Rettung für die Schweinswale

Elemente eines Plans zur Reduzierung von Schweinswalbeifängen in Nord- und Ostsee

Elements of a harbour porpoise bycatch reduction plan in the North- and Baltic Sea

Abbreviations used in this document

ASCOBANS	Agreement on the conservation of small cetaceans of the Baltic and North Seas
CFP	Common Fisheries Policy of the European Union
CMS	Convention on the Conservation of Migratory Species of Wild Animals, also known as the Bonn Convention
EC	European Commission
EEZ	Exclusive Economic Zone
EU	European Union
ICES	International Council for the Exploration of the Sea
IWC	International Whaling Commission
MMPA	United States' Marine Mammal Protection Act
OSPAR	Convention for the protection of the marine environment of the Northeast Atlantic
PBR	Potential Biological Removal
POD	porpoise click detector
RMP	Revised Management Procedure (of the IWC)
SAC	Special Area for Conservation (as defined in the EU Habitats Directive)
SCANS	Small Cetacean Abundance in the North Sea
STECF	Scientific, Technical and Economic Commission for Fisheries (advisory body to the European Commission)
TAC	Total Allowable Catch

Note

This paper is limited to comments on the harbour porpoise *(Phocoena phocoena)* in the North and Baltic Seas. Unless specified otherwise, any reference to the harbour porpoise is restricted to this area.

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For reference

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Vorwort

Fast acht Jahre sind seit der letzten Zählung der Schweinswale in Nord- und Ostsee vergangen. Seither starben hier Tausende ihrer Art Jahr für Jahr in den Fischernetzen. Wie viele Schweinswale es in diesem Gebiet heute noch gibt, ist völlig unklar. Die von wissenschaftlichen und politischen Gremien festgelegten Beifang-Grenzwerte, die eine Gefährdung der Schweinswalpopulationen verhindern sollen, werden um ein Mehrfaches überschritten. Ohne gravierende Änderungen der Fischereimethoden ist das dauerhafte Überleben dieser kleinen Wale in der Nord- und Ostsee gefährdet.

In den vergangenen zehn Jahren sind zwar von Wissenschaftlern, Regierungen oder auch von EU-Institutionen zahlreiche offizielle Dokumente geschrieben und sogar Gesetze erlassen worden, die den Schutz der Schweinswale beinhalten. Aber in der rauen Wirklichkeit der Nord- und Ostsee hat sich für die einzigen in Deutschland heimischen Wale nichts Entscheidendes verbessert. Das liegt auch daran, dass sowohl in den Fischereistaaten als auch in der für alle EU-Staaten gültigen Gemeinsamen Fischereipolitik bis heute keine verbindlichen Regelungen existieren, die den Beifang allgemein und besonders den der Schweinswale regulieren könnten.

Im Sommer 2001 hat der WWF mit der Veröffentlichung seiner Studie zur Bedrohungssituation der Schweinswale – „Frische Fische – Tote Wale“ – Alarm geschlagen und seither das Problem mit einer bundesweiten Kampagne ins Licht der Öffentlichkeit gerückt. Denn im Jahr 2002 stehen zwei große politische Ereignisse an, die für das Überleben der kleinen Wale in der Nord- und Ostsee von entscheidender Bedeutung sein können: Im März findet die Fünfte Internationale Nordseeschutzkonferenz in Norwegen statt. Und bis Ende des Jahres muss die EU-Fischereipolitik reformiert werden. Sowohl die Konferenz als auch die zwingende Fischereireform bieten große Chancen, ein umfassendes Konzept mit notwendigen Maßnahmen und Entscheidungen zur Reduzierung der Schweinswalbeifänge voranzubringen. Da ein derartiges Konzept aber noch nicht existiert, hat der WWF beschlossen, dieses unter Einbeziehung mehrerer politischer und wissenschaftlicher Experten entwickeln zu lassen.

Der vorliegende „WWF-Rettungsplan“ benennt konkrete Maßnahmen sowie wann und durch welche Institutionen entsprechende Entscheidungen getroffen werden müssen, um die Schweinswalpopulationen in Nord- und Ostsee zu erhalten. Die wichtigste Erkenntnis ist sicherlich, dass der Knackpunkt für den langfristigen Erhalt der Schweinswale in der Nord- und Ostsee in einer Veränderung der herrschenden Fischereipolitik liegt – speziell im Abbau von Überkapazitäten in der Fischereiflotte und in verbindlichen Höchstgrenzen für Beifänge.

Viel Zeit wurde in den letzten Jahren unnötig verschenkt. Aber es ist noch nicht zu spät, das Problem der massenhaft sterbenden Schweinswale so rechtzeitig und konkret in Angriff zu nehmen, dass zumindest der langfristige Erhalt natürlich großer Schweinswalbestände in unseren Meeren gesichert werden kann.

Der WWF wird den Rettungsplan – beginnend im Vorfeld der Nordseeschutzkonferenz – allen zuständigen politischen und wissenschaftlichen Gremien und Verantwortungsträgern im In- und Ausland zur Verfügung stellen und sich mit aller Kraft für eine schnelle Übernahme der einzelnen Punkte einsetzen. Die deutsche Bundesregierung, vertreten durch Umweltminister Jürgen Trittin und durch die für Fischereipolitik zuständige Verbraucherschutzministerin Renate Künast, kann und muss nach Auffassung des WWF in diesem Jahr dafür ihr politisches Gewicht in die Waagschale werfen.

Es ist höchste Zeit, dass Naturschutz endlich auch in der Fischereipolitik adäquat berücksichtigt wird. Davon profitieren am Ende nicht nur die Nordseewale. Auch die Fischereiindustrie kann die Meere langfristig nur dann für alle Gewinn bringend nutzen, wenn sie auf schonende und nachhaltige Fischerei setzt.

Heike Vesper & Christian von Dorrien, WWF Deutschland

Zusammenfassung

Höhe der Beifänge

Der Schweinswal ist die am weitesten verbreitete Wal- und Delfinart in der Nord- und Ostsee. In den vergangenen Jahrzehnten wurde erkannt, dass viele Schweinswale in den Netzen der Fischer gefangen werden. In den 1990er Jahren wurden verschiedene Untersuchungen durchgeführt, um herauszufinden, wie viele Schweinswale den Fischernetzen, insbesondere den Bodenstellnetzen, zum Opfer fallen. Dieses Unterfangen hat sich aus verschiedenen Gründen als schwierig und zeitaufwändig erwiesen. Dennoch konnten einige dänische und britische Fischereien eingehend untersucht werden. Die Ergebnisse weisen auf alamierend hohe Beifangzahlen von schätzungsweise durchschnittlich 7.000 Tieren pro Jahr allein in der zentralen und südlichen Nordsee hin. Es ist davon auszugehen, dass auf Grund der geringen Abdeckung der durchgeführten Untersuchungen – nicht alle Schiffe wurden überwacht – und der Tatsache, dass verschiedene andere Fischereien im Verdacht stehen, ebenfalls Schweinswalbeifänge zu haben, insgesamt noch sehr viel mehr der kleinen Wale sterben. Als Hauptursache für die strukturelle Reduzierung der Schweinswalbestände in der Nord- und Ostsee gilt allgemein die hohe Zahl der Beifänge.

Sichtungen / Zählungen

Um die Wale und Delfine in der Nord- und Ostsee zu zählen, wurden Mitte der 1990er Jahre Sichtungszählungen durchgeführt. Die Anzahl der Schweinswale in der Nordsee wurde 1994 auf 267.000 bis 465.000 Tiere mit einem Mittelwert von 350.000 geschätzt. Die geschätzte Durchschnittszahl für die zentrale und südliche Nordsee betrug etwa die Hälfte dieses Wertes. Bei einer Zählung aus der Luft waren 1995 die Schätzungen mit 599 Tieren für die Ostsee so niedrig, dass man ein Verschwinden der Schweinswale in der Ostsee befürchten muss. Um die nötigen Maßnahmen für eine Reduzierung der Beifänge einzuleiten, müssen wir wissen, wie viele Schweinswale in der Nord- und Ostsee leben. Die letzte Untersuchung ist jedoch bereits acht Jahre alt. Es ist daher von größter Wichtigkeit, dass neue Zählungen bald durchgeführt werden, um Veränderungen in der Häufigkeit der Schweinswale festzustellen.

Reduzierung des Beifangs

Die oben genannten Zahlen haben Anlass zu tiefer Sorge über die Auswirkungen der derzeitigen Beifanghöhe auf die Häufigkeit von Schweinswalen gegeben. Aus dieser Besorgnis heraus wurde damit begonnen, zu erforschen, wie der unbeabsichtigte Beifang der Schweinswale in den Fischernetzen reduziert werden kann. Da zu viele Schweinswale mitgefangen werden, besteht die Wahrscheinlichkeit, dass Populationen schrumpfen. In der Ostsee ist die Situation so akut, dass Hilfsmaßnahmen eher heute als morgen gestartet werden müssen. Bei bestimmten Fischereien ist der Beifang direkt mit dem Fischereiaufwand verbunden. Auf der Basis der derzeitigen Informationen ist die beste Methode, Beifänge zu reduzieren, die Verringerung des Aufwandes in der Grundstellnetzfischerei in der zentralen und südlichen Nordsee und in der Treibnetzfischerei in der Ostsee. Besonders bei Fischereien, bei denen der Fang von Fisch pro Einheit des Aufwands (Catch per Unit Effort; CPUE) gering, der Beifang aber hoch ist, scheint es angemessen, die Fischereimethoden zu verändern. Ein Kandidat dafür scheint die dänische Steinbutt- und Seehasenfischerei mit Stellnetzen zu sein. Verschiedene Vorschläge dazu sind im Kapitel 8 der Studie aufgelistet.

Versuche mit Pingern

Zusätzlich wurden in begrenztem Rahmen Pinger getestet. Pinger sind kleine, wasserdichte Kästchen, die an Fischernetze angebracht werden können. Sie senden ein Geräusch aus, das die Schweinswale von den Netzen abhalten soll. Die Ergebnisse der Tests sind sehr viel versprechend. In Netzen, die mit Pingern ausgerüstet waren, sanken die Beifänge von Schweinswalen auf weniger als zehn Prozent oder sogar gegen Null. Auf den Fischfang hatten die Pinger keine negativen Auswirkungen.

Es gibt verschiedene Ausführungen von Pingern und es ist von grundlegender Bedeutung, dass die eingesetzten Pinger langlebig sind und kaum Wartung benötigen. Mögliche Nebeneffekte (wie die Gewöhnung der Schweinswale an die Pinger-Geräusche oder das Risiko, dass Schweinswale aus einem Gebiet, das ansonsten zu ihrem bevorzugten Lebensraum zählt, vertrieben werden) machen weitere Untersuchungen erforderlich.

Die praktischen Probleme mit Pingern verhindern immer noch deren großräumigen Einsatz. Die meisten Fischer mögen sich nicht mit Neuerungen auseinandersetzen und möchten auch nicht an Versuchen teilnehmen. Zusätzlich haben die „Kinderkrankheiten“ dieses neuen Gerätes den Enthusiasmus für deren Anwendung, von einigen erwähnenswerten Ausnahmen abgesehen, gebremst.

Trotz dieser Nachteile ist es an der Zeit, Pinger einzusetzen. Dies sollte nicht gesetzlich verordnet werden, sondern in einem groß angelegten Testverfahren erfolgen. „Experimentelle“, zeitlich begrenzte Gebietsschließungen in Kombination mit dem verpflichtenden Einsatz von Pingern, haben in Dänemark viel versprechende Ergebnisse geliefert und sollten daher auch anderswo eingesetzt werden. Solche Experimente sollten die potentielle Gewöhnung der Schweinswale an die Pingergeräusche und die Möglichkeit ihrer Vertreibung durch die Pinger aus einem für sie ansonsten vorteilhaften Lebensraum berücksichtigen. Geeignete Kandidaten für ein groß angelegtes Experiment mit Pingern sind die britischen und dänischen Wrackfischereien nach Kabeljau in der zentralen und südlichen Nordsee. Diese Fischereien setzen relativ kurze Netze ein, was die erfolgreiche Anwendung von Pingern wahrscheinlicher macht. Aber auch andere Fischereien könnten beachtliche Beifänge von Schweinswalen haben und sollten daher Gegenstand von Überwachungspro-

grammen sein. Die große norwegische Stellnetzfischerei in der Nordsee ist dafür ein offensichtlicher Kandidat. In der Ostsee hingegen sollte auf Grund der geringen Dichte der Schweinswale eher versucht werden, die Fangmethode zu ändern, als Fangeräte mit Pingern einzusetzen.

Derzeitiges Management, ASCOBANS

Es ist unklar, in welchem Ausmaß sich die Schweinswal-Populationen verringert haben. Es gibt aus der Vergangenheit keine Bestandsdaten, die zum Vergleich für die 1994 durchgeführten Untersuchungen zur Abschätzung der Populationsgröße herangezogen werden können. Eine Arbeitsgruppe der IWC (Internationale Walfangkommission) und von ASCOBANS (Abkommen zur Erhaltung von Kleinwalen in Nord- und Ostsee) ist 1999 zu dem Schluss gekommen, dass die geschätzten Beifänge im Vergleich zur Größe der Gesamtpopulation zu hoch sind. Die Gruppe schlug vor, die jährlichen Beifänge unter zwei Prozent der geschätzten Schweinswalbestände zu reduzieren. So soll ermöglicht werden, dass sich die Schweinswalpopulationen bis auf 80 Prozent ihrer ursprünglichen Größe erholen können. In der Folge verankerte ASCOBANS eine maximale jährliche Beifangrate von 1,7 Prozent der Gesamtzahl von Schweinswalen als nicht zu akzeptierende menschliche Einflussnahme. Im Jahr 2000 wurde diese maximale Beifangrate auf ein Prozent reduziert.

Neue Management-Ziele

In den USA beinhaltet die Gesetzgebung zum Schutz mariner Säuger, der „Marine Mammal Protection Act“, die Spezifizierung der Ziele zur Beifangreduzierung mit konkreten Zahlen. Dieser Wert ist bekannt als „Potential Biological Removal (PBR)“. Die Berechnung des maximal zu akzeptierenden Beifangwertes mit diesem Berechnungsmodell führte zu einem Plan für die Reduzierung der Beifänge in den Fischereien. In der Nord- und Ostsee wird der Erfolg der Bemühungen, das Beifangniveau zu senken, von der Etablierung und Abstimmung eines solchen einfachen und quantitativen Managementziels und einem damit verbundenen Zeitplan abhängen. Beim derzeitigen Stand der Dinge haben Ratschläge für technische Lösungen keine Priorität. Die Definition des Managementzieles bedarf eines sorgfältigen Formulierungsprozesses in Verbindung mit der Erprobung der möglichen Verfahren zur Umsetzung. Die derzeitige Zahl von ein Prozent maximal zu akzeptierender Beifänge sollte nur als zeitlich begrenzter Referenzwert betrachtet werden. Eine Weiterentwicklung der Definition dieser Grenze wird dringend benötigt, um deren Zuverlässigkeit zu erhöhen, denn schließlich werden die Gesetzgebung und die Managementmaßnahmen auf diesen Werten basieren. Ziele für Reduzierung der Beifänge von Schweinswalen sollten vorsorglich festgelegt werden. Zielentwürfe auf der Basis von Risikoeinschätzungen werden im Kapitel 3.1 präsentiert.

Lösungen und Kompromisse

Die Reduzierung des Beifanges von Schweinswalen ist eine Frage der Anpassung bestimmter Fischereien, sei es durch Aufwandsreduzierung, Veränderung der Fanggeräte oder technische Verbesserungen. Zwischen den verschiedenen rechtlichen Instrumenten, die die Fischerei und den Schutz der Schweinswale regulieren, bestehen viele Widersprüche. In der Realität wird es einen Ausgleich zwischen den verschiedenen Interessen geben müssen, besonders zwischen langfristigen und kurzfristigen Interessen und zwischen den Interessen der Fischerei und des Naturschutzes. Der derzeitige Status ist, dass dem Beifang der Schweinswale nur wenig Beachtung geschenkt wird. Selbst die für Schweinswale gefährlichsten Fischereien haben so gut wie keine Auflagen, um diese Beifänge zu reduzieren. Meistens verursachen die Kompromisse zwischen langfristigen und kurzfristigen Interessen die größeren Auseinandersetzungen. Wenn jedoch Ziele für das Management, bezogen auf einen längeren Zeithorizont, formuliert werden, gleichen sich die Interessen der Fischerei und des Naturschutzes bemerkenswert an. Es ist weder zu erwarten noch notwendig, dass alle Fischereien geschlossen werden. Ein gezieltes Paket von Maßnahmen zur Verringerung der Beifänge sollte auch die ökonomische und soziale Lage der einzelnen Fischereien berücksichtigen. Kooperation mit Fischern ist der Schlüssel für die erfolgreiche Verringerung der Beifänge. Eine Fischerei würde nur dann geschlossen, wenn es keine Alternativen gäbe. Für die Veränderungen in der Struktur und Praxis der Fischereien wird finanzielle Unterstützung nötig sein.

Die Europäische Union

Die für den Schweinswal wichtigsten gesetzlichen Instrumente sind die Gemeinsame Fischereipolitik der EU (GFP) und ASCOBANS. Die europäische Kommission hat erst vor kurzem Interesse an der Problematik der Schweinswalbeifänge gezeigt. In ihrem Grünbuch, das eine Strategie für die Reform der GFP ist, schlug die Kommission vor, durch die Einführung von Maximalgrenzen für Beifänge mittelfristig Umwelt- und Ökosystem betreffende Ziele und Strategien aufzustellen – besonders für jene Arten, die in den Naturschutzgesetzen aufgeführt sind. So genannte nicht-kommerzielle Arten wie Schweinswale werden von den GFP-Verordnungen derzeit nicht berücksichtigt. Das muss geändert werden.

Die umfassende Revision der GFP bis zum 1. Januar 2003 ist eine einmalige Möglichkeit, entsprechende Gesetze in die EU-Politik zu integrieren. Die offensichtlichsten Kandidaten dafür sind die EU-Habitatsrichtlinie und ASCOBANS – wobei letzteres, wenn es um Maßnahmen zur Reduzierung von Schweinswalbeifängen geht, schon weiter fortgeschritten zu sein scheint.

Schlussfolgerung

Die Einführung von Regulierungen muss auch zu nachweisbaren Erfolgen führen. ASCOBANS hat erheblichen Aufwand betrieben, um seine allgemeinen Zielvorgaben zum Schutz der Kleinwale weiter zu entwickeln. Dies hat zu einer bedeutenden Verbesserung in der Zusammenarbeit der Mitglieder von ASCOBANS geführt und zu einem gemeinsamen Verständnis über den weiteren Weg. Erstens sollte ASCOBANS nun klare Schutzstandards für den Schweinswal mit einem vernünftigen Zeitplan verabschieden und festlegen, welches Risiko die Mitglieder bereit sind zu akzeptieren, dass die Schutzziele nicht erreicht werden. Als ein Ausgangspunkt wird in Kapitel 3.1 dieses Berichts ein Entwurf für Zielvorgaben präsentiert.

Zweitens sind sieben EU-Mitgliedsstaaten auch Mitglied von ASCOBANS und sollten daher gemeinsame Initiativen im EU-Fischereirat vorschlagen, um sicherzustellen, dass die EU-Fischereipolitik so angepasst wird, dass den Schweinswalen geholfen wird.

Drittens muss der EU-Fischereirat Regulierungen und Verordnungen für ein Management des Beifanges von Nicht-Zielarten in die GFP aufnehmen. Die EU-Mitglieder, die auch in ASCOBANS zusammengeschlossen sind, sollten dies im EU-Fischereirat vorantreiben.

Ein vierter praktischer Schritt ist die Einbeziehung von Daten über Kleinwalbeifänge in die EU-Rahmenrichtlinie zur Erfassung und Verwaltung von GFP-Daten. Die EU-Kommission sollte außerdem finanzielle Hilfsprogramme entwickeln, um so die nötigen Veränderungen in der Fischerei zu unterstützen. Schließlich rechtfertigen die niedrigen Bestandsabschätzungen der Schweinswale in der Ostsee sofortige und strenge Maßnahmen zur Vermeidung von Beifängen. Die entsprechenden ASCOBANS-Mitglieder sollten eine Überwachung der Treibnetzfischerei in der Ostsee durchführen, und wenn die Ergebnisse hohe Beifangmengen von Schweinswalen ergeben, die Anwendung des Treibnetzverbotes der EU auch für die Ostsee verlangen.

Kapitel 8 bietet eine Liste essenzieller Elemente für die Rettung der Schweinswale in Nord- und Ostsee: Praktische, kurzfristige Maßnahmen, die, wenn richtig ausgeführt, zu einer erheblichen Reduzierung der hohen Beifänge in der Fischerei führen werden. Diese Maßnahmen sollten umgehend in die Tat umgesetzt werden, denn die akute Bedrohung der Schweinswale duldet keinen Aufschub.

Aktionsplan

Gesetze/ Verordnungen	Maßnahme	Entscheidung: Verantwortliches Organ	bis wann	Umsetzung: Verantwortliches Organ	bis wann	Bemerkungen
Priorität 1	Aufnahme von Regelungen, die die Auswirkungen auf Nicht-Zielarten wie Schweinswale reduzieren, in die reformierte GFP	EU Fischerei-Rat	« 1 Januar 2003	EU-Mitgliedsstaaten, die Mitglied bei ASCOBANS sind	« 2002	*Die Gemeinsame Fischereipolitik (GFP) der EU ist das einflussreichste Regulierungsinstrument für Maßnahmen zur Reduzierung von Beifängen in Europa. Die Reform der GFP soll bis 1. Januar 2003 abgeschlossen sein.*
Priorität 2	Beschluss von Zielgrößen für Schweinswalpopulationen unter Berücksichtigung von Risiken und Unsicherheiten	ASCOBANS	« 4. Konferenz der Mitglieder (CoP) in 2003	ASCOBANS: Wissenschaftlicher Beirat und Mitglieder	« 2002-2003	*Voraussetzung ist die Definition von Zielgrößen für die Populationen, von Zeitvorgaben, bis wann diese erreicht werden sollen, sowie von Risikogrenzen verbunden mit der Erreichung der definierten Zielgrößen innerhalb der definierten Zeit. Siehe entsprechenden Vorschlag in Kapitel 3.1 des Berichts.*
Priorität 3	Ostseestaaten beschließen eine Reduzierung der Netzlängen der Ostsee-Treibnetzfischerei, kombiniert mit einem Monitoringrogramm	Ostsee ASCOBANS-Mitglieder/EU-Mitgliedsstaaten	SOFORT!!	Verwaltungsbehörden der Ostseestaaten	so schnell wie möglich	*Sofortmaßnahmen sind nötig, um die Beifänge in der Ostsee zu reduzieren.*
4	Einbringen von Grenzwerten für Nicht-Zielarten in die GFP-Reform	EU-Mitgliedsstaaten, die Mitglied bei ASCOBANS sind	« 1 Januar 2003	ASCOBANS: Wissenschaftlicher Beirat erstellt Vorlage für Mitglieder	9. Treffen des Wiss. Beirates	*Die Reform der GFP soll bis 1. Januar 2003 abgeschlossen sein. Sie muss Regelungen enthalten für die Auswirkungen der kommerziellen Fischerei auf Nicht-Zielarten (Fisch, Meeressäuger und andere).*
5	Anpassung der EU-Verordnung 1543/2000 zur Erfassung und Verwaltung von GFP Daten, um auch Nicht-Zielarten zu berücksichtigen, insbesondere Beifangdaten von Schweinswalen	EU Fischerei-Rat	« 2004	Europäische Kommission, ASCOBANS Mitglieder	« 2002-2003	*Die EU-Verordnung zur Erfassung und Verwaltung von GFP-Daten gilt von 2003 bis 2006, mit der Option einer Überarbeitung bis 31.12.2003. Die EU-Kommission sollte sich mit ASCOBANS und dessen Experten über dieses Thema abstimmen.*
6	Anpassung der Finanzinstrumente in der EU sowie die Einführung von regelmäßigen Monitoring-Programmen	EU Fischerei- und Umweltrat, EU-Mitgliedsstaaten, EU-Parlament	« 2004	Politischer Druck (NROs); Monitoring: Manager und Wissenschaftler in Zusammenarbeit mit der Fischerei	« 2002-2004	*Artikel 12 der EU Habitats-Richtlinie wird immer noch kaum angewandt.*
7	Verbot der Treibnetzfischerei in der Ostsee	EU Fischerei-Rat	« 2004/2005	Zuständige Fischereiverwaltungsbehörden, in Zusammenarbeit mit Interessensgruppen	« 2002-2004	*Erfassung von Beifangdaten in der Treibnetzfischerei. Anwendung des Treibnetzverbotes für die Lachsfischerei bei verantwortlichen Regierungen durchsetzen. Ostsee-Staaten und Fischerei müssen einer Lösung zustimmen.*

Fischerei	Maßnahme	Entscheidung: Verantwortliches Organ	bis wann	Umsetzung: Verantwortliches Organ	bis wann	Bemerkungen
Priorität 8	Großversuche mit „Pingern" in Verbindung mit befristeten/ räumlichen Schließungen in der britischen Wrackfischerei auf Kabeljau in der Nordsee	Großbritannien, in Kooperation mit ASCOBANS Mitgliedern und EU-Mitgliedsstaaten	« 2002	Finanzierung: Großbritannien, EU Umsetzung: Großbritannien, nationale Verwaltungsbehörden	ab 2003	*Die Ergebnisse der dänischen Versuche verdienen eine Fortführung in größerem Umfang.*
Priorität 9	Umfassendes Monitoring-programm in der norwegischen Kiemennetzfischerei in der nördlichen Nordsee	Norwegen	« SOFORT!!	Nationale Verwaltungsbehörden, mit Wissenschaftlern und Fischerei	« 2003-2003	*Es gibt so gut wie keine Beifangdaten dieser Fischerei, während ihre Eigenschaften darauf hinweisen, dass erhebliche Beifangraten auftreten können.*
Priorität 10	Tests mit Veränderungen des Fischereigerätes und/oder Aufwandsreduzierung in der Nordsee-Kiemennetzfischerei auf (1) Steinbutt und Seehase sowie (2) Kabeljau auf ebenem Grund	Dänemark, in Kooperation mit ASCOBANS Mitgliedern und EU-Mitgliedsstaaten	« SOFORT!!	Finanzierung: Dänemark, EU Umsetzung: Dänemark, nationale Verwaltungsbehörden	« 2002-2005	*Die Steinbuttfischerei hat einen sehr niedrigen Fang pro Einheitsaufwand (CPUE) und ist gleichzeitig sehr anfällig für Beifänge von Schweinswalen. Sie wäre der Hauptkandidat in der Nordsee für Versuche mit verändertem Fanggerät.*
11	Versuche mit alternativen Fanggeräten in der Ostsee-Kiemennetzfischerei auf Kabeljau	Ostsee-ASCOBANS-Mitglieder/EU-Mitgliedsstaaten	« SOFORT!!	ASCOBANS-Mitglieder, Verwaltungsbehörden	« 2002-2003	*Angesichts der extrem niedrigen Dichten von Schweinswalen in der Ostsee sollten in jeder Fischerei mit Verdacht von Beifängen die Fanggeräte geändert werden.*
12	Tests von schallreflektierenden Netzen, um ihre Effektivität zum Fernhalten von Schweinswalen zu ermitteln	ASCOBANS, EU-Kommission	« kurzfristig	ASCOBANS-Mitglieder/EU-Mitgliedsstaaten, Verwaltungsbehörden	« 2002-2004	*Erste Tests in den USA waren viel versprechend. Wenn diese Netze gut funktionieren, könnten sie sehr kosteneffektiv und einfach in der Praxis angewendet werden.*
Erfassung der Bestandsgrößen	**Maßnahme**	**Entscheidung: Verantwortliches Organ**	**bis wann**	**Umsetzung: Verantwortliches Organ**	**bis wann**	**Bemerkungen**
Priorität 13	SCANS-II Kleinwal-Erfassung	EU-Kommission (EC), ASCOBANS-Mitglieder	« Anfang 2002	Finanzierung: EC, ASCOBANS Mitglieder Feldarbeit: SMRU und andere europäische wissenschaftliche Einrichtungen	« 2003	*Die letzte Bestandsgrößenerfassung wurde 1994 durchgeführt. Eine neue Erfassung, verbunden mit genauen Schätzungen der Beifanghöhen, bildet die wichtigste Grundlage für Managementzwecke.*
14	Erfassung der Schweinswalbestände in der Ostsee	ASCOBANS und seine Ostsee-Mitglieder	« Anfang 2002	wissenschaftliche Kooperation der Ostsee-Staaten	« Sommer 2002	*Teile der Finanzierung sind bereitgestellt. Die derzeit geschätzte niedrige Schweinswaldichte verlangt sofortige Maßnahmen.*

Executive summary

Bycatch levels

The harbour porpoise is the most widely spread species of whales and dolphins in the North Sea and the Baltic Sea. In the past decades it was realised that many harbour porpoises are caught in fishing nets. Work was started in the 1990s to try and find out how many fall victim to fishing nets, particularly in standing gillnets. It proved a difficult and time-consuming exercise, but a few Danish and British fisheries have been successfully monitored. This indicated alarmingly large bycatch numbers of 7000 animals per year in the Central and Southern North Sea. Given the low coverage of fisheries and the fact that various other fisheries are suspected to contribute to this death toll, the total in all fisheries is likely to be many more. It is generally accepted that the total bycatch numbers are probably the main cause for a structural reduction of harbour porpoise abundance in the North and Baltic Seas.

Sightings surveys

Sightings surveys were finally carried out in the mid-1990s to count whales and dolphins in the North and Baltic Seas. The number of harbour porpoises in the North Sea was estimated to be 267,000 – 465,000 animals in 1994, with a mean of 350,000. The mean estimate for the Central and Southern North Sea contributes about 50 % of this number. For the Baltic Sea, the 1995-estimate from an aerial survey was so low (599 animals) and so few individuals were actually seen, that people fear for a virtual disappearance of the harbour porpoise in the Baltic Sea. In order to determine the necessary management actions for bycatch reductions, we need to know how many harbour porpoises are in the North and Baltic Seas. The last survey being eight years old, it is of utmost priority that a new sightings survey be conducted soon to assist in detecting any change in the abundance.

Bycatch reduction: effort

The above numbers have given rise to grave concern about the effects of current bycatch levels on the abundance of the harbour porpoise. This concern has generated research on how to reduce the incidental catch of harbour porpoises in fishing nets. Too many porpoises are caught in fishing nets and this is likely to deplete populations. In the Baltic, the situation is so urgent that mitigation should start today rather than tomorrow. Bycatch is directly related to the fishing effort in certain type of fisheries. On the basis of current information, the best method to reduce bycatch levels is effort reduction in set gillnets in the central and southern North Sea and in the Baltic driftnets operations. Particularly for fisheries where Catch Per Unit Effort is low and bycatch levels are high it seems appropriate to apply gear modifications. A good candidate appears to be the Danish turbot and lumpfish set net operation. Various proposals to this effect are listed in section 8 of the report.

Pinger experiments

In addition, pingers have been tested on a limited scale. Pingers are small waterproof boxes, for attachment to fishing nets. They emit a sound to deter the porpoise from the nets. Results of the successful tests have been quite promising, bycatches in fishing nets deployed with pingers reduced the number of porpoises caught in the nets to less than 10 % or even close to zero. No negative impacts of pingers on fish catches were identified. There are several designs of pinger and it is essential that those used are durable and of low maintenance. Possible side effects, like habituation of the porpoises to the pinger sound or the fact that porpoises may be scared off from the area that otherwise is a favourable habitat, still need to be investigated.

Practical problems with pingers still prevent large-scale use. Most fishermen don't like to hassle with novelties or participating in experiments. In addition, the teething pains of this new device limited the enthusiasm for applying pingers, with a few notable exceptions. Despite the recognised drawbacks, it is time that pingers be introduced at a large scale. This should be in the form of experiments rather than being made mandatory by regulations. The promising Danish results of the introduction of "experimental" time-area closures in combination with compulsory use of pingers merit application elsewhere. Such experiments should include the potential effect of habituation of porpoises to the pingers and of porpoises being chased out by a fishery from an otherwise favourable habitat. Good candidates for large-scale pinger experiments are the British and Danish wreck fisheries for cod in the Central and Southern North Sea. These fisheries deploy relatively short nets, making successful application of pingers more likely. But other fisheries also may have considerable bycatches of harbour porpoises and these should therefore be subject to monitoring schemes. The large Norwegian gillnet operation in the northern North Sea is therefore also an obvious candidate. In the Baltic effort should be directed at gear modification rather than pinger experiments, given the low estimated density of porpoises.

Current management, ASCOBANS

It is unclear to what extent the populations of harbour porpoises are depleted. There are no abundance figures from the past to compare the 1994 Northern and Baltic Sea abundance survey. A 1999 IWC-ASCOBANS Working Group concluded that bycatch estimates are high compared with the total porpoise population size. The group proposed that annual bycatches should be reduced to below 2 % of estimated abundance to make it likely to lead to restoration of the porpoise population to 80 % of its original size. Subsequently, ASCOBANS, the inter-governmental agreement for the conservation of small cetaceans, accepted a maximum annual rate of 1.7 % of the total current number of porpoises as an "unacceptable human

interaction level". In 2000, this rate was further reduced to 1 %. The working group accompanied its advice with great scientific caution, but, as happens so often, the caution evaporated over time.

Draft new management objectives

In the USA, the Marine Mammal Protection Act contains a quantified specification of bycatch reduction objectives, known as the Potential Biological Removal (PBR). This has led to take reduction plans for fisheries. In the North and Baltic Seas, the success of efforts to significantly reduce bycatch levels will depend on establishing a simple, quantitative statement of management objectives being agreed and an associated timetable to reach these objectives. At this stage, technical advice is not a priority. Defining management objectives requires a thorough process of formulation in conjunction with testing candidate implementation procedures. The current figure of 1 % should only be used as a temporary reference level and further development is urgently required to increase its reliability upon which to base policy and management action. Objectives should be based on precaution for bycatch reduction management of harbour porpoises. A set of draft objectives that can be based on risk assessments is presented in section 3.1.

Trade-offs

Reducing harbour porpoise bycatch is really a matter of adjusting certain fisheries, be it by effort reduction, gear modification or technical improvements. There are many inconsistencies between the different legal instruments governing fisheries and harbour porpoise conservation. In reality, there will be a trade-off, notably between short-term and long-term interests, or between fisheries and conservation interests. The current trade-off is that little attention is given to the harbour porpoise bycatches, even the most harmful fisheries hardly need to take any measures to reduce bycatch levels. The long-term versus short-term trade-offs are claimed to cause the greater antagonism. When formulating management objectives for a longer time frame, interests of fisheries and conservation become remarkably equivalent. Trade-offs are illustrated by the fact that it cannot be expected, nor is it necessary, that all fisheries should be closed in order to reduce fisheries-induced mortality. A specific suite of bycatch reduction measures should also take into account the economic and social status of individual fisheries. Co-operation with fishermen is the key to successful bycatch reduction. A fishery will only be closed in the absence of no other solutions and financial support will be required for changes in fisheries structure and practice.

The European Union

The most prominent legal instruments for the harbour porpoise are the European Union's Common Fisheries Policy (CFP) and ASCOBANS. The European Commission has only recently shown interest in harbour porpoise bycatch. In its Green Paper, a strategy for the reform of the Common Fisheries Policy, the Commission proposes that medium-term environmental and ecosystem objectives and strategies could also be established through the introduction of limits on (incidental) bycatches, especially for species listed in environmental legislation. Non-commercial species like the harbour porpoise are not included in CFP-regulation and this needs to be adjusted.

The major revision of the CFP by 1 January 2003 is a unique opportunity to integrate an EU policy with the appropriate other legislation. The most obvious candidates seem to be the EU Habitats Directive and ASCOBANS, while the latter appears more advanced towards actions to reduce bycatch levels of harbour porpoises.

Conclusion

But introducing regulations must have demonstrable effects. ASCOBANS has spent considerable efforts on advancing towards their general objectives. This has established a substantial improvement of co-operation amongst its Parties and a common understanding of the way forward. ASCOBANS should now state (1) clear conservation standards for the harbour porpoise in a reasonable timetable and (2) how much risk the Parties are prepared to accept that these standards are failed to be met. The set of draft objectives in Section 3.1 of this report is offered as a starting point. Secondly, seven EU-Member States are also parties to ASCOBANS and they should propose joint initiatives in the European Fisheries Council to ascertain that the EU fisheries policy is adapted to help the harbour porpoise. Thirdly, the European Council must include policy in the CFP towards the management of incidental captures of non-target species. The EU parties to ASCOBANS should push this in the EU Fisheries Council. A fourth practical step is the inclusion of cetacean bycatch data in the EU Framework Regulation for the collection and management of CFP-data. The European Commission should also develop financial aid schemes to assist fisheries modifications. Lastly, the low density estimates of porpoises in the Baltic Sea justify stringent and immediate mitigation measures. The relevant ASCOBANS Parties should monitor the Baltic driftnet fisheries and seek adaptations of the EU driftnet ban if the results demonstrate high porpoise bycatch levels.

In section 8, this report contains a list of benchmark requirements for the rescue of the harbour porpoise in the North and Baltic Seas; practical measures in a short timeframe that, if carried out properly, will contribute to a significant reduction of the high number of bycatches in fishing operations. There seems to be no obstacle to put these actions into operation. Indeed, the urgency of the threat to the harbour porpoise justifies no delay.

1. Background

Grave concern exists in northern Europe about the current status of harbour porpoises in the North and Baltic Seas. The high estimated numbers of harbour porpoises that are incidentally caught in fishing nets and by clear indications that these numbers are biased downwards triggers this. In the Baltic, dramatically low number of recent sightings of porpoises adds coal to the fire. Governments, scientists and NGOs all agree on the likely causes of decline and on the most promising prospects of helping the harbour porpoise with management measures, this is comprehensively described in a recent report to WWF.[1] Despite this common understanding, progress to reduce the bycatch levels has been too slow and success in terms of lower bycatch rates is still to be demonstrated.

WWF has serious concerns about the lack of progress by the interested parties to advance the protection of the harbour porpoise. WWF operates actively in the overlapping subjects of international fisheries and marine conservation and is keen to press for measures that put words into practice. There is a considerable body of potential instruments at hand, but they are not well applied nor well tuned. Moreover, a concise, unequivocal management objective using the instruments effectively is absent.

The continuing concerns for harbour porpoise bycatches urge short-term management decisions. This report to WWF contains a critical analysis of the status quo of attempts to reduce the bycatch levels of harbour porpoises and to propose components for a future recovery of the harbour porpoise in the North and Baltic Seas. This report presents recommendations intended to inspire the interested reader. Recommendations are presented for both short-term and long-term steps towards the reduction of bycatch levels. WWF considers that full participation of different interest groups is indispensible for resolving the high bycatch rates of harbour porpoise.

Lack of consistency in policies often lies at the heart of the perceived problems. This is generated by the historical convention that policies for fisheries management and for marine conservation are in practice quite separated. Whilst recognising that this conventional approach is not changed overnight, opportunities do arise to make substantial progress for the harbour porpoise. The existing legislative tools are sufficient to contribute to its recovery, but consistency between them must be achieved.

Recommendations for practical progress in the various management components are given throughout the body of the report. It is not asserted that all interests can be equally served. Different interests are at stake for which trade-offs will be necessary, notably between short-term and long-term interests, or between fisheries and conservation interests. It is claimed that long-term versus short-term is the greater antagonism. When formulating management objectives for a longer time frame, interests of fisheries and conservation become remarkably equivalent.

Section 2 of this report describes the current state of play of the harbour porpoise: Where do harbour porpoises occur and how many do we think there are; the status of porpoise bycatches in fisheries; and the attempts to diminish these bycatches, since they appear to be the biggest problem for the harbour porpoise. Section 3 introduces the need of risk analysis in the management of resource exploitation, be it intentional or, as in this case, in the form of unintended bycatches of porpoises. In this report, a set of precautionary management objectives is proposed for the conservation of the harbour porpoise.

In section 4 and 5 the legislative instruments are described with the most prospect for bycatch reduction of harbour porpoises. These are ASCOBANS, the regional intergovernmental Agreement on the conservation of Small Cetaceans of the Baltic and North Seas, which falls under the Convention for the Conservation of Migratory Species (CMS), and the EU Common Fisheries Policy. Bycatches really are a function of fisheries; first of all it is fisheries legislation that needs to be adapted. In the European Union (EU) this is decided through the EU Common Fisheries Policy. In the Baltic, non-EU range states are all candidates for EU-membership. The EU policies [sic] should form the heart of any activity in favour of harbour porpoises in European waters.

There are numerous other international instruments that could in theory be of significance for the harbour porpoise: These include the EC 6th Environmental Action Plan, the Biodiversity Convention and associated with this the EC Biodiversity Strategy, the Berne Convention on the Conservation for European Wildlife and Natural Habitats, OSPAR (Convention for the protection of the marine environment of the North East Atlantic) and HELCOM (Convention on the protection of the marine environment of the Baltic). These instruments are not discussed here because they are considered less effective for reducing harbour porpoise bycatch levels in the North and Baltic Seas. Finally, the North Sea Ministers conferences have contributed to the political acceptance of the need to integrate environmental and fisheries policies, but their effect on measurable improvements for harbour porpoises has been limited. Some relevant statements are briefly discussed in section 7 of this report.

Tuning of EU-policies to ASCOBANS and vice versa appears to have prospect and various pertinent requirements to achieve this are described in section 6. Section 8 summarises the important measures that are identified throughout the previous sections towards recovery of the harbour porpoise. Section 9 concludes this counsel describing potential terms of reference for a cost benefit analysis of how to reduce the distress of bycatches to the harbour porpoise in the North and Baltic Seas. Such an analysis also ought to assess the financial support required to implement the required changes in fishing practices.

2. The harbour porpoise in the North and Baltic Seas

2.1 Harbour porpoise: Population distributions then and now

It is generally recognised that the number of harbour porpoises has declined considerably in the 20th century. The apparent decline is largely based on anecdotal accounts, since quantified estimates of historic abundance of harbour porpoises in the North Sea and adjacent seas are absent. No direct data exist to confirm that any of the harbour populations has significantly declined over the last decades, other than information from recent sightings being compared to anecdotal data on local occurrence in earlier times. A seasonal migration occurred into and out of the Baltic, which appears to have ceased. The current very low number of observations and the lower genetic diversity amongst animals from this region are also offered as indications of harbour porpoise reduction in the Baltic Sea.[2] Declines in the North Sea proper, presented by mainly Dutch sources, particularly relate to the southern North Sea and the English Channel.[3] Nevertheless, it is fully recognised that a difference in sightings rates in the southern North Sea may equally be due to a change in distribution pattern. The abundance of harbour porpoises in Danish waters has allowed direct catches in the Baltic by Danish fishermen of up to 1000 per year for centuries.[4] This hunt ended after World War II.

The present stock distribution of harbour porpoises in the North and Baltic Seas is rather speculative, but it can be defined as an instrument for management decisions (figure 1). The IWC-ASCOBANS working group in 1999 decided to use five putative stocks for modelling purposes.[5]

2.2 Harbour porpoise abundance estimates, SCANS

A large-scale shipboard survey was conducted in the Northeast Atlantic in 1994. This was carried out in a co-operative operation called the SCANS-survey (Small Cetacean Abundance in the North Sea). The survey involved many of the scientific authorities specialising in the subject. Subsequent assessments were done using updated conventional methodology and they resulted in little disputed harbour porpoise density estimates with associated uncertainties for the entire region. The porpoise abundance for the entire area in 1994 was 267,000 - 465,000 (95 % confidence interval of an estimate of 352,000 animals).[6] Ten percent of this estimate refers to the Celtic Shelf outside the North and Baltic Seas.

In the Baltic Sea, an aerial survey in 1995 yielded a population estimate of 599 animals, with a substantial uncertainty level (CV=0.57).[7] The ASCOBANS Baltic discussion group considered this a valid estimate; the high confidence interval is due to the small number of actual sightings. A Polish part of the Baltic where porpoises are known to occur was not covered; hence the estimate is considered to have some downward bias.[8]

Reliable and preferably accurate abundance estimates form one of the most fundamental pieces of information for determining the necessary management measures. It is therefore ***recommended*** and of high priority that a new sightings survey be conducted. In contrast to accurate estimates of total harbour porpoise bycatch, abundance can be reliably estimated in the short term. This has certainly been acknowledged in ASCOBANS, whose parties have urged for another area-wide abundance survey to be conducted before the 4th Meeting of Parties in 2003.[9] At its 8th meeting, the ASCOBANS Advisory Committee confirmed the urgency of a new shipboard survey in order to obtain the statistical power to detect annual population trends of at least 6 %. ASCOBANS and Contracting Parties were urged that money be provided to start the development of SCANS-II.[10] This would include a survey in the Baltic. At the time of writing this report, this seed money has indeed become available, but applications from scientific institutes have still not been submitted. The first SCANS survey was funded by the European Community and some national governments, the most appropriate bodies to also fund SCANS-II.

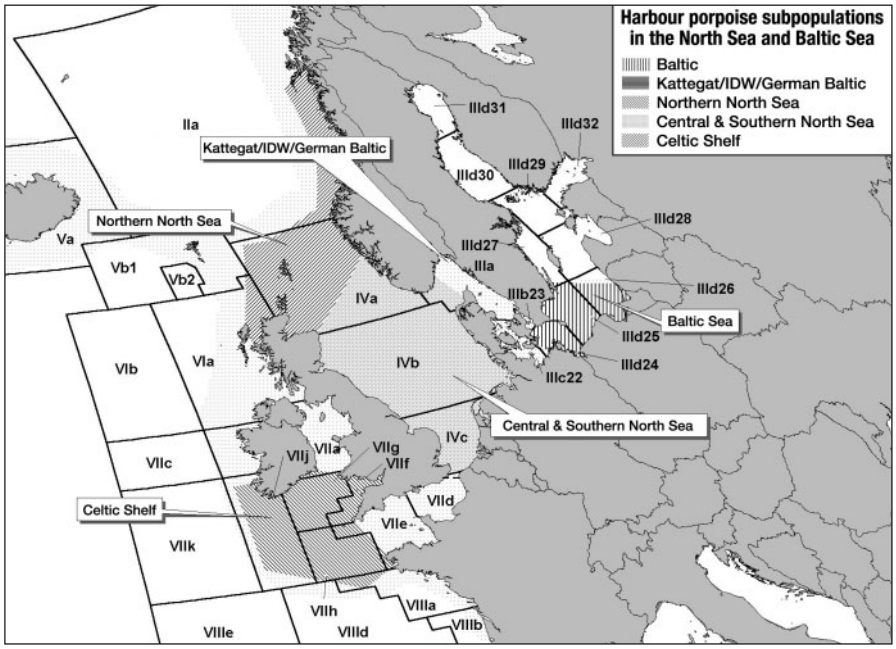

Figure 1. The distribution of harbour porpoises in the North and Baltic Seas. Roman figures denote the ICES-management areas. Shaded areas are stock management areas used for modeling purposes as proposed by the IWC-ASCOBANS working group. Source: see Ref 1.

2.3 Harbour porpoises: Bycatch estimation

Harbour porpoise bycatch mortalities occur mainly in certain types of fishing operations: Set-net fisheries (gillnets, tangle nets and trammel nets) for demersal species like cod, hake, turbot, plaice or sole are particularly risky for harbour porpoises. It is generally assumed in the scientific community that certain driftnet operations (Polish and Swedish) also have (possibly high numbers of) bycatches, but quantitative data to support this hypothesis are still limited.[11]

With a few notable exceptions, surveys of harbour porpoise bycatches have been limited in scale. Only independent observer schemes are considered to provide reliable information on the magnitude and distribution of bycatches.[12] It is a time-consuming0, exercise and it takes human and financial resources. In Denmark, a large-scale sampling programme using independent observers in 1993 revealed a considerable bycatch of harbour porpoises in North Sea set net fisheries for cod, turbot and plaice. Marine mammal bycatches in subsequent years were routinely recorded and analyses were performed.[13] The resulting estimate for average annual bycatch was 6,785 (CV 0.12). Effort of turbot and cod wreck fisheries generally remains constant with days at sea, since total length of nets does not change with density of target fish. Higher densities of target species will not lead to increased effort, while lower densities may lead to fewer days at sea. The maximum number of nets is already deployed and most of the time in the operation is spent steaming from one wreck to the other. So the effort (net-kms x soaktime) is fairly constant per day at sea. Furthermore, the Danish study showed that harbour porpoise bycatch rates depend on fishery and season, but that they were not significantly different for areas. This indicates that, unless the areas are quite large, closing areas will not have the preferred effect, since the effort could simply be moved to another area or season. The author noted that hot spots for harbour porpoises might have been overlooked in his area definitions. One additional factor was noted in this study, i.e. a rate of 5 % of animals dropping in the water during hauling. A study in the Celtic Sea resulted in drop-out rate estimates of >30 %.[14] The result of this study can be considered as a minimum estimate of the total number of animals falling out, since drop-out rates exclude animals falling out before being hauled close to the boat.

Driftnets appear to be notorious for bycatches, although data are still sporadic. Fishermen of a driftnet fishery in Norway reported 98 animals in only six weeks, and the fishery was closed in the next year.[15] Incidental catches in the Swedish driftnets for salmon have been observed and the researchers estimate that this fishery may be the cause of 50 % of all harbour porpoise bycatch in the Baltic Sea.[16] The low abundance of porpoises in the Baltic makes bycatch rates very hard to estimate reliably. Baltic driftnet fisheries are prime candidates for legislative changes and gear modifications.

There is an essential relationship between effort and bycatch, so the most obvious and simplest option for reducing bycatches would be by reducing the fishing effort. This particularly applies to fisheries that are not efficient, i.e. that require a lot of effort per ton of target fish caught. Vinther notes that turbot and lumpfish fishing in Denmark is done with very long nets with large mesh sizes.[17] The large mesh size leads to low discards, but the estimated numbers of porpoise bycatches per 1000 tonnes of fish caught are enormous when compared with other operations. Acoustic deterrents are considered impractical for this fishery, a single fisherman can operate 100 kms of nets. The density of target fish in the nets is low, so a relatively high effort is required. This operation appears a prime candidate for continued monitoring of bycatches, for studies to determine methods towards effort reduction, for potential gear modifications and, in the event that no other solution is found, for cessation. It is recommended that this be investigated immediately.

Recent bycatch estimates in UK fisheries in the North Sea range from 1000 animals in 1995 to 500 animals in 2000, with an apparent decline in those six years.[18] This decline runs synchronic with declines in catches of various target fish species. The same parallel reductions, based on a relation between target and non-target catch rates, had already been observed in the Danish work mentioned above.[19]

In summary, there has only been limited coverage of harbour porpoise bycatches in the North Sea, and this indicates a level of at least 7000, and possibly many more, animals caught per year. The limited coverage makes it likely that the known bycatch numbers are considerably underestimated and need to be used with considerable caution. This estimate is likely to be biased downwards further, given the uncertainties of numerous factors involved. It can be concluded that bycatch estimates are alarmingly high in comparison with the assessments from the most recent dedicated population surveys. Even a very optimistic interpretation of bycatch and survey data in the North Sea indicates that the current bycatch levels are well above 1 % of the most recent abundance estimate. The few sightings in the Baltic make that any bycatch level is likely to have a substantial effect to the Baltic harbour porpoise population. It is sufficient to cause grave concern amongst a wide audience.

Many fisheries have hardly or no coverage of bycatch observations, making it difficult to obtain a more reliable estimate of the bycatch rates. For example, the large Norwegian gillnet fishery operating in the northern North Sea has provided no information about bycatch levels in that fishery.[20] Another fishery with a suspected high bycatch rate is the Swedish driftnet fishery for salmon in the Baltic. Gillnetting in the Southern North Sea and the operations in Latvia and Polish waters also merit dedicated observer schemes.

2.4 Harbour porpoise: Pingers and other bycatch reduction devices

Pingers, acoustic deterrence devices that are usually tied to fishing nets, are in Europe largely still in the stage of testing. A Dukane Netmark 1000 has been mandatory in several US fisheries in order to reduce porpoise entanglement for several years. Experiments with pingers under controlled conditions have proven to have lead to substantial bycatch reductions.[21] In Europe, a trial with (Aquamark 100) pingers in the Danish North Sea wreck fishery appeared to be effective for at least a short period.[22] With national legislation, Denmark installed area closures for the period August-October for the wreck fisheries, unless pingers were deployed. The results in the first two seasons were that the observed harbour porpoise bycatch in the experiment was zero.[23] This indicates that the total bycatch in the experiment is likely to have been reduced to very low levels. A recent European study in the UK and Ireland confirmed that the use of pingers significantly reduced the bycatch of harbour porpoises, in pingered nets it was 92 % lower than in the unpingered nets.[24]

A series of drawbacks to the use of pingers is recognised: They are still expensive, require periodic maintenance, they are prone to failure, they may interfere with the hauling and setting of the net and in general they are unpopular amongst fishermen. In addition, Read refers to a study on habituation of porpoises to pingers.[25] The first issues can be addressed through the improvement of the device itself. A recent European study in the UK and Ireland concludes that the use of pingers is currently the only viable management tool to reduce porpoise bycatch levels, despite the recognition that monitoring and enforcement will be difficult. It is therefore suggested, despite a number of expected practical problems, to do at least one large scale experiment with pingers. Pingers can only contribute to a substantial reduction of bycatches if they are used at a larger scale. Close cooperation with the fishermen in question will greatly enhance the success. Given the frequent opposition of fishermen to (1) regulations and (2) using pingers, it is ***recommended*** that pingers be introduced in the context of large-scale experiments rather than as mandatory by regulations. To further enhance the use of pingers, the promising Danish results of the introduction of "experimental" time-area closures in combination with compulsory use of pingers for the Danish wreck fishery merit large scale trial application elsewhere.

Longer term pinger studies also need to evaluate whether or not habituation of porpoises to the pingers is a serious concern for large scale application. When porpoises would get used to the pingers, the initial deterring effect may be lost. Additionally, large scale test can seek a better understanding whether the application of pingers in fish nets would lead to porpoises actually leaving the area altogether. When pingered nets are deployed in good porpoise habitats and as a consequence the porpoises are chased away, this implies that porpoises are excluded from their preferred areas. This would be contrary to the objectives of porpoise conservation in European policy.

Based on the Danish (DK) and UK work and some additional studies, it can be ***recommended*** that, due to the many factors that are fishery specific, any bycatch reduction experiment would need to be fishery specific. Fisheries that seem prime candidates are the UK and DK wreck fisheries for cod in the Central and Southern North Sea, since relatively short nets are deployed and this makes the handling and successful application of pingers more likely. The Danish work with pingers on cod wreck fisheries has been quite effective in two consecutive years. The DK turbot fishery deploys relatively long nets, up to 1000 kms per vessel, making it not suitable for testing pingers. Smooth bottom fisheries for cod also appear to be less suitable for pinger experiments. An ASCOBANS working group on bycatches in the Baltic recently suggested that in the Baltic effort should be directed at gear modifications rather than tests with pingers.[26]

In his report to ASCOBANS, Andrew Read referred to acoustic aversive devices as one of a series of potential reduction methods.[27] In addition he mentioned inter alia the unpopular conservation measure of reducing fishing effort. In the Gulf of Maine this appears the most parsimonious explanation for the reduction in porpoise bycatches, and not the use of pingers and/or time-area closures. Unpublished data for 1995-2000 on UK fisheries and harbour porpoise bycatch indicate that bycatch levels have reduced significantly over a period during which effort in cod, turbot and crayfish operations have declined.[28] In the North Sea, the Danish turbot and lumpfish fishery involves a low catch per unit effort. It is therefore ***recommended*** that this fishery be a candidate for effort reduction and/or gear modification. A second candidate for such experiments seems to be the Danish smooth bottom set net fishery for cod.

Other deterrence measures are still in an early phase of testing. One involves making fishing nets more reflective by inserting barium-sulphate compounds into the material, meant to enhance detectibility by porpoises and/or dolphins. In West Africa, preliminary tests are now being conducted for dolphins in pelagic trawls. In the Gulf of Maine, similar tests on harbour porpoise bycatches were reported to have been effective.[29] Read noted that if further experiments continue to be effective, this may be a promising alternative to pingers due to its handiness and the lower costs of production and maintenance. But it first needs to be further demonstrated that acoustically reflective nets are indeed effective for harbour porpoises. As with acoustic alarms, the mechanism that reduces bycatches in reflective nets is still poorly understood.

Porpoise click detectors (PODs) are intended to increase the understanding of porpoise behaviour near fishing operations. Result of deploying PODs showed a high occurrence of harbour porpoise clicks near set nets, although the number of entanglements is comparatively small.[30] In other words, on many occasions harbour porpoises are

observed near the nets, but getting caught still appears to be an unlikely event. But a very large number of encounters can still lead to many entanglements.

Recommendations: The most effective method to reduce bycatch levels seems effort reduction, in gillnets in the Central and southern North Sea in set gillnets and in driftnets in the Baltic. In the Baltic, attention should focus on gear modifications and, when considered necessary, cessation of driftnets operations. The Danish turbot and lumpfish operation is the prime candidate to engage in gear modifications. A second suggestion for the North Sea is a large-scale experiment with the deployment of pingers in bottom-set gillnets. Wreck fisheries targeting cod in the central and southern North Sea seem the obvious candidates for this measure. Recognising that this is a timely and costly method, alternatives to harmful fishing practices should be investigated at an experimental scale. The use of acoustically reflective nets and the application of hand- or longlining instead of set gillnets are two options. The absence of data make it unclear to which extent the large Norwegian gillnet fishery that partly operates in the northern North Sea contributes to the harbour porpoise bycatches. The above measures may well be applicable to this fishery. This Norwegian fishery should therefore be subject to an intensive dedicated bycatch monitoring scheme.

2.5 Harbour porpoise: population status

The population status of harbour porpoises is unclear. Rates of population depletion have not been quantified from direct assessments. We do not know to what extent the populations are depleted, because the only source of information on population status is the 1994 SCANS survey. Despite insufficient knowledge to conclude that the harbour porpoise populations are depleted to a particular level, the estimated bycatch in certain fisheries indicates that bycatch numbers are high compared with the total population size. For this reason, the 1999 IWC-ASCOBANS Working Group advised to include time scaling in any future model testing in order to make the results insensitive to the current status. The Working Group had been asked to provide the scientific advice needed for management actions.

The IWC-ASCOBANS Working Group also presented management advice. Based on a number of assumptions, the group advised ASCOBANS that its interim objective "… to restore populations to, or maintain them at, 80 % or more of carrying capacity" is not likely to be met by reducing annual bycatch to 2 % of estimated abundance and that, to meet the objective, bycatch must even be reduced further. ASCOBANS subsequently established a

Box 1. The basis for the precautionary management policy of 1.7 %.

An IWC-ASCOBANS scientific working group on harbour porpoises was convened in March 1999 to provide scientific assistance to the ASCOBANS Advisory Committee on issues relating to assessment of harbour porpoise status in the North Sea and adjacent waters.* According to its report, the Working Group extended its term of reference to management advice to ASCOBANS by developing a model outline that could ascertain whether present removals would allow harbour porpoise populations to reach and/or be maintained at 80 % of carrying capacity, and if not, what removal rates would achieve this objective.

It was noted that ASCOBANS definitions do not provide for unequivocally quantified objectives and that these need to be refined accordingly. This involves the target level at a long-term time frame (currently 80 % of K or more) and the recovery time of depleted populations to a predefined level.

In addition, the Working Group took the liberty to advise ASCOBANS on a management objective on the basis of preliminary results of their work. The group identified a series of factors that need to be assessed in simulation trials for model robustness, it acknowledged that the only results from the model had not been properly tested for biases while using an infinite time horizon, nor had it taken into account uncertainties in any of the estimates.

The Working Group used a single species production model, similar to the Catch Limit Algorithm in the IWC's Revised Management Procedure (RMP) for baleen whales, as a preliminary test of a possible structural application in the future. Assuming a maximum growth rate R_{max} of 4 % (the true rate is unknown but a likely range of 2-6 % was presented) and NO uncertainties, the model results indicated that the maximum mortality level that achieves 80 % or more of carrying capacity at an infinite time horizon is 1.7 % of the estimated population size. The group did NOT do the analyses that are appropriate to test the robustness of the model to assumptions, as was done in the PBR procedure and in the IWC's RMP. The working group recognised this shortcoming and that if a finite time horizon is considered, plus additional sources of uncertainty and biases that are known to exist are included in assessments, this will lead to fractions lower than 1.7 % of carrying capacity. So, if uncertainties ARE considered, the mortality must be less than 1.7 % to ensure a "high" probability of meeting the objective. This subsequently led ASCOBANS to define "unacceptable interactions" as any human induced removal of more than 1.7 % of the best available abundance estimate.** To account for the shorter than infinity time frame ASCOBANS established *less than 1 % of the estimated population size* as its precautionary conservation objective to reduce bycatches.

** **Anonymous, 2000.** Report of the IWC-ASCOBANS Working Group on Harbour Porpoises. Annex O to the IWC-Scientific Committee Report. J. Cetacean Res. Manag. 2 (suppl.) 2000: 297-305.*
*** **ASCOBANS, 2000.** Resolution 3. Incidental takes of small cetaceans. 3rd Meeting of Parties, Bristol, July 2000.*

1.7 % reference level, later reduced to 1 %, as its preliminary conservation objective for bycatch reduction. Box 1 describes how this rate was derived.

The modelling result was obtained using few other harbour porpoise data than the recent SCANS abundance estimate and that it relied on a number of assumptions. Indeed, the working group itself cautioned that this estimate was obtained including no uncertainty in any parameter and assuming an infinite time horizon. In addition, it accepted that there were various sources of upward bias in their advice for "unacceptable human interactions". Some potential downward biases can also be identified.

The 1.7 % reference level, or the level of 1 % of the best available abundance estimate as a precautionary conservation objective of ASCOBANS should only be a temporary figure. Further development is required to increase the reliability of any level to use for policy and management action. This leaves little basis for basing policy on the calculation results of the working group. Indeed, without the further calculations recommended by the IWC-ASCOBANS Working Group, the preliminary results from that group on their own form an unreliable guide to management actions.

Furthermore, without further specification of management objectives by ASCOBANS and/or the EU, the application of the current estimates of maximum annual bycatch - acknowledged to be provisional and to be used with caution - can be misleading until further testing and robustness trials with the model to the various assumptions have been carried out. A precedent for such an approach already exists in the IWC's Revised Management Procedure (RMP) for commercial whaling on baleen whale species, where the IWC did exactly that. In the United States' Marine Mammal Protection Act, the set of quantified objectives was agreed before the human-induced mortality limits were calculated (see Box 2).[31]

The IWC-ASCOBANS Working Group recognised that modelling work along these lines should be carried out. Indeed, first results were presented in 2001 to the IWC Scientific Committee, sparking a debate on the modelling procedure.[32] But adequate testing still needs to be carried out and satisfactory results have yet to be obtained. One of the outstanding difficulties of this model testing lies in the fact that the current management objectives are not sufficiently specified to do the appropriate test procedures. The current ASCOBANS definition of the "precautionary conservation objective" of 1.7 % of the best available population estimate is insufficient for management purposes. The fact that this value was lowered to 1 % to account for the shorter than infinity timeframe is an ad hoc approach that lacks any scientific justification. Defining management objectives requires a thorough process of formulation in conjunction with testing the candidate management procedures developed with such a formulation.

Box 2. The use of Potential Biological Removal (PBR) in the United States

The use of *potential biological removal* (PBR) as a management tool stems from the United States' Marine Mammal Protection Act in 1994. Its application prospects for human-induced mortalities of cetaceans were presented by Wade in 1998.* A straightforward population model is used, accounting for the familiar uncertainties that are associated with marine mammal population estimates. These are meant to be included in his term N_{min}, defined as the lower 20 % percentile of a statistically based recent population estimate. Other sources of uncertainties, *e.g.* unknown levels of bycatch, uncertain subpopulation structures *et cetera* may cause further serious impacts. In the PBR-approach these uncertainties are included in a recovery term F_R. The value of this term can be changed by the modeler in order to achieve higher or lower conservation targets. The fact that in the robustness trials F_R is lowered from 1 (no effect) to 0.5, is a consequence of the test specifications. The robustness trials (with the exception of one) involved changing values for one factor/parameter per trial only, the most influential ones being estimates of abundance (N), reproduction rate (R) or bycatch. If the first two are in reality half of the estimated N or R respectively, or when the real bycatch level is double of the estimated bycatch level, the model will only perform satisfactorily if the management policy is more precautious by a factor 2 through adjustment of F_R. This is specified in the MMPA.

In the USA, a simple, quantified management objective was defined using the terms explained above, in order to direct the subsequent policy decisions. Note that this was NOT done for the harbour porpoise in ASCOBANS. The PBR-approach can be applied to other goals than those in the MMPA, this can be for example finding a maximum human-caused mortality level that lead to a level of abundance close to carrying capacity K (ML_K).

***Wade, P.R. 1998.** *Calculating limits for allowable human-caused mortality of cetaceans and pinnipeds. Mar.Mam.Sc. 14(1):1-37.*

3. Draft management objectives for harbour porpoise conservation

3.1 Risk levels and robustness trials

Management policy requires that unequivocal, quantifiable management objectives are defined, which subsequently form the reference point for risk assessments. In addition, extensive testing of model assumptions and recognition of uncertainties is required. A growing number of scientists involved in the exploitation of natural resources accept that assessments should precede potential resource exploitation on a commercial scale and that these assessments should acknowledge the uncertainties associated with the assessment results.[33] Thus it could be determined that an a priori agreed probability of reaching the objective (for example 80 % of the pre-exploitation level) can be met. The more precise the objective is formulated in quantified terms of risk, the easier it becomes to determine the most appropriate consequences of exploitation patterns.

The above refers to resource exploitation, but the same observation applies to all human induced mortalities of natural resources, including bycatches. Section 2.5 describes the debate on the formulation of management objectives for human-induced mortalities of harbour porpoises. Despite various attempts, unequivocal wording has not yet been achieved. ASCOBANS, the most closely involved body, has defined the objectives in increasing detail, but not yet in terms of risk.

These conditions must include uncertainties about the various factors and parameters. They will also need to account for fisheries and other social and economic objectives. The quantified risk levels as agreed by the responsible management authorities will have to be accompanied by specified decision rules. This procedure was already advised by the IWC-ASCOBANS scientific working group in 1999, but has not yet been followed.[34] Basing a bycatch rate on preliminary calculations by the working group, assuming an infinite time horizon and no uncertainties in any parameter, cannot be accounted for by simply applying an ad hoc reformulation of less than 1 % of the estimated population size, as ASCOBANS decided. It is very disconcerting that, despite the urgency that is generally accepted, there appears to be insufficient interest in conducting this scientific exercise. On the other hand, without further precision of the objectives the scientific testing is not very useful.

It is believed that, in principle, bycatches of harbour porpoises in commercial fisheries operations must be avoided. The following management objectives are therefore proposed for the conservation of harbour porpoises in the North and Baltic Seas:

Draft management objectives for harbour porpoise conservation

1. **Mortality in commercial fisheries be reduced to negligible levels;**
2. **Harbour porpoise populations are allowed to recover to (or be maintained at) a level of at least 80 % of its pre-exploited population in a period of 50 years with a 95 % certainty;**
3. **There is a maximum risk of 5 % that the total bycatch level of harbour porpoises exceeds 1 % of the current estimated population size.**

The intent of the above proposed objectives is to provide a precautionary framework to allow harbour porpoise populations to recover to substantial levels. They include the uncertainties that are necessarily involved in the estimation of bycatch levels and abundance. Accepted risk levels for porpoise conservation also need to specify a time frame for the objectives to be achieved. Trying to achieve a population status of 80 % of the pristine population in 25 years requires much more stringent measures than achieving it in 50 years. The IWC-ASCOBANS working group found it desirable to scale time so that the management framework would become insensitive to the current population size, since the current status of any harbour porpoise population relative to its original size is unknown.

To illustrate: The 1.7 % value takes no account of the uncertainties of abundance or of bycatch level estimates. Current abundance estimates for harbour porpoise are very imprecise. The so-called precautionary objective does not take account of the fact that the present abundance estimate of porpoises in the Baltic has a wide confidence range. The current Baltic estimate of 600 animals has a high degree of uncertainty (CV=0.57). In theory, fisheries management requires no change following a new abundance estimate of porpoises in the Baltic that is accurate and accomplished with more precision and that has a narrow confidence range. Hence, unlike the current situation, the risks that are associated with an imprecise abundance estimate of the Baltic harbour porpoises should be taken into account by the management procedure.

A testing procedure would involve an iterative exchange between managers and scientific advisors. With a first set of objectives from managers, modellers can develop a model with associated testing procedures. They can then subject the model to robustness trials that are designed to ensure that errors in various assumptions are adequately accounted for. This approach is similar to that followed in the PBR-mechanism in the United States, the model must demonstrate to perform satisfactorily when e.g. the real bycatch level is much higher, or when the reproduction rate is in reality much lower than we now assume. Trial exercises will undoubtedly lead to refinement of the original set of objectives. If the first round of trials would reveal that the objectives are too conflicting to fisheries, e.g. they would only be met by closing down all set-net fisheries, the objectives may need to be reconsidered in the light of these first results. Adjustment of the objectives is likely to require another round of testing the adapted model to robustness trials. By joining the different disciplines, the level of consistency can be revealed to achieve harbour porpoise bycatch reduction to an acceptably low level. It is therefore ***recommended*** that models be designed and tested with decision rules that give output on the evaluation of the current status and on a long term management

scheme, ensuring that the above conservation objectives are adequately met. Parties to ASCOBANS need to provide adequate funds to allow this important study to be completed. Once adequate objectives have been accepted, this opens the door to bycatch reduction plans to be established for specific fisheries.

3.2 Inconsistencies between regulations of different disciplines

Existing inconsistencies between relevant management objectives need to be reduced. The most relevant regulations that affect harbour porpoise bycatches are at a level of either the European Union or the individual nations. Conflicts are apparent between different legislative instruments, if not in their formulation then certainly in their application. Governments that are party to ASCOBANS often express other opinions then when the same governments are sitting at the EU Fisheries Council. Within the EU-policy it is not easy to harmonise the Habitats Directive and the Common Fisheries Policy (CFP) without major consequences for some fisheries. In reality, a trade-off is always made, albeit often implicitly. The current trade-off is that little attention is given to the harbour porpoise bycatches, even the most harmful fisheries hardly need to take any measures to reduce bycatch levels. Based on the objectives as currently formulated in ASCOBANS, the EU-legislation and national legislation of most of the coastal states, another trade-off is required to achieve consistency. The draft objectives that are presented in Section 3.1 will trigger ample debate for a trade-off. Given the potential consequences for fisheries, the debate will have to include fisheries policies, both national and at the EU level. Section 4 describes the most relevant legislation and presents some of the recognised conflicts with solutions to reduce them.

4. The European Union policy instruments

There is a large body of legislative and non-binding text in the European Community that is pertinent to the reduction of harbour porpoise bycatch levels. The disciplines with the greatest potential are the Common Fisheries Policy and the Habitats Directive.

4.1 The EU Common Fisheries Policy

The current European Fisheries Policy (CFP) is now undergoing a major revision. There is general agreement that the current measures, which are laid out in EC Regulation 3760/92 and its supportive measures for technical improvements, control and inspection, have dramatically failed to meet their objectives. Many European fish stocks are in continuous decline and the overcapacity of the EU-fleet is a major contributor to this fact. Figure 2 shows the steady declines in landing levels of demersal species in the North Sea in the last thirty years. Already in 1990 an advice was presented to the European Commission to reduce the fleet capacity by 40 %, but until now the resulting capacity reduction has been alarmingly small. For the North Sea, the Lassen-group proposed in 1996 to reduce fishing pressure by 43 % for demersal species like cod and monkfish, 39 % for plaice and sole and 49 % for the pelagic species herring and mackerel. But contrary to the Commission's proposal and much to its own disappointment, the 1997-2001 Multi-Annual Guidance Programme for fisheries as adopted by the Fisheries Council only contained overall reduction requirements for the community fleet as a whole from 5 % to less than 3 %.[35] This was mainly due to two features: (1) weighting the reductions by the proportions of the catch represented by overfished stocks and (2) to reductions in activity rather than in capacity. Reduction of fleet capacity is directly relevant to bycatch reduction, as long as the capacity cuts apply to those fisheries that are mainly responsible for the high bycatch levels of harbour porpoises.

Article 2 of Regulation 3760/92 stipulates that the CFP shall take account of its implications for the marine ecosystem. Until today, the CFP only takes account of non-target species in certain fisheries when they are targeted by other fisheries that are subject to CFP-measures. Non-commercial species like the harbour porpoise are not included in CFP-regulations and this needs to be adjusted. It is only at the level of non-binding communications, strategies and action plans that an interest in the European Community is slowly becoming apparent. The European Commission proposes in its Green Paper, a strategy for the reform of the Common Fisheries Policy, that medium-term environmental and ecosystem objectives and strategies could also be established through the introduction of limits on incidental - and bycatches, especially for species listed in environmental legislation.[36] But introducing regulations must have demonstrable effects. One of the more practical steps to be taken would be the inclusion of cetacean bycatch data in the EU Framework Regulation for the collection and management of CFP-data.[37] This recently adopted measure may prove a practical step forward. Article 10.3 of this regulation provides for financial support for studies in the field of inter alia the relationship between fisheries and the environment. This could be fed into the envisaged review by the Commission of whether it is appropriate to extend the range of data collected under this Regulation by 31/12/2003. It is ***recommended*** that this EU regulation 1543/2000 be adapted accordingly.

Recent material published by the European Commission indicates its general interest in addressing non-target species like the harbour porpoise in its mission for sustainable fisheries. Some examples of non-binding positions of the European Commission have recently been presented from a fisheries perspective. An EC-communication on the integration of environmental requirements into the CFP was published in March 2001.[38] The Commission suggests that inter alia ASCOBANS should be addressed in the review of the CFP. The formulation of this communication is rather general, but it confirms the formal commitment to the integration of environment protection into the CFP. This can be specified by introducing bycatch reduction plans for fisheries whose bycatch levels are not adequately demonstrated to be below the objectives as proposed in section 3.1. It is the responsibility of Governments that are party to ASCOBANS to take up this gauntlet in the Fisheries Council. It is ***recommended*** that these governments act accordingly.

In another recent Communication, the European Commission proposes that a simple decision-making rule be devised by setting TACs on the basis of precautionary reference points and corresponding to a fishing mortality selected in advance.[39] This would need a target fishing mortality, estimated spawning biomass and the most recent TAC that is adopted. Such multi-annual management strategies should be based on planned development of fishing mortality per fishery in the medium term, combined with (a) the need to react quickly if the spawning biomass drops too low and (b) a limitation of variations in TACs. An adaptive multi-annual management framework is highly relevant for the bycatch reduction of harbour porpoises, as is illustrated by the various studies on the estimation of harbour porpoise bycatch levels in, particularly, set net fisheries. A fisheries management scheme needs to include objectives for limiting effects on non-target species including the harbour porpoise. This may for example include effort reductions of those fisheries that are demonstrated having high bycatch rates in comparison to target catch rates.

An obvious example of the growing awareness in the EU of non-target species is the EU-ban on driftnets. The United Nations' driftnet ban was brought into effect in the EU by a ban on driftnets longer than 2.5 kilometres. Continued use of driftnets and clear abuse of the ban in the Mediterranean led the Commission to propose to eventually cease all driftnet operations for tuna, those for salmon and mackerel in the Baltic Sea were excluded (Com(94) 131). For harbour porpoises this ban is

therefore not effective. The formal reasons for excluding the Baltic salmon driftnet fisheries appear to be inappropriate and not based on the available harbour bycatch information, see Box 3. It is likely that one or some of the Baltic nations are responsible for this exclusion, despite the fact that the Baltic driftnet fisheries may have a considerable impact on the harbour porpoise.[40] Concerns about the level of harbour porpoise bycatch in driftnets are still expressed, a recent ASCOBANS Baltic bycatch working group expressed great concerns about this technique.[41] The ban came into effect on 1 January 2002.

Box 3. The European Commission's public argument for exclusion of salmon driftnetting from the driftnet ban

"In the Baltic and North Atlantic salmon fisheries by-catches are not a problem. In the Baltic, for example, the concern is not about by-catch but about the state of wild salmon stocks and the low profitability of the fishery. The question of the declining stocks of wild salmon, due to a number of factors, is being addressed by the International Baltic Fisheries Commission which regulates salmon fishing as part of its fisheries management tasks in this region. The harbour porpoises and seals which frequent the Baltic prefer coastal waters to those off-shore where driftnets are used. In addition, as the fisheries in the Baltic and the British Isles are economically unattractive the threat of expansion, which was a cause for concern in the tuna fisheries, does not exist."

http://europa.eu.int/comm/fisheries/news_corner/doss_inf/info34_en.htm

Over the years, several EU-studies on bycatches of small cetaceans have been carried out. In 2000, the European Commission financed a study to evaluate the state of play of cetacean bycatches.[42] Three recommendations were presented: (1) to determine the extent of the problem [of bycatches] in an area or fishery, (2) to design and test how to alleviate the problem and (3) to achieve the above with full consideration of the livelihoods of the fishermen in question. Finally, for the first time an STECF-meeting on cetacean bycatches was held in December 2001. A draft report is available from the European Commission and a second STECF-meeting on this matter is planned for May 2002. Also in 2001, ICES, the European fisheries scientific advisory body, was asked to advise on non-target species. This advice was provided in late 2001 and is further elaborated below in section 4.2.

4.2 European Commission's request to ICES

In autumn 2001, ICES responded to a request from the European Commission to provide advice on other marine organisms than those targeted by commercial fisheries. The EC requested advice on possible remedial action related to (1) fisheries with a significant impact on cetaceans, (2) other mortality sources for cetaceans, and (3) the risks created by fisheries on identified populations.[43] ICES identified the fisheries on the basis of four criteria:

1 Bycatch rates possibly exceed rates considered to be sustainable for the species or population;
2 Populations are severely depressed relative to historic size and bycatch mortality may be a deterrent to recovery;
3 Populations are intrinsically small;
4 Experience drawn from similar fisheries and species in other areas should be the basis of management action until fishery-specific data are sufficient to support management actions.

With these criteria, ICES identified the fisheries that cause the most concern for harbour porpoise bycatch. These are listed in box 4.

ICES suggested the following mitigation measures:

1 Pingers, should be promoted in bottom-set gill nets. But this is costly in time and money and compliance is an issue for concern;
2 Spatial temporal closures, but only if enhanced monitoring and data analyses indicate harbour porpoise bycatch hotspots;
3 Technical measures for gear. In general, *"Less effort is better"*. To be successful, support of the industry is needed, continual presence of fishers can lead to releasing entangled animals alive (although this is perceived as not practical);

Box 4. Fisheries in the North and Baltic Seas that are most concerning for harbour porpoise bycatch levels. Adapted to the cases of harbour porpoises from ICES, Draft 2001 ACE Report, Table 3.6.1.

Gear type	Location	Country	concern
Gillnets (incl. tangle nets)	Central/Southern North Sea, including coastal waters	DK, cod, hake and flatfish	nr.1
		UK, cod, flatfish	nr.1
	Kattegat, Skagerrak, Belt Seas	DK, cod and flatfish	nr. 2,4
		Sweden, cod, flatfish, herring	nr.1
	Channel and Southern North Sea	UK, France, NL, B, DK	nr. 2,4
Any static net, driftnet or pelagic trawl	Baltic Sea	S, DK, Germany, Poland	nr. 2,4

4 With respect to North and Baltic Seas: There is a particular urge to obtain data from the Baltic Sea and the Channel, French/Spanish gill nets and tangle nets in the Channel. *[note of the author: the reference to Spanish fisheries may be an error in the draft ICES advice]*

Integration of such measures into the new CFP is now in the hands of the EU Member States. Given that half of the Member States are Parties to ASCOBANS, these nations form the core group that needs to push for the consistency of their objectives in ASCOBANS on the one hand and in the CFP on the other hand. It is ***recommended*** that the EU Member States that are Party to ASCOBANS take joint initiatives in the Fisheries Council to increase the implementation of the above measures.

The suite of initiatives from DG-Fisheries that is presented above confirms its increasing interest to address the bycatch levels of harbour porpoise. Until now, any conflicting interests between fisheries and their effects on non-target species have generally swayed measures to the advantage of fisheries rather than in conservation of the non-target species. In cases where conservation measures were agreed, for example in the European Habitats Directive (see section 4.3.), their consistency with the practical application of fisheries regulation has been marginal. The reform of the CFP is a real opportunity to include the necessary changes in regulations and objectives so that the balance between conservation and fisheries interests is adequately restored.

Recommendations: A well-quantified set of management objectives for harbour porpoise conservation and bycatch reduction needs to be agreed urgently and their implementation ensured in the reform of the Common Fisheries Policy. It is proposed that the draft definition in Section 3.1. be considered for this purpose. The reformed, post-2002 CFP must be integrated with the other appropriate legislation in order to be consistent. The most obvious candidates are the EU Habitats Directive and ASCOBANS. The CFP has to include management objectives relevant for non-target species. Harbour porpoise stocks for which the draft objectives in section 3.1. fail to be met, could be considered under the new CFP as "strategic stocks". All fisheries that contribute to those bycatches should become subject to bycatch reduction plans.

Another route towards implementation of bycatch reduction measures can draw on national initiatives implemented in coastal waters of EU Member States. While the Common Fisheries Policy applies to the EU waters both inside and outside the 12 nautical miles zone of Member States, the CFP only has exclusive competence outside the 12 nm zone. Within the coastal 12 nautical miles zone the Member State is responsible for administering fisheries management in line with the CFP and the Member State can therefore make additional regulations of which the Council of Ministers are notified and approve. Denmark has applied its experiments with pingers in otherwise closed areas to Danish operations both inside and outside its 12 nm zone. *(N.B. The situation is different in the Mediterranean).*

One way of advancing EU-legislation for mitigation of harbour porpoise bycatch is to extend existing measures for national waters, that appear to be effective, to the area outside the territorial zone. The Danish experience in the last two years of time-area closures combined with compulsory pinger use in set net operations can serve as the example. It is ***recommended*** that proposals are developed to extend national protection measures that appear particularly promising for harbour porpoise, to EU waters.

Finally, it is worth mentioning that, in the background of the fisheries policy discussions, the subject of resource

Box 5. Resource rights: Should industry pay for the exploitation of fisheries resources?

An issue that is occasionally brought up in the European Union is the property right to exploit the "public" fisheries resources. The right to fish in Europe is essentially free. The direct revenues of this public resource go to the fishing fleets. On top of that a great many subsidies are involved in the fishing industry. Hard facts on fisheries subsidies are hard to obtain, but WWF estimated in 2000 that for every fish on the market with a value of € 10 the EU taxpayer had contributed € 2-3, i.e. 20-30 %. These subsidies have gone hand-in hand with an increase in fishing capacity instead of, in the short term, being used to achieve sustainable fisheries.

In commercial fisheries, the extraction of the resource scarcity rent constitutes one effective method to control the dynamic of overfishing and its consequences: overcapacity, degradation of stocks and conflicts between fleets. For that purpose, new institutions are necessary: The regime of resource property needs to be clarified; mechanisms for fishing rights allocation must be adopted that enable the extraction of the resource rent; structures have to be put in place to apply these new mechanisms. The current incapability of coastal states to control overcapacities, overfishing and fleet conflicts shows that the current regulation systems do not meet these new needs well. Fears to switch to a substantially different system of renting public rights to fish appears to be too revolutionary to receive sufficient support for application.

In the long term, new fisheries access regulation mechanisms, should include adjustments to allow for the above conditions. Like oil and mining rents, the resource rent can provide the states with important income sources and these could be used to pay for the cost of management and compliance. This issue merits more debate in the next decade in order to direct fisheries policies in the long term.

rent continues to be raised. This issue requires a formal debate in the context of a medium-term strategy for fisheries management. Box 5 briefly provides some background and an angle to this debate, it is beyond the scope of this paper to go into further detail on this matter. This issue appears to be relevant to the bycatches of harbour porpoises, since harbour porpoises are generally considered of high natural value. Fishing rights that lead to high bycatch levels should therefore be allocated under strict conditions.

4.3 The EU Habitats Directive

The EU Habitats Directive (Directive *EEC/92/43* on the conservation of natural habitats and of wild fauna and flora) is the prime candidate in existing EU-legislation for nature conservation that merits full integration in the Common Fisheries Policy. Its aim is to design measures to maintain or restore, at *favourable conservation status*, natural habitats and species of wild fauna and flora of Community interest. EC-Directives must be implemented at the level of Member States, hence the Member States are the first responsible for establishing such interpretation. Since all EU Member States bordering the North and Baltic Seas are active Parties to ASCOBANS, they are the obvious candidates to take the initiative for this in case of the harbour porpoise. A well-defined set of ASCOBANS management objectives would be an important interpretation to this effect.

The Habitats Directive applies to Community territorial waters. Moreover, the European Commission has stated that, when a Member State exerts competence outside its territorial waters but within its Exclusive Economic Zone (EEZ), the Directive also extends to the EEZ of that Member State.[44] In the United Kingdom, a British High Court of Justice ruled according to this interpretation and the UK is in the process of comprehensively applying the Habitats Directive beyond the 12 nm territorial waters.[45] Other Member States such as Germany, Denmark and Portugal have taken initial steps to apply the Habitats Directive beyond coastal waters.

Two strategies must be pursued by the Member States to achieve the Habitats Directive objectives. Firstly, all EU Member States must establish a network of "Special Areas for Conservation" (SACs), representing the natural habitat types and species of community interest that are listed in Annex 1 and Annex II of the Directive. The second strategy implies that strict protection in their natural range should be afforded to animals listed in Annex IVa of the Directive. Annex IVa lists all cetaceans. The Directive explicitly states that incidental capture does not have a significant negative impact on the conservation status of Annex IV animals.

The Habitats Directive needs to be executed at a national level by EU Member States, and an important issue is the interpretation of the Directive terms *favourable conservation status and significant negative impact* in national legislation. In their attempt to establish an EU-wide network of SACs, some Member States have proposed sites in the North and Baltic Seas under the Directive.[46] Denmark proposed to designate 17 marine SACs, but only in two cases the porpoise was claimed as an argument.[47] The Netherlands and Belgium each proposed one site. In addition, the tri-national (DK/D/NL) Waddensea is a marine flagship SAC under the Habitats Directive. In the German Waddensea national park, a whale sanctuary was established in Sleswig- Holstein in 1999, but so far it has not been extended to the EU-level. The UK proposed one Scottish inlet for bottlenose dolphin protection. Sweden has proposed several sites to be designated as SACs, but so far none with the purpose of harbour porpoise protection, since the evidence for this was considered insufficient.[48] In 2000, the UK government produced a "conservation strategy for harbour porpoise" setting minimum conditions for the selection of Special Areas of Conservation under the Habitats Directive. The strategy indicated that the harbour porpoise should use the site for a major, or biologically important, part of the year and should not be transient or vagrant. Within the above guideline, the site should support at least 1 % of the estimated population present in UK territorial waters at a concentration of at least one animal per square km.[49]

The effect of site-based protection for harbour porpoises has to be seen in a correct perspective. Being widely distributed, the designation of protected areas/hotspots as SACs for harbour porpoise will only be effective in the context of a proper fisheries management regime. Therefore species protection according to Article 12 of the Directive appears a more appropriate means of contributing to porpoise protection. Article 12.4 states that Member States must monitor incidental capture and killing of animals and take measures to ensure that this capture does not have a negative impact on the species concerned. The article applies to all cetaceans. Coastal States, with an emphasis on ASCOBANS Parties will therefore have to establish bycatch monitoring systems according to this article.

To summarise, the EU Habitats Directive has been in force for ten years. So far, its implementation has concentrated on designation of sites, rather than general measures for species. For marine habitats or wide ranging species in general and for harbour porpoise in particular, progress has been very limited. The few proposed SACs for the harbour porpoise may lead to limited protection, for example, of critical breeding habitats. The sites are far from adequate to ensure harbour porpoise populations do not decline further in range and numbers. Today Denmark is the only country to have implemented national legislation that begins to contribute meaningfully to the reduction of harbour porpoise bycatch in line with Article 12.4.

The Habitats Directive has the potential of a strong legislative tool and its requirements should continue to be integrated with the more detailed work of ASCOBANS (see section 5). There appears to be merit in seeking application of Article 12 of the Habitats on the pro-

tection of species. On the other hand it has to be noted that the many difficulties in applying the Habitats Directive in terms of SACs are not very encouraging to use it for species protection. More importantly, with the establishment of ASCOBANS, of which all relevant EU Member States are signatories, the application of conservation legislation appears to have found a better vehicle. It is ***recommended*** that conservation measures for the harbour porpoise to meet the requirements of the Habitats Directive (and ASCOBANS) be pursued as a priority through the EU Common Fisheries Policy.

5. ASCOBANS

ASCOBANS, the Agreement on the conservation of small cetaceans of the Baltic and North Seas, is a regional intergovernmental agreement that came into force in 1994. ASCOBANS operates under the umbrella of the 1979 Convention on the Conservation of Migratory Species of Wild Animals (CMS, also known as "Bonn Convention"). ASCOBANS has eight Parties, Poland and seven EU Member States (Belgium, Denmark, Finland, Germany, Netherlands, Sweden and the United Kingdom). Important other range states Norway and Lithuania *actively co-operate with ASCOBANS "in order to achieve and maintain a favourable conservation status for small cetaceans* [in the Baltic and North Seas]".

In the Appendix to the agreement, the tasks of ASCOBANS are directed at (1) habitat conservation and management, (2) surveys and research, (3) use of bycatches and strandings, (4) legislation and (5) information and education. The second meeting of parties agreed that the aim of ASCOBANS can be interpreted as "… [restoring] and/or maintain biological or management stocks of small cetaceans at the level they would reach when there is the lowest possible anthropogenic influence - …". In 1999, the CMS-parties agreed to "working definitions", i.e.

(1) [that] a suitable short-term practical sub-objective is to restore and/or maintain stocks/populations to 80 % or more of the carrying capacity;

(2) that the general aim should be to minimise anthropogenic removals within some yet-to-be-defined timeframe and that intermediate target levels should be set; and

(3) that the longer term approach, which involves inter alia taking into account uncertainty in the available data, should be developed by the Advisory Committee.

This subsequently led ASCOBANS at its third meeting of parties in 2000 to define "unacceptable interactions" as any human induced removal of more than 1.7 % of the best available abundance estimate, using the advice of the IWC-ASCOBANS working group that 2 % is unlikely to meet ASCOBANS' interim objective (see Box 1). Oddly, instead of setting a recovery time scale, ASCOBANS established as its precautionary conservation objective to reduce bycatches *"less than 1 % of the estimated population size"* to account for the shorter than infinity time frame.[50]

The ASCOBANS general management objective is to minimise human-induced impact and ultimately reduce human-induced mortality to zero. Again, this is without a timeframe for the conservation goal. ASCOBANS and its Parties form a key mechanism to establish recovery plans for harbour porpoises and to undertake the practical requirements that are identified in such recovery plans.

ASCOBANS has spent considerable efforts to advance towards their general objectives. This has established a substantial improvement of co-operation between the Parties and a common understanding of the way forward. It also resulted in the refining of its objectives towards harbour porpoise bycatch reductions. Despite this progress, the ASCOBANS objectives still leave considerable room for interpretation. It is therefore ***strongly recommended*** that ASCOBANS refines its objectives further for the management of human-induced causes of harbour porpoise mortalities at its next meeting of parties.

The success of efforts to significantly reduce bycatch levels will depend on a simple, quantitative statement of management objectives being agreed and an associated timetable to reach these objectives. This is also one of the core statements in a recent advice to ASCOBANS.[51] Such a refinement can be applied by defining the objectives in terms of risk, as has been proposed in section 3.1. of this report. The formulation of such a management statement implies that an unequivocal reference point can be determined and decision rules can be properly designed.

It should be highlighted that management objectives are, and should be, a responsibility of the managing authorities, it is not a scientific judgement. While science can supply managers with the practical consequences of a particular objective, there are many non-scientific elements involving value judgements and societal aims that are the tasks of the parties themselves. Hence, parties to ASCOBANS are ultimately responsible for the final decision on reference points. But the ASCOBANS Advisory Committee suggested to seek advice on a reference point for unacceptable bycatch from ICES.[52] Meanwhile, ICES responded to a request from the European Commission to provide advice on other marine organisms than those targeted by commercial fisheries (see section 4.2.). The advice provided by ICES illustrates once again the need for a quantified management objective. ASCOBANS should first determine a provisional objective and offer that to ICES or another authoritative scientific body for advice on the consequences. See also section 3 of this report further details.

The 2001-2003 ASCOBANS Workplan contains four items related to fisheries. The meeting requested its Advisory Committee to provide recommendations to the Parties and Range States on bycatch mitigation measures. At its latest meeting in April 2001, the Committee identified the following items, relevant to the North Sea and Baltic Sea:

1 In the Central and Southern North Sea, it should be assessed whether the cod wreck fishery could be continued in a different way e.g. longlining. If applicable, the EC should make financial incentives available to move into this new fishing method. An environmental impact assessment of any change in fishing practice should be made. Support for development and testing of further technical measures such as stiffnets/echo-reflecting nets should continue;
2 Skagerrak/Kattegat: An assessment of the current levels of bycatch for the fisheries identified by the research programme BYCARE should be carried out. If the scale of the bottom set net fishery should increase again, appropriate mitigation should be put in place. Use of mitigation measures such as pingers should be investigated for the drift net macker-

el fishery. Further information was required on the fishing effort, expressed in soak/deployment time and net size, for all set-net and pelagic fisheries. Swedish work on the decline in net soak time in the Skagerrak bottom set net fishery had provided a good example;

3 For the Baltic, progress is being made towards a recovery plan for harbour porpoises. A workshop to draft a harbour porpoise recovery plan for the Baltic was held in January 2002. Obviously, also in the Baltic, any measurable advance towards harbour porpoise recovery in this context is equally dependent on a clear management objective as in the North Sea. The low density estimates of porpoises in the Baltic justify the most urgent measures possible in the shortest timeframe possible in order to mitigate any bycatch in Baltic fishery operations.

In summary, since its establishment in 1994, ASCOBANS and its Parties have spent a lot of effort in refining its policies, in particular its conservation objectives for the harbour porpoise. Although there certainly is a demonstrable improvement in mutual understanding of the parties and harmonisation towards a common approach, measurable results in terms of factual reductions in porpoise bycatch levels have been limited to a few ad hoc successful pinger experiments at a limited scale. ASCOBANS could refine its conservation objectives in a quantified manner to include risk levels, and this would open the way to the development of a recovery plan in the form of fully-fledged management scheme with a clear time frame that is applicable throughout the region. The simulation testing that is required is elaborated in section 3 of this report. ASCOBANS can at the same time seek closer co-operation with the EU-Fisheries Council to tune its policy objectives with the Common Fisheries Policy.

6. Integration of ASCOBANS and EU policies

Seven out of eight Parties to ASCOBANS are EU Member States, illustrating obvious policy integration requirements between ASCOBANS and EU-policies. The governments of Belgium, Netherlands, United Kingdom, Germany, Denmark, Sweden and Finland, are therefore responsible for ensuring that their own policies and thus ASCOBANS and the EU-policies, are consistent. Of the EU-policies, the most relevant are the Common Fisheries Policy and the Habitats Directive, described in section 4. ASCOBANS is more advanced than the Habitats Directive in identifying and initiating policies and management action specifically for bycatch reduction of small cetaceans. It is ***recommended*** that integration of EU-policies with ASCOBANS concentrate on the CFP to ensure delivery of management action rather than the Habitats Directive.

It is ***recommended*** that ASCOBANS Parties propose joint initiatives in the European Fisheries Council to ascertain that the EU's CFP is adapted to ensure that human-induced mortalities to harbour porpoises are abated. As long as the same countries in different fora support policies that are essentially inconsistent, ASCOBANS is not likely to make much progress towards its objectives. Value judgements in the form of trade-offs are required in order to achieve this consistency. Different interests are also at stake for which trade-offs appear necessary, notably between short-term and long-term interests, and between fisheries and conservation interests.

As an example of trade-off: It cannot be expected, nor is it necessary, that all fisheries would need to be closed in order to reduce fisheries-induced mortality. The seven EU Member States that are also parties to ASCOBANS first need to agree on clear management objectives and subsequently ensure that their position in the Fisheries Council reflects these objectives. Management objectives will reflect a trade-off between economic, social and conservation objectives and therefore will take into account the economic and social status of individual fisheries. It is likely that the trade-off in objectives will mean that a fishery will only be closed in the absence of no other solutions and in this case financial compensation will be made available.

The European Union also needs to develop assistance schemes to ensure that the necessary work can be done to increase the understanding of the impact of European fisheries to harbour porpoises. Regular sightings surveys need to be conducted and therefore financed, pingers need to be tested at a representative scale, bycatch monitoring programmes need to be developed and thus financed. In addition, gear modification should be investigated and the need for spatial and temporal closures. If the CFP-reform will include objectives for non-target species like harbour porpoise, the aid schemes that accompany the CFP should provide access to funds for monitoring and research.

Plenty of suggestions have been offered in recent years on how to reduce bycatch levels of harbour porpoise. The ICES-advice to the European Council, the Read-report to ASCOBANS and the latest report of the ASCOBANS Advisory Committee all present support to the idea that technical advice is not a priority until the objectives are sound and clear. In fact, unequivocal policy objectives can and should be formulated urgently without further studies or technical counsels. New objectives require a sufficient degree of specification so that any study can consider the consequences of the policies that have been decided rather than laying out the potential strategies for policies themselves.

At this stage, policy authorities should be guiding rather than be guided. First of all, the grave concern for high bycatch levels of harbour porpoise in fishing gear merits immediate measures. Section 8 contains benchmark requirements in this respect. In addressing the economic and social interests of the fishing industry with respect to conservation of non-target species, it is claimed that long-term versus short-term is the greatest antagonism. When formulating management objectives for a longer time frame, interests of fisheries and conservation become remarkably equivalent.

In the United Kingdom, WWF has worked closely with various fishermen's organisations towards such a participatory programme for fisheries.[53] The common drive is that it is considered possible to achieve a recovery of target fish stocks and at the same time make the fisheries more economical and profitable. In seeking sustainable fisheries, they seek an integration of all legitimate interests in particular zones and a decentralisation as appropriate for the geographical scope of the CFP. Effort limitation and discard reductions are amongst the potential means to achieve this. Management committees for fisheries management obviously require substantial investment of human resources, which are proposed to function in Regional Management Advisory Committees.

As announced at the ASCOBANS Advisory Committee meeting in April 2001, WWF-UK is currently developing an EU wide project, initially in collaboration with the UK fishing industry. The project aims to evaluate the optimum fisheries management measures to achieve recovery of fish stocks and also to meet legislative requirements for the conservation of non-target species. It will therefore need to link with bycatch reduction plans. It will include projections of profitability that can be gained from fisheries once fish stocks have recovered. The hypothesis of the project is, based on initial calculations, that financial profitability balanced with social objectives such as employment will far out way the amount of money that should be "invested" in the fishing industry to achieve recovery of target and non-target species. The project may provide robust arguments for time-limited "investment" by governments in the recovery plans. The work of ASCOBANS in developing harbour porpoise bycatch reduction measures must be included in this cost-benefit analysis. In section 8, recommendations are presented for components of a bycatch reduction plan for the harbour porpoise.

7. The North Sea conference of ministers

The North Sea Conferences of Ministers are political events. The decisions of Ministers, as recorded in the Ministerial Declarations, are political commitments which have played an important role in influencing legally binding environmental management decisions both nationally and within the framework of competent international bodies.[54]

A relevant event in the North Sea conferences was the 1997 Bergen intersessional meeting on the integration of fisheries and environmental issues. In Bergen, the North Sea Ministers agreed that "fishing practices should be adjusted to minimize the deterioration of sensitive habitats and unacceptable incidental mortality generated by such practices". The Ministers therefore invited the competent authorities to consider within the appropriate fora and without delay [inter alia]: "Application of measures, particularly in relation to selective fishing gear to minimize catches of, and/or damage to, all organisms which may be caught or damaged by fishing gears and in which the fishermen operating such gears have no commercial interest"; and they also proposed to consider "restrictions on fishing in any area where the competent authorities judge that the ecosystem of that area requires protection against the impact of such fishing and restriction on, or prohibition of, the use of fishing gears and practices where the competent authorities judge that such gears or practices would have a disproportionately harmful ecological impact on species and habitats."

The recent draft report of the Progress Report Group to the 5th Conference does not mention the harbour porpoise in the chapter on fisheries. Information in the chapter on species and habitats merely contains an overview of the status quo of the porpoise bycatch issue.[55]

The North Sea Ministers should use their political clout at their fifth conference in March 2002. They should build on their 1997 Bergen declaration and devise an action plan for the reduction of harbour porpoise bycatches, as they suggested in their Bergen intersessional meeting. This report offers ample substance for such an action plan. It is recommended that the North Sea conference of Ministers should provide political support for immediate action to reduce the harbour porpoise bycatch levels.

8. Benchmark requirements for a bycatch reduction plan for harbour porpoises in the North and Baltic Seas

The previous sections have identified features where contributions towards reduction of porpoise bycatch levels can be pursued. In this section, many of these requirements are synthesised from the various sections of the report. Bycatch reduction of harbour porpoises is dependent on adaptation of fisheries management. Policy changes and legal actions need to pave the way for large-scale technical modifications and fishing effort reduction plans. Long-term steps will necessarily imply adaptations to fisheries, be they technical modifications or simply effort reductions. In both categories some components are given. A schematic description of these items is given in the "Scheme of Actions" at the end of this report. At this stage it is premature to present detailed estimates of financial implications. Estimates of financial implications are included as indications of orders of magnitude, further refinement would be impractical and is beyond the scope of this report.*

8.1 Legal actions and management regulations

PRIORITY

1 EU, in its reform of the CFP, to include an unequivocal management policy for the effects on non-target species like the harbour porpoise.
When: Reform of the EU Common Fisheries Policy, until 1 January 2003.

PRIORITY

2 ASCOBANS to specify its 1999 working definitions in the form of a quantified set of objectives according to the draft in section 3.1. Any future management scheme must describe the conservation objectives for human activities and quantify the risks of not achieving those objectives.
When: 4th ASCOBANS Meeting of Parties, 2003.

PRIORITY

3 Baltic States to install an immediate length reduction of Baltic driftnets operations, in combination with a dedicated monitoring scheme. An eventual phase-out of these fisheries should not be excluded.
When: Now!!, monitoring to be done in 2002-2004.
Finance: €€, Sweden, European Commission, Finland.

4 EU Member States that are parties to ASCOBANS to introduce appropriate non-target species goalposts in the EU's CFP-reform, in concert with the ASCOBANS objectives. Introduction of bycatch reduction plans to achieve the goalposts.
When: Reform of the EU Common Fisheries Policy, until 1 January 2003.

5 EU to adapt Council Regulation 1543/2000 on the collection and management of CFP-data, to include bycatch data on cetaceans.
When: by 31/12/2003.

6 In the longer term, this would require the EU to adapt existing financial mechanisms for this purpose and the establishment of regular monitoring schemes.
When: 2004 onwards.
Finance: €€ - €€€, European Community.

7 Baltic EU-Member States/ASCOBANS Parties (Denmark, Finland, Germany and Sweden) to propose adaptation of the EU-ban on driftnets to include the Baltic salmon and mackerel driftnet operations.
When: by 1/1/2005, allow time for monitoring these operations (see item 10).
Finance: €€€. If a driftnet ban would eventually be extended to the Baltic Sea, this would have substantial financial consequences for compensatory measures to the fishermen involved.

8.2 Experiments in fishing operations

Note: Experiments with modifications in fisheries operations require co-operation of the fishing industry. It is necessary to devise a combination of incentives and deterrents in the suggestions below. A case-by-case determination of the way forward is likely, and this will also determine the accompanying costs.

PRIORITY

8 Following the Danish results, a large-scale experiment with pingers on UK cod wreck fisheries in the North Sea, possibly in combination with time/area closures. This needs to include possible effects of habituation and habitat exclusion.
When: short-term.
Finance: €€, UK-government, European Commission.

PRIORITY

9 The Norwegian government to install a dedicated monitoring scheme for porpoise bycatches in the Norwegian gillnet fishery in the northern North Sea. Subject the fishery to gear modifications and/or a pinger experiment when this scheme indicates a significant bycatch.
When: 2002 & 2003.
Finance: € - €€, Norway.

PRIORITY

10 Tests for gear modification and/or effort reduction in (1) the set net operations for turbot and lumpfish and in (2) the smooth bottom cod fishery, both Danish operations.
When: 2002-2004.
Finance: €€ - €€€, Danish government/European Commission.

11 Immediate trials of fish traps/pots as an alternative to the Baltic cod gillnet fishery, subsequent development and implementation in 2-3 years.
[Note: This recommendation is taken from the Bycatch Working Group re-

* The Euro signs represent the following estimated cost indications:
€ → € 10.000 - € 100.000
€€ → € 100.000 - € 1.000.000
€€€ → > € 1.000.000

port of the ASCOBANS Jastarnia meeting, 9-11 January 2002.]
When: Now!!
Finance: €€, Baltic EU Member States, European Commission.

12 Further testing of acoustically reflective nets to determine their effectiveness in deterring harbour porpoises.
When: short-term.
Finance: € - €€, European Commission, ASCOBANS Parties.

8.3 Abundance surveys

PRIORITY

13 SCANS-II needs to be conducted. Research groups need to submit survey plans for financing at the shortest possible notice.
When: by 2003, or by 2004 at the latest.
Finance: €€, ASCOBANS-Parties, European Commission.

14 Dedicated porpoise population survey of the Baltic, including Polish waters, to reduce the high variance in the current estimate and obtain complete coverage. A proposal for such a survey was submitted to ASCOBANS and some funding has been provided.[56]
When: summer 2002.
Finance: €, ASCOBANS-Parties or European Commission.

9. Cost and benefits of a porpoise bycatch reduction plan

If the requirements for bycatch reduction of harbour porpoises as identified in section 8 would be fully met, it appears that this could lead to considerable reduction of bycatch levels within a period of 10-20 years. For the Baltic the most urgent measures possible should be applied, given the low observed densities of remaining porpoises in the Baltic. There are potentially significant financial implications not only for fishermen but also for governments, local authorities and public expenditure. An important element of the way forward to bycatch reduction is to evaluate and identify the financial and biological costs and benefits of the suite of management options. With the exception of regular harbour porpoise surveys, the action to reduce bycatch will have direct implications for fisheries, be they experimental or structural.

There is nothing new about the call for effort reduction. Year after year, the European Council has aimed to reduce fishing capacity as a tool for effort reduction, albeit with limited success. The Council has continued to reduce the Total Allowable Catches (TACs) of many demersal fish stocks in the North Sea but reduction in TACs does not necessarily mean a reduction in deployment time of fishing nets. If target stocks are depleted many operations will show an increase in effort. This may lead to increased bycatch numbers, particularly for fisheries that show high bycatch rates. The reform of the EU Common Fisheries Policy is a unique opportunity to step back from the reactive fisheries policies of the last decades and to develop a structural plan for recovery of fisheries that includes the reduction of porpoise bycatch levels.

For set nets, effort is generally taken as the surface/length of the nets times the number of hours that the nets are soaked (net-km x soak time). When reliable bycatch rates are not available as is often the case, the unpopular measure of effort reduction is likely to contribute to bycatch reduction. As bycatch rates are a function of fishing effort, objectives and instruments for bycatch reduction that involve effort reduction are likely to overlap with fisheries recovery plan objectives and instruments.

The following terms are indispensible for the analysis of a workplan for harbour porpoise bycatch reduction:

Essential inputs for a cost-benefit analysis of a plan of action to reduce harbour porpoise bycatch levels

1 ***Identification of management responsibilities;***

2 ***Outline of management schemes of the fisheries identified as detrimental to the harbour porpoise, including a description of the long-term workplans implied;***

3 ***Routinely collection of effort data which are relevant to harbour porpoise bycatch rates;***

4 ***Identification of the generic management features as opposed to the fisheries specific ones in the North and Baltic Seas. Many small-scale operations target fish species with a wide distribution (e.g. North Sea cod) and therefore the industry will be dependent on an adequate understanding of the status of the entire fish stock;***

5 ***Full description of the participatory process of involving the interest groups in the development of management schemes and recovery plans for the set net and the driftnet fisheries in the North and Baltic Seas. Fisheries co-operatives should be closely involved in internal regulations and control mechanisms and develop operational standards for sustainable fisheries;***

6 ***Case-by-case analyses of the multi-annual scale of social and economic implications of gear modifications and other forms of effort reduction, including the consequential changes in opportunities for market instruments and profit prospects;***

7 ***Identification of the public investment required for fisheries recovery plans, and the financial return of those investments in the medium and long term. This in the understanding that many fishing operations can be more profitable than they are now. A debate on resource-rent mechanisms should be undertaken for potential incorporation in long-term economic plans.***

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Scheme of Actions

LEGAL ACTIONS	Measure	Decisions: Responsible entity	Time	Performance: Responsible entity	Time	Notes
Priority 1	Include management policy in the CFP-reform for the effects on non-target species like harbour porpoise	EU Fisheries Council	« 1 January 2003	ASCOBANS Parties that are EU Member States	« 2002	*The EU Common Fisheries Policy is the most influential regulation mechanism for measures to reduce bycatch rates in Europe. The reform of the CFP is planned to be concluded by 1 January 2003*
Priority 2	Specify a set of management objectives that includes risks and uncertainties	ASCOBANS	« 4th CoP in 2003	ASCOBANS Advisory Committee and Parties	« 2002-2003	*This requires a definition of a population target level, a time-frame for when to achieve this level and a risk level associated with meeting the specified target level by the specified time, see section 3.1 in this report for a proposal*
Priority 3	Baltic States to install length reductions of Baltic driftnet operations, combine with monitoring scheme	Baltic ASCOBANS Parties / EU Member States	NOW!!	Management authorities in Baltic States	a.s.a.p.	*Urgent measures required to reduce bycatch levels in the Baltic Sea*
4	Introduce non-target species goalposts in the EU CFP-reform	ASCOBANS Parties that are EU Member States	« 1 January 2003	ASCOBANS Adv Ctee to prepare Parties	9th meeting of Adv Ctee	*The CFP-reform is planned to be concluded by 1 January 2003. It should include policy on non-target species (fish, marine mammals and others) that are affected by commercial fisheries.*
5	Adapt EC Regulation 1543/2000 on the collection and management of CFP data to include non-target species, in particular bycatch data on harbour porpoises	European Council	« 2004	European Commission ASCOBANS Parties	« 2002-2003	*The EU regulation on the collection and management of CFP-data will cover its first period of 2003-2006, with an option for review by 31/12/2003. The European Commission should liaise with ASCOBANS and its experts on this issue.*
6	Adapt financial mechanisms in the European Union and establish regular monitoring schemes	EU Councils of Fisheries and Environment, EU Member States, European Parliament	« 2004	Political pressure, (NGOs), Establish monitoring systems: managers and scientists in collaboration with fishing industry	« 2002-2004	*The Habitats Directive is still hardly applied for Article 12.*
7	A ban of driftnetting in the Baltic	European Council	« 2004/2005	Management authorities, in collaboration with interest groups	« 2002-2004	*Collect data on bycatches in driftnet operations. Lobby the relevant governments to extend the driftnet ban to salmon operations. Baltic coast governments and industry need to agree to a solution.*

FISHING OPERATIONS	Measure	Decisions: Responsible entity	Time	Performance: Responsible entity	Time	Notes
Priority 8	Large-scale pinger experiments, in combination with time/area closures, in the UK wreck fishery for cod in the North Sea	UK, in co-operation with ASCOBANS Parties / EU Member States	« 2002	Finance: UK, EC work: UK, national management authorities	« 2003 onwards	*Results in the Danish experiements deserve a follow-up on a larger scale.*
Priority 9	Dedicated monitoring scheme in Norwegian gillnet fishery in the northern North Sea	Norway	« NOW!!	National management authorities, with scientists and industry	« 2003-2003	*There are hardly any bycatch data on this fishery, while its properties indicate that a substantial bycatch rate may exist.*
Priority 10	Tests with gear modification and/or effort reduction in North Sea gillnet fisheries for (1) turbot&lumpfish and (2) smooth bottom fishery for cod	Denmark, in co-operation with ASCOBANS Parties / EU Member States	« NOW!!	Finance: DK,EC work: Denmark, national management authorities	« 2002-2005	*The turbot fishery has a very low CPUE and at the same time is highly susceptible to bycatches of harbour porpoise.This seems the prime candidate in the north Sea for gear modification experiments.*
11	Trials for alternative gear types to the Baltic cod gillnet fishery	Baltic ASCOBANS Parties / EU Member States	« NOW!!	ASCOBANS Parties, management authorities	« 2002-2003	*Given the extremely low density of porpoises in the Baltic, any fishery with a suspected bycatch should be subject to gear modifications.*
12	Tests of acoustically reflective nets to determine their effectiveness in deterring harbour porpoises	ASCOBANS, European Commission	« short term	ASCOBANS Parties /EU Member States, management authorities	« 2002-2004	*First tests in the US appeared promising, if these nets work well this may be very cost effective and easy to apply in practice.*
ABUNDANCE SURVEYS	**Measure**	**Decisions: Responsible entity**	**Time**	**Performance: Responsible entity**	**Time**	**Notes**
Priority 13	SCANS-II cetacean survey	European Commission, ASCOBANS Parties	« early 2002	Finance: EC, ASCOBANS Parties Field work: SMRU and other European scientific authorities	« 2003	*The last abundance survey was done in 1994. This, together with accurate estimations of bycatch levels, is the most fundamental information for management purposes*
14	Baltic harbour porpoise population survey	ASCOBANS and its Baltic Parties	« early 2002	scientific co-operation in Baltic States	« summer 2002	*Some funding has been provided.Current low estimates of porpoises require urgent action.*

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Der WWF will der weltweiten Naturzerstörung Einhalt gebieten und eine Zukunft gestalten, in der Mensch und Natur in Harmonie leben. Deshalb müssen wir gemeinsam

- die biologische Vielfalt der Erde bewahren,
- erneuerbare Ressourcen naturverträglich nutzen und
- die Umweltverschmutzung verringern und verschwenderischen Konsum eindämmen.

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