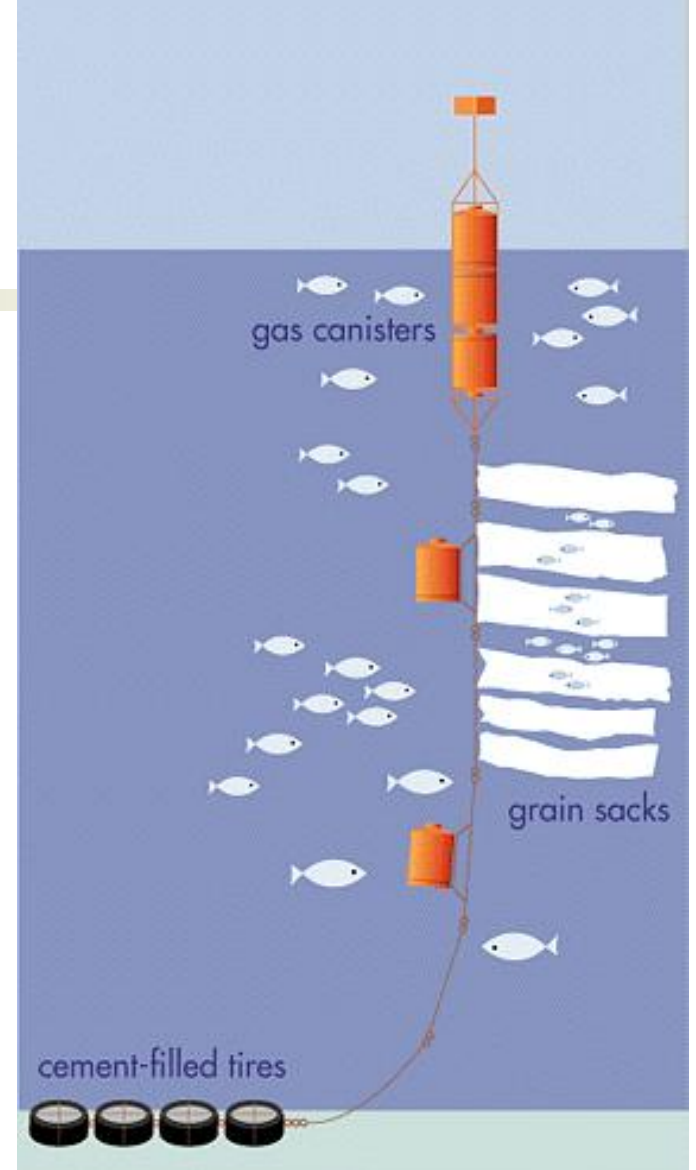
- Backdown procedure
- Dolphin safety panel



[Floating objects



IFREMER/M Toquet



FAO Cape Verde FAD installation:
<http://www.fao.org/english/newsroom/highlights/2001/010102-e.htm>

Gear Description - Purse Seine

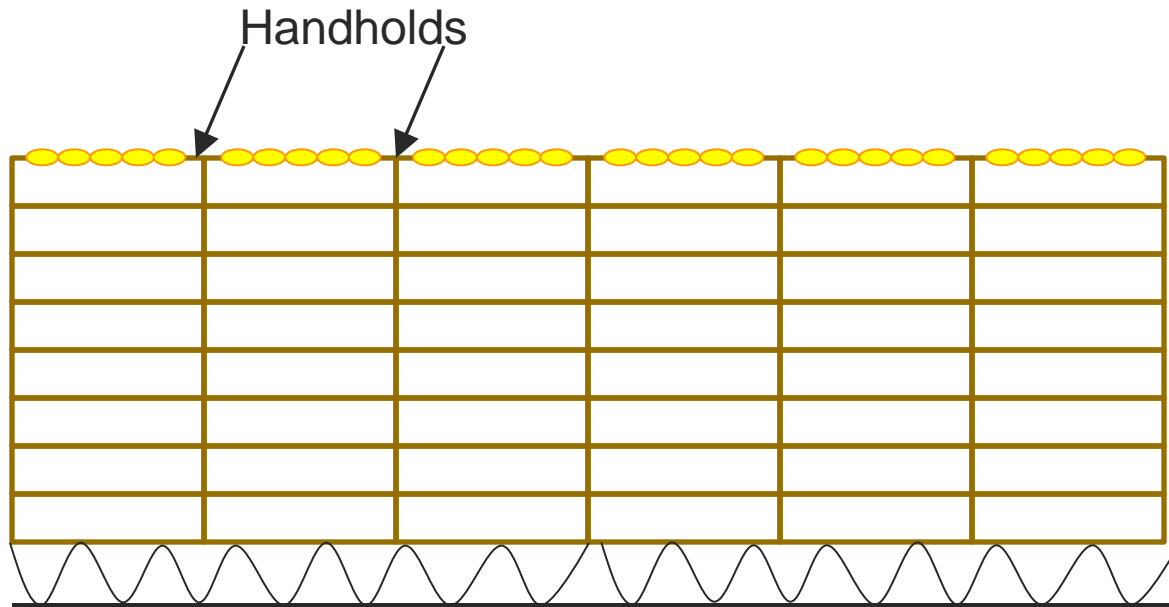
Observer code		Vessel code		Trip ID		Page ____ of ____	
	Description	Manufacturer		Model	Trawl capacity (MT)		
Net Hauling system					Primary		
					Secondary		
Purse line winch					Secondary		
Net Characteristics							
Net #:		Total length (m):			Total depth (m):		
Float line length (m):		Lead line length (m):					
Mesh	Size (cm)	W / D		Hanging Ratios			
	Type (circle one)	Knotted / Knotless		Float line:		Lead line:	
Purse line material				Purse line diameter (mm)			
Dolphin Safety Panel							
Total length (m):		Total depth (m):					
Mesh size (cm)	W / D						
Net diagram							

Gear Description - Purse Seine

Observer code		Vessel code		Trip ID		Page ____ of ____	
	Description	Manufacturer		Model	Brail capacity (MT)		
Net Hauling system					Primary		
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	Type (circle one)	Knotted / Knotless		Float line:		Lead line:	
Purse line material			Purse line diameter (mm)				
Dolphin Safety Panel							
Total length (m):		Total depth (m):					
Mesh size (cm)	W / D						
Net diagram							

[Gear description form

- Total length of net = count of handholds * distance between handholds

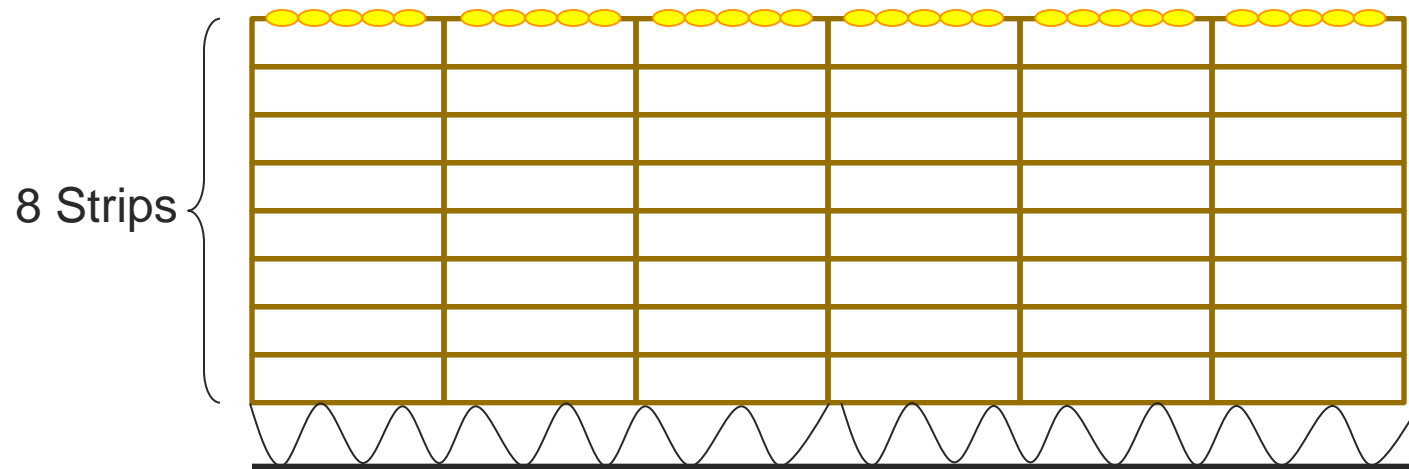


Gear Description - Purse Seine

Observer code		Vessel code		Trip ID		Page ____ of ____	
	Description	Manufacturer		Model	Brail capacity (MT)		
Net Hauling system					Primary		
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	Type (circle one)	Knotted / Knotless		Float line:		Lead line:	
Purse line material				Purse line diameter (mm)			
Dolphin Safety Panel							
Total length (m):		Total depth (m):					
Mesh size (cm)	W / D						
Net diagram							

[Gear description form

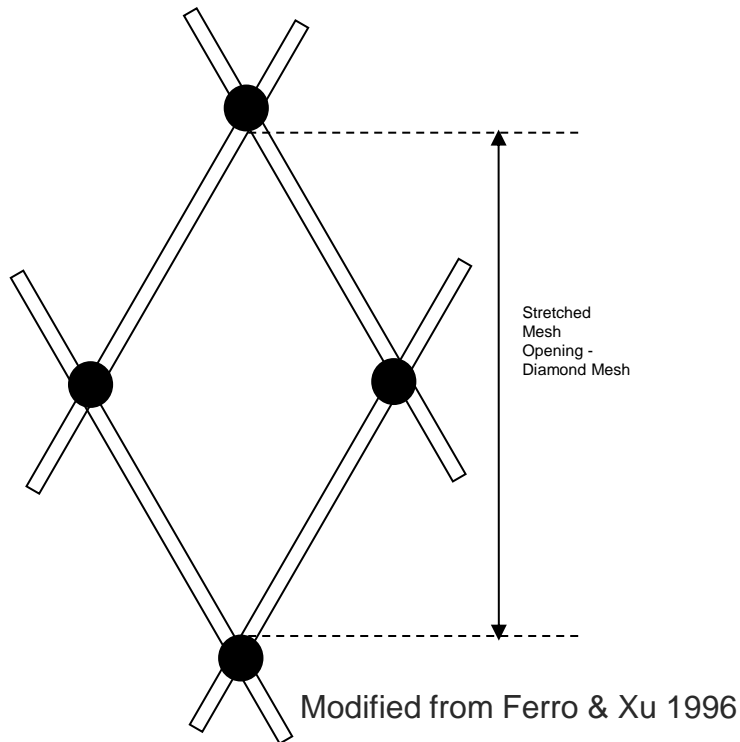
- Net depth = # strips * strip height



Gear Description - Purse Seine

Observer code		Vessel code		Trip ID		Page ____ of ____	
	Description	Manufacturer		Model	Brail capacity (MT)		
Net Hauling system					Primary		
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Net Characteristics							
Net #:		Total length (m):			Total depth (m):		
Float line length (m):		Lead line length (m):					
Mesh	Size (cm)	W / D		Hanging Ratios			
	Type (circle one)	Knotted / Knotless		Float line:		Lead line:	
Purse line material				Purse line diameter (mm)			
Dolphin Safety Panel							
Total length (m):		Total depth (m):					
Mesh size (cm)	W / D						
Net diagram							

[Gear description form]



Gear Description - Purse Seine

Observer code	Vessel code	Trip ID
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Page ____ of ____

	Description	Manufacturer	Model	Brail capacity (MT)	
Net Hauling system				Primary	
				Secondary	
Purse line winch				Secondary	

Net Characteristics

Net #:		Total length (m):		Total depth (m):	
Float line length (m):		Lead line length (m):			
Mesh	Size (cm)	W / D	Hanging Ratios		
	Type (circle one)	Knotted / Knotless	Float line:	Lead line:	

Purse line material		Purse line diameter (mm)	
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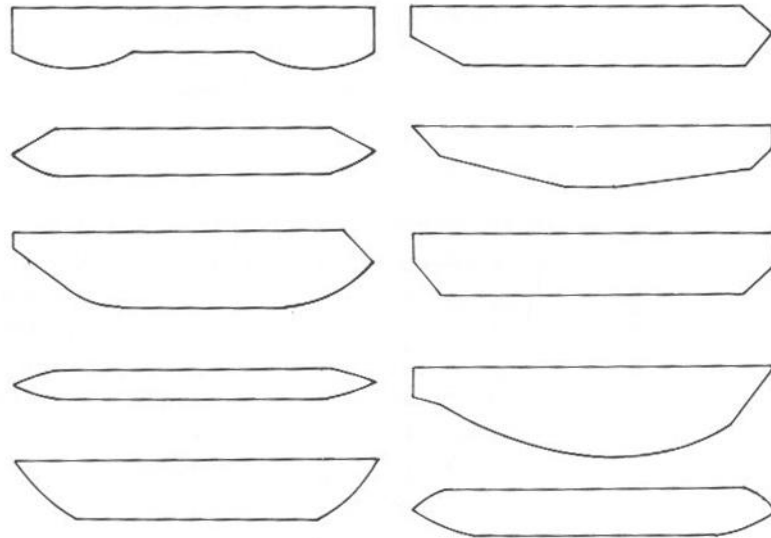
Total length (m):		Total depth (m):	
Mesh size (cm)	W / D		

Net diagram



[Gear description form

Net diagram



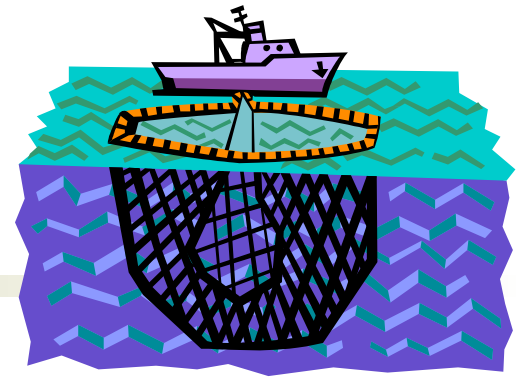
Comments

[Gear description form]

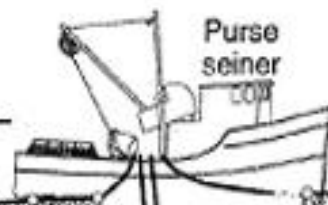
- Questions
- Practice exercise – 15 minutes
- Additional Information:

- Purseline: 8mm Spectra™

[Summary



- Describe how purse seine gear works
- Explain how marine mammals can be released safely



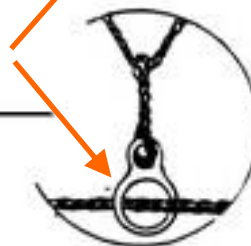
1. _____

2. _____

3. _____

4. _____

5. _____







Rapp Hydema
(<http://www.nauticexpo.com>)

References

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- Ferro, R. S. T., and L. Xu. 1996. An investigation of three methods of mesh size measurement. Fisheries Research **25**:171-190.
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