



# Convention on the Conservation of Migratory Species of Wild Animals

*Secretariat provided by the United Nations Environment Programme*



## 16<sup>TH</sup> MEETING OF THE CMS SCIENTIFIC COUNCIL

*Bonn, Germany, 28-30 June 2010*

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Agenda Item 9.0

### CALL FOR INFORMATION IN FOLLOW-UP OF CMS RESOLUTION 9.18 ON BY-CATCH

**Response from UNEP/CMS Office – Abu Dhabi  
Addressing dugong by-catch**

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United Nations Environment Programme

Convention on the Conservation of  
Migratory Species of Wild Animals

**UNEP/CMS OFFICE – ABU DHABI**  
United Arab Emirates



## **Briefing Note on Addressing Impacts from Bycatch<sup>1</sup> on Dugongs**

Dugongs are a threatened species of high genetic biodiversity value. Being long-lived, slow breeding and dependent on seagrasses which are restricted to coastal habitats and often under increased pressure from human activities, dugongs are particularly vulnerable to anthropogenic impacts including incidental capture, or bycatch, in fisheries gear.

Dugongs are incidentally caught in fishing gear throughout much of their range, where this is one of the largest and most widespread threat. Dugongs are caught incidentally in purse seine nets, bay nets, trap nets, beach seine nets, shark nets, trawl nets, fish traps, bag nets, long lines and fish weirs.

Acknowledging the extent of the impact of bycatch on dugong population, there are two specific objectives of Conservation and Management Plan of the Memorandum of Understanding on the Conservation and Management of Dugongs and their Habitats throughout their Range:

*Objective 1 – Reduce direct and indirect causes of dugong mortality*

*1.1 Identify, assess and evaluate the threats to dugong populations and develop appropriate measures to address these threats*

*1.2 Reduce to the greatest extent practicable the incidental capture and mortality of dugongs in the course of fishing activities*

Similar specific objectives are also contained in the sub-regional Conservation and Management Plan for Dugongs and their Habitats in the Western Indian Ocean:

*Objective 3 – Reduce direct and indirect causes of dugong mortality*

*3.1 Identify, assess and evaluate threats to dugong populations and develop appropriate measures to address these threats*

*3.2 Reduce incidental capture and mortality of dugongs*

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<sup>1</sup> While species caught incidentally are commonly referred to as bycatch, this term is misleading for dugongs as it may be inferred the animals so-caught are discarded. In developing countries, most dugongs caught as bycatch are retained for food and their by-products.



## **Approach and Strategy to address Bycatch of dugongs**

The Secretariat to the *UNEP/CMS Memorandum of Understanding of the Conservation and Management of Dugongs and their Habitats throughout their Range* (Dugong MoU) is taking a regional approach to address the need for more information and to identify solutions to address the impact of bycatch on dugongs.

The Secretariat has adopted a strategy which includes:

- Development of a low technology, low cost and statistically robust approach – the Standardised Dugong Catch/Bycatch Survey Questionnaire – to obtain updated standardised information on dugong distribution, trends in relative abundance, key habitats and impacts to populations. The questionnaire is available for download at: [http://www.cms.int/species/dugong/dugong\\_noticeboard.htm](http://www.cms.int/species/dugong/dugong_noticeboard.htm).
- Development of a Project Manual and Data Upload file to complement the standardised survey tool and assist Range States in project implementation. The manual is available to be downloaded from the above website and the data upload file will be available in the near future.
- Provision of technical support and coordination to range states, including appointment of a Technical Advisor to provide technical advice and guidance to project partners in relation to use of the survey questionnaire, sampling protocol and methodology.
- Implementation of projects using the standardised survey methodology in over twenty range states to date in the Pacific Islands, South East Asia, South Asia and UAE. The standardised surveys will be implemented in other range states in the South Western Indian Ocean and North Western Indian Ocean before the end of 2010. The survey methodology is also being used independently in several countries.
- Threat and Risk Assessment: Technical advice will be sought to use the data obtained to conduct regional/global spatial risks assessment. The expert opinion of the world authority on dugongs, Professor Helene Marsh and others will be sought to provide the best available information on the global status of dugongs.
- Development of Mitigation/Management Toolbox: Expert opinions will be sought from key experts to develop a Toolbox for mitigation and management, including the identification and assessment of the appropriate tools to address key threats and risk to dugongs. This will require identification of pilot projects with best potential to deliver conservation outcomes.
- Fund Raising: With the assistance of the technical experts and support of the Signatory States and collaborating partners, funding will be sought from donors to implement projects to:
  - Expand the conduct of surveys using the Standardised Dugong Catch/Bycatch Survey Questionnaire to remaining dugong range states;
  - Run trial projects in range states to mitigate/manage threat/risks using the tools identified.





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## Potential Benefits

The regional approach to addressing bycatch of dugongs has a number of additional benefits including:

- Supporting Signatory States of the Dugong MoU in decision making and priority-setting based on the most appropriate and best available information, methods and solutions to address bycatch of dugongs.
- Building and enhancing regional cooperation amongst range states of the Dugong MoU to address a key threat to a threatened migratory species.
- Opportunities to address shared conservation synergies, including incidental capture in fisheries gear, with other marine megafauna including turtles, inshore cetaceans and manatees.
- The Mitigation and Management Toolbox being developed for dugong will include a range of current approaches, including gear modification, spatial and temporal management as well as bio-economic approaches. Innovative approaches for performance-based direct conservation schemes such as environmental mortgages, which allow low-income communities to leverage their equity in environmental assets for access to financial service in exchange for environmental stewardship. Such tools may have wider application to a range of species, including turtles, inshore cetaceans and manatees.





## **RATIONALE FOR THE STANDARDISED DUGONG CATCH/BYCATCH QUESTIONNAIRE**

The rationale for development of a standardised questionnaire and sampling methodology was to address the need for scientific data to initiate conservation actions. However, most data on the distribution and abundance of dugongs and their habitats is not suitable for designing effective conservation actions. In addition, collecting such information using scientific techniques such as aerial surveys is beyond the capacity of most countries.

We developed an alternative and cost-effective approach to interview fishers to identify ‘dugong trouble spots’ where the number of dugongs and the threats to their existence are high. We recognised the need to be able to identify the areas where the likelihood of dugongs being killed is greatest by hunting, capture in fishing gear and vessel strike, so that dugongs can be protected in their key habitats.

This information on dugongs and the threats to their existence can be combined in a geographical information system (GIS) to identify ‘dugong trouble spots’ and enable local people to explore the ways in which the risks to dugongs and their habitats can be reduced.

The conduct of standardised, culturally appropriate surveys can be done quickly, efficiently and cost effectively. The relatively low cost could facilitate multiple, “longitudinal” surveys at particular locations to assess changes over time, as well as collection of comparable data from a number of locations and range states.

In addition, the survey we propose is designed to collect data not only for sirenians (e.g. dugongs and manatees), but also sea turtles and cetaceans. Since the latter groups face similar conservation threats to those that jeopardize sirenians, the value of the surveys for identifying and focusing conservation actions extends far beyond that for sirenians alone.

Risk is a combination of the likelihood of something happening and the consequences of it happening. The likelihood of a dugong interacting with a fisher in an area generally increases with the number of dugongs and the number of fishers using gear that catches dugongs. The consequences of the interaction are greatest when adult dugongs, particularly females, are killed.

To be effective, surveys must be conducted consistently and at the scale of whole countries. The survey will enable future efforts to concentrate on action to ensure that there are dugongs, cetaceans, and sea turtles are around for the next generation.





**UNEP/CMS OFFICE – ABU DHABI**  
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**STANDARDISED DUGONG CATCH/BYCATCH QUESTIONNAIRE**

Interviewer Name: \_\_\_\_\_ Date: \_\_\_\_\_ Data Sheet Serial Number: \_\_\_\_\_  
Town: \_\_\_\_\_ Province: \_\_\_\_\_

**INTRODUCTION STATEMENT**

Note: Reading this statement to the interviewee is compulsory. It ensures all interviews are treated equally.

My name is \_\_\_\_\_. I work for a project run by the \_\_\_\_\_, which is an organization based in \_\_\_\_\_ (*insert location*) that supports research to help protect the ocean for fishers and wildlife. The goal of this project is to learn more about capture of dugongs and any other marine wildlife in coastal fisheries of \_\_\_\_\_ (*insert location*). In most countries where dugongs and other marine mammals and sea turtles occur, numbers are small and believed to be declining. If we wait too long before initiating conservation actions, they will have disappeared before we get the data to understand the problem. We need to be able to identify the areas where the likelihood of dugongs being killed is greatest due to hunting, capture in fishing gear and vessel strikes, so that dugongs can be protected. We hope that your participation in this study will help us learn more about this. Information from our research could be used to help reduce the capture of dugongs, sea turtles and marine mammals, maybe through community support for our goals, or possibly through more effective regulations and enforcement. Your participation in this survey is voluntary and confidential. We will not record your name or any personal information you share with us unless this is ok with you. Individual answers will be collated and reported on as a group to provide a general idea of current status, and we will absolutely not share your individual answers to anyone outside of the research team. You do not have to answer questions you do not want to.

**INTERVIEWEE BACKGROUND**

Note: Please tick the boxes to the left of any questions not asked. Provide appropriate ID charts and maps for interviewee to point to during the interview.

- 1. Name: \_\_\_\_\_
- 2. Age: \_\_\_\_\_
- 3. Gender: Male  Female
- 4. Have you previously participated in interviews related to:  
Fishing  Marine Mammals  MPAs  Ecotourism  Sea Turtles  Other  None   
When did you participate? \_\_\_\_\_  
Describe: \_\_\_\_\_
- 5. For how many years has fishing been your occupation? \_\_\_\_\_
- 6. Were your parents fishers? Yes  No  Grandparents? Yes  No
- 7. Is fishing the main way you earn a living? Yes  No
- 8. Is fishing the only way you earn a living? Yes  No   
If No, what is (or are) your other occupation(s)? \_\_\_\_\_
- 9. Which months do you normally fish (out of the last 12)? \_\_\_\_\_  
(if seasonal, indicate season start and end)



Please tick the boxes to the left of any questions not asked. Provide appropriate ID charts and maps for interviewee to point to during the interview.

10. How many days each week do you fish? \_\_\_\_\_ days (low season) \_\_\_\_\_ days (peak season)
11. What is your position on the boat? The captain  A crew member  We have no fixed positions
12. How many fishers, including yourself, work on the boat? \_\_\_\_\_
13. How long is the boat? \_\_\_\_\_  
(Note to interviewer: convert and provide answer in meters)
14. Is the boat motorized? Yes  No  (if yes) Inboard  Outboard
15. What is the horsepower of the motor? \_\_\_\_\_

### **DUGONG CATCH / BYCATCH**

16. Have you ever seen a dugong? Yes  No   
Do you have another name for it? \_\_\_\_\_
17. Tell me about the difference between a dugong and a dolphin? \_\_\_\_\_
18. How long do you think a dugong lives? \_\_\_\_\_ Don't know
19. How do you see dugongs? Seen while fishing  Seen while travelling to fishing areas   
Accidentally caught in nets  Hunted  Stranded on the beach   
(Note to interviewer: Refer to and complete attached table and mark all locations on maps)
20. Do you have any dugong specialists in your village? Yes  No  Who? \_\_\_\_\_
21. How frequently have you seen dugongs? Never  Once in my life  Only a few times in my life   
Frequently  Every year for the last five years   
In the last year, only once  several times  every month  every week  every day .
22. Have people in your community ever hunted dugongs? Yes  No  Don't Know   
(if yes) How many (hunters)? \_\_\_\_\_ For how long? \_\_\_\_\_  
Do they do so now? Yes  No  Don't Know
23. Do people from other villagers / communities hunt dugongs? Yes  No  Don't Know   
Who? \_\_\_\_\_ What village? \_\_\_\_\_ Any other details? \_\_\_\_\_
24. Compared to when you started fishing, are there more , less , or the same number of dugongs captured in fishing gear? Don't Know  (Note to interviewer: based on actual numbers, not perception)  
If more or less common, why do you think this? \_\_\_\_\_
25. Do you know of any areas where dugongs regularly occur? Yes  No   
Where are these dugong areas?: \_\_\_\_\_  
(Note to interviewer: also indicate on maps)
26. Do these dugong areas change over time? Yes  No  Don't Know
27. Have you ever seen dugongs calving? Yes  No  When? \_\_\_\_\_ (what month?)  
Where did you see them calving? (use maps)? \_\_\_\_\_
28. How many dugongs do you think might live in the important dugong areas? 1  <10  >10   
Don't Know
29. When do you see dugongs? (indicate months or seasons where possible): \_\_\_\_\_
30. When was the last time you saw a dugong? \_\_\_\_\_ (if long time ago note the year)
31. Did you catch any dugongs in the last year? Yes  No  (accidentally or hunted)

Please tick the boxes to the left of any questions not asked. Provide appropriate ID charts and maps for interviewee to point to during the interview.

- If yes, how many in the last year? 1-2  ≤10  >10  Specifics (if available): \_\_\_\_\_
- Was this is a typical number to catch in a year? Yes  No
- If no, was it higher or lower than usual? Higher  Lower
32. How many in the last five years? 0  1-2  ≤10  >10  Specifics (if available): \_\_\_\_\_
- How many in your life? 0  1-2  ≤10  >10  Specifics (if available): \_\_\_\_\_
33. What do you do (or would you do) with a dugong if you caught one? (*do not lead interviewee*)
- Eat  Sell  Use as Bait  Other Use  Discard (*dead*)  Release (*alive*)
34. Have you ever found  or heard of  dugongs stranded on the shore? Yes  No  (*explain stranded*)
- Or have you ever found  or heard of  dugongs dead at sea? Yes  No
- If yes, where (*also indicate on maps*)? \_\_\_\_\_
- When and how many? \_\_\_\_\_
- What happened to the animal? \_\_\_\_\_
35. What would you do or did you do if you found a stranded dugong? \_\_\_\_\_

### PERCEPTIONS

36. Compared to when you started fishing, do you think there are more dugongs , less , or the same numbers of dugongs ? I don't know
- If more or less, why do you think this? \_\_\_\_\_
- (*Note to interviewer: Try to determine what other impacts may be driving the trend*)
37. Do you think there will always be dugongs in the sea? Yes  No  Don't Know
- If yes or no, why? \_\_\_\_\_
38. Do you think having dugongs around is important? Yes  No  Don't know  Why? \_\_\_\_\_
39. Do you know what seagrass areas are? Yes  No  (*Note to Interviewer: show graphics*)
- Are there any seagrass areas around here? Yes  No  Don't know  Where? \_\_\_\_\_
- (*Note to Interviewer: mark on maps*)
- Do you fish in these seagrass areas? Yes  No
- Are these seagrass areas important for anything else? Yes  No  Why? \_\_\_\_\_
40. It is illegal to (intentionally) kill a dugong? Yes  No  Don't know
- What about by accident (maybe caught in a net unintentionally)? Yes  No  Don't know
41. Are any areas routinely / periodically patrolled? Frequently  Infrequently  Never  Don't know
42. If yes, are penalties ever imposed? Frequently  Infrequently  Never  Don't know
43. Are there any local customs, beliefs, legends or rituals or stories related to dugongs? Yes  No
- If yes, please describe: \_\_\_\_\_
- \_\_\_\_\_
- Where / from whom did you hear this? \_\_\_\_\_
44. Additional stories / incidents you wish to report: \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Please tick the boxes to the left of any questions not asked. Provide appropriate ID charts and maps for interviewee to point to during the interview.

### FISHERY INFORMATION

Note to interviewer: Respondent should answer these questions to describe his/her individual experience, not that of their community. Use illustrations to assist where necessary.

Habitat Codes: (D) Deep Water; (C) Coral; (S) Seagrass; (F) Fine Sediments; (M) Mangroves; (R) Rocks; (E) Estuaries; (U) Unknown

45. What type of fishing gear do you use?

Longline Only  Mostly  Sometimes  Season: \_\_\_\_\_

(many hooks) Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

Bottom longline Only  Mostly  Sometimes  Season: \_\_\_\_\_

(many hooks set at depth) Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

Hook and line Only  Mostly  Sometimes  Season: \_\_\_\_\_

(one or few hooks) Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

Purse seine Only  Mostly  Sometimes  Season: \_\_\_\_\_

(or surround nets) Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

Beach seine Only  Mostly  Sometimes  Season: \_\_\_\_\_

Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

Trawl nets Only  Mostly  Sometimes  Season: \_\_\_\_\_

(or other towed net) Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

Traps Only  Mostly  Sometimes  Season: \_\_\_\_\_

Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

Gill or trammel nets Only  Mostly  Sometimes  Season: \_\_\_\_\_

Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

Do you tend the nets when they are in the water? Yes  No

How long do you leave the nets in the water? \_\_\_\_\_ hours

Do you fish during the day  or night ?

What is the position of the gear? Surface  Midwater  Bottom

Describe the net: Length \_\_\_\_\_ Depth \_\_\_\_\_ Mesh size \_\_\_\_\_

Other (describe): \_\_\_\_\_

Only  Mostly  Sometimes  Season: \_\_\_\_\_

Habitat: \_\_\_\_\_ Target: \_\_\_\_\_

46. In what places do you normally fish? \_\_\_\_\_

(Use prepared road maps, charts, Google maps and have interviewee point out areas)

Do you use different gears in different areas? Yes  No  If yes, please describe: \_\_\_\_\_

\_\_\_\_\_  
(Use prepared road maps, charts, Google maps, and have interviewee point out areas)

47. Do people in your village / community target sharks? Yes  No  No, but they are occasionally landed

Please elaborate: \_\_\_\_\_

(Note to interviewer: This can be area sensitive)

Please tick the boxes to the left of any questions not asked. Provide appropriate ID charts and maps for interviewee to point to during the interview.

### SEA TURTLE CATCH / BYCATCH

(Optional if time permits and interviewee is keen)

48. Have you ever seen sea turtles? Yes  No  Do you have another name for them? \_\_\_\_\_
49. What species of turtles do you see? Green  Hawksbill  Olive Ridley  Loggerhead   
Flatback  Leatherback  Don't know
- Do you know the difference between these turtle species? Yes  No  Don't know   
(Note to Interviewer; Show ID chart or graphics)
- Please describe: \_\_\_\_\_
- Do they have different names? If yes, please list: \_\_\_\_\_ (determine for each species)
50. How long do you think a turtle lives? \_\_\_\_\_ Don't know
51. Do you have any turtle experts in your village? Yes  No  Who? \_\_\_\_\_
52. What about in other villages? Yes  No  Who? \_\_\_\_\_ What village? \_\_\_\_\_
53. How do you see turtles? Seen while fishing  Seen while travelling to fishing areas   
Coming ashore to lay eggs  Accidentally caught in nets  Hunted  Stranded on the beach   
(Note to interviewer: Refer to and complete attached table and mark all locations on maps)
54. How frequently have you seen turtles? Never  Once in my life  Only a few times in my life   
Frequently  Every year for the last five years   
In the last year, only once  several times  every month  every week  every day
55. Have people in your community ever hunted turtles? Yes  No  Don't Know   
If yes, how many? \_\_\_\_\_ For how long? \_\_\_\_\_
56. Do they do so now? Yes  No  Don't Know
57. Do people from other villagers / communities hunt turtles? Yes  No  Don't Know   
Who? \_\_\_\_\_ What village? \_\_\_\_\_ Any other details? \_\_\_\_\_
58. Compared to when you started fishing, are there more , less , or the same number of  turtles captured in fishing gear? Don't Know  (Note to interviewer: based on actual numbers, not perception)  
If higher or lower, why do you think this? \_\_\_\_\_
59. Do you know of any areas where turtles regularly occur? Yes  No   
Where are these turtle areas? \_\_\_\_\_  
(Note to interviewer: also indicate on maps)
60. Do these turtle areas change over time? Yes  No  Don't Know
61. Do you see mating turtles? Yes  No  When? \_\_\_\_\_ Where (use maps)? \_\_\_\_\_
62. How many turtles do you think might live in these areas? <10  >10  >100  Don't Know
63. When do you see turtles? (indicate months or seasons): \_\_\_\_\_
64. When was the last time you saw a turtle? \_\_\_\_\_ (if a long time ago note the year)
65. Did you catch any turtles in the last year? Yes  No   
If yes, how many in the last year? 1-2  ≤10  >10  What species? (if available): \_\_\_\_\_  
Was this is a typical number to catch in a year? Yes  No

Please tick the boxes to the left of any questions not asked. Provide appropriate ID charts and maps for interviewee to point to during the interview.

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66. How many in the last five years? 0  1-2  ≤10  >10  Specifics (*if available*): \_\_\_\_\_
67. How many in your life? 0  1-2  ≤10  >10  Specifics (*if available*): \_\_\_\_\_
68. What do you do (or would you do) with a turtle if you caught one?  
Eat  Sell  Use as Bait  Other Use  Discard (*dead*)  Release (*alive*)  (*do not lead interviewee*)  
(*Note differences by species where possible and if available*)
69. Have you ever found  or heard of  turtles stranded on the shore? Yes  No  (*explain stranded*)  
Or have you ever found  or heard of  turtles dead at sea? Yes  No   
If yes, where (*also indicate on maps*)? \_\_\_\_\_  
When and how many? \_\_\_\_\_  
What happened to the animal? \_\_\_\_\_
70. What would you do or did you do if you found a stranded turtle? \_\_\_\_\_
71. Compared to when you started fishing, do you think there are more turtles , less , or the same numbers of turtles ? I don't know   
If more or less, why do you think this? \_\_\_\_\_  
(*Note to interviewer: Try to determine what other impacts may be driving the trend*)
72. Do you think there will always be turtles in the sea? Yes  No  Don't Know   
If yes or no, why? \_\_\_\_\_
73. Do you think having turtles around is important? Yes  No  Why? \_\_\_\_\_
74. It is illegal to (intentionally) kill a turtle? Yes  No  Don't know   
What about by accident (maybe caught in a net unintentionally)? Yes  No  Don't know
75. Are there any local customs, beliefs, legends or rituals or stories related to turtles? Yes  No   
If yes, please describe: \_\_\_\_\_  
\_\_\_\_\_  
Where / from whom did you hear this? \_\_\_\_\_

Please tick the boxes to the left of any questions not asked. Provide appropriate ID charts and maps for interviewee to point to during the interview.

### DOLPHIN CATCH / BYCATCH

(Optional if time permits and interviewee is keen)

76. Have you ever seen dolphins? Yes  No  Do you have another name(s) for them? \_\_\_\_\_  
(list by species)
77. What species of dolphins do you see (*describe*)? \_\_\_\_\_  
Any other cetaceans (*describe*)? \_\_\_\_\_ Don't know
78. How long do you think dolphins live? \_\_\_\_\_ Don't know
79. Do you have any dolphin experts in your village? Yes  No  Who? \_\_\_\_\_
80. What about in other villages? Yes  No  Who? \_\_\_\_\_ What village? \_\_\_\_\_
81. How do you see dolphins? Seen while fishing  Seen while travelling to fishing areas   
 Accidentally caught in nets  Hunted  Stranded on the beach   
Are these areas different by species? Yes  No  Don't Know   
If yes, please explain: \_\_\_\_\_  
(Note to interviewer: mark locations on maps by species)
82. How frequently have you seen dolphins? Never  Once in my life  Only a few times in my life   
Frequently  Every year for the last five years   
In the last year: Only once  Several times  Every month  Every week  Every day
83. Compared to when you started fishing, are there more , less , or the same number of  dolphins captured in fishing gear? Don't Know  (Note to interviewer: based on actual numbers, not perception)  
If higher or lower, why do you think this? \_\_\_\_\_
84. Do you know of any areas where dolphins regularly occur? Yes  No   
Where are these dolphin areas?: \_\_\_\_\_  
(Note to interviewer: also indicate on maps)
85. Do these dolphin areas change over time? Yes  No  Don't Know
86. How many dolphins do you think might live in these areas? <10  >10  >100  Don't Know
87. When do you see dolphins? (*indicate months or seasons*): \_\_\_\_\_
88. When was the last time you saw one? \_\_\_\_\_ (*if long time ago note the year*)
89. Did you catch any dolphins in the last year? Yes  No   
If yes, how many in the last year? 1-2  ≤10  >10  Specifics (*if available*): \_\_\_\_\_  
Was this is a typical number to catch in a year? Yes  No
90. How many in the last five years? 0  1-2  ≤10  >10  Specifics (*if available*): \_\_\_\_\_
91. How many in your life? 0  1-2  ≤10  >10  Specifics (*if available*): \_\_\_\_\_
92. What do you do (or would you do) with a dolphin if you caught one? (*do not lead interviewee*)  
Eat  Sell  Use as Bait  Other Use  Discard (dead)  Release (alive)
93. Have you ever found  or heard of  dolphins stranded on the shore? Yes  No  (*explain stranded*)  
Or have you ever found  or heard of  dolphins dead at sea? Yes  No   
If yes, where (*also indicate on maps*)? \_\_\_\_\_

Please tick the boxes to the left of any questions not asked. Provide appropriate ID charts and maps for interviewee to point to during the interview.

When and how many? \_\_\_\_\_

What happened to the animal? \_\_\_\_\_

94. What would you do or did you do if you found a stranded dolphin? \_\_\_\_\_

95. Compared to when you started fishing, do you think there are more dolphins , less , or the same numbers of dolphins ? I don't know

If more or less, why do you think this? \_\_\_\_\_

*(Note to interviewer: Try to determine what other impacts may be driving the trend)*

96. Do you think there will always be dolphins in the sea? Yes  No  Don't Know

If yes or no, why? \_\_\_\_\_

97. Do you think having dolphins around is important? Yes  No  Why? \_\_\_\_\_

98. It is illegal to (intentionally) kill a dolphin? Yes  No  Don't know

What about by accident (maybe caught in a net unintentionally)? Yes  No  Don't know

99. Are there any local customs, beliefs, legends or rituals or stories related to dolphins? Yes  No

If yes, please describe: \_\_\_\_\_

Where / from whom did you hear this? \_\_\_\_\_

### **CONFIDENTIAL INTERVIEWER COMMENTS**

100. How open and honest did the fisher seem about answering bycatch questions?

Very open/honest  Somewhat open/honest  Not honest

101. How interested and engaged did the fisher seem with interview?

Very interested  Moderately interested  Bothered/ Not interested

102. How certain did the fisher seem about answers to numerical questions?

Very sure  Reasonable sure  Unsure

103. How comfortable were you about the respondents' ability to discriminate between the species

Very comfortable  Reasonable  Not comfortable

104. Why do you think this? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

105. Please indicate why (if any) questions were not asked \_\_\_\_\_

