PROTOKOLL
FOR DEN 35. SESJON I DEN BLANDETE NORSK-RUSSISKE FISKERIKOMMISJON

1. Åpning av sesjonen

Den 35. sesjon i Den blandete norsk-russiske fiskerikommisjon ble avholdt i Tromsø 30. oktober – 3. november 2006. Den norske delegasjon ble ledet av J. Krog, representant for Kongeriket Norges regjering i Den blandete norsk-russiske fiskerikommisjon, departementsråd i Det kgl. Fiskeri- og kystdepartement. Den russiske delegasjon ble ledet av V. Izmailov, representant for Den russiske føderasjons regjering i Den blandete norsk-russiske fiskerikommisjon, viseminister i Det russiske landbruksministerium.

Partenes delegasjoner fremgår av Vedlegg 1.

2. Godkjenning av dagsorden

Partene godkjente dagsorden, jfr. Vedlegg 2.

3. Arbeidsgrupper

I samsvar med § 3 i Forretningsordenen for Den blandete norsk-russiske fiskerikommisjon oppnevnte partene felles arbeidsgrupper for:

- statistikk
- kontroll
- sel i det nordøstlige Atlanterhav
- forskningssamarbeid
- protokoll.

4. Utveksling av fangststatistikk for 2005 og hittil i 2006

Partene utvekslet fangststatistikk over fisket i Barentshavet og Norskehavet for 2005 og hittil i 2006 på omforente skjemaer og diskuterte den fremlagte informasjonen.

Partene drøftet informasjon angående uregistrert uttak av torsk i Barentshavet og Norskehavet, og uttrykte sin bekymring for situasjonen.

Den norske part har som i 2005 overlevert rapporter om uregistrert uttak av torsk i Barentshavet til ICES AFWG i 2006. Den russiske part informerte den norske part om den gjennomførte analysen av uregistrert uttak av torsk i Barentshavet i 2005, samt om forespørselen til ICES vedrørende behov for ytterligere analyse av anbefalt TAC for 2007, og vurdering av ulovlig uttak av norsk-arktisk torsk i 2005.

Med begge parters erkjennelse om at det eksisterer et problem med uregistrert uttak av torsk i Barentshavet, er det et prioritert mål å bruke alle mulige virkemidler for å avdekke og forhindre slike ulovligheter.

Partene utvekslet informasjon om landinger fra norske og russiske fartøyer i andre land i 2005 og hittil i 2006. Partene ble enige om å gi Det permanente utvalg for forvaltnings- og kontrollspørsmål i fiskerisektoren i oppdrag å utarbeide felles regler for utfylling av rapporteringsskjema for landet kvantum.

Partene ble enige om at informasjon om landinger skal baseres på kvanta av førstegangs landinger av fangst i havner.

Partene var enige om å samarbeide om å fremskaffe opplysninger og å utveksle data om landinger i andre land.

Den norske part viste til at det i 2006 månedlig er oversendt til den russiske part akkumulert oversikt over russiske landinger i Norge, og bekreftet ønsket om også i fremtiden å få opplysninger om norske fartøys landinger i Russland.

Partene var enige om, etter konkret anmodning, å utveksle statistiske fangstopplysninger for kvoteregulerte bestander.

Partene fremla data om forskningsfangst fordelt på ICES-områder I og II, og var enige om at dataene om forskningsfangst i tabell IV også i fremtiden skal spesifiseres på ICES-områdene, på samme måte som for kommersiell fangst. Partene var enige om å videreføre den regelmessige månedlige utvekslingen av fangststatistikk for fisk og reker fordelt på ICES-område I og II.

Den norske part opplyste at det i Norge pågår et omfattende arbeid for å beregne omfanget av fritids- og turistfiske i norske farvann. Resultatet av arbeidet vil bli meddelt den russiske part. Partene var enige om å utveksle informasjon om fritids- og turistfiske i sine respektive farvann på årlig basis.

5. Regulering av fisket etter torsk og hyse i 2007

5.1 Fastsettelse av totalkvoter og fordeling av kvoter

Partene var enige om at det er en usikkerhet i bestandsanslaget for norsk arktisk torsk, og understreket sterkt behovet for økt forskningsinnsats i hele bestandens utbredelsesområde for å få mer eksakte resultater. Partene viste til at Det internasjonale råd for havforskning (ICES) også har påpekt at manglende toktdekning svekker troverdigheten av den vitenskapelige rådgivning.

Partene var enige om at det er behov for å videreutvikle omforente langsiktige strategier for forvaltning av fellesbestandene i Barentshavet og Norskehavet. Partene understreket i denne sammenheng at "Grunnleggende prinsipper og kriterier for langsiktig, bærekraftig forvaltning av levende marine ressurser i Barentshavet og Norskehavet" vedtatt på 31. sesjon er en god basis for forvaltningsbeslutninger.

Partene diskuterte omfanget av ulovlig fiske av torsk og hyse i Barentshavet. Den norske part har for årene 2002 – 2005 beregnet det årlige overfiske av torsk i intervallet 80 – 120.000 tonn. For året 2005 er omfanget beregnet til 101.000 tonn. Den russiske part la i møtet fram beregninger for 2005 som indikerer et vesentlig mindre omfang, 26.000 tonn.

Partene var enige om å samarbeide om analyse av informasjon om overfiske av torsk og hyse i Barentshavet og Norskehavet, herunder ved foreløpig gjennomgang av IUU-kvanta i en felles arbeidsgruppe under Det permanente utvalg.

Basert på det foreliggende materialet var partene enige om ikke å legge til grunn det forhøyede anslag over ulovlig fiske som ICES har benyttet for 2005.

Partene var på denne bakgrunn enige om fortsatt å fastsette TAC for torsk i henhold til forvaltningsstrategien og beslutningsregelen som ble vedtatt på 33. sesjon, herunder en årlig endring av TAC på maksimum +/- 10 % når gytebestanden beregnes å være høyere enn B_{pa}.

Fordi ACFM ikke har funnet å kunne godkjenne arbeidsgruppens bestandsvurdering av hyse for inneværende år, var partene enig om å fastsette TAC for hyse på ad hoc basis for 2007. For senere år legger partene inntil videre til grunn den treårige beslutningsregelen slik den ble vedtatt på 33. sesjon. Partene ga imidlertid forskerne i oppdrag å foreta en fornyet vurdering av beslutningsregelen for hyse slik at en eventuell endring til en ettårig regel kan behandles på den 36. sesjon.

Partene var enige om at det finnes en rekke usikkerhetsmomenter (IUU-kvanta, innvirkning av miljøfluktuasjoner på gytebestandens størrelse og rekruttering, rekrutteringens avhengighetsgrad av SSB, risikonivået for å undergrave bestanden og vurderingen av fangsttap ved overholdelse av begrensningen i å øke TAC med 10% (torsk) og 25% (hyse)), som ikke gir mulighet til i fullt monn å utnytte forvaltningsstrategien og beslutningsregelen som er tatt inn i protokollen fra 33. sesjon. I sammenheng med dette finner partene det nødvendig å be The basic document working group om å utarbeide konkrete forslag som sikrer reduksjon av usikkerhetene som hindrer fullverdig utnyttelse av forvaltningsplanen for norsk-arktisk torsk og hyse og utarbeide tilsvarende forslag til forespørsel til ICES. Til de får anbefalinger fra ICES, vil partene legge den forvaltningsplanen som er vedtatt tidligere, til grunn.

Partene fastsatte totalkvoter for torsk og hyse for 2007 samt fordeling av disse på Norge, Russland og tredjeland (Vedlegg 3). Fordeling av tredjelandskvoten på soner for 2007 er gjengitt i Vedlegg 4.

Partene ble enige om gjensidige kvoter av torsk og hyse i hverandres økonomiske soner, jfr. Vedlegg 5.

Partene var enige om å informere hverandre om kvoter som tildeles tredjeland av fellesbestander, herunder om de kvanta som tildeles innenfor kommersielle prosjekter.

Partene var enige om å konsultere hverandre om eventuelle overføringer av kvoter tildelt tredjeland av Norge eller Russland til den annen parts sone.

5.2 Andre tiltak for regulering av fisket

Partene var enige om at det for fremtiden skal være tilstrekkelig for å få tillatelse til å bruke nyutviklede sorteringsristsystemer i farvann under den annen parts jurisdiksjon, at de aktuelle spesifikasjoner for disse er godkjent i Det permanente utvalg med påfølgende rapportering til Den blandete norsk-russiske fiskerikommisjon.

Partene var enige om å videreføre utveksling av informasjon om det biologiske grunnlagsmateriale for stengning og åpning av fiskefelt på omforent skjema utarbeidet av Det permanente utvalg.

5.2.1 Tekniske reguleringer

Partene mener at det er et langsiktig mål å innføre felles tekniske reguleringstiltak, herunder ens maskevidde og ens minstemål for hele utbredelsesområdet for torsk og hyse. I forbindelse med dette var partene enige om å diskutere relevante forslag på 36. sesjon i Den blandete norsk-russiske fiskerikommisjon.

Tekniske reguleringstiltak fremgår av Vedlegg 7.

6. Regulering av fisket etter lodde i 2007

Partene bekreftet den tidligere vedtatte beskatningsstrategien for lodde der TAC ikke settes høyere enn at, med 95 % sannsynlighet, minst 200.000 tonn lodde får anledning til å gyte.

Partene vurderte vitenskapelige data om loddebestanden, som vitnet om et lavt nivå i gytebestanden på grunn av naturlig fluktuasjon i bestanden.

Partene besluttet ikke å åpne for kommersielt loddefiske i 2007, men ble enige om et begrenset uttak av lodde til forskningsformål for å forbedre mengdemålingsmetodikken.

7. Spørsmål vedrørende forvaltning av norsk vårgytende sild i 2007

Partene var enige om at deres mål er å oppnå en multilateral løsning for forvaltningen av norsk vårgytende sild også for 2007.

Den norske part informerte om sin tilnærming til forvaltningen av bestanden av norsk vårgytende sild under kyststatenes fempartskonsultasjoner. Den russiske part tok denne informasjonen til etterretning og uttrykte forståelse for visse forslag som ikke forverrer Russlands stilling i sildefisket.

Dersom det ikke foreligger en slik løsning til årsskiftet 2006/2007, vil partene fra 1. januar 2007 fastsette en midlertidig ordning slik at norsk og russisk fiske kan gjennomføres i tråd med tradisjonelt fiskemønster.

Den norske part tilbød å beholde i 2007 en ordning for fisket etter norsk vårgytende sild med russiske fartøy som tilsier at den norske part gir den russiske part adgang til å fiske hele den

russiske kvoten av norsk vårgytende sild i norske jurisdiksjonsområder, og den russiske part skal avstå fra direktefiske etter norsk vårgytende sild i internasjonalt farvann i Norskehavet. Dette tilbudet skal stå ved lag frem til 20. desember 2006.

8. Regulering av fisket etter andre fiskeslag i 2007

Kvoter på andre bestander og tekniske reguleringstiltak fremgår av Vedlegg 6 og 7.

Partene var enige om at beskatning av fiskebestander som ikke er kvoteregulert, bare kan skje som bifangst ved fiske av kvoteregulerte fiskeslag. Partene var enige om gjensidige bifangstkvoter i hverandres økonomiske soner. Disse bifangstkvotene kan bli økt dersom hensynet til den praktiske avvikling av fisket tilsier det. Partene vil så snart som mulig behandle anmodninger om å øke bifangstkvotene.

8.1 Blåkveite

8.1.1 Bestandstilstand for blåkveite

Partene var enige om å opprettholde forbudet om direkte fiske etter blåkveite i 2007.

Den norske part opplyste at det vil bli gjennomført et begrenset kystfiske i tradisjonelt omfang med konvensjonelle redskaper i områder under norsk jurisdiksjon.

Den russiske part orienterte om at det vil bli gjennomført forsøksfiske etter blåkveite ved bruk av ulike fiskeredskaper i kystsonen av Barentshavet i områder under russisk jurisdiksjon.

Tekniske reguleringstiltak fremgår av Vedlegg 7.

8.1.2 Program for felles norsk-russisk forskning på blåkveite

Partene godkjente et felles treårig forskningsprogram for 2007 – 2009 utarbeidet av russiske og norske forskere, jfr., Vedlegg 12.

8.1.3 Om felles tiltak for regulering av blåkveite som grenseoverskridende bestand

Basert på data fra det treårige felles forskningsprogrammet for 2002 – 2004, erkjente partene at blåkveitebestanden er utbredt i hele Barentshavet.

Partene diskuterte og godkjente rapporten fra møte i Kirkenes 4. – 6. oktober 2006 fra arbeidsgruppen for utarbeidelse av forslag til felles reguleringstiltak for fiske etter blåkveite Vedlegg 11.

Den russiske part bemerket at det er nødvendig å bruke felles tekniske reguleringstiltak for blåkveite i hele utbredelsesområdet.

8.2 Uer

Partene drøftet bestandssituasjonen for uer (Sebastes mentella, Sebastes marinus), og konstaterte at den er i særdeles dårlig forfatning, noe som vekker bekymring.

Tillatt bifangstprosent og tekniske reguleringstiltak fremgår av Vedlegg 6 og 7.

8.3 Sei

Kvote og tekniske reguleringstiltak fremgår av Vedlegg 6 og 7.

8.3.1 Bestandstilstand for sei

Partene viste til at en målrettet og rasjonell forvaltning av seibestanden har medført stabilisering av seibestanden på et høyt bestandsnivå.

Den russiske part informerte om at den vil ta inntil 10 000 tonn under et direktefiske etter sei i russisk økonomisk sone. Bifangst av sei under fisket etter torsk og hyse i russisk økonomisk sone skal begrenses til 49 % av total vekt i hver enkelt fangst. Den norske part tok dette til etterretning.

8.3.2 Om grenseoverskridende egenskaper ved bestanden av sei i Barentshavet

Den russiske part fremla data om fordeling av sei i hele Barentshavet, samt informerte den norske part om sin intensjon om å vurdere antall seiyngel i russisk økonomisk sone.

9. Om forvaltning av kamtsjatkakrabbe (Paralithodes camtschaticus) i Barentshavet i 2007

9.1 Informasjonsutveksling om fastsatte kvoter i henholdsvis NØS og RØS i 2007

Partene viste til den brevvekslingen som hadde funnet sted i 2006 vedrørende forvaltningen av kongekrabbe og ble enige om å forvalte kongekrabbebestanden hver for seg i sine respektive økonomiske soner fra og med 2007.

Den norsk part meddelte at den norske kvoten i 2007 var satt til 300 000 individer i NØS øst for 26°Ø. Den norske part orienterte om det pågående arbeidet med en stortingsmelding om fremtidig forvaltning av kongekrabbe som skal legges frem for Stortinget neste år, og at Stortingets behandling av meldingen kan resultere i at den norske kvoten for 2007 endres.

Den russiske part meddelte at den russiske kvoten for 2007 var satt til 3 180 000 individer.

Partene ble enige om å informere hverandre om sine tekniske reguleringstiltak under de årlige sesjoner.

9.2 Resultatet av felles forskningsinnsats

Partene utvekslet informasjon om resultatene av forskning på kamtsjatkakrabbe (Paralithodes camtschaticus) i Barentshavet og mottok en felles rapport fra norske og russiske forskere om resultatene av forskningen i 2006 og det treårige forskningsprogrammet på kamtsjatkakrabbe i Barentshavet.

Partene konstaterte at det fortsatt er manglende kunnskap om det gjensidige forholdet mellom krabben og øvrige arter i økosystemet i Barentshavet, og anbefalte forskerne fra begge land å videreføre forskningen på dette området.

Det treårige felles forskningsprogrammet på kamtsjatkakrabbe for 2005 – 2007 sluttføres i 2007, jfr. Vedlegg 10. Resultatene fra dette forskningsprogrammet vil bli rapportert til kommisjonen i 2008.

Partene var enige om at resultater av felles forskningsinnsats på bestandsvurderinger, migrasjon og krabbens innvirkning på økosystemet fortsatt drøftes på de årlige sesjonene.

10. Regulering av fisket etter reker i 2007

Partene tok til etterretning en felles rapport fra norske og russiske forskere vedrørende bestandssituasjonen av reker i Barentshavet.

Partene var enige om at stenging av felt ved rekefiske skal gjennomføres på grunnlag av data om bifangst av blåkveite, torsk, hyse og uer.

Partene ba forskerne om å se på mulighetene for videre utvikling av seleksjonsteknologi i fiskeredskap med sikte på redusert innblanding av ueryngel i rekefisket.

Kvoter og tekniske reguleringstiltak fremgår av Vedlegg 6 og 7.

11. Regulering av selfangsten i 2007

Partene konstaterte at kvoteuttaket på grønlandssel i 2006 fortsatt var på et meget lavt nivå.

Partene var enige om at antall sel i Østisen og Vesterisen har en innvirkning på de kommersielle fiskebestandene. Partene har derfor til hensikt å gjennomføre et felles forskningsprogram med formål å avklare grønlandsselens økologiske rolle i Barentshavet.

I denne situasjonen vil partene bestrebe seg på å legge forholdene til rette for russiske og norske kommersielle fangstinteresser, noe som gir mulighet til å iverksette felles prosjekter med sikte på en økning i uttaket av sel i Østisen og Vesterisen, og å skape lønnsomhet i fangsten.

Nye data tyder på at klappmyssbestanden i Vesterisen er på et så lavt nivå at fangsten må stanses midlertidig.

Partene fastsetter TAC for 2007 basert på rådgivning fra ICES.

Partene konstaterte at ICES fortsatt arbeider med å fastsette biologiske referansepunkter for forvaltning av bestandene av grønlandssel og klappmyss, noe som vil gjøre det mulig å utarbeide en forvaltningsstrategi for selbestandene.

Den russiske part mener det er mulig å øke fangstkvoten på grønlandssel for den norske part i Østisen i 2007; dette er en ad hoc beslutning.

Kvoter og reguleringstiltak, herunder fangst for vitenskapelige formål, fremgår av Vedlegg 6 og 8.

12 Forvaltningssamarbeid

Partene vil fortsette samarbeidet mellom de to lands fiskerimyndigheter for ytterligere å effektivisere ressurskontrollen og reguleringen av fisket.

Partene var enige om at alle norsk-russiske fellesprosjekter, også forskningsprosjekter, i forbindelse med utnyttelse av fellesbestander i Barentshavet og Norskehavet, skal behandles av Den blandete norsk-russiske fiskerikommisjon, og godkjennes av Det norske fiskeri- og kystdepartement og Det russiske landbruksministerium. Hver part forplikter seg til å informere den annen part om hvilke kvoter som tildeles og mottas innenfor rammene av slike prosjekter, og om de kvanta fisk som landes i henhold til disse kvotene.

12.1 Om implementering av tiltak vedtatt under 34. sesjon vedrørende kontroll

Partene oppsummerte de tiltak som er gjennomført i 2006:

- Løpende utveksling av informasjon om satellittsporing (ICES I og II). Prøveprosjektet ble påbegynt 1. oktober 2006. De tekniske spørsmål ved denne utvekslingen, herunder spørsmål som gjelder bruk av HTTPS protokollen som sikrer vern av informasjon i Internet er løst.

- Utveksling av kvoter på fartøynivå. Fra 1. september 2006 har en foretatt månedlig gjensidig utveksling.

- Harmonisert kontrollmetodikk for kontroll på sjø og på land ble utarbeidet på møtet i Det permanente utvalg i oktober 2006.

- Mobile grupper med inspektører til tredjeland har gjennomført to reiser til Nederland for å foreta kontroll med landing i 3. land.

- Samarbeide om gjennomføring av inspeksjoner av fiskefartøyer i Smutthullet og det tilstøtende området i Barentshavet under inspeksjon av fartøyer med egne staters flagg. I Gråsonen har det i to perioder (mai og juni) vært gjennomført samarbeid mellom Kystvakten og grenseadministrasjonen i FSB i Murmansk fylke. I Smutthullet

er begge parter (Kystvakten og Rosselkhoznadzor i Murmansk fylke) klar til samarbeid så snart det blir fiskeriaktivitet i området.

Partene konstaterte at følgende omforente tiltak ikke har blitt gjennomført:

- Utarbeiding av en omforent ordning for å gi full og løpende informasjon om satellittsporingsdata i alle områder av Barentshavet og Norskehavet på fartøynivå. Her bekreftet partene at de tekniske betingelser for informasjonsutveksling foreligger.

- Den norske part har ikke fremlagt resultater for det arbeidet som er gjort for å fastslå omfanget av sports- og turistfiske i norske farvann.

- Løpende informasjonsutveksling av omlasting til havs og landinger i 3. lands havner av fisk som utgjør fellesbestander i Barentshavet og Norskehavet (ICES I og II) på fartøynivå. Den norske part er klar til å gjennomføre en slik utveksling. Den russiske part er klar til å igangsette slik utveksling etter at den russiske part har vedtatt de nødvendige interne prosedyrer.

- Analysegruppen som skal foreta sammenstilling av informasjon på fartøynivå for å avdekke mulige brudd på fiskerilovgivningen har ikke hatt noen møter i 2006. Gruppen består av representanter på norsk side fra Fiskeridirektoratet og Kystvakten og på russisk side Rosselkhoznadzor i Murmansk fylke og FSBs grenseadministrasjon i Murmansk fylke.

- Møte mellom norske og russiske fiskerimyndigheter og politi- og påtalemyndigheter for å klargjøre begge parters krav til bevisføring i straffesaker har ikke futtet sted.

Underutvalget under Det permanente utvalg har avholdt to møter. Utvalget har ikke fungert etter sin hensikt da det fra russisk side ikke har møtt representanter fra alle relevante myndigheter.

12.2 Rapport fra Det permanente utvalg for forvaltnings- og kontrollspørsmål på fiskerisektoren

Partene har gjennomgått rapporten fra Det permanente utvalg om det arbeidet som er gjort, og har funnet det tilfredsstillende. Protokollen for møtet i Det permanente utvalg i Sortland 9. – 13. oktober 2006 vedlegges, jfr. Vedlegg 9.

Partene vil gjennomføre de tiltak som er foreslått i nevnte protokoll, se også pkt 12.6. nedenfor.

12.3 Regler for langsiktig, bærekraftig forvaltning av levende marine ressurser i Barentshavet og Norskehavet

"The Basic Document Working Group" leverte sin rapport "Harvest Control Rules for Management of Fisheries on Cod and Haddock – and Optimal Long Term Harvest in the Barents Sea Ecosystem" (Vedlegg 14) med beskrivelse av arbeidet siden 34. sesjon. Dette

gjaldt prosessen som ledet frem til ICES sin evaluering av den vedtatte forvaltningsregel for hyse.

Rapporten inneholder også status vedrørende optimal høsting (maksimalt langsiktig utbytte) av de kommersielle hovedbestandene av marine organismer i Barentshavet og Norskehavet med hensyn til alle økosystemelementer som er tilgjengelige for undersøkelser.

Partene ba forskerne vurdere det fremlagte forslag til forvaltningsregel for hyse på nytt, på bakgrunn av nye opplysninger som ble framlagt i sesjonen.

Til neste møte i Den blandete norsk-russiske fiskerikommisjon skal arbeidsgruppen legge frem rapport om følgende:

- Arbeidet med evaluering av beslutningsregler for hyse
- Status for arbeidet for gjennomføring av en vitenskapelig analyse vedrørende optimal høsting av de kommersielle hovedbestandene i Barentshavet og Norskehavet med hensyn til alle økosystemelementer som er tilgjengelige for undersøkelser.

12.4 Erfaring med Memorandum om samarbeidsordninger mellom partenes kontrollmyndigheter

Partene var enige om at Memorandumet tjener som et godt grunnlag for å bedre kontrollen og samarbeidet, og påpekte at det er nødvendig å videreføre arbeidet i samsvar med bestemmelsene i det.

Partene ga Det permanente utvalg i oppdrag å foreslå nødvendige endringer og tilføyelser i Memorandumet.

12.5 Regler om partenes utstedelse av lisenser for fiske og håndhevelse av fiskeribestemmelsene

Den russiske part informerte den norske part om at fra 2007 av vil fisket i Russlands økonomiske sone for norske fartøys vedkommende foregå under overholdelse av kravene i Den russiske føderasjons lovgivning og i henhold til note fra det russiske utenriksdepartement av 18.10.2006.

For å innføre systemet med formalisering og utstedelse av fangsttillatelse for marine bioressurser har partene avtalt at det er nødvendig å utarbeide en ordning og system for gjennomføring av det. Innføring av systemet for utstedelser for slike tillatelser vil skje i 2007 etter at nevnte ordning er avtalt partene i mellom.

Partene vil opprettholde den gjeldende ordningen inntil ny ordning er på plass.

12.6 Kontrolltiltak for fiske i Barentshavet og Norskehavet i 2007

Partene orienterte hverandre om kontrollaktiviteten i sine farvann i 2006 med særlig vekt på omlasting og kvotekontroll og konstaterte at problemene med ulovlig fiske og omlasting i Barentshavet og Norskehavet ikke er løst.

Partene var enige om å iverksette utveksling av full og løpende informasjon om omlasting til havs eller landing i 3. land av arter som utgjør fellesbestander i Barentshavet og Norskehavet (ICES I og II), på fartøynivå, etter at den russiske part har vedtatt nødvendige interne prosedyrer.

Den russiske part ba om nødvendig oppklaring når det gjelder å oppfylle krav til innsending av rapporter om omlasting dersom det oppstår force majeure. Den norske part informerer den russiske part om dette skriftlig.

Partene diskuterte resultatene fra prøveprosjektet for utveksling av data fra satellittsporing av fiskefartøy i Barentshavet og Norskehavet (ICES I og II), og konstaterte at alle tekniske problemer i forbindelse med en slik utveksling herunder problemer som gjelder HTTPS protokollen som sikrer vern av informasjon i Internet er fullt ut løst.

Partene var enige om når det gjelder videre utveksling av data å benytte HTTPS protokollen isteden for X 25.

Den norske part mener det er mulig å starte utveksling av informasjon innen satellittsporing i områdene ICES I og II basert på det gjennomførte prøveprosjektet.

Den russiske part finner det umulig å starte utveksling av informasjon innen satellittsporing i områdene ICES I og II uten at en omforent ordning for presentasjon av satellittsporingsdata på fartøynivå er utarbeidet.

Partene var enige om å fortsette arbeidet innen rammen av prøveprosjektet for å komme med forslag til utarbeidelse av en omforent ordning for informasjonsutveksling innenfor satellittsporing i Barentshavet og Norskehavet på fartøynivå.

Partene var enige om å foreta revurdering av satellittsporingsavtalen ("Agreed Records of Conclusions between Norway and Russia on Issues related to Satellite Based Vessel Monitoring Systems"). For dette formål etableres en arbeidsgruppe som får i oppdrag å utarbeide en ny avtaleprotokoll. Partene var enige i at det ville være hensiktsmessig å se revisjonen i et videre perspektiv og også inkludere spørsmål om innføring av elektronisk rapportering. Arbeidsgruppen skal møtes og fremlegge utkast til dokumenter for vurdering på neste møte i det permanente utvalg for forvaltning og kontroll innen fiskerisektoren.

Partene var enige om å samarbeide i NEAFC med sikte på å etablere et omforent regime for havnestatskontroll vedrørende fiskeressursene i NEAFC 's konvensjonsområde.

Partene var enige om å samarbeide om gjennomføring av inspeksjoner av fiskefartøyer i Smutthullet og det tilstøtende området i Barentshavet under inspeksjon av fartøyer med egne staters flagg. Her skal partene etter avtale gi inspektører fra en part oppholdsrett på den andre partens fartøyer for å gjennomføre inspeksjoner av fartøyer med egen stats flagg som driver fiske i Smutthullet og det tilstøtende området i Barentshavet.

Partene er enige om å fortsette arbeidet med å etablere kontrollavtaler med relevante tredjeland for å få mer fullstendig informasjon om landinger i disse landene.

Partene understreket nødvendigheten av at det ble ført kontroll med overholdelsen av vedtatte tiltak. Regelbrudd som avdekkes ved kontroll vil medføre tilstrekkelige sanksjoner.

Partene var enige om å gjenoppta arbeidet i analysegruppen bestående av representanter på norsk side fra Fiskeridirektoratet og Kystvakten og på russisk side Rosselkhoznadzor i Murmansk fylke og grenseadministrasjonen i FSB i Murmansk fylke. Analysegruppen skal samarbeide om sammenstilling av informasjon på fartøynivå for avdekking av eventuelle overtredelser av fiskerilovgivningen. I 2007 skal slike møter holdes minst en gang hvert kvartal.

Partene er enige om å videreføre arbeidet i underutvalget under Det permanente utvalg for utarbeidelse av tiltak for å bedre kontroll og sikre anvendelse av straffetiltak i forbindelse med brudd på fiskeribestemmelsene i Barentshavet og Norskehavet. Ettersom en fra russisk side ikke har lykkes med å møte med representanter fra alle de relevante myndigheter har Underutvalget ikke kunne arbeide som planlagt i 2006. Partene var enige om at det ville være hensiktsmessig å informere ledelsen for politi- og påtalemyndigheter og toll- og skattemyndigheter om viktigheten av at disse etatenes representanter deltar i alle møter i Underutvalget.

Den russiske part vil arbeide videre med å få representanter for de relevante myndigheter til å delta i Underutvalgets møter.

Den norske part foreslo å arrangere et seminar med deltagere fra alle relevante myndigheter for der igjennom å orientere om de ulike etaters roller og myndighet og å diskutere på hvilken måte en skal organisere arbeidet i underutvalget. Den russiske part vil vurdere dette forslaget.

Partene er enige om at de i fremtiden vil samarbeide om å foreta analyser om overfiske av torsk og hyse i Barentshavet og Norskehavet.

Partene er enige om å møtes i en arbeidsgruppe for analyse av informasjon om overfiske av torske- og hysekvotene i Barentshavet i 2005 etter at den russiske part har overlevert til den norske part den russiske ekspertgruppens analyse av Fiskeridirektoratets rapport "Russisk fangst av torsk og hyse/omlastinger til havs i 2005", jf 5.1.

Omforente kontrolltiltak fremgår av Vedlegg 13.

12.7 Reglene for utøvelse av fisket i havområdet ved Svalbard

Partene konstaterte at det i 2006 hadde funnet sted drøftinger vedrørende fisket i området ved Svalbard.

12.8 Tredjelands fiske og gjennomføring av Avtale av 15. mai 1999 mellom Norge, Den russiske føderasjon og Island om visse samarbeidsforhold på fiskeriområdet

Partene utvekslet informasjon om gjennomføring av den trilaterale avtalen mellom Norge, Russland og Island, og konstaterte at avtalen har fungert etter sin hensikt.

I forbindelse med en eventuell revisjon av avtalen eller de bilaterale protokoller, vil partene underrette hverandre offisielt og i god tid før fristen for underretning om revisjon utløper.

Partene bekreftet sin enighet om at ved inngåelse av kvoteavtaler med tredjeland, skal tredjeland forplikte seg til å begrense sitt fiske til de kvoter som er tildelt av kyststatene, uavhengig av om fisket skjer i eller utenfor Norges og Russlands fiskerijurisdiksjonsområder.

Partene drøftet tredjelands fiske i Barentshavet og Norskehavet, og var enige om å videreføre aktiv kontroll med dette fisket slik at det bringes til opphør når de tildelte kvoter er oppfisket.

Partene bekreftet sin enighet om at reguleringstiltakene for bestanden av norsk-arktisk torsk gjelder i hele dens utbredelsesområde.

12.9 Felles omregningsfaktorer for fiskeprodukter

Partene var enige om at anvendelse av nøyaktige omregningsfaktorer er av avgjørende betydning for å få et sant bilde av ressursuttaket.

Partene var enige om å bruke felles omregningsfaktorer som angitt i Vedlegg 7. Partene ga Det permanente utvalg i oppdrag å utarbeide forslag til produktbeskrivelser for de ulike filetprodukter for å taes inn i Vedlegg 7.

Den norske part redegjorde for den innarbeidede praksis i norske farvann, om at dersom det produseres andre produkter enn de beskrevne i Vedlegg 7, skal fangst estimeres og rapporteres i rund, levende vekt uten at de omforente faktorer kommer til anvendelse.

Ved fastsettelse av omregningsfaktorer skal "Agreed methods for measurement and calculation of conversion factors" og den felles norsk-russiske arbeidsinstruks for måling og beregning av omregningsfaktorer for ferske fiskeprodukter produsert om bord i fiskefartøyer, benyttes. Det permanente utvalg kan imidlertid, uten å samle tilleggsopplysninger, fremme forslag om midlertidige omregningsfaktorer for nye produkter, dersom tilgjengelig informasjon gir grunnlag for dette.

Partene ga Det permanente utvalg i oppdrag å videreføre arbeidet med fastsettelse av omregningsfaktorer i samsvar med det man har blitt enige om, jfr. Protokoll fra møtet i Det permanente utvalg i Sortland 9. – 13. oktober 2006 (Vedlegg 9) og organisere deltakelse av russiske og norske eksperter på tokt med hverandres fiskefartøy med det formål å få sammenlignbare data for etablering av felles omregningsfaktorer ved foredling av torsk og hyse.

12.10 Prosedyrer for stenging og åpning av fiskefelt

Partene var enige om å fortsette å anvende felles norsk-russisk ordning for stenging og åpning av fiskefelt for bunnfisk og reker.

13. Felles forskning på levende marine ressurser

Partene viste til at det norsk-russiske havforskningssamarbeidet representerer en av de lengste og beste tradisjoner i samarbeidet mellom de to land. Slik forskning er en nødvendig forutsetning for å skaffe til veie pålitelige vurderinger av fellesbestandenes tilstand og å utarbeide det vitenskapelige grunnlaget for fastsettelse av kvoter og sikre bærekraftig fiske.

Partene merket seg at det i år har vært vanskelig å få adgangstillatelse for norske forskningsfartøy i RØS for gjennomføring av bestandsovervåkning i henhold til det omforente forskningsprogrammet. Partene understreket enda en gang betydningen av å forenkle prosedyren for tillatelser til at forskningsfartøy fra en part skal kunne arbeide i den annen parts økonomiske sone. De har til hensikt å fortsette arbeidet for å forenkle prosedyren for utstedelse av tillatelser.

Begge lands forskere beklaget at det for femte år på rad ikke hadde vært mulig å gjennomføre det omsøkte norske hvaltoktet i RØS. De understreket betydningen av toktet som grunnlag for økt forståelse av hvalens betydning i økosystemet. For 2007 er det av særskilt betydning at det kan bli gjennomført et telletokt i russisk økonomisk sone.

Forskerne fra begge land beklaget at den russiske part ikke i fullt monn har kunnet gjennomføre de undersøkelsene som var tatt inn i det felles forskningsprogrammet for 2006.

Partene vedtok program for felles norsk-russisk forskning på levende marine ressurser i 2007, jfr. Vedlegg 10.

Partene konstaterte at det er uunngåelig med et uttak av levende marine ressurser, herunder bifangst, under gjennomføringen av forskningstokt, marine ressursundersøkelser og bestandsovervåkning, innsamling av data for forvaltningsbeslutninger og andre forskningsformål.

Partene fastsatte fangstkvanta for noen arter for gjennomføring av forskningsarbeid på levende marine ressurser, bestandsovervåking og innsamling av data for å treffe forvaltningsbeslutninger. Den russiske part påpekte også at de tildelte forskningskvantaene ikke er tilstrekkelige til i fullt monn å gjennomføre det felles forskningsprogrammet for 2007.

Av hensyn til transparensen i det norsk-russiske forsknings-samarbeidet understrekes betydningen av at hele fangsten for disse formål, inklusive bifangst, skal rapporteres på vedtatt statistikkskjema, jfr. punkt 4. Havforskningsinstituttet og PINRO vil i god tid før toktstart utveksle informasjon på fastsatt måte om antall og navn på fartøy som skal delta i disse undersøkelsene og overvåking av levende marine ressurser, tid for gjennomføring av disse og fangstkvanta, jfr. Vedlegg 10.

Partene har gitt oppdrag til forskere fra Norge og Russland å forberede det 12. norsk-russiske symposium, som vil bli avholdt i Norge i 2007. Temaet for symposiet som ble definert på

forskermøtet i mars 2006, skal være "Long term bilateral Russian – Norwegian scientific cooperation as a basis for sustainable management of living marine resources in the Barents Sea" og dette symposiet skal ha følgende tema-sesjoner; "Establishment and maintenance of long time marine data bases", "Development and implementation of new methods and models", og "Long term changes in the Barents Sea ecosystem".

14. Avslutning av sesjonen

Partene var enige om å avholde neste ordinære sesjon i Den blandete norsk-russiske fiskerikommisjon i Russland i oktober/november 2007.

Denne protokoll er utferdiget 3. november 2006 i Tromsø på norsk og russisk, med samme gyldighet for begge tekster.

Representant for Kongeriket Norges regjering i Den blandete norsk-russiske fiskerikommisjon

J. Krog

Representant for Den russiske føderasjons regjering i Den blandete norsk-russiske fiskerikommisjon

V. Izmailov

Deltakerliste norsk delegasjon

35. sesjon i Den blandete norsk-russiske fiskerikommisjon 2006

Jørn Krog	Norges representant i Den blandete norsk-russiske fiskerikommisjon Departementsråd, delegasjonsleder	Fiskeri-og kystdepartementet
Peter Gullestad	Norges stedfortredende representant i Den blandete norsk-russiske fiskerikommisjon Fiskeridirektør, nestleder for delegasjonen	Fiskeridirektoratet
Kirsti Henriksen	Avdelingsdirektør	Fiskeri-og kystdepartementet
Heidi M. Johansen	Seniorrådgiver	Fiskeri-og kystdepartementet
Hans Olav Stensli	Seniorrådgiver	Fiskeri-og kystdepartementet
Anniken Krutnes	Underdirektør	Utenriksdepartementet
Einar Tallaksen	Seniorrådgiver	Utenriksdepartementet
Frode Nilssen	Fiskeriråd, Amb.Moskva	Utenriksdepartementet
Magnar Aukrust	Avdelingsdirektør	Justis-og politidepartementet
Liv Holmefjord	Ass.fiskeridirektør	Fiskeridirektoratet
Lisbeth Plassa	Avdelingsdirektør	Fiskeridirektoratet
Einar Ellingsen	Avdelingsdirektør	Fiskeridirektoratet
Tore Nepstad	Adm.dir.	Havforskningsinstituttet
Ole Arve Misund	Forskningsdirektør	Havforskningsinstituttet
Ingolf Røttingen	Programkoord.	Havforskningsinstituttet
Harald Gjøsæter	Forskningsleder	Havforskningsinstituttet
Tore Haug	Forskningsleder	Havforskningsinstituttet
Jan Sundet	Forskningsleder	Havforskningsinstituttet
Arild-Inge Skram	Flaggkommandør	Sjef Kystvakten
Hans Fr. Ravna	Leder	Sametinget
Reidar Nilsen	Formann	Norges Fiskarlag
Atle Vartdal	Representant	Norges Fiskarlag
Knut W. Hansen	Landsstyremedlem	Norges Fiskarlag
Paul O. Jensen	Styreleder	Norges kystfiskarlag
Per Dag Iversen	Representant	Fiskeri-og Havbruks- næringens landsforening
Erlend Hanssen	Representant	Norsk Sjømannsforbund
Kirsti Saxi	Fylkesordfører	Kommunesektorens interesse-og arbeidsgiverorg.
Dag Klaastad	Tolk	
Jan Frederik Borge	Tolk	

Ingmund Fladaas Tolk

VEDLEGG 1

RUSSISKE DELTAKERE
på den 35. sesjon i Den blandete norsk-russiske fiskerikommisjon
Tromsø, 30.10.2006 – 03.11.2006

1.	Izmajlov, Vladimir Abdurmanovitsj	- viseminister i Den russiske føderasjons Landbruksministerium; RFs representant i Den blandete norsk-russiske fiskerikommisjon, delegasjonsleder;
2.	Gorkina, Irina Sergejevna	- avdelingsleder ved det russiske Landbruks-ministeriets rettsdepartement;
3.	Garmasjov, Andrej Viktorovitsj	- referent ved det russiske Landbruksministeriets administrasjonsdepartement;
4.	Jeremkina, Anastasia Nikolajevna	- seniorekspert ved det russiske Landbruks-ministeriets Fiskeridepartement;
5.	Zajtseva, Julia Borisovna	- sjef ved Rosrybolovstvos Administrasjon;
6.	Sominskaja, Marina Arkadijevna	- viseavdelingsjef i Rosrybolovstvo;
7.	Zelentsov, Aleksandr Vladimirovitsj	- Rosrybolovstvos representant i Norge;
8.	Semenas, Vjatsjeslav Josifovitsj	- direktør ved DGUP ”Murmansk regionale monitoringsenter;
9.	Sokolov, Vasilij Igorjevitsj	- visedirektør i FGUP ”VNIRO”;
10.	Borisov, Vladimir Mikhhajlovitsj	- laboratoriesjef ved FGUP ”VNIRO”;
11.	Pristsjepa, Boris Fjodorovitsj	- direktør i FGUP ”PINRO”;
12.	Lepesjevitsj, Jurij Mikhajlovitsj	- visedirektør i FGUP ”PINRO”;
13.	Drevetnjak, Konstantin Vladimirovitsj	- laboratoriesjef ved FGUP ”PINRO”;
14.	Sennikov, Sergej Aleksandrovitsj	- viseavdelingssjef ved FGUP ”PINRO”
15.	Zabavnikov, Vladimir Borisovitsj	- laboratoriesjef ved FGUP ”PINRO”;
16.	Volkovinskaja, Jekaterina Vladislavovna	- sjefstolk ved FGUP ”PINRO”;
17.	Sedov, Igor Leonidovitsj	- avdelingsleder i Rosselkhoznadzor;
18.	Lazakovitsj, Vladimir Ivanovitsj	- visesjef i Russlands GMI PD FSB;
19.	Nekrasov, Sergej Vladimirovitsj	- seniorinspektør i Russlands GMI PD FSB;
20.	Ogarjov, Valerij Ivanovitsj	- ledende inspektør i Russlands GMI PD FSB;
21.	Rozhnov, Viktor Nikolajevitsj	- senioroffiser ved Russlands FSBs grense-administrasjons kystvaktavdeling;

22.	Bondarenko, Vladimir Mikhajlovitsj	- visepresident i SRKhO ”Murmansk Trålflåtes Konsortium”;
23.	Zilanov, Vjatsjeslav Konstantinovitsj	- leder for Murmansk fylkes Fiskeindustridepartement;
24.	Javdotjsjuk, Nina Afanasjevna	- visesjef i FGU ”Murmanrybvod”;

Eksperter:

25.	Antropov, Gennadij Dmitrijevitsj	- sjef for Rosrybkolkhozsojus’ avdeling for fiskeri og havbruk;
26.	Kasatkin, Vitalij Petrovitsj	- styreformann i NO ”Unionen av fiskeribedrifter i nord”;
27.	Kozharskij, Dmitrij Germanovitsj	- visepresident i ZAO ”RK Rybflot-FOR”;
28.	Nikulin, Jurij Pavlovitsj	- generaldirektør i OAO ”Arkhangelsk trålflåte”;
29.	Petrunina, Jelena Valentinovna	- fungerende direktør i NO ”Assosiasjonen for krabbefiskere i nord”;
30.	Filippov, Anatolij Ivanovitsj	- styreformann i NO ” Assosiasjonen for krabbefiskere i nord”;

VEDLEGG 2
DAGSORDEN

Dagsorden for den 35. sesjon i Den blandete norsk-russiske fiskerikommisjon, Tromsø, 30. oktober – 3. november 2006

1. Åpning av sesjonen
2. Godkjenning av dagsorden
3. Arbeidsgrupper
4. Utveksling av fangststatistikk for 2005 og hittil i 2006
5. Regulering av fisket etter torsk og hyse i 2007
   - 5.1 Fastsettelse av totalkvoter og fordeling av kvoter
   - 5.2 Andre tiltak for regulering av fisket
     - 5.2.1 Tekniske reguleringer

6 Regulering av fisket etter lodde i 2007

7. Spørsmål vedrørende forvaltning av norsk vårgytende sild i 2007
8. Regulering av fisket etter andre fiskeslag i 2007
   - 8.1 Blåkveite
     - 8.1.1 Bestandstilstand for blåkveite
     - 8.1.2 Program for felles norsk-russisk forskning på blåkveite
     - 8.1.3 Om felles tiltak for regulering av blåkveite som grenseoverskridende bestand
   - 8.2 Uer
   - 8.3 Sei
     - 8.3.1 Bestandstilstand for sei
     - 8.3.2 Om grenseskridende egenskaper ved bestanden av sei i Barentshavet
9. Om forvaltning av kamtsjatkakrabbe (Paralithodes camtschaticus) i Barentshavet i 2007
   - 9.1 Informasjon om fastsatte kvoter i hhv. NØS og RØS i 2007
   - 9.2 Resultat av felles forskningsinnsats
10. Regulering av fisket etter reker i 2007
11. Regulering av selfangsten i 2007
12. Forvaltningssamarbeid
    - 12.1 Om implementering av tiltak vedtatt under 34. sesjon vedrørende kontroll
    - 12.2 Rapport fra Det permanente utvalg for forvaltnings- og kontrollspørsmål på fiskerisektoren
    - 12.3 Regler for langsiktig, bærekraftig forvaltning av levende marine ressurser i Barentshavet og Norskehavet

12.4 Erfaring med Memorandum om samarbeidsordninger mellom partenes kontrollmyndigheter

12.5 Reglene for partenes utstedelse av lisenser for fiske og håndhevelse av fiskeribestemmelsene

12.6 Kontrolltiltak for fisket i Barentshavet og Norskehavet i 2007

12.7 Reglene for utøvelse av fisket i havområdene ved Svalbard

12.8 Tredjelands fiske og gjennomføring av Avtale av 15. mai 1999 mellom Norge, Den russiske føderasjon og Island om visse samarbeidsforhold på fiskeriområdet

12.9 Felles omregningsfaktorer for fiskeprodukter

12.10 Prosedyrer for stenging og åpning av fiskefelt

13. Felles forskning på levende marine ressurser

14. Eventuelt

15. Avslutning av sesjonen

VEDLEGG 3

OVERSIKT OVER TOTALKVOTER OG FORDELING AV KVOTER MELLOM NORGE, RUSSLAND OG TREDJELAND (I TONN) I 2007

		TOTAL KVOTE			OVERFØRING	NASJONALE KVOTER	
	SUM	AVSETNING	KVOTEANDEL		FRA		
FISKESLAG	(TOTAL-KVOTER)	TIL TREDJELAND	NORGE	RUSSLAND	RUSSLAND TIL NORGE	NORGE	RUSSLAND
	I	II	III=(I-II)/2	IV=(I-II)/2	V	VI=III+V	VII=IV-V
TORSK	389 000[1]	58 000	165 500	165 500	6.000	171 500	159 500
NORSK KYSTTORSK	20 000[2]		20 000			20 000	
MURMANSK TORSK	20 000[2]			20 000			20 000
SUM TORSK	429 000	58 000	185 500	185 500	6.000	191 500	179 500
SUM TORSK INKL. NOTE 1 OG 2						199 500[3]	187 500[3]
HYSE	144 400[4]	6 900	68 750	68 750	4 500	73 250[3]	64 250[3]

[1] I tillegg kan inntil 14 000 tonn, 7 000 tonn til hver part, disponeres til forsknings- og forvaltningsformål.
[2] I tillegg kan inntil 1 000 tonn disponeres til forsknings- og forvaltningsformål utøvd med passive redskap.
[3] I tillegg kommer ikke-kommersielt fiske til dekning av eget forbruk av fisk.
[4] I tillegg kan inntil 5 600 tonn, 2 800 tonn til hver part, disponeres til forsknings- og forvaltningsformål.

VEDLEGG 4

I. FORDELING AV TREDJELANDSKVOTEN AV TORSK I 2007 (I TONN)

TOTALT	SVALBARD-OMRÅDET	NORGES ØK. SONE	RUSSLANDS ØK. SONE
58 000	16 400	24 195	17 405

II. FORDELING AV KVOTER FOR TORSK OG HYSE TIL TREDJELAND I PARTENES ØKONOMISKE SONER I 2007 (I TONN)[1]

FISKESLAG	NORGES ØK. SONE	RUSSLANDS ØK. SONE	I ALT	HERAV I DET TILSTØTENDE OMRÅDE I BARENTSHAVET	
				NORGE	RUSSLAND
TORSK	24 195	17 405	41 600	17 405	17 405
HYSE	4 140	2 760	6 900	2 760	2 760

[1]Eventuelle udisponerte andeler kan overføres til nasjonal kvote.

VEDLEGG 5

KVOTER I 2007 FOR GJENSIDIG FANGST AV TORSK OG HYSE FOR NORGE OG RUSSLAND I DE TO LANDS ØKONOMISKE SONER (I TONN).

Disse kvotene gjelder ikke for et tilstøtende område for en felles fiskeriregulering i Barentshavet.

OMRÅDER	FISKESLAG		I ALT
	TORSK	HYSE	
NORGES KVOTER I RUSSLANDS ØKONOMISKE SONE	140.000	20.000	160.000
RUSSLANDS KVOTER I NORGES ØKONOMISKE SONE	140.000	20.000	160.000

VEDLEGG 6

I. KVOTER TIL RUSSLAND PÅ NORSKE BESTANDER I NORGES ØKONOMISKE SONE (I TONN) I 2007

BESTAND	KVOTE	MERKNADER
Vanlig uer Sebastes marinus Snabeluer Sebastes mentella	2 000	Bifangst, maksimum 15% i hver enkelt fangst.
Kolmule	32 145	Kan fiskes i et nærmere avgrenset område i Norges økonomiske sone hvis koordinater vil bli presisert og i fiskerisonen ved Jan Mayen utenfor 4 n. mil
Sei	15 000	Bifangst ved fiske av torsk og hyse, maksimum 49% i hver enkelt fangst. Bifangst ved fiske av sild, maksimum 5% i hver enkelt fangst.
Steinbit	2 000	Direkte fiske og bifangst.
Andre bestander	3 000	Ikke kvoteregulerte bestander tatt som bifangst i fiske etter kvoteregulerte bestander.

II. KVOTER TIL NORGE PÅ RUSSISKE BESTANDER I RUSSLANDS ØKONOMISKE SONE (I TONN) I 2007

BESTAND	KVOTE	MERKNADER
Reker	3 000	
Steinbit	1 500	Direkte fiske og bifangst.
Flyndre	1 000	Direkte fiske og bifangst.
Andre bestander	500	Ikke kvoteregulerte bestander tatt som bifangst i fiske etter kvoteregulerte bestander.
Grønlandssel	15 000 voksne dyr	Fangst i Østisen. Ved fangst av årsunger balanseres ett voksent dyr med 2,5 unger.*

*Også i russisk fangst i Kvitsjøen og Barentshavet balanseres 1 voksent dyr med 2,5 unger.

VEDLEGG 7

TEKNISKE REGULERINGSTILTAK OG FELLES OMREGNINGSFAKTORER FOR FISKEPRODUKTER

I. TEKNISKE REGULERINGSTILTAK

1. Torsk og hyse

1.1 Det er påbudt å bruke sorteringsrist i torsketrål i nærmere avgrensede områder i Barentshavet. Bruk av rist skal skje i henhold til tekniske spesifikasjoner fastsatt av respektive myndigheter, basert på en minste spileavstand på 55 mm. Omforente spesifikasjoner for de godkjente ristsystemene er utarbeidet.

Det er tillatt å bruke småmasket not eller duk-materiale i lede- og akterpanel i ristsystemene.

1.2 Det tillates innblanding av torsk og hyse under minstemål i et omfang av inntil 15% av det samlede antall i den enkelte fangst.

1.3 I tilfelle det i et fangstområde er mer enn 15% torsk og hyse i antall under fastsatte minstemål i fangstene, treffer hver av partene vedtak, på grunnlag av forskningsdata, om stengning av angjeldende område. Vedtak om stenging eller åpning av fiskefelt trer i kraft 7 dager etter at Partene har informert hverandre om vedtaket. Vedtaket om stenging og åpning trer i kraft straks for de to lands fartøy som mottar informasjon om vedtak direkte fra de ansvarlige myndigheter.

1.4 Det er forbudt å bruke flytetrål i torskefisket.

2. Lodde

De tekniske reguleringstiltak er suspendert mens det er stopp i loddefisket.

3. Sei

I fisket etter torsk og hyse er det tillatt å ha inntil 49% bifangst av sei i vekt av de enkelte fangster og av landet fangst.

I fisket etter norsk vårgytende sild nord for 62ºN er det tillatt å ha inntil 5% bifangst av sei i vekt av de enkelte fangster og av landet fangst.

4. Blåkveite

Ved fiske etter andre fiskeslag er det tillatt å ha inntil 12% bifangst av blåkveite i vekt av de enkelte fangster og inntil 7% om bord ved avslutning av fisket og av landet fangst.

5. Uer

5.1 I fisket etter andre fiskeslag er det tillatt å ha inntil 15% bifangst av uer i vekt av de enkelte fangster og av landet fangst.

6. Kolmule

Under fisket etter kolmule tillates en innblanding på inntil 10% makrell i den enkelte fangst.

7. Reker

7.1 Det er påbudt å bruke sorteringsrist i alt rekefiske i de to lands jurisdiksjonsområder.

7.2 Bifangst av torskeyngel skal ikke overskride 800 eksemplarer per tonn reker, av hyseyngel 2 000 eksemplarer per tonn reker, og av ueryngel 300 eksemplarer per tonn reker. Bifangst av blåkveite skal ikke overskride 300 eksemplarer pr tonn reker.

7.3 Ved stengning av felt på grunn av for stor innblanding av blåkveite eller yngel av torsk, hyse, og uer skal vedtak om stenging eller åpning av fiskefelt tre i kraft 7 dager etter at partene har informert hverandre om vedtaket. Vedtaket om stenging og åpning trer i kraft straks for de to lands fartøy som mottar informasjon om vedtak direkte fra de ansvarlige myndigheter.

8. Fangstdagbok

Innen utgangen av hvert døgn er det tillatt å korrigere opplysninger i fangstdagboken om angjeldende døgns fangst.

9. Sorteringsristsystemer

Ved kontroll av bruk av sorteringsrist skal kontrollmyndighetene anvende instruksen som er utarbeidet av Det permanente utvalg for forvaltnings- og kontrollspørsmål på fiskerisektoren. Sist ajourført den 7. oktober 2005.

Partene var enige om at det for fremtiden skal være tilstrekkelig for å få tillatelse til å bruke nyutviklede sorteringsristsystemer i farvann under den annen parts jurisdiksjon, at de aktuelle spesifikasjoner for disse er godkjent i Det permanente utvalg med påfølgende rapportering til Den blandete norsk-russiske fiskerikommisjon.

II. FELLES OMREGNINGSFAKTORER FOR FISKEPRODUKTER

1. Torsk

Følgende felles omregningsfaktorer skal benyttes ved ressurskontroll og ved beregning av ressursuttak for norske, russiske og tredjelands fartøyer:

- sløyd med hode: faktor 1,18

- sløyd uten hode rundsnitt: faktor 1,50
- sløyd uten hode rettsnitt: faktor 1,55

For maskinprodusert filet:

- filet med skinn (med tykkfiskbein): faktor 2,60
- filet uten skinn (med tykkfiskbein): faktor 2,90
- filet uten skinn (uten tykkfiskbein): faktor 3,25

2. Hyse

Følgende felles omregningsfaktorer skal benyttes ved ressurskontroll og ved beregning av ressursuttak for norske, russiske og tredjelands fartøyer:

- sløyd med hode: faktor 1,14
- sløyd uten hode rundsnitt: faktor 1,40

Følgende felles midlertidige omregningsfaktorer skal benyttes ved ressurskontroll og ved beregning av ressursuttak for norske, russiske og tredjelands fartøyer:

- sløyd uten hode uten ørebein: faktor 1,65

For maskinprodusert filet:

- filet med skinn (med bein): faktor 2,65
- filet uten skinn (med bein): faktor 2,95
- filet uten skinn (uten bein): faktor 3,15

Appendix 8

THE 35TH SESSION OF THE JOINT NORWEGIAN - RUSSIAN FISHERIES COMMISSION, TROMSØ, NORWAY, 30 OCTOBER - 3 NOVEMBER 2006

REPORT OF THE WORKING GROUP ON SEALS

Participants:

RUSSIA

V.B. ZABAVNIKOV	PINRO, Murmansk
G.D. ANTROPOV	Rosribkolhozsojus, Moskva

NORWAY

T. HAUG	Institute of Marine Research, Tromsø
P.D. IVERSEN	Norwegian Seafood Federation, Oslo
P. JENSEN	Norwegian Coastal Fishermens Union, Lofoten
R. NILSEN	Norwegian Fisherman's Association, Trondheim
F. NILSSEN	Norwegian Embassy, Moskva
L.W. PLASSA	Directotrate of Fisheries, Bergen
H.F. RAVNA	Sami Parliament, Karasjok

Contents:

1 Exchange of information and summary of seal catches in 2006.

2. Exchange of information and summary reports of research activities in 2006.

3. The status of stocks and management advice for 2007.

4. Research program for 2007+.

5. Joint Norwegian-Russian Research Program on Harp Seal Ecology.

6. Adoption of report

1. EXCHANGE OF INFORMATION AND SUMMARY OF SEAL CATCHES IN 2006

Norwegian catches were taken by four vessels in the Greenland Sea and two vessels in the southeastern Barents Sea. For logistical reasons, Russian seal vessels did not carry out hunting in the Greenland Sea in 2006. Russian catches of harp seals in the White Sea were taken by local hunters using one vessel (403 pups and 102 1yr+ animals) and helicopters (6 602 pups).

The 2006 TACs given for Greenland Sea hooded seals was 4,000 animals, irrespective of age, i.e., with no multiplier between one year old and older (1yr+) animals and pups.

The 2006 TACs set for harp seals in the Greenland Sea and in the Barents Sea / White Sea were as recommended by ICES (i.e., levels that would stabilise the populations at present level). For the Greenland Sea harp seals, the 2006 TAC was set at 31,200 1yr+ animals or an equivalent number of pups (where one 1yr+ animal should be balanced by 2 pups). The 2006 TAC for the Barents Sea / White Sea harp seals was 78,200 1yr+ animals or an equivalent number of pups where one 1yr+ animal should be balanced by 2.5 pups. Norway was allocated a quota of 10,000 1yr+ animals (with a similar equivalence between 1yr+ animals and pups).

Norwegian and Russian catches in 2006, including catches under permits for scientific purposes, are summarized in the table below:

Area/species	Norway	Russia	Sum
GREENLAND SEA			
Harp seals			
Pups	2343	0	2343
Older seals (1yr+)	961	0	961
Sum	3304	0	3304
Hooded seals			
Pups	3079[1]	0	3079
Older seals (1yr+)	568[1]	0	568
Sum	3647	0	3647
Area subtotal	6951	0	6951
BARENTS SEA / WHITE SEA			
Harp seals			
Pups	147[2]	7005	7152
Older seals (1yr+)	9939[2]	102	10041
Sum	10086	7107	17193
Area subtotal	10086	7107	17193
TOTAL CATCHES	17037	7107	24144

[1] Include 11 pups and 4 1+ animals taken under permit for scientific purposes in the Greenland Sea

[2] Include 1 pup and 62 1+ animals taken under permit for scientific purposes in summer in the northern Barents Sea

2. EXCHANGE OF INFORMATION AND SUMMARY REPORTS OF RESEARCH ACTIVITIES IN 2006

2.1 Norwegian research

2.1.1 Estimation of pup production

It is recommended that comprehensive aerial surveys, designed to provide estimates of current pup production, should be conducted periodically (c. every 5 year), and that efforts should be made to ensure comparability of survey results. Therefore, harp seal surveys in the White Sea in 2000, in the Greenland Sea in 2002 and in the Northwest Atlantic in 2004 included participation by scientific personell from Norway, Canada and Russia.

The most recent abundance estimate for hooded seals in the Grenland Sea was from 1997. For this reason, new surveys were carried out in the period 11 to 29 March 2005.Two fixed-wing twin-engined aircrafts were used for reconaissance flights and photographic strip transect surveys of the whelping patches once they had been located and identified. A helicopter assisted in the reconnaissance flights, and was used subsequently to fly visual strip transect surveys over the whelping patches. The helicopter was also used to collect data for estimating the distribution of births over time, and to assess the fidelity of solitary pups to their natal ice pans. Three hooded seal breeding patches (A, B and C) were located and surveyed either visually (A and B) and/or photographically (all patches). Due to concerns about coverage, the visual surveys were rejected and only the photographic surveys applied to estimate the pup production. Results from the staging flights suggest that the majority of hooded seal females in the Greenland Sea whelped between 17 and 23 March. The calculated temporal distribution of births and estimated availability of solitary bluebacks for aerial observations within the whelping patches were used to correct the abundance estimates obtained. The total estimate of pup production was 15 200 (SE = 3 790), giving a coefficient of variation for the survey of 24.9%. This estimate, uncorrected for pups born outside the whelping concentrations and therefore slightly negatively biassed, is considerably lower than the estimate obtained with similar methodology in the Greenland Sea in 1997.

The Norwegian hooded seal surveys in the Greenland Sea were coordinated with similar activities in the Northwest Atlantic where photographic and visual aerial surveys to determine current pup production of hooded seals were conducted off Newfoundland, in the Gulf of St. Lawrence in March 2004, and off Newfoundland, in the Gulf and in Davis Strait during 2005. Surveys in the Gulf and Front were corrected for the temporal distribution of births and the misidentification of pups by readers. In 2004, pup production at the Front was estimated to be 123,862 (SE = 18,640, CV = 15.0%). Pup production in the Gulf was estimated to be 1,388 (SE = 298, CV = 21.6%) although this is considered to be negatively biased. In 2005, pup production at the Front was estimated to be 107,013 (SE = 7,558, CV = 7.1%) while 6,620 (SE = 1,700, CV = 25.8%) pups were estimated to have been born in the Gulf. Pup production in the Davis Strait whelping concentration was estimated to be 3,346 (SE = 2,237, CV = 66.8%). Combining these areas resulted in an estimated pup production in the three northwest Atlantic whelping areas of 116,900 (SE = 7,918, CV = 6.8%). Comparison with previous estimates suggests that pup

production may have increased since the mid 1980s. However, any understanding of changes in abundance is hampered by a lack of understanding of the relationship among whelping areas.

2.1.2 Stock identity of hooded seals

A Canadian-Norwegian genetic study has been conducted of the two putative populations of hooded seals in the North Atlantic. The Greenland Sea population pup and breed on the pack ice near Jan Mayen ('West Ice') while the Northwest Atlantic population is thought to breed in the Davis Strait, in the Gulf of St. Lawrence (the 'Gulf'), and off southern Labrador or northeast Newfoundland (the 'Front'). Microsatellite profiling of 300 individuals using 13 loci and mitochondrial DNA sequencing of the control region of 78 individuals was carried out to test for genetic differentiation between these four breeding herds. No significant genetic differences were found between breeding areas, nor was there evidence for cryptic or higher level genetic structure in this species. The Greenland Sea breeding herd was genetically most distant from the Northwest Atlantic breeding areas; however the differences were statistically non-significant. These data, therefore, suggest that the world's hooded seals comprise a single, panmictic genetic population.

Historical Norwegian data on the frequency of supernumerary teeth in West Ice and Northwest Atlantic hooded seal stocks show no significant differences between sexes among breeding hooded seals at Newfoundland, nor between combined samples of both sexes from breeding hoods at Newfoundland and moulting hoods in the Denmark Strait. However, a highly significant difference was found when pooled samples from Newfoundland and the Denmark Strait were compared to combined samples from the West Ice. This difference is taken to indicate a possible genetic separation of hooded seals in the West Ice from hooded seals in the Northwest Atlantic.

2.1.3 Feeding habits of hooded seals

The feeding habits of hooded seals throughout their distributional range of the Nordic Seas (Iceland, Norwegian, Greenland Seas) were studied in 1999-2003. The project pays special attention to the period July-February (i.e., between moulting and breeding), which is known to be the most intensive feeding period for hooded seals. Seals were collected for scientific purposes on expeditions conducted in the pack ice belt east of Greenland in September/October 1999, 2002 and 2003 (autumn), July/August in 2000 (summer), and February/March in 2001 and 2002 (winter). Results from analyses of stomach and intestinal contents revealed that the diet was comprised of relatively few prey taxa. The squid *Gonatus fabricii* and polar cod *Boreogadus saida* were particularly important, whereas capelin *Mallotus villosus*, and sand eels *Ammodytes spp* contributed more occasionally. *G. fabricii* was the most important food item in autumn and winter, whereas the observed summer diet was more characterized by polar cod, however with important contribution also from *G. fabricii* and sand eels. The latter was observed on the hooded seal menu only during the summer period, while polar cod, which contributed importantly also during the autumn survey, was almost absent from the winter samples. During the latter survey, capelin also contributed to the hooded seal diet. Samples obtained in more coastal waters indicated a varied, fish based (polar cod, redfish *Sebasetes sp*., Greenland halibut *Reinhardtius hippoglossoides*) diet.

2.2 Russian research

2.2.1 New data on pup production of harp seals in the White Sea

During 1997-2005, 7 accounting air surveys of harp seal pups production were carried out in the White Sea during whelping time. These surveys were made onboard research aircraft An-26 "Arktika" using the same technology and methods, socalle multispectral methods. Results of surveys carried out in 1997-2003 were adopted and approved by the Joint ICES/NAFO WG on Harp and Hooded Seals (WGHARP, St. Johns, Newfoundland, Canada, 30 August-3 September 2005). These data were used for harp seals of the White Sea/Barents Sea population in stock abundance modeling calculation and definition of catch option with corresponding population trend for the next 10-years period.

WGHARP was sufficiently concerned about biases resulting from the late and incomplete coverage of the surveys in 2004 (air survey results from 23 March was adopted for harp seal pups numbers calculation) to recommended that the 2004 results and estimate should not be used in the model. Therefore, WGHARP recommended to wait for the 2005 air survey results and estimates, which was flown earlier and covered the whole area. These recommendations were fulfilled. Calculations of harp seal pup production in 2005 yielded a final estimate of pup numbers of 122 400 (SE=19 900) including catch (14 000). This numbers is less in comparison with 2004, when the number of harp seal pups was estimated as 234 000 (SE=48 000).

Unfortunately, in 2006 PINRO could not continue air surveys using multispectral methods as in previous years. But scientists tried to use data which was obtained during reconnaissance flights with aircraft and helicopter) in preparing and carrying out of commercial harp seals catch during whelping (March). This resulted in an expert estimation of pup numbers, which was no more than 120 000.

2.2.2 Biological data collection from harp seal adults and pups in the White Sea

During commercial harp seal catch (scientific catch was not carried out) biological data were collected from adults and pups (including data about condition and pup development). The time of pups staying in the White Sea and morphological parameters were the same as the average for many previous years (presented in JRNFC 34 session). Collected data is used for monitoring the condition of adults and pups. During the commercial catch also information about age structure of 1+ animals (using data about animals colour) in the moulting patches were collected.

2.2.3 Monitoring of harp seal pup mortality in the White Sea in the spring-summer season

This research was carried out in the framework of vessels observations along the White Sea coastal line. It was shown that in 2006 the harp seal pups loss in the White Sea was similar to the level observed in many prvious years (including also 2005, presented in JRNFC 34 session). The parties **recommend** to continue regular biological data collection from harp seal pups and adults in the future during commercial catch, and also collection of biological data from animals caught

in fisheries equipments (bycatches).

2.2.4 Research on white whale ecology in the White Sea

In 2005 and 2006 work on white whale tagging was carried out in the White Sea.

2.3. Joint Norwegian-Russian work

2.3.1 Feeding habits of harp seals in open waters of the Barents Sea

In 2001 and 2002, Norwegian and Russian scientists performed an aerial survey to assess whether there was an overlap in distribution, and thus potential predation, between harp seals and capelin in the Barents Sea. This experiment is now being followed with boat-based surveys aimed to study pelagic feeding by harp seals in the Barents Sea during summer and autum. In May/June 2004, in June/July 2005, and in May/June 2006, Norwegian surveys were conducted, aimed to study the feeding habits of harp seals occurring in the open waters of the Barents Sea. Very few seals were observed along the coast of Finnmark, and no seals were seen in the open, ice-free areas. In the nothwestern parts of the Barents Sea, however, very large numbers of seals were observed along the ice edge and 20-30 nautical miles south of this. In these areas, 33, 55 and 57 harp seals were shot and sampled (stomachs, intestines, blubber cores) in 2004, 2005 and 2006, respectively. Additionally, samples of faeces were taken from the haul out sites on the ice. Preliminary results from the analyses indicate that the summer consumption to a large extent was dominated by krill, whereas polar cod also contributed importantly. All sampling were performed in a period with low capelin abundance – this may have influenced the results.

2.3.2 Joint seal age estimations

Biological parameters (fertility, mortality, demography) are important input in models used for seal assessments. Data availability is, however, restricted, and it is important to eastablish routines for sampling. A substantial material of teeth (for ageing) has alredy been sampled, both by Norway and Russia, from commercial catches. This material is very useful, and some joint Norwegian-Russian age-reading experiments have been conducted on harp seal teeth. Age estimates of known age teeth (obtained from mark-recapture experiments) suggested differences between readers in both accuracy and precision, but these were not found to be statistically significant. Overall the study indicates that age estimates of harp seals should be treated as probability distributions rather than point estimates even in the youngest age classes. Adequate description of the probability distributions and the effects of having different readers can only be achieved by repeating the experiment with a much larger sample size. To obtain this, and to try to standardise reading between laboratories (in Norway, Russia and other relevant countries such as Canada and Greenland), a joint workshop will be arranged in bergen, Norway in November 2006.

2.3.3 Joint studies of life history parameters

Historical Norwegian and Russian data which describe the trends in fertility rate and maturity at average age (MAM) for hooded seals in the Greenland sea have recently been subjected to joint

Russian-Norwegian analyses. Age at maturity was determined by fitting Richards' curves to age specific proportions of mature females in scientific samples taken by Russian scientists in the Greenland Sea pack ice in May-June in the years 1990-94. Samples from the Denmark Strait (1956-60) and South Greenland (1970-71) previously analysed by the back calculation method were also included in the present analyses. Although there were annual difference in MAM among the Greenland Sea samples a common MAM of 4.8 years could be fit to all years . Similarly, a common MAM of 3.1 year could be fit to the two Northwest Atlantic samples. This represents a temporal and a stock specific split in the sample and it cannot be concluded which factor is more important. Ovulation rates of mature females ranged from 0.68 in May 1990 to 0.99 in June 1991 and 1992, but the average ovulation rate of 0.88 was similar to previous estimates for Northwest Atlantic hooded seals. For breeding and moulting patch samples taken in the period 1986-1990, indirect measures of pregnancy rates derived from patterns of alternation in corpora formation between ovaries ranged from 0.74 to 0.97 and were significantly lower in 1987 and 1988 than in all other samples including the older data for the Northwest Atlantic stock ranging from 0.94 to 0.97.

2.3.4 Joint studies of harp seal stock identity

Tissue samples were collected from harp seal pups in the Greenland Sea (50 individuals, taken on Norwegian sealer) and in the White Sea (50 individuals, taken by Russian scientists) in 2005. The samples will be subject to genetic analyses (DNA-based) to adress the question of stock identity in the Northeast Atlantic.

3. STATUS OF STOCKS AND MANAGEMENT ADVICE FOR 2007

WGHARP met at the Department of Fisheries and Oceans (DFO), St.John's, Newfoundland, Canada, 30 August-3 September 2005, and in the ICES Headquarters, Copenhagen, Denmark, on 12-16 June 2006, to assess the stocks of Greenland Sea harp seals, White Sea / Barents Sea harp seals and Greenland Sea hooded seals. Updated information was available for all stocks to enable WGHARP to perfrom modelling which provided ICES with sufficient information to give advice (for harp seals in October 2005, for hooded seals in August 2006) on status and to identify catch options that would sustain the populations at present levels within a 10 year period.

Management agencies have requested advice on "sustainable" yields for these stocks. ICES notes that the use of "sustainable" in this context is not identical to its interpretation of "sustainable" applied in advice on fish and invertebrate stocks. "Sustainable catch" as used in the yield estimates for seals means the catch that is risk neutral with regard to maintaining the population at its current size within the next 10 year period.

Population assessments were based on a population model that estimates the current total population size. These estimates are then projected into the future to provide a future population size for which statistical uncertainty is provided for each set of catch options. Since the previous assessment (2003), the model used has been modified based upon recommendation from

WGHARP. The major difference is that the model now estimates the biological parameters adult and pup mortalities (M_{1+} and M_0) and pregnancy rates (F) rather than using them as fixed input. The model estimates the current total population size using historical catch data and estimates of pup production. In principle, the model can also estimate biological parameters (M_{1+}, M_0 and F), but for the populations to which the model is applied there is not enough data to provide accurate estimates of M_{1+}, M_0 and F. To compensate for the lack of data, information from other similar populations are used as input to the model in the form of a prior distribution (mean and standard deviation) for each of the parameter. The same population dynamic model was used for all three seal populations in question, but with stock specific values of prior distributions for M_0, M_{1+} and F. The modifications implemented in the model was an improvement from previously used estimation programs. For harp seals, the modified model gives higher stock estimates and catch options than the previous model. These differences are primarily due to the change in the estimate of M_{1+} (which was fixed at value which is now regarded to have been to high) and the inclusion of additional sources of uncertainty in the parameters.

The advice given by ICES in 2005 and 2006 was used by this Working Group on Seals to establish management advice for 2007 to the Joint Norwegian-Russian Fisheries Commission.

3.1. Greenland Sea

The Working Group **recommends** the following opening dates for the 2007 catch season: 1) Sucling pups, opening date of 18 March (0700 GMT) for catches of pups of both harp and hooded seals; 2) weaned pups, opening dates 20 March for hooded seals and 1 April for harp seals; 3) seals aged 1 yr and older (1yr+), opening date 22 March for hooded seals and between 1 and 10 April for harp seals. Adult hooded seal males should be permitted taken from 18 March. The Group recommends a closing date set at 30 June (2400 GMT) for harp seals and 10 July (2400 GMT) for hooded seals in 2007. Exceptions on opening and closing terms may be made in case of unfavourable weather or ice conditions. If, for any reason, catches of pups are not permitted, quotas can be filled by hunting moulting seals.

The Working Group agreed that the ban on killing adult females in the breeding lairs should be maintained for both harp and hooded seals in 2007.

3.1.1 Hooded seals

The Working Group noted the conclusion from ICES that recent removals have been below the recommended sustainable yields.

Results from a pup survey conducted in 2005 suggest that current pup production (15 200 pups, CV = 0.25) is lower than observed in a comparable 1997 survey (23 800 pups, CV = 0.19). Model explorations indicate a decrease in population abundance from the late 1940s and up to the early 1980s. In the most recent two decades, the stock appears to have stabilized at a low level which may be only 10-15% of the level observed 60 years ago. The modelling exercises included the two pup estimates as well as avialable information about age at maturity and estimates of natural mortality and natality. Based on these inputs the model estimated the following 2006

abundance for Greenland Sea hooded seals: 71 400 (95% C.I. 38 400-104 400) 1+ animals with a pup production of 16 900 (95% C.I. 10 200-23 600).

Catch estimation: ICES was requested to give options (with indication of medium term consequences) for three different catch scenarios:

- Current catch level (average of the catches in the period 2001 – 2005)
- Maintenance catches (defined as the fixed annual catches that stabilizes the future 1+ population)
- Two times the maintenance catches.

ICES still regard the Greenland Sea stock of hooded seals as data poor. Due to the restricted availability of data, ICES is not in the position to estimate future 1+ populations and can therefore not estimate sustainable catches. Instead, the concept of the Potential Biological Removal level (PBR) was used to calculate catch limits. The PBR approach identifies the maximum allowable removals that will ensure that the risk of the population falling below a certain lower limit is only 5% and that would allow a stock that dropped below this limit to recover. Using the PBR approach, the catch limit was calculated as 2,189 animals. However, ICES concludes that even harvesting at the PBR level could result in a continued stock decline or a lack of recovery. ICES therefore, concludes that harvesting should not be permitted with the exception of catches for scientific purposes from 2007 on.

The Working Group **recommend** that this ICES advice is implemented in future managenment of hooded seals in the Greenland Sea: Removals should be stopped until more information about current stock status becomes available. The Working Group also **support recent recommendations** by ICES that surveys of pup production and updating of information on reproductive rates and health status be conducted for hooded seals in the Greenland Sea as soon as possible.

3.1.2 Harp seals

The Working Group noted the conclusion by ICES that recent removals have been below the recommended sustainable yields, and that prolongation of current catch level will likely result in an increase in population size.

The model solves for a constant exploitation which stabilise the 1+ population. Inputs to the model were:

Pup production estimates from previous tag-recapture experiments (1983-1991) and from recent (2002) aerial surveys:

Year	Pup production estimates	c.v.
1983	58 539	.104

1984	103 250	.147
1985	111 084	.199
1987	49 970	.076
1988	58 697	.184
1989	110 614	.077
1990	55 625	.077
1991	67 271	.082
2002	98 500	.179

As well as these pup estimates the model includes age at maturity and estimates of natural mortality and natality. Based on these inputs the model estimated the following 2005 abundance for Greenland Sea harp seals: 618 000 (95% C.I. 413 000-823 000) 1+ animals with a pup production of 106 000 (95% C.I. 71 000-141 000).

Catch estimation: Based on a request from Norway, ICES gave catch options for three different catch scenarios:

- Current catch level (average of the catches in the period 2001 – 2005)
- Sustainable catches.
- Two times the sustainable catches.

The sustainable catches are defined as the (fixed) annual catches that stabilise the future 1+ population. The catch options are further expanded using different proportions of pups and 1+ animals in the catches.

As a measure of the future development of the estimated population, the ratio between the size of the 1+ population in 2015 and 2005 is used.

					10 Year Projection
Option #	Catch level	Proportion of 1+ in catches	Pup catch	1+ catch	$N_{2015,1+}$ / $N_{2005,1+}$
1	Current	25.6% (current level)	3 303	1 138	1.51 (1.18-1.83)
2	Sustainable	25.6%	36 688	12 624	1.01 (0-61-1.41)
3	Sustainable	100%	0	31 194	1.05 (0.66-1.44)
4	2 X sust.	25.6%	73 376	25 248	0.45 (0.00-0.97)
5	2 X sust.	100%	0	62 388	0.55 (0.06-1.03)

While current catch level (option 1) will likely result in an increase in population size, ICES emphasized that a catch of 31 194 1+ animals (catch option 3), or an equivalent number of pups, in 2006 would sustain the population at present level within a 10 year period. The Working Group **recommend** that this be used as a basis for the determination of a TAC for harp seals in the Greenland Sea also in 2007:

31 200 1+ animals or an equivalent number of pups. If a harvest scenario including both 1+ animals and pups is chosen, one 1+ seal should be balanced by 2 pups.
Catches 2X sustainable levels will result in the population declining by approximately 45-55% in the next 10 years.

3.2 The Barents Sea / White Sea

The Working Group **recommends** the following terms concerning opening and closing dates and areas of the catches: From 28 February to 15 May for Russian coastal and vessel catches and from 23 March to 15 May for Norwegian sealing ships. Exceptions from opening and closing dates should be made, if necessary, for scientific purposes. The Norwegian participants in the Working Group suggest to prolong dates of harvesting to 1 July, and to determine the operational areas for the Norwegian catch activities to be the southeastern Barents Sea to the east of 20°E.

The Working Group agreed that the ban on killing adult harp seal females in the breeding lairs should be maintained in 2007.

3.2.1. Harp seal.

The Working Group noted the conclusion by ICES that recent removals have been below the recommended sustainable yields, that prolongation of current catch level will likely result in an increase in population size, and that there is some evidence that densities may be so high that biological processes like rate of maturation may be showing density dependent effects. There are reports that pup mortality rates may vary substantially in the White Sea region, and that in recent years these rates have been very high. For this reason, the 2005 abundance of White Sea harp seals was estimated under the assumption that the ratio between the natural mortality of pups and adults was 5 instead of 3.

The model solves for a constant exploitation which stabilise the 1+ population. Inputs to the model were:

Pup production estimates (from Russian aerial surveys):

Year	Pup production estimate	c.v.
1998	286 260	.073
2000	325 643	.111
2000	339 710	.095
2002	330 000	.103
2003	327 000	.125

For 2000 there are two independent estimates for pup production.

As well as these pup estimates the model includes age at maturity and estimates of natural

mortality and natality. Based on these inputs the model estimated the following 2005 abundance of harp seals in the White Sea: 2 065 000 (95% C.I. 1 497 000-2 633 000) 1+ animals with a pup production of 361 000 (95% C.I. 299 000-423 000).

Aeroplane surveys of White Sea harp seal pups were conducted also in March 2004 and 2005 using traditional strip transect methodology and multiple sensors. The results obtained seems to indicate a possible reduction in pup production as compared with the results obtained in similar surveys in 1998-2003. The Working Group strongly **recommend** that new aerial surveys must be conducted in the area in 2007 to investigate whether this possible reduction in pup production still prevail.

Catch estimation: Based on a request from Norway, ICES gave catch options for three different catch scenarios:

- Current catch level (average of the catches in the period 2001 – 2005)
- Sustainable catches.
- Two times the sustainable catches.

The sustainable catches are defined as the (fixed) annual catches that stabilise the future 1+ population. The catch options are further expanded using different proportions of pups and 1+ animals in the catches.

As a measure of the future development of the estimated population, the ratio between the size of the 1+ population in 2015 and 2005 is used.

					10 Year Projection
Option #	Catch level	Proportion of 1+ in catches	Pup catch	1+ catch	$N_{2015,1+}$ / $N_{2005,1+}$
1	Current	11.5% (current level)	25 945	3 371	1.35 (0.91-1.78)
2	Sustainable	11.5%	153 878	19 995	0.98 (0.57-1.39)
3	Sustainable	100%	0	78 198	1.04 (0.62-1.50)
4	2 X sust.	11.5%	307 756	39 990	0.53 (0.12-0.93)
5	2 X sust.	100%	0	156 396	0.67 (0.24-1.10)

While current catch level (option 1) will likely result in an increase in population size, ICES emphasized that a catch of 78 198 1+ animals (catch option 3), or an equivalent number of pups, in 2006 would sustain the population at the present level within a 10 year period. The Working Group **recommend** that this be used as a basis for the determination of a TAC for harp seals in the White Sea / Barents Sea also in 2007:
78 200 1+ animals or an equivalent number of pups. If a harvest scenario including both 1+ animals and pups is chosen, one 1+ seal should be balanced by 2.5 pups.
Catches 2X sustainable levels (options 4 and 5) will result in the population declining by approximately 53-67% in the next 10 years.

3.2.2 Other species

The Working Group agreed that commercial hunt of bearded seals should be banned in 2007, as in previous years, but it **recommend** to start catch under permit for scientific purposes to investigate results of long time protection.

3.4 Is it possible to reduce the harp seal stocks?

Both Norway and Russia have expressed concerns over the current size of the Northeast Atlantic harp seal populations and their predation on fish stocks, in particular in the Barents Sea. Previous calculations indicate that the Barents Sea / White Sea population of harp seals consume approximately 3,5 million tonnes of biomass per year, and the species is, with exception for cod, the most important top predator in the Barents Sea. To be able to assess the ecological role of harp seals by estimation of the relative contribution of various prey items to their total food consumption in the Barents Sea, more knowledge both of the spatial distribution of the seals over time, and of their food choice in areas identified as hot-spot feeding areas is urgently needed. At the Annual Meeting between Russian and Norwegian scientists, held onboard two coastal voyage ships ("Hurtigruten") sailing from Kirkenes to Lofoten and back to Kirkenes 21-27 March 2006, it was discussed how such knowledge, which is currently unsufficient for asessment purposes, could be obtained most conveniently. The two parties concluded that a Joint Norwegian-Russian Research Program on Harp Seal Ecology should be initiated. It was decided that the main goals of this program should be to:

- assess the spatial distribution of harp seals throughout the year (experiments with satellite-based tags)
- assess and quantify overlap between harp seals and potential prey organisms on hot-spot feeding grounds (use of data from relevant Norwegian and Russian ecosystem surveys and Russian aerial surveys)
- identify relative composition of harp seal diets in areas and periods of particular intensive feeding (sampling of seals for diet studies in dedicated surveys to selected hot-spot feeding areas)
- secure the availability of data necessary for estimation of population size of harp seals (pup production, natality/mortality, catch history)
- estimate the total consumption by harp seals in the Barents Sea (modelling)
- implement harp seal predation in assessment models for other relevant resources (modelling)

The two parties suggested that the program should run over the period 2007-2011. The Working Group strongly **recommend** that the research program is implemented.

Due to the assumed predatory role of harp seal, the two parties have raised the question as to how these populations can be reduced to a lower level in a controlled way. To obtain such a reduction, annual removals from the stocks would have to be raised above the sustainable levels for a given period according to a well defined plan. The Working Group **recommend** that such a reduction is performed using the Precautionary Approach framework which is now being developed by ICES for the management of harp and hooded seals, originally developed for the

stocks in the Northwest Atlantic. Within this framework, conservation, precautionary and target reference points can be identified and linked to specific actions.

Harp seals are commercially exploited to varying levels throughout the North Atlantic. The availability of scientific information concerning the status of these resources (abundance, reproductive and mortality rates) also varies between stocks. The suggested conceptual framework for applying the PA to Atlantic seal management requires that "data rich" and "data poor" stocks be treated differently when biological reference points are to be defined. Data rich stocks should have data available for estimating abundance where a time series of at least five abundance estimates should be available spanning a period of 10-15 years with surveys separated by 2-5 years, the most recent abundance estimates should be prepared from surveys and supporting data (e.g., birth and mortality estimates) that are no more than 5 years old, and the precision of abundance estimates should have a Coefficient of Variation about the estimate of about 30%. Stocks whose abundance estimates do not meet all these criteria are considered data poor.

Although reproductive data for the Greenland Sea harp seal stock needs to be updated, there are sufficient pup production estimates to consider this stock data rich. There have been 7 pup production surveys since 1998 in the White Sea. The quality of the pup surveys is sufficient to consider the stock data adequate. However, as for the Greenland Sea, reproductive data for this stock is not current. Recent reproductive data are required for both of these stocks to maintain these classifications. For a data rich species, a framework including two precautionary and one conservation (limit) reference level are proposed (Fig. 1). All reference levels relate to the pristine population size, which is the population which would be present on average in the absence of exploitation, or a proxy of the pristine population (e.g. maximum population size historically observed, N_{max}). A conservation or lower limit reference point, N_{lim}, identifies the lowest population size which should be avoided with high probability. Between those points it is suggested that two precautionary reference points are used as decision signposts for increasingly restrictive management to be introduced when the population approaches the conservation limit. In accordance with practices in the Western Atlantic ICES recommends that the limit reference point (N_{lim}) could be either 30% of the historical accurate maximum population estimates or should be set independently using IUCNs vulnerable criteria.

The first precautionary reference level could be established at 70% (N_{70}) of $N_{max.}$ When the population is between N_{70} and N_{max}, harvest levels may be decided that may stabilise, reduce or increase the population, so long as the population remains above the N_{70} level. When a population falls below the N_{70} level, conservation objectives are required to allow the population to recover to above the precautionary (N_{70}) reference level. N_{50} is a second precautionary reference point where more strict control rules must be implemented, whereas the N_{lim} reference point is the ultimate limit point at which all harvest must be stopped.

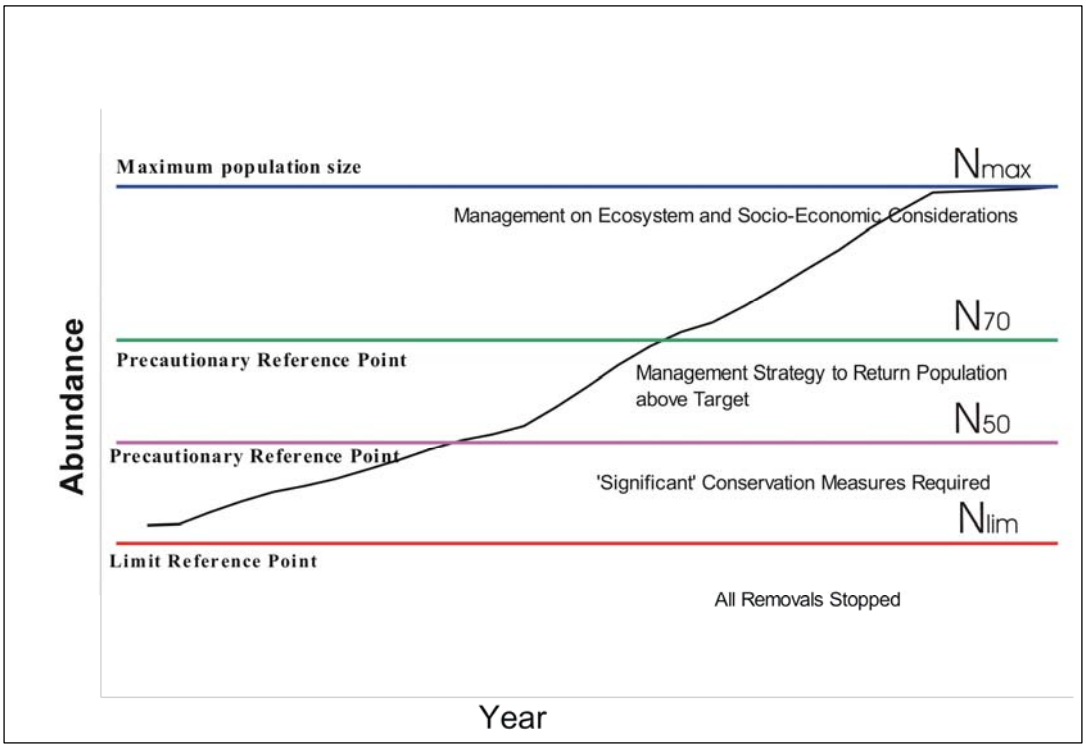

Figure 1 Reference points for a data rich stock.

The hunting pressure has been reduced in the last decades resulting in an increase in the populations since the 1970s. As a result ICES consider that the harp seal populations are presently at their highest historical level (for the time series since the 1940s) and the present exploitation is expected to allow a continuation of population increase. It is not presently possible to evaluate possible density dependent effects on mortality, growth or reproduction which will emerge in the event that the stocks would grow to larger sizes than have been observed historically, approaching the carrying capacity of the environment. It is a further complication that the carrying capacity will be variable dependent on changes in the ecosystem and an estimation of pristine stock would therefore need to take such events into account. Examples of such changes could be changes in climatic conditions, in size of prey stocks, and in diseases.
If a strategy of removals above the sustainable level with subsequent reduction of stocks, following ICES Precutionary Approach framework, is implemented, monitoring of the results will be crucially important. Necessary data must be secured regularly to keep the stocks data rich. When the stocks are reduced to the required level, harvest levels must be reduced to become sustainable again.

3.5 Prospects for future sealing activities

There are concerns over the current lack of ability on both the Norwegian and Russian side to

fulfill given seal quotas. Also, the multispecies perspective of seal management is a matter of concern in the two countries. The main problem for the sealing industry in the last 2-3 decades has been the market situation. Protest activities initiated by several Non-governmental Organisations in the 1970s destroyed many of the old markets for traditional seal products which were primarily the skins. The results have been reduced profitability which subsequently resulted in reduction in available harvest capacity (e.g., the availability of ice-going vessels) and effort. With the present reduced logistic harvest capacity in Norway and Russia it is impossible to take out catches that would stabilise the stocks at their present levels. Unless sealing again becomes profitable, it is likely that this situation will prevail.

It is the opinion of the Working Group that future sealing activities must be profitable. If sealing profitability increases, hunting levels are very likely to increase. This calls for availabilty of updated information about stock status (abundance, productivity and catch statistics), such that catch options can be defined on the best possible basis. Under the precautionary approach, ICES (and NAFO) will not give harvest advice unless such updated information is available. Hunting nations must secure that the stocks are monitored and assessed using accepted methods at regular intervals (no less than every 5 year). The Working Group feels that both countries now contribute acceptably to this in that Russian scientists estimates the abundance of White Sea harp seals annually, whereas Norway aims to estimate Greenland Sea harp and hooded seals regularly, preferably with no more than 5 years between each survey. Greenland Sea harp seals were surveyed in 2002, hooded seals in 2005.

Regulation of the seal populations should be conducted as part of an ecosystem management. Nevertheless, seals must be harvested as resources, and not as a pest. Thus, seal resources should be exploited according to the same principles as any other living marine resources. In an ecosystem context, harp seals are most important. Given the uncertain situation for the hooded seal stock, the Working Group **recommend** that sealing activities in the Northeast Atlantic focus on harp seals in the coming years.

The Working Group appreciated Russian plans to change from helicopter-based to boat-based hunting. The boats must be designed to facilitate participation in other fisheries outside the sealing season which only covers a few months during spring (March-May). Increased profitability is necessary to make this change in sealing logistics and methodology feasible.

Increased profitability is also necessary to enable an urgent renewal of the Norwegian vessel fleet. As for the new Russian fleet, also new Norwegian sealing vessels must be designed in such a way that they can be used for other purposes outside the sealing season. Until sealing again become self-sustained and profitable, Norwegian fisheries organisations and authorities will have to find solutions that secure the existence of an effective and competent seal-fleet.

To assure self-sustained profitability in future sealing activities, the Working Group concluded that it would be necessary to increase the profits of sealing by increasing the value of each seal. It is preferable that the whole animal is utilized, and that effort is spent to develop methods to make new products of the parts of the seal that is otherwise discarded. When seal meat is taken for human consumption, the production lines onboard the vessels must meet the usual standards for food production. The Working Group **recommend** that Norway and Russia cooperate closely in

the necessary development of future sealing. This cooperation may include such elements as the joint use of Norwegian vessels in the White Sea, development of joint industry for seal products etc.

A new (for sealing) resource tariff was imposed upon the sealing activities in Russia in 2004. As a result, subsequent sealing in Russia has been reduced, and all attempts of modernisation has been hampered. The Working Group is very concerned about this situation, and has **recommended** that Russian management authorites secures that profitable sealing can continue in the White Sea also in the future.

In September 2003, the workshop "Prospects for future sealing activities in the North Atlantic" was held at SevPINRO in Archangelsk, Russia with participation from Canada, Greenland, Norway and Russia. The meeting was very succesful, and in retrospect this Working Group recommended that similar workshops, with representatives of the sealing industry in the northern region, should be arranged on a more regular basis in the future. The Working Group now feels the time mature for a new workshop, and **recommend** that it should be arranged in Tromsø, Norway in August 2007. Again the workshop should be an arena where experts involved in the various aspects and branches of sealing can meet. This must primarily be a meeting for people from all levels of the sealing industry, including participants with knowledge of both the sealing itself, the products and their application, and the market prospects. Themes addressed should primarily focus on market prospects for traditional products (skins), but also the possibility to introduce "new" products (meat- or blubber-based) on the markets should be assessed. Participation also from other seal hunting nations must be secured, in particular Canada and Greenland. To ensure input about the resource bases and management, also participants from management authorities and science is needed.

4. RESEARCH PROGRAM FOR 2007+

4.1. Norwegian investigations

4.1.1 Estimation of harp and hooded seal pup production in the Greenland Sea

Last time harp and hooded seal pup productions were assessed in the Greenland Sea was in 2002 and 2005, respectively. Since abundance estimates of hunted seal stocks should be obtained no less than every 5 year, the plan was to conduct surveys to obtain data necessary for estimation of the abundance of harp seals of the Greenland Sea stock in 2007. However, the low pup production estimate obtained for hooded seals in the area in 2005 caused so serious concerns that ICES has recommended that a new hooded seal survey be carried out already in 2007. This will be done and, if possible, it will be attempted to obtain also a new abundance estimate for har seals in the area during the same survey. Alternatively, a new harp seal survey will be conducted in 2008. The methodological approach will be designed along the same lines as in previous Greenland Sea harp and hooded seal survey, i.e., to conduct aerial surveys of pups in the Greenland Sea pack-ice during the whelping period (March-April). A fixed-wing twin-engined

aircraft (stationed in Scoresbysound, Greenland) will be used for reconaissance flights and photographic surveys along transects over the whelping patches once they have been located and identified. A helicopter, stationed on and operated from a research vessel, will assist in the reconnaissance flights, and subsequently fly visual transect surveys over the whelping patches. The helicopter will also be used for other purposes (stageing of pups and tagging). As part of the preparations, fuel to be used by the aeroplane was transported by ship to Scoresbysound during summer in 2006.

4.1.2 Collection of biological material from the commercial hunt and dedicated surveys

Biological material, to establish age distributions in catches as well as health, reproductive and nutritive status of the animals, will be collected from commercial catches both in the southeastern Barents Sea and in the Greenland Sea in the future. In 2007, sampling will be performed from commercial vessels in the southeastern Barents Sea and in the Greenland Sea. In the latter area, samples will also be obtained from seals sampled for scientific purposes in a dedicated research cruise in July.

Studies of the ecology of harp and hooded seal pups in the Barents Sea and Greenland Sea will be continued as well. The long term aim of these investigations is to get a better understanding of the underlaying mechanisms determining the recruitment success from year to year for the two species. Sampling is performed on commercial vessels – next effort will be in the southeastern Barents Sea and in the Greenland Sea in 2007.

4.1.3 Ecology of harp and hooded seals in the Greenland Sea

A project aimed to provide the data necessary for an assessment of the ecological role of Greenland Sea harp and hooded seals throughout their distributional area of the Nordic Seas (Iceland, Norwegian, Greenland Seas) was conducted in 1999-2002. The field work is now completed, some results are published, and it is the intention that the data shall be subjected to further analyses and prepared for publication in 2007.

4.1.4 Harp seals taken as by-catches in gillnets

Provided harp seals invade the coast of North Norway also during winter in 2007, biological samples will be secured from animals taken as bycatches in Norwegian gill net fisheries.

4.1.6 Seal physiology

On a research cruise to the Greenland Sea in March 2007, various physiological parameters of harp and hooded seals will be studied.

4.2.Russian investigations

4.2.1 Russian research on the White Sea/Barents Sea harp seal population

Accounted multispectral aerial surveys of whelping and moulting patches
Plans to carry out annual accounting multispectral aerial surveys with aim to use these data for determination of population size by modelling, and in Joint Norwegian-Russian Research Program on Harp Seal Ecology. This research will be carried out under recommendations of ICES WGHARP and JRNFC 35 session.

Research of reproductive biology
This research is planned to be carried out in the White and the Barents Seas. The final aim is study of harp seal biological data (mortality, maturity, birth rate, morphological and physiological indexes, etc.). During springtime work will be continued on pup mortality estimation in the White Sea. Plans to continue research on harp seal feeding in the White and the Barents Seas during spring and summer times. This research will be carried out under the program and recommendation of WGHARP and JRNFC 35 session.

In detail the main Russian research directions will be presented in Appendix 10.

4.2.2 Russian research on other marine mammal species

Study of marine mammal influence on the main fish species in the Barents Sea
This research will be carried out withinin the framework of the annual Russian-Norwegian ecosystem survey on Russian and Norwegian research vessels and on Russian research aircraft. Also, for collection of biological data (primarily on feeding) from various marine mammals, coastal expeditions will be carried out. As additional information, data from commercial vessels with observers will be used. Also, there are plans to get biological data from marine mammals taken as bycatch in trawl and tier on the coast.

Research on biology and ecology of ringed seal and bearded seal
This research will be carried out during coastal expeditions and vessel observations. The aim is to study distribution and numbers, diet, sex and age structure.

Research of white whale ecology, biology and migration ways
During this research, the aim is to carry out coastal surveys and observations, including catch and tagging with satellite telemetric tags.

In detail the main Russian research directions will be presented in Appendix 10.

4.3. Joint Norwegian - Russian investigations

4.3.1 Feeding habits of harp seals in open waters of the Barents Sea

In 2001 and 2002, Norwegian and Russian scientists performed an aerial survey to assess whether there was an overlap in distribution, and thus potential predation, between harp seals and capelin in the Barents Sea. This experiment was followed with boat-based surveys aimed to study pelagic feeding by harp seals in the Barents Sea during summer and autum in (2004-2006), and the results from these investigations are now being analysed.

4.3.2 Tagging of Barents Sea / White Sea harp seals with satellite tags

The successsful joint Norwegian-Russian 1996 project (and a similar project during harp seal breeding in 1995) with tagging of harp seals with satellite transmitters in the White Sea is planned to be continued with final analyses of data and joint publication of results in 2006/2007. The Working Group **recommends** that satellite tagging experiments with harp seals in the White Sea are continued jointly between Norwegian and Russian scientists with the purpose to study distribution, migrations and daily activity of the seals. This activity is part of the joint research program described in 4.3.2, and will give an important contribution to a better understanding of the temporal and spatial distribution of the seals, which is important input data when their total consumption of marine resources in the Barents Sea is to be assessed. It is important that animals of different sexes and ages are tagged. In 2004 a joint research program (written by Drs Arne Bjørge, Mette Mauritzen and Vladislav Svetochev) that ensures a proper design on the experiment, has been developed. The program describes the background for the project, the types of equipment to be used, how the field work will be carried out, and the total costs. The program is assumed to run for 5 years, with 15 tags being deployed every spring (i.e., immediately after the moulting period). First deployment of tags will be conducted in the White Sea in 2007. It is important that both young immature seals and adults are tagged each year.

4.3.3 Life history parameters in seals

Upon request, forwarded during meetings of the Joint Norwegian-Russian Fisheries Commission, one Russian scientist was invited to participate in scientific work on Norwegian sealers during March-April in 1997-1999 in the southeastern part of the Barents Sea, and in 2000 in the Greenland Sea. This Norwegian-Russian research cooperation is encouraged, e.g., by extending an invitation to Russian scientists to participate on Norwegian sealers in the southeastern Barents Sea and/or in the Greenland Sea also in the future. This would enable coordinated and joint sampling of new biological material. The Working Group **recommend** that Russian scientists are offered the possibility to participate in Norwegian research activities in 2007. If Russia can realize scientific or commercial vessel trips in the White, Barents and Greenland Seas, invitation for participation of Norwegian scientists is desirable.

4.4. Necessary research takes

For completion of the proposed Norwegian and Russian research programs, the following numbers of seals are planned to be caught under special permits for scientific purposes in 2007:

Area/species/category	Russia	Norway
Barents Sea / White Sea		

Whelping grounds		
Adult breeding harp seal females	500	0
Harp seal pups	500	0
Outside breeding period		
Harp seals of any age and sex	2300	0
Ringed seals	70	0
Bearded seals	35	0
Greenland Sea*		
Whelping grounds		
Adult breeding harp seal females	500**	100
Harp seal pups	500**	100
Adult breeding hooded seal females	500**	100
Hooded seal pups	500**	100
Outside breeding grounds		
Harp seals of any age and sex	0	100
Hooded seals of any age and sex	0	200
Ringed seals	10*	100
Bearded seals	10*	10

* If Greenland Sea quotas are allocated to Russia, these will be used for collection of biological samples
** Only possible if convenient vessel will be available

5. JOINT NORWEGIAN-RUSSIAN RESEARCH PROGRAM ON HARP SEAL ECOLOGY

Harp seals are the most important marine mammal top predators in the Barents Sea (Bogstad et al. 2000, Wassmann et al. 2006). To be able to assess the ecological role of harp seals by estimation of the relative contribution of various prey items to their total food consumption in the Barents Sea, more knowledge both of the spatial distribution of the seals over time, and of their food choice in areas identified as hot-spot feeding areas is urgently needed. At the Annual Meeting between Russian and Norwegian scientists, held onboard two coastal voyage ships ("Hurtigruten") sailing from Kirkenes to Lofoten and back to Kirkenes 21-27 march 2006, it was discussed how such knowledge, which is currently unsufficient for asessment purposes, could be obtained most conveniently. The two parties concluded that a Joint Norwegian-Russian Research Program on Harp Seal Ecology should be initiated.

Main goals

The Norwegian and Russian parties decided that the main goals of this program should be to:

- assess the spatial distribution of harp seals throughout the year (experiments with satellite-based tags)

- assess and quantify overlap between harp seals and potential prey organisms on hot-spot feeding grounds (use of data from relevant Norwegian and Russian ecosystem surveys and Russian aerial surveys)
- identify relative composition of harp seal diets in areas and periods of particular intensive feeding (sampling of seals for diet studies in dedicated surveys and coast expeditions to selected hot-spot feeding areas)
- secure the availability of data necessary for estimation of population size of Northeast Atlantic harp seals (pup production, demography, natality/mortality, catch history)
- estimate the total consumption by harp seals in the Barents Sea (modelling)
- implement harp seal predation in assessment models for other relevant resources (modelling)

The two parties suggested that the program should run over the period 2007-2011, and that it should be presented in more detail to the Joint Norwegian-Russian Fisheries Commission at the 35th Session in Tromsø, Norway, 30 October – 3 November 2006.

Planned activities

Barents Sea harp seals show opportunistic feeding patterns in that different species are consumed in different areas and at different times of the year. However, the bulk of the harp seal diet is comprised of relatively few species, in particular capelin, polar cod, herring, krill and pelagic amphipods. The total food consumption by c. 2 million harp seals in the Barents Sea (the Barents Sea / White Sea population, see ICES 2006), using data on energy intake, diet composition, energy density of prey and predator abundance, has been calculated to be approximately 3.5 million tonnes of biomass per year (Nilssen et al. 2000). Recent observations from satellite tagging experiments suggest that Greenland Sea and Barents Sea harp seals likely overlap in their feeding range during summer and autumn (June-October) in the northern Barents Sea (Haug et al. 1994, Folkow et al. 2004, ICES 2006). This means an additional pressure on the Barents Sea resources which will have to be added to the results given above. To be able to assess the ecological role of harp seals by estimation of the relative contribution of various prey items to their total food consumption in the Barents Sea, more knowledge both of the spatial distribution of the seals over time, and of their food choice in areas identified as hot-spot feeding areas is urgently needed.

Satellite telemetry studies
Plans have been developed for a satellite tagging experiment with harp seals in the White Sea. The experiment will be conducted jointly between Norwegian and Russian scientists with the purpose to study distribution, migrations and daily activity of the seals. This will give an important contribution to a better understanding of the temporal and spatial distribution of the seals, which is important input data when their total consumption of marine resources in the Barents Sea (and also in the White Sea and Greenland Sea) is to be assessed. The program is assumed to run for 5 years, with 15 tags being deployed every spring (i.e., immediately after the moulting period). It is important that both young immature seals and adults are tagged each year. Tagging over several consecutive years will ensure data from years with different oceanographic (sea ice in particular) conditions and food availability. The planned share of costs imply that the Norwegian part provide the tags (including also the costs included in receiving the data from the

satellite), whereas the Russian part secure the necessary logistical arrangement (helicopters, capture of seals etc.) in the White Sea. Field work occur jointly in April-May, and first deployment of tags was originally planned to be conducted in 2005. However, in 2005 the Norwegian part was unable to provide funding to buy the tags, whereas the Russian part had organized all necessary logistics for conduction of the field work. And in 2006, the situation was the oposite: tags are already provided by the Norwegian part, whereas the Russian part could not find possibility to fund the field work logistics. The plan is now that the project will start in May 2007.

Ecosystem surveys

When the tagging experiment has been initiated, two further questions with subsequent research initiatives becomes relevant: What are the available food resources in the areas identified as important feeding grounds for the seals? And what do the seals eat in these assumed hot-spot areas? Russian and Norwegian research vessels participate in regular mapping of resources in the White and Barents Seas. These investigations are carried out annually and elements of ecosystem approach have been implemented since 2003 (ecosystem surveys). By placing observers onboard vessels in areas and periods selected on the basis of results from the deployed seal tags, one will gain data on the distribution and abundance on seals relative to the distribution of potential prey species. Such data will be necessary, but not sufficient, to obtain a further understanding of the role of harp seals in the ecosystem. This part of the program will occur during the entre period 2007-2011.

Diet studies

It is also necessary to sample seals for diet studies in identified feeding areas to assess the relative diet composition of the seals. For this reason, dedicated boat-based surveys, aimed to study pelagic feeding by harp seals in the Barents Sea during summer, was initiated in Norway in 2004 and continued in 2005 and 2006 (Lindstrøm et al. 2006). By using reearch vessels, a survey design which enables synoptic sampling of seals and prey abundance data becomes possible. So far only the Norwegian parts of the Barents Sea has been surveyed. It is, however, of crucial importance that also the REZ parts of the Barents Sea be surveyed. This will be done with Norwegian and Russian scientific personell carrying out field work jointly using Norwegian ice going research vessels in both NEZ and REZ. Harp seal diet surveys using Russian vessels in the White Sea were initiated in 2005 – it is the plan to continue these with possibløe participation of scientists from both parties. If possible, the boat-based surveys will also be supported with aerial reconnaissance surveys performed by a Russian aeroplane. This part of the program will run with one survey per year (both in the Barents Sea and the White Sea) over the period 2008-2011. Also, the Barents Sea activity will be extended to cover not only the summer, but also the autumn and early winter period in that this has previously been identified as a period of intensive feeding and fat deposition by the seals (Nilssen et al. 1997, 2000, 2001). Details about survey areas and periods must await results from the telemetric studies.

Seal abundance

To assess the ecological role of harp seals, and to implement their predation pressure into assessment models and management plans for other resources in the Barents Sea, the total consumption of the entire populations (Greenland Sea and Barents Sea / White Sea) must be estimated. To do this, knowledge about the size of the populations must be available. Harp seals

are commercially exploited (also by Norway and Russia) to varying levels throughout the North Atlantic. Updated knowledge about population size and development is also required for the purpose of proper management and rational harvest of the seal stocks. The availability of scientific information concerning the status (abundance, reproductive and mortality rates) varies between stocks. A suggested (by ICES) conceptual framework for applying the precautionary approach to Atlantic seal management requires that data rich and data poor stocks be treated differently when biological reference points and harvest control rules are to be defined. Data rich stocks should have data available for estimating abundance where a time series of at least five abundance estimates should be available spanning a period of 10-15 years with surveys separated by 2-5 years, the most recent abundance estimates should be prepared from surveys and supporting data (e.g., birth and mortality estimates) that are no more than 5 years old (ICES 2006). Stocks whose abundance estimates do not meet all these criteria are considered data poor. Although reproductive data for the Greenland Sea harp seal stock needs to be updated, there are sufficient pup production estimates (see Haug et al. 2006) to consider this stock data rich. Data from five pup production surveys since 1998 in the White Sea (Potelov et al. 2003, ICES 2006) have been reviewed by ICES. The quality of the pup surveys is sufficient to consider the stock data adequate. However, as for the Greenland Sea, reproductive data for this stock is not current (see Frie et al. 2003). Recent reproductive data are required for both of these stocks to maintain the data rich classification. Sampling of such data was started in the Barents Sea in 2006, and will be continued from both stocks in 2007-2008. Also, new pup production estimates will be secured from both stocks during the program period. Norway will take responsibility for data from Greenland Sea, Russia and Norway cooperate in data sampling from the White and Barents Sea. It is the plan to survey the whelping areas in the White Sea annually using multispectral aerial methodology.

Total consumption

Bioenergetic models have been used to assess the possible impact of harp seals on fish stocks in the Barents Sea. Data from studies conducted in 1990-1997 on seasonal changes in diet, distribution and variation in body condition of harp seals were applied to estimate the total consumption of various prey species by the entire Barents Sea / White Sea stock (Nilssen et al. 2000). The model was run with various harp seal activity levels (field metabolic rate) to determine the sensitivity of the consumption estimates to variations in metabolic parameters. In May-August, most harp seals are known to be distributed in open waters in central and northwestern parts of the Barents Sea (Haug et al. 1994, ICES 2006), i.e., where also capelin and cod are abundant (see Bergstad et al 1987, Gjøsæter 1998). This may therefore, be the most important period of interaction between harp seals and cod/capelin. Previous data on harp seal diets are, however, very limited during this period. The overall goal for the suggested research program on harp seal ecology is to improve both the summer/autumn data and the entire data base necessary for an assessment of the total ecological impact of harp seals in the Barents Sea throughout the year. This assessment will be conducted using an improved version of the bioenergetic model introduced by Nilssen et al. (2000) and revised by Lindstrøm et al. (2002). Monte Carlo simulations with respect to diet compostion and body condition, seal abundance and metabolism will be used to generate uncertainty estimates (see Lindstrøm et al. 2006).

Harp seal predation in assessment models

Including harp seals into the models of the Barents Sea fish stock dynamics is an important goal

of the current joint Norwegian-Russian research programme "Evaluation of optimal long-term yield of north-east arctic cod, taking into account the effect of ecosystem factors". Data deficiencies have so far prevented implementation of this inclusion. This harp seal ecology program aims to make such an inclusion feasible, and an important element of the program will be to to make the applied consumption model predictive, and to implement the prey consumption by the Barents Sea stock of harp seals into the stock assessment model of important fish species (e.g. spring spawning herring and capelin).

Expected results of the 5-year program

The main outcome of the program will be the feasability of inclusion of harp seals into the models of the Barents Sea fish stock dynamics. The planned activities will also provide new, updated quantitative information on:

- the spatial distribution of harp seals throughout the year under variable environmental conditions
- the overlap between harp seals and potential prey organisms, and the seal diets on hot-spot feeding grounds
- updated estimates of population size of harp seals
- the total consumption by harp seals of resources in the Barents Sea

Exchange of data and publication

Data collected during the joint five-year programme (2007-2011) will be exchanged in a mutual and appropriate way. Results from the research will be presented to the Joint Norwegian-Russian Fisheries Commission and, subsequently, published in international journals.

References

Bergstad, O.A., Jørgensen, T. & Dragesund, O. 1987. Life history and ecology of gadoid resources of the Barents Sea. *Fish. Res.* 5: 119-161.

Bogstad, B., Haug, T., and Mehl, S. 2000. Who eats whom in the Barents Sea? *NAMMCO Sci. Publ.* 2:65-80.

Folkow, L. P., Nordøy, E. S. & Blix, A. S. 2004. Distribution and diving behaviour of harp seals *Pagophilus groenlandica* from the Greenland Sea stock. *Polar Biology 27*, 281-298.

Frie, A.K., Potelov, V.A., Kingsley, M.C.S. & Haug, T. 2003. Trends in age at maturity and growth parameters of female northeast Atlantic harp seals, *Pagophilus groenlandicus* (Erxleben, 1777). *ICES J. mar. Sci.*60: 1018-1032.

Gjøsæter, H. 1998. The population biology and exploitation of capelin (*Mallotus villosus*) in the Barents Sea. *Sarsia* 83: 453-496.

Haug, T., Nilssen,K.T., Øien, N. & Potelov, V. 1994. Seasonal distribution of harp seals (*Phoca groenlandica*) in the Barents Sea. *Polar Res.* 13: 161-172.

Haug, T., Stenson, G.B., Corkeron, P.J. & Nilssen, K.T. 2006. Estimation of harp seal (*Pagophilus groenlandicus*) pup production in the North Atlantic completed: Results from surveys in the Greenland Sea in 2002. *ICES J. Mar. Sci.* 63: 95-104.

[ICES] International Council for the Exploration of the Sea. 2006. Report of the Joint ICES/NAFO Working Group on Harp and Hooded Seals. ICES CM 2006/ACFM 6. 34 pp.

Lindstrøm, U., Haug, T. & Røttingen, I. 2002. Predation on herring (*Clupea harengus*) by minke whales (*Balaenoptera acutorostrata*) in the Barents Sea. *ICES J. Mar. Sci*. 59: 58-70.
Lindstrøm, U., Nilssen, K.T. & Haug, T. 2006. Prey consumption by Barents Sea harp seals in the period 1990-2005. ICES CM 2006/L:08. 19 pp.
Nilssen, K.T., Haug, T., Grotnes, P.E. & Potelov, V.A. 1997. Seasonal variation in body condition of adult Barents Sea harp seals (*Phoca groenlandica*). J. Northw. Atl. Fish. Sci. 22: 17-25.
Nilssen, K.T., Haug, T. & Lindblom, L. 2001. Diet of weaned pups and seasonal variations in body condition of juvenile Barents Sea harp seals (*Phoca groenlandica*). *Mar. Mamm. Sci.* 17: 926-936.
Nilssen, K.T., Pedersen, O.-P., Folkow, L. & Haug, T. 2000. Food consumption estimates of Barents Sea harp seals. *NAMMCO Sci. Publ*. 2: 9-28.
Potelov, V.A., Golikov, A.P. and Bondarev, V.A. 2003. Estimated pup production of harp seals *Pagophilus groenlandicus* in the White Sea, Russia, in 2000. *ICES J. Mar. Sci.* 60: 1012-1017.
Wassmann, P., Reigstad, M., Haug, T., Rudels, B., Carroll, M.L., Hop, H., Gabrielsen, G.W., Falk-Petersen, S., Denisenko, S.G., Arashkevich, E., Slagstad, D. & Pavlova, O. 2006. Food web and carbon flux in the Barents Sea. *Progress in Oceanography*: in press.

6. APPROVAL OF REPORT

The English version of the Working Group report was approved by the members on 2 November, 2006.

PROTOKOLL

FRA MØTE I DET PERMANENTE UTVALG FOR FORVALTNINGS- OG KONTROLLSPØRSMÅL PÅ FISKERISEKTOREN PÅ SORTLAND 9. – 13. OKTOBER 2006.

På den 22. sesjon i Den blandete norsk- russiske fiskerikommisjon, jfr. protokollen pkt 11.2, opprettet partene Det permanente utvalg for forvaltnings- og kontrollspørsmål på fiskerisektoren.

Partenes delegasjoner fremgår av Vedlegg 1.

Møtet ble avholdt i henhold til saksliste, Vedlegg 2.

1. Åpning av møtet.

Lederen av den norske delegasjonen Lisbeth W. Plassa og lederen av den russiske delegasjonen Aleksander Zelentsov åpnet møtet.

2. Godkjenning av dagsorden.

Etter en kort diskusjon ble dagsorden godkjent.

3. Utveksling av informasjon om regelendringer i de to lands fiskerilovgivning.

Den norske part informerte om økt bemanning til ressurskontroll samt utskifting av en rekke fartøy i kystvakten. Den norske part opplyste videre at for å innfri internasjonale forpliktelser i forhold til illegalt, urapportert og uregulert (IUU) fiske, var det fremmet et vidtgående lovforslag om nekting av havneanløp for uønskede fartøy.

Den russiske part informerte om utarbeidelse av nytt fiskeriregelverk for Russlands eksklusive økonomiske sone i Barentshavet og regionale fiskeriforvaltningsområder.

4. Status for månedlig utveksling av informasjon om kvoter av torsk og hyse på fartøynivå.

Partene konstaterte at de tekniske forhold for utveksling av informasjon om kvoter av torsk og hyse på fartøynivå nå var tilstede. Utveksling av slik informasjon vil nå bli foretatt på månedlig basis inntil disse opplysningene blir tilgjengelig og løpende oppdatert på Internett.

5. **Rapport fra arbeidet i Underutvalget.**

Den norske delegasjonslederen for Underutvalget redegjorde for arbeidet i utvalget. Ettersom en fra russisk side ikke har lykkes med å møte med representanter fra alle de relevante myndigheter har Underutvalget ikke kunne arbeide som planlagt i 2006.

Partene var enige om at det ville være hensiktsmessig å informere de to lands overordnede myndigheter for politi- og påtalemyndigheter og toll- og skattemyndigheter om viktigheten av at disse etatenes representanter deltar i alle møter i Underutvalget.

Den russiske part foreslo å diskutere på neste møte i Underutvalget muligheten for å få relevante regionale politi- og påtalemyndigheter og toll- og skattemyndigheter på norsk og russisk side med på undertegnelse av Memorandum for kontroll av 28. oktober 2005.

Den norske part finner det formålstjenlig å diskutere muligheten av å utarbeide et memorandum/ samarbeidsavtale med politi- og påtalemyndigheter og toll- og skattemyndigheter. Fra norsk side ser en det imidlertid mest aktuelt å arbeide for en separat avtale mellom alle ovennevnte myndigheter.

6. **Memorandum om kontroll.**

   a. **Undertegning av endret Memorandum om kontroll av 28. oktober 2005.**

Den russiske part overleverte den norske part signert Memorandum om samarbeid om kontroll av 28. oktober 2005.

   b. **Diskusjon om hvorvidt det er behov for ytterligere endringer i Memorandumet.**

Partene var enige om at det er behov for visse endringer og tilføyelser i Memorandum om samarbeid om kontroll, blant annet med henblikk på å fange opp det som er vedtatt i kommisjonsmøtene etter at Memorandumet ble undertegnet i 2000.

Partene skal bestrebe seg på å fremlegge på den 35. sesjon i Fiskerikommisjonen sine forslag angående endringer og tilføyelser i Memorandum om samarbeid om kontroll. Partene tar sikte på å undertegne endret Memorandum på neste møte i Det permanente utvalg.

7. **Utveksling av synspunkter på videreutvikling av metodene for gjennomføring av kontroll.**

Partene var enige om å benytte vedlagte kontrollmetodikk ved kontroll av fiskefartøy og transportfartøy til havs og ved landing. Vedlegg 3.

8. **Plan for gjenopptagelse av arbeidet i analysegruppen om sammenstilling av informasjon på fartøynivå på norsk og russisk side for avdekking av eventuelle overtredelser av fiskerilovgivningen.**

Partene presiserte viktigheten av å foreta denne type analyse og var enige om å gjenoppta arbeidet i analysegruppen. Neste møte vil bli avholdt i Murmansk i siste uke i november eller første uke i desember. I 2007 skal slike møter holdes minst en gang hvert kvartal.

9. Planlegge videre arbeid for analyse av overfiske av torsk og hyse i Barentshavet.

Partene er enige om at de i fremtiden vil samarbeide om å foreta analyser om overfiske av torsk og hyse i Barentshavet og Norskehavet.

Partene har nedsatt en arbeidsgruppe for analyse av informasjon om overfiske av torske- og hysekvotene i Barentshavet i 2005. De russiske representantene i arbeidsgruppen informerte den norske part om hovedkonklusjonene i den russiske ekspertgruppens analyse av Fiskeridirektoratets rapport "Russisk fangst av torsk og hyse/ omlastinger til havs i 2005".

Arbeidsgruppen vil om mulig avholde et møte for å analysere materialet fra Fiskeridirektoratets ovennevnte rapport og den russiske ekspertgruppens analyse, innen 35. sesjon i Den blandete norsk-russiske fiskerikommisjonen.

Arbeidsgruppen vil etter avslutning av arbeidet oversende rapport til overordnede fiskerimyndigheter.

10. Status for utveksling av satellittsporingsdata i ICES-områdene I og II.

Partene oppsummerte erfaringene så langt fra testing av utveksling av satellittsporingsdata fra ICES I og II og uttrykte tilfredshet med at utvekslingen var kommet i gang og at de problemer som hittil er kommet opp er av teknisk/praktisk art og kan løses ved kontakt direkte mellom de to lands eksperter. Partene forutsatte at når testfasen var gjennomført ville denne naturlig gå over i en permanent ordning.

Partene konstaterte at datautveksling med bruk av HTTPS, som sørger for beskyttelse av informasjon på Internett**,** fungerer teknisk mellom partene.

Den russiske part fremla et forslag til revisjon av satellittsporingsavtalen ("Agreed Records of Conclusions between Norway and Russia on Issues related to Satellite Based Vessel Monitoring Systems") mellom partene. Partene var enig om å nedsette en arbeidsgruppe for å revidere avtalen bl.a med hensyn til de erfaringer en har gjort med avtalen og de krav til satellittsporing og utveksling av posisjonsdata som ble vedtatt på Fiskerikommisjonens 34. sesjon.

Partene var enig i at det ville være hensiktsmessig å se revisjonen i et videre perspektiv og også inkludere spørsmål om innføring av elektronisk rapportering (ERS) i arbeidsgruppens mandat. Arbeidsgruppen skal møtes og avgi rapport før neste møte i Det permanente utvalg.

Den norske part foreslo et prøveprosjekt som åpner adgang for at norske fartøy kan rapportere elektronisk etter flaggstatsprinsippet til russisk FMC (Murmansk) og overleverte et notat som beskriver en mulig første fase.

11. Status for utveksling av informasjon om omlastinger til havs og landinger i tredjelands havner.

Partene diskuterte spørsmålet om utveksling av informasjon om omlastinger til havs og landinger i tredjelands havner.

Det vises til Protokoll av 7. mars 2006 fra møtet mellom tekniske eksperter for utveksling av satellittsporingsdata i ICES-områdene I og II og utveksling av informasjon om omlasting til havs og landinger i tredjelands havner. Partene var enige om å begynne utveksling av informasjon i henhold til protokollens punkt 4 så snart de relevante normative dokumenter er godkjent av den russiske part.

12. Avklaring av forskjeller mellom norske og russiske krav til bevisføring i straffesaker.

En representant fra statsadvokatembetet i Troms og Finnmark presenterte norske krav til bevisføring i straffesaker.

Det ble diskusjon om prosessuelle forskjeller mellom norske og russiske krav til bevisføring.

Partene var enige om at det er meget viktig at en på neste møte i Det permanente utvalg har representanter fra politi- og påtalemyndigheter fra begge land tilstede slik at en kan få avklart meget viktige konkrete prosessuelle spørsmål.

13. Fastsettelse av omregningsfaktorer for hyse.

Den norske part presenterte en utredning som konkluderte med anbefaling av nye administrative faktorer på to filetprodukter (uten buklapp) for hyse og torsk. Den russiske part fant ikke det foreliggende datagrunnlaget fullstendig nok til å fremme forslag om fastsettelse av nye omregningsfaktorer. Partene var enige om at det var nødvendig å ta nye måleprøver av hyse for de to nevnte filetprodukter (uten buklapp) samt alle produkter av torsk. Planlegging av videre arbeid med innsamling av prøver av hyse og torsk burde starte med et ekspertmøte i begynnelsen av 2007. I tillegg foreslås at faktorer nevnt i Vedlegg 4 testes om bord på norske og russiske fiskefartøy i 2007. Resultat og anbefaling av uttestingen legges frem for Det permanente utvalg på høstmøtet i 2007.

Den norske part opplyste at fordi det var påkrevd å fastsette nye faktorer i nærmeste fremtid, ville midlertidige administrative faktorer for hyse og torsk (uten buklapp) bli gjort gjeldende i norske farvann så snart som praktisk mulig.

14. Utveksling av inspektører.

I henhold til protokoll for den 34. sesjon i Den blandete norsk - russiske fiskerikommisjon, punkt 12.5 og protokollen fra Det permanente utvalgs møte fra 14. – 16. februar 2006, punkt 10, ble partene enige om å samarbeide om gjennomføring av inspeksjoner av fiskefartøyer under egne staters flagg i ”Smutthullet” og det tilstøtende område i Barentshavet. Rosselkhoznadzor planlegger et tokt med fartøyet ”Sura” i de ovennevnte områdene og er klare til å foreta utveksling av sine inspektører og inspektørene fra den norske kystvaktens fartøy. Rosselkhoznadzor vil så snart det er praktisk mulig ta kontakt med Kystvaktskvadron

Nord og foreslå datoer for denne utveksling. Utvekslingen skal finne sted innen 1. desember 2006. Utvekslingen skal gjennomføres i henhold til prosedyre avtalt mellom Rosselkhoznadzor og den norske kystvakten.

15. Neste møte

Neste møte finner sted i Russland. Tid og sted avtales senere.

Sortland, 13. oktober 2006

For de norske representantene	For de russiske representantene
Lisbeth W. Plassa	Aleksander Zelentsov

VEDLEGG 1.

DELTAGERLISTE

FOR MØTET I DET PERMANENTE UTVALG FOR FORVALTNINGS- OG KONTROLLSPØRSMÅL PÅ FISKERISEKTOREN PÅ SORTLAND 9. – 13. OKTOBER 2006.

Den norske delegasjonen:

1. Lisbeth W. Plassa, delegasjonsleder, seksjonssjef, Reguleringsseksjonen, Fiskeridirektoratet
2. Steve Olsen, Sjef Kystvaktskvadron Nord
3. Einar Ellingsen, seksjonssjef, Kontrollseksjonen, Fiskeridirektoratet
4. Stein-Åge Johnsen, seniorrådgiver, Reguleringsseksjonen, Fiskeridirektoratet
5. Geir Blom, rådgiver, Statistikkavdelingen, Fiskeridirektoratet
6. Hilde M. Jensen, førstekonsulent, Reguleringsseksjonen, Fiskeridirektoratet
7. Ellen Fasmer, rådgiver, IT-avdelingen, Fiskeridirektoratet (10.10.)
8. Ole B. Sæverud, konst. statsadvokat, Troms og Finnmark Statsadvokatembeter (11.10.)
9. Ingmund Fladaas, tolk
10. Jan Fredrik Borge, tolk

Den russiske delegasjonen:

1. Aleksander Zelentsov, delegasjonsleder, representant for Rosrybolovstva ved Den russiske ambassade i Norge
2. Evgeny Edemsky, ledende spesialist for Rosselkhoznadzor i Murmansk fylke
3. Pavel Latyshev, ledende spesialist, Rosselkhoznadzor, Murmansk fylke
4. Sergey Nekrasov, seniorinspektør, FSB RF GMI PS
5. Victor Rozhnov, senioroffiser PU FSB RF i Murmansk fylke
6. Vjatsjeslav Semenas, direktør for Murmansk regionale senter for fiskeriovervåking
7. Sergej Sennikov, viseseksjonsleder PINRO
8. Evgeny Shamray, Laboratoriesjef PINRO

SAKSLISTE

FOR MØTET I DET PERMANENTE UTVALG FOR FORVALTNINGS- OG KONTROLLSPØRSMÅL PÅ FISKERISEKTOREN PÅ SORTLAND, 9. - 13. OKTOBER 2006

1. Åpning av møtet.

2. Godkjenning av dagsorden.

3. Utveksling av informasjon om regelendringer i de to lands fiskerilovgivning.

4. Status for månedlig utveksling av informasjon om kvoter av torsk og hyse på fartøynivå.

5. Rapport fra arbeidet i Underutvalget.

6. Memorandum om kontroll.

    a) Undertegning av endret Memorandum om kontroll av 28. oktober 2005.
    b) Diskusjon om hvorvidt det er behov for ytterligere endringer i Memorandumet.

7. Utveksling av synspunkter på videreutvikling av metodene for gjennomføring av kontroll.

8. Plan for gjenopptagelse av arbeidet i analysegruppen om sammenstilling av informasjon på fartøynivå på norsk og russisk side for avdekking av eventuelle overtredelser av fiskerilovgivningen.

9. Planlegge videre arbeid for analyse av overfiske av torsk og hyse i Barentshavet.

10. Status for utveksling av satellittsporingsdata i ICES-områdene I og II.

11. Status for utveksling av informasjon om omlastinger til havs og landinger i tredjelands havner.

12. Avklaring av forskjeller mellom norske og russiske krav til bevisføring i straffesaker.

13. Fastsettelse av omregningsfaktorer for hyse.

14. Utveksling av inspektører.

15. Neste møte.

KONTROLL TIL HAVS

1. Kontroll av:

- Yngel/ innblanding av fisk under minstemål
- Bifangst
- Utkast
- Redskap/ maskevidde/ rundstropper/ seleksjonsinnretninger
- Satellittsporingsutstyr
- Fangtskontroll, siste hal og last i rom. Stikkeprøver for å avdekke innehold i emballert fisk
- Veiing av blokker av frossen fisk vurderes, ved mistanke om overvekt

2. Kvotekontroll

Kontroll av dokumenter:

- Kvotebrev/ lisenser/ kvoteoversikt
- Fangstrapporter/ radiodagbok
- Fangstdagbøker
- Produksjonsjournaler
- Fiskeribillett
- Rapportering
- Konnossement
- Cargo plan
- Landingsseddel/ sluttseddel
- Datafiler som inneholder relevant informasjon som nevnt over
- Landingsdeklarasjon
- Helsesertifikat
- Andre relevante dokumenter

Krysskjekking av dokumenter

Kontroll av fangst om bord:

- Beregn totalkvantum for fangst om bord

Krysskjekking av kvantum/ art fra dokumentkontroll med kontrollert fangst og kontroll opp mot tidligere turer

LANDINGSKONTROLL

Kontroll av dokumenter:

- Kvotebrev/ lisenser/ kvoteoversikt
- Fangstrapporter/ radiodagbok
- Fangstdagbøker
- Produksjonsjournaler
- Fiskeribillett
- Rapportering
- Konnossement
- Cargo plan
- Landingsseddel/ sluttseddel
- Datafiler som inneholder relevant informasjon som nevnt over
- Landingsdeklarasjon
- Helsesertifikat
- Andre relevante dokumenter

Krysskjekking av dokumenter

Kontroll med veiing av fangst

Kontroll av fangst:

- Tell kasser/ kartonger
- Ta ut prøver og finn gjennomsnittvekt av kasser/ kartonger
- Beregn totalkvantum ved å multiplisere antall kasser/ kartonger

Kontroll med at riktig kvantum registreres på landingsdokumenter

Krysskjekking av kvantum/ art fra dokumentkontroll med kontrollert fangst

RAPPORT FRA MØTET I ARBEIDSGRUPPEN OM OMREGNINGSFAKTORER.

Deltagere: Geir Blom og Evgeny Shamray.

Den norske part presenterte et notat datert 21.09.2006 vedrørende:

> ”Grunnlag for fastsettelse av administrative omregningsfaktorer for produktene:
> I. Filet uten buklapp med skinn uten bein
> II. Filet uten buklapp uten skinn uten bein
> av nordøstarktisk hyse og torsk – produsert på fileteringsmaskiner med bruk av pinbone-kutter”

Den russiske part var positiv til notatet, men fant ikke det foreliggende datagrunnlaget fullstendig nok til å fremme forslag til fastsettelse av de nye omregningsfaktorene. Det ble også opplyst at man i Russland har andre prosedyrer for bestemmelse og fastsettelse av omregningsfaktorer. De foreslåtte nye faktorene krever obligatorisk vurdering og godkjennelse av VNIRO, Moskva. Den russiske part kan derfor ikke på det nåværende tidspunkt akseptere det norske forslaget til nye omregningsfaktorer.

Den norske part viste til at på grunnlag av senere års utvikling av stadig nye produkter som ikke omfattes av gjeldende omregningsfaktorer, er det oppstått en situasjon hvor det er påkrevd med umiddelbar fastsettelse av nye administrative faktorer. Den norske part er innstilt på å gjøre gjeldende nye faktorer for hyse og torskefilet uten buklapp i norske farvann så snart som praktisk mulig, tentativt fra 01.01.2007.

I tillegg presenterte den norske part i arbeidsgruppen forslag til endring av omregningsfaktorer for produkter av nordøstarktisk hyse, basert på datasettet fra 1993, 1994, 1999, 2002 og 2003. Partene var enige om å foreslå at de nedenfor nevnte faktorer skal testes i 2007 om bord på norske og russiske fiskefartøy. Resultatene og anbefalingene skal legges frem for Det permanente utvalg i slutten av 2007.

Produktbetegnelse	Gjeldende faktor	Foreslått faktor (vektet gjennomsnitt 1993-2003)
Sløyd uten hode uten ørebein (NS 212)	1,65	1,75 (1,763)
Filet med skinn med bein (NS 510)	2,65	2,90 (2,898)
Filet uten skinn med bein (NS 511)	2,95	3,20 (3,235)
Filet med skinn uten bein (NS513)	2,80	3,05 (3,080)
Filet uten skinn uten bein (NS 512)	3,15	3,45 (3,464)

Videre var det enighet i arbeidsgruppen om nødvendigheten av å ta nye prøver av nordøstarktisk torsk for å revidere de gjeldende omregningsfaktorene. Prøver skal tas av produktet sløyd uten hode uten ørebein og filetprodukter, inkludert de nye produktene filet uten buklapp med skinn uten bein (NS 515) og filet uten buklapp uten skinn uten bein (NS 514) i 2007 og 2008. Disse prøvene skal dekke ulike sesonger (vinter (januar-april), sommer (mai-august) og høst (september-desember)), ulike fangstfelt og ulike fartøy. Det totale antall

10-fiskprøver skal være i størrelsesorden 120-200 prøver. Gjeldende omregningsfaktorer for torsk har vært i bruk siden 1994. Det har ikke blitt tatt nye prøver etter 1994.

Arbeidsgruppen mente også at det var nødvendig å ta nye prøver av nordøstarktisk hyse for de nye produktene filet uten buklapp med skinn uten bein (NS 515) og filet uten buklapp uten skinn uten bein (NS 514) i 2007 og 2008. Disse prøvene skal dekke sesongene sommer (mai-august) og høst (september-desember), ulike fangstfelt og ulike fartøy.

Det var videre enighet om at nye og gamle produkter av torsk og hyse må fotograferes for å illustrere produktene. Fotografiene skal sammen med produktbeskrivelser og tilhørende omregningsfaktorer presenteres i et hefte.

Det var enighet om nødvendigheten av å avholde et møte mellom norske og russiske eksperter og teknikere på omregningsfaktorer, for å planlegge arbeidet med innsamling av nødvendige prøver av torsk og hyse i 2007 og 2008. Partene var enig i at møtet skulle avholdes i løpet av januar 2007. Sted for avholdelse av møtet vil bli bestemt pr. korrespondanse.

Appendix 10

JOINT NORWEGIAN – RUSSIAN SCIENTIFIC RESEARCH PROGRAM ON LIVING MARINE RESOURCES IN 2007

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1. Planning and coordination of investigations and submitting of results

This program contains the investigations to be carried out in 2007 by Norway and Russia within the frames of the bilateral cooperation between the Norwegian and the Russian Parties. The program is in accordance with the national research programmes.

Planning, coordination, accomplishment of the investigations, exchange of specialists, data and results will be settled between the institutes involved.

Scientists and specialists from PINRO and IMR will meet in Russia 19-23 March 2007, to discuss joint research programmes, results from surveys and investigations in 2006/2007 and to coordinate survey plans for the rest of 2007. Missing names on vessels and time periods for surveys in this report will be submitted, latest at the March meeting. Future plans for surveys and methodology for preparing biological and acoustic data will be discussed and coordinated. Urgent information according to surveys carried out before the meeting in March will be exchanged by correspondence.

By October 2006, 2 reports have been issued in the Joint IMR-PINRO report series.

A preliminary program for the planned surveys and cooperation for 2007 is presented below.

2. Investigations on fish and shrimp stocks, including stock size, -structure, and distribution

IMR and PINRO will continue the co-operation on the monitoring of the most important commercial fish and shrimp stocks, according to the program listed below. The work will also include continued co-operative research on by-catch of juvenile fish in the shrimp fishery. The parties will exchange primary information during joint investigations according to agreed formats.

Norwegian investigations

Nation:	Norway	Survey title:	Acoustic survey for prespawning capelin
Organisation:	IMR		
Time period:	January-March	Vessel:	2 hired vessels
Target species:	Capelin	Secondary species:	
Area:	The southern parts of Barents Sea		
Purpose:	Methodological investigations, with aim to test the feasibility of acoustic measurements of capelin approaching the coast for spawning		
Reported to:	Joint Report Series PINRO/IMR; ICES AFWG in 2007		
Comment:	A similar survey is planned on the Russian side, but it is not finally decided whether this survey will be carried out. PINRO will inform IMR about this decision as soon as possible, and cooperation will be established		

Nation:	Norway	Survey title:	Herring spawning area
Organisation:	IMR		
Time period:	15.02 – 15.03	Vessel:	Hired commercial fishing vessel
Target species:	Herring	Secondary species:	
Area:	Herring spawning areas off Norwegian coast from 58º-63ºN		
Purpose:	Spawning migration and behaviour		
Reported to:	Internal IMR survey report WGNPBW 2007		

Nation:	Norway	Survey title:	Young pelagic Greenland halibut
Organisation:	IMR		
Time period:	01.08 – 24.08	Vessel:	Hired commercial fishing vessel
Target species:	Greenland halibut	Secondary species:	*Sebastes mentella, S. marinus,*
Area:	Barents Sea, north and east of Spitsbergen		
Purpose:	Distribution of young Greenland halibut		
Reported to:	Internal IMR survey report, ICES AFWG 2008		
Comment:	***It is of critical importance that both parties are given access to the other party's EEZ***		

Nation:	Norway	Survey title:	DST tagging experiment Greenland halibut
Organisation:	IMR		
Time period:	04.06 – 10.06	Vessel:	Hired long-liner
Target species:	Greenland halibut	Secondary species:	
Area:	68ºN - 80ºN		
Purpose:	Tagging survey and fishing experiments		
Reported to:	Internal IMR survey report, ICES AFWG 2008		

Nation:	Norway	Survey title:	Adult pelagic Greenland halibut
Organisation:	IMR		
Time period:	24.08 – 27.09	Vessel:	Hired trawler
Target species:	Greenland halibut	Secondary species:	*S. marinus, Sebastes mentella*
Area:	68ºN - 75ºN, Continental Slope and Norwegian Sea		
Purpose:	Trawl survey		
Reported to:	Internal IMR survey report, ICES AFWG 2008		

Nation:	Norway	Survey title:	Cod spawning stock
Organisation:	IMR		
Time period:	17.03 – 07.04	Vessel:	R/V Johan Hjort
Target species:	Cod	Secondary species:	Haddock, Saithe
Area:	Spawning areas Troms – Lofoten		
Purpose:	Acoustic survey of the North East Arctic Cod spawning stock. Investigations on maturity, fecundity and egg abundance.		
Reported to:	Internal IMR survey report, ICES AFWG 2007		

Nation:	Norway	Survey title:	Herring larvae
Organisation:	IMR		
Time period:	28.03 – 11.04	Vessel:	R/V Håkon Mosby
Target species:	Herring	Secondary species:	Saithe
Area:	Norwegian shelf areas from Karmøy to Tromsø		
Purpose:	Distribution and abundance of herring larvae		
Reported to:	Internal IMR survey report, WGNPBW 2007		

Nation:	Norway	Survey title:	Norwegian Sea survey
Organisation:	IMR		
Time period:	24.04 – 27.05	Vessel:	R/V G.O. Sars
Target species:	Herring, Blue whiting	Secondary species:	Zooplankton
Area:	Norwegian Sea		
Purpose:	Acoustic abundance estimation of pelagic fish and plankton, hydrography		
Reported to:	Internal IMR survey report, WGNPBW 2007, ICES PGNAPES 2007		

Nation:	Norway	Survey title:	Greenland halibut, trawl CPUE
Organisation:	IMR		
Time period:	21.05 – 30.05	Vessel:	2 hired commercial trawlers
Target species:	Greenland halibut	Secondary species:	
Area:	Troms – Spitsbergen 70º30’N - 73º30’N (6 days), 73º30’N - 76º00’N (5 days)		
Purpose:	Abundance of Greenland halibut based on catch rates by commercial trawl (CPUE)		
Reported to:	Internal IMR survey report, ICES AFWG 2008		

Nation:	Norway	Survey title:	Bottom trawl survey Greenland halibut
Organisation:	IMR		
Time period:	01.08 – 24.08	Vessel:	1 hired commercial vessel
Target species:	Greenland halibut	Secondary species:	*S. marinus, Sebastes mentella*
Area:	68ºN - 80ºN, 400 – 1500 meter depth		
Purpose:	Bottom trawl survey with fixed trawl stations		
Reported to:	Internal IMR survey report, ICES AFWG 2008		

Nation:	Norway	Survey title:	Fjord and coastal ecosystem survey
Organisation:	IMR		
Time period:	17.10 – 25.11 22.10 – 22.11 07.11 – 07.12	Vessel:	R/V "Johan Hjort" R/V "Jan Mayen" R/V H. Mosby
Target species:	Saithe, coastal cod, 0-group herring, sprat	Secondary species:	Haddock, *Sebastes marinus*
Area:	North Norwegian fjord and coastal areas from Varanger to Skagerrak.		
Purpose:	Acoustic and trawl abundance estimation of saithe, coastal cod and other groundfish species. Acoustic abundance estimation of 0-group herring. Environmental investigations		
Reported to:	Internal IMR survey report, WBNPBW 2008, AFWG 2008		

Nation:	Norway	Survey title:	Herring wintering area
Organisation:	IMR		
Time period:	26.11 – 18.12	Vessel:	R/V Johan Hjort
Target species:	Herring	Secondary species:	
Area:	Vestfjorden and shelf areas outside Lofoten-Vesterålen		
Purpose:	Acoustic abundance estimation and distribution of herring		
Reported to:	Internal IMR survey report, WGNPBW 2008		

Nation:	Norway	Survey title:	Tagging of herring
Organisation:	IMR		
Time period:	15.03 – 15.04	Vessel:	Hired vessel
Target species:	Herring	Secondary species:	Other pelagic fish
Area:	Vestfjorden and shelf areas outside Lofoten-Vesterålen		
Purpose:	Tagging of herring		
Reported to:	Internal IMR report, WGNPBW 2007		

Nation:	Norway	Survey title:	Tagging young Greenland halibut
Organisation:	IMR		
Time period:	10.09 – 14.10	Vessel:	Hired vessel
Target species:	Greenland halibut	Secondary species:	
Area:	Spitsbergen area		
Purpose:	Tagging of Greenland halibut		
Reported to:	Internal IMR report, WGNPBW 2007		

Nation:	Norway	Survey title:	Trawl intercalibration
Organisation:	IMR		
Time period:	08.08 – 12.09	Vessel:	Hired vessel
Target species:	Greenland halibut	Secondary species:	
Area:	Spitsbergen area		
Purpose:	Trawl intercalibration		
Reported to:	Internal IMR report, WGNPBW 2007		

In addition to these surveys, Norway will conduct the following surveys in connection with the International Polar year (IPY):

Nation:	Norway	Survey title:	NESSAR Norwegian Sea
Organisation:	IMR		
Time period:	01.06 – 23.06	Vessel:	R/V G.O. Sars
Target species:	Herring	Secondary species:	
Area:	Polar front area of the Norwegian Sea		
Purpose:	Environmental studies in frontal areas		
Reported to:	IPY framework		

Nation:	Norway	Survey title:	NESSAR Barents Sea
Organisation:	IMR/University of Tromsø		
Time period:	20.07 – 11.08	Vessel:	R/V Jan Mayen
Target species:	Capelin	Secondary species:	
Area:	Polar front area of the Barents Sea		
Purpose:	Environmental studies in frontal areas		
Reported to:	IPY framework		

Russian investigations

Nation:	Russia	Survey title:	Collection o data on CPUE, biological data on species, sex and age composition Greenland halibut catches for the stock assessment
Organisation:	PINRO		
Time period:	January-March April-June	Vessel:	2 trawlers
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfishes, other demersal fish
Area:	Exclusive Economic Zone of Norway		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic links between Greenland halibut and other species; study of seasonal dynamics of cathes, investigation of Greenland halibut migration paths, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth area with the use of deepwater video-acoustic complex.		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2007 and 2008		

Nation:	Russia	Survey title:	Collection o data on CPUE, biological data on species, sex and age composition Greenland halibut catches for the stock assessment
Organisation:	PINRO		
Time period:	January-March April-June	Vessel:	2 trawlers
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfishes, other demersal fish
Area:	Spitsbergen area, Grey zone		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic links between Greenland halibut and other species; study of seasonal dynamics of cathes, investigation of Greenland halibut migration paths, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth area with the use of deepwater video-acoustic complex		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2006 and 2007		

Nation:	Russia	Survey title:	Collection o data on CPUE, biological data on species, sex and age composition Greenland halibut catches for the stock assessment
Organisation:	PINRO		
Time period:	July-September	Vessel:	2 trawlers
	October-December		
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfishes, other demersal fish
Area:	Exclusive Economic Zone of Norway		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic links between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration paths, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth area with the use of deepwater video-acoustic complex.		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008		

Nation:	Russia	Survey title:	Collection o data on CPUE, biological data on species, sex and age composition Greenland halibut catches for the stock assessment
Organisation:	PINRO		
Time period:	July-September	Vessel:	2 trawlers
	October-December		
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfishes, other demersal fish
Area:	Spitsbergen area, Grey zone		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic links between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration paths, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth area with the use of deepwater video-acoustic complex.		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008		

Nation:	Russia	Survey title:	Refinement of methods for Greenland halibut stock assessment by long-line, CPUE
Organisation:	PINRO		
Time period:	January-December	Vessel:	1 long-liner and 1 trawler
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes
Area:	Spitsbergen area, Grey zone		
Purpose:	Investigation into the stock status, year-to-year dynamics of catch per unit effort, comparative fishing efficiency "long-line – trawl"		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2007 and 2008		

Nation:	Russia	Survey title:	Evaluation of resources for long-line fishery. Investigation of species and sex-size compositions in long-line and trawl catches.
Organisation:	PINRO, VNIRO		
Time period:	January-December	Vessel:	2 long-liners
Target species:	Cod, haddock	Secondary species:	Catfishes, long rough dab, redfishes, halibut and other
Area:	Exclusive Economic Zone of Norway and Spitsbergen area, Exclusive Economic Zone of RF and "Grey zone"		
Purpose:	Elaboration of recommendations on effective use of resources for long-line fishery		
Reported to:	Survey report for internal use; ICES AFWG in 2007 and 2008		

Nation:	Russia	Survey title:	Complex investigation of stocks of commercial species based on modern research technology.
Organisation:	VNIRO		
Time period:	January-December	Vessel:	5 vessels, trawl and long-line
Target species:	Cod, haddock	Secondary species:	Catfishes, long rough dab, halibut and other species
Area:	Exclusive Economic Zone of RF and Norway, "Grey zone", Loophole, Spitsbergen area		
Purpose:	Complex investigation of stocks of commercial species based on modern research technology. Collection of CPUE data, biological state during wintering and spawning, species composition of catches.		
Reported to:	Survey report for internal use; ICES AFWG in 2007and 2008		

Nation:	Russia	Survey title:	Assessment of stocks and distribution of commercial species of living marine resources. Collection of CPUE data
Organisation:	PINRO		
Time period:	January-March April-June July-September October-December	Vessel:	R/V “Vilnjus” and 4 trawlers
Target species:	Cod, haddock	Secondary species:	Catfishes, long rough dab, saithe
Area:	Exclusive Economic Zone of RF and “Grey zone”, inland sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of CPUE data, biological state during wintering and spawning, species composition of catches, cod predation on their own juveniles and other fish species and invertebrates, discards of undersized cod and haddock. Study of intra-species structure using genetic methods, quantitative estimation of bycatch of undersized fish.		
Reported to:	Survey report for internal use; ICES AFWG in 2007 and 2008		

Nation:	Russia	Survey title:	Assessment of stocks and distribution of commercial species of living marine resources. Collection of CPUE data
Organization:	PINRO		
Time period:	January-March April-June July-September October-December	Vessel:	R/V “Vilnjus” and 4 trawlers
Target species:	Cod, haddock,	Secondary species:	Catfishes, long rough dab, saithe
Area:	Exclusive Economic Zone of Norway, “Grey zone”, “Loophole” and Spitsbergen area		
Purpose:	Collection of CPUE data, biological state during wintering and spawning, species composition of catches, cod predation on their own juveniles and other fish species and invertebrates, discards of undersized cod and haddock. Study of intra-species structure using genetic methods, quantitative estimation of bycatch of undersized fish.		
Reported to:	For internal use by PINRO; ICES AFWG in 2007and 2008		

Nation:	Russia	Survey title:	Survey for haddock, saithe and other demersal species
Organisation:	PINRO		
Time period:	May-June	Vessel:	R/V "Fridtjof Nansen" or R/V "Smolensk", R/V "Professor Boiko"
Target species:	Haddock, saithe, cod	Secondary species:	Redfish, northern wolfish, spotted catfish, long rough dab
Area:	The Barents Sea basin including Exclusive Economic Zone of Norway, "Grey zone", Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	Assessment of immature part of the haddock stock, quantitative estimation of saithe migrating for feeding from the EEZ of Norway to EEZ of RF and the "Grey Zone"; investigation of possibilities and conditions of summer and autumn fishery for haddock and saithe in the EEZ of RF		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008		
Comment:	***The survey will be conducted only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Nation:	Russia	Survey title:	Testing of methods to assess juveniles of saithe, cod, haddock and other demersal species in Murman fjords
Organisation:	PINRO		
Time period:	August-September	Vessel:	1 trawler
Target species:	Cod, haddock, saithe	Secondary species:	Plaice, redfish (*Sebastes mentella*), long rough dab, northern wolfish, spotted catfish
Area:	The Barents Sea basin, Exclusive Economic Zone of RF including internal sea waters and territorial sea of RF		
Purpose:	Assessment of relative abundance of juvenile saithe, cod, haddock and other demersal species in Murman fjords, collection of data on biology, distribution and density of concentrations		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008		
Comment:	***The survey will be conducted only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Nation:	Russia	Survey title:	Multispecies trawl-acoustic survey for estimation of juveniles and stock assessment of demersal fish in the Barents Sea and adjacent waters
Organisation:	PINRO		
Time period:	October-December	Vessel:	R/V “Fridtjof Nansen”, R/V “Smolensk
Target species:	Cod, haddock	Secondary species:	Northern wolfish, spotted catfish, redfish (*S. mentella*), saithe, long rough dab
Area:	The Barents Sea basin, Exclusive Economic Zone of Norway, Spitsbergen area, “Grey zone”, “Loophole”,Exclusive Economic Zone of RF including internal sea waters and territorial sea of RF		
Purpose:	Evaluation of strength of yearclasses of cod and haddock at the stage of bottom juveniles, redfishes and other demersal fish; assessment of total and fishable stocks of cod, haddock, Greenland halibut, redfishes, catfishes, long rough dab and other fish species in the survey area; estimation of zooplankton biomass; parasitologic and faunistic studies, study of “predator-prey” relations		
Comment:	***The survey will be conducted only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		
Reported to:	Survey report for internal use; ICES AFWG in 2008		

Nation:	Russia	Survey title:	Study of formation of herring concentrations
Organisation:	PINRO		
Time period:	August-September	Vessel:	M-0062 “Leonid Galchenko”, M-0063 “Odoevsk”
Target species:	Herring	Secondary species:	Blue whiting, saithe, mackerel
Area:	Norwegian Sea, Exclusive Economic Zone of Norway, Spitsbergen area, open sea		
Purpose:	Study of formation of herring concentrations during feeding period, herring distribution and behaviour in dependence on the environmental conditions, biological state and intensity of fishing. Collection of fisheries and biological data necessary for the stock assessment		
Reported to:	PINRO survey report for internal use; ICES WG NPBW in 2007		

Nation:	Russia	Survey title:	Acoustic survey for spawning concentrations of herring in the Norwegian Sea
Organisation:	PINRO		
Time period:	February-March	Vessel:	M-0062 “Leonid Galchenko”, M-0063 “Odoevsk”
Target species:	Herring	Secondary species:	
Area:	Norwegian Sea including areas under jurisdiction of foreign states, international waters		
Purpose:	Study of distribution and migration of spawning and post-spawning herring in the Norwegian Sea, collection of biological data on size-age composition and fecundity of fish.		
Reported to:	PINRO survey report for internal use; ICES WG NPBW in 2007		

Nation:	Russia	Survey title:	Trawl-acoustic survey for capelin spawning stock
Organisation:	PINRO		
Time period:	January-March	Vessel:	1 trawler
Target species:	Capelin, herring	Secondary species:	
Area:	The Barents Sea basin including Exclusive Economic Zone of Norway, Exclusive Economic Zone of RF and “Grey zone”, internal sea waters and territorial sea of RF		
Purpose:	Estimation of abundance and biomass of capelin from older age groups to control estimates of the capelin stock		
Reported to:	Joint Report Series PINRO/IMR; ICES AFWG in 2007		
Comment:	***The survey will be conducted only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Nation:	Russia	Survey title:	Study of distribution of capelin fishable concentrations
Organisation:	PINRO		
Time period:	November-December	Vessel:	1 trawler
Target species:	Capelin	Secondary species:	Polar cod
Area:	The Barents Sea basin, Spitsbergen area, “Grey zone”, “Loophole”, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	Study of distribution of capelin fishable concentrations, migration routes and rates and conditions of formation of concentrations in dependence on biological state of the object and abiotic environmental factors.		
Reported to:	Survey report for internal use; ICES AFWG in 2008		

Nation:	Russia	Survey title:	Delimitation of mackerel feeding concentrations; study of mackerel feeding migration in the Norwegian Sea in summer
Organisation:	PINRO		
Time period:	May-September	Vessel:	M-0062 “Leonid Galchenko”, M-0063 “Odoevsk”
Target species:	Mackerel	Secondary species:	Blue whiting, herring
Area:	Fishing zone of the Faroe Islands, open Norwegian Sea		
Purpose:	Study of mackerel feeding migration in the Norwegian Sea in summer and the effect of biotic and abiotic factors on spatial and temporal distribution of pelgic fish		
Reported to:	PINRO survey report for internal use; WG ICES		

Nation:	Russia	Survey title:	Complex aerial survey on the research into distribution and biomass assessment of feeding mackerel within the frames of international herring survey in the Barents and Norwegian seas (ecosystem survey)
Organisation:	PINRO		
Time period:	July-August	Aircraft:	Airborne laboratory AN-26 "Arktika"
		Vessel:	1 research vessel of PINRO
Target species:	Mackerel	Secondary species:	Herring, blue whiting, marine mammals, seabirds, chlorophyll, zooplankton, oceanographic parameters at the sea surface
Area:	Fishing zone of the Faroe Islands, open Norwegian Sea, exclusive Economic Zone of Norway, UK Fishery zone		
Purpose:	Distribution of feeding mackerel and other pelagic fish, approaches to assess biomass of feeding mackerel; abundance, distribution and species composition of marine mammals and seabirds; environmental parameters at the sea surface including identification of areas with high biological productivity		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008, Planning Group on Ecosystem Surveys in the Pelagic Northeast Atlantic, Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy (WGMHSA). NEAFC Annual meeting.		
Comment:	***The survey will be conducted only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Nation:	Russia	Survey title:	Trawl-acoustic survey for redfish of the Norwegian-Barents Sea population. Evaluation of strength of redfish yearclasses
Organisation:	PINRO		
Time period:	April-May	Vessel:	R/V "Fridtjof Nansen" or R/V "Smolensk"
Target species:	Redfish (*Sebastes mentella*)	Secondary species:	Redfish, cod, haddock, northern wolfish, Greenland halibut
Area:	Exclusive Economic Zone of Norway and Spitsbergen area		
Purpose:	Study of distribution of redfish and other species; collection of biological data; evaluation of resources for fisheries through analysis and collection of statistical data on CPUE to enhance the database.		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2007 and 2008		
Comment:	***The survey will be conducted only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Joint investigations

Nation:	Norway/Russia	Survey title:	Joint Winter Survey
Organisation:	PINRO/IMR		
Time period:	01.02 – 10.03 01.02 – 15.03 January – March	Vessel:	R/V G.O. Sars R/V Johan Hjort R/V "Fridtjof Nansen" or R/V "Smolensk"
Target species:	Cod, Haddock, capelin, herring	Secondary species:	Redfish *Sebastes mentella*, *S. marinus*, Greenland halibut, catfishes
Area:	Exclusive Economic Zone of Russia and Exclusive Economic Zone of Norway		
Purpose:	Distribution and stock assessment, collection of biological samples. Multi-species interactions with focus on cod diet, oceanography and plankton		
Reported to:	Joint IMR/PINRO Report Series and ICES AFWG in 2007		
Comment:	***It is of critical importance that both parties are given access to the other party's EEZ*** ***The Russian Party will participate in the survey only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Nation:	Norway/Ireland/Russia	Survey title:	Survey of blue whiting spawning areas
Organisation:	PINRO/IMR/MRI		
Time period:	March - April February - April	Vessel:	R/V Celtic Explorer 1 Russian trawler
Target species:	Blue whiting	Secondary species:	Rockall haddock, argentine
Area:	To the west of British Islands		
Purpose:	Estimation of abundance and distribution of spawning blue whiting, oceanography, plankton, survey of haddock on the Rockall Bank, argentine on the Outer-Bailey Bank and Bill Bailies Bank, methods for acoustic survey		
Reported to:	Joint IMR/PINRO survey report for internal use; ICES WGNPBW in 2007		
Comments:	***The Russian Party will participate in the survey only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Nation:	Norway/Russia	Survey title:	International trawl-acoustic survey for pelagic fish
Organisation:	PINRO/IMR		
Time period:	June-August	Vessel:	1 Russian trawler 1 Norwegian R/V
Target species:	Herring	Secondary species:	Mackerel, blue whiting, other pelagic fish, marine mammals, seabirds, chlorophyll, zooplankton
Area:	Fishing zone of the Faroe Islands, open Norwegian Sea, Exclusive Economic Zone of Norway, UK Fishery zone		
Purpose:	Stock assessment, delimitation of feeding concentrations, study of feeding migration and the effect of biotic and abiotic factors on spatial and temporal distribution of pelgic fish in summer in the Norwegian Sea; oceanographic and hydrobiological surveys		
Reported to:	Survey report for use at IMR and PINRO; ICES AFWG in 2007; NEAFC Annual meeting		
Comment:	***The Russian Party will participate in the survey only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Nation:	Norway/Russia	Survey title:	Joint survey for feeding mackerel in the Norwegian Sea
Organisation:	PINRO/IMR		
Time period:	15.07-06.08 June - August	Vessel:	2 vessels chartered by IMR R/V “PINRO” M-0062 “Leonid Galchenko” M-0063 “Odoevsk” Airborne laboratory AN-26, “Arktika”
Target species:	mackerel	Secondary species:	Other pelagic fishes, marine mammals, seabirds, chlorophyll, zooplankton,
Area:	The Norwegian Sea		
Purpose:	Distribution and approaches to assess biomass of feeding mackerel; abundance, distribution and species composition of marine mammals and seabirds; a complex of oceanographic and hydrobiological data, joint experimental and calibration works.		
Reported to:	Survey report for IMR and PINRO; ICES WG; NEAFC meeting		
	Russian vessels will participate in the survey if additional catch volumes for scientific research are allocated from national quotas		

Nation:	Norway/Russia	Survey title:	Joint ecosystem survey, autumn
Organisation:	PINRO/IMR		
Time period:	14.08 – 30.09 01.08 – 20.09 12.08 – 09.09 August - October	Vessel:	R/V "G.O Sars" R/V "Johan Hjort" R/V "Jan Mayen" R/V "Smolensk" R/V "Fridtjof Nansen" Airborne laboratory AN-26, "Arktika"
Target species:	Greenland halibut, redfishes, shrimp, herring, capelin, 0-group of different species	Secondary species:	Other pelagic and demersal species, benthic organisms, sea mammals and birds
Area:	The Norwegian Sea, Exclusive Economic Zone of Russia, "Grey zone", Exclusive Economic Zone of Norway, Loophole" area and area adjacent to Spitsbergen and territorial waters of the Russian Federation		
Purpose:	Abundance and distribution of Greenland halibut (including juveniles north and east of Spitsbergen), redfish *Sebastes mentella, Sebastes marinus,* shrimp, herring, capelin, polar cod, 0-group of different species. Oceanography, plankton, marine mammals, seabirds, species interactions, sampling for determining pollution levels.		
Reported to:	Joint IMR/PINRO Report Series; ICES WGNPBW in 2008; ACFM in autumn 2007		
Comment:	***It is of critical importance that both parties are given access to the other party's EEZ*** ***The Russian Party will participate in the survey only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

3. Research program on Greenland Halibut

Based on the decision of the 34th session of the Joint Russian-Norwegian Fisheries Commission (item 8.1 of the Protocol), at the meeting of PINRO and IMR scientists (21-27 March 2006) a new joint research program aimed at improvement of Greenland halibut stock assessment methods and elaboration of optimal management strategy for this stock was developed (Appendix …)

The new program includes the following studies:

- improve the methods of ageing;
- improve methods of survey and aggregation of data from different surveys;
- make quantitative estimation of Greenland halibut stock who distribute in pelagic layers;
- investigate sexual dimorphism and effect of fisheries on population structure;
- improve methods of stock assessment;
- develop optimal long-term harvesting strategy.

The program is to be completed within the three-year period 2007-2009

Report of the Working Group on elaboration of proposal on joint management measures for Greenland halibut.

The working group for development of joint research activities considers the protocol from the second meeting of the Working Group on elaboration of proposal on joint management measures for Greenland halibut to represent the most comprehensive information on geographical distribution, catch statistics and historical research activities presently available.

The joint research program on Greenland halibut that was initiated by the Commission and prolonged for another three years, will provide additional information on geographical distribution and other relevant data, as for instance the amount of pelagic distribution.

The three items covered by the mandate given by the Commission to the Working Group on elaboration of proposal on joint management measures for Greenland halibut does not cover all aspects of joint management measures. Consequently, the working group emphasizes the need to agree upon unified technical regulation measures , as for instance by-catch limits in the target fishery for other species, minimum lading size and minimum mesh size. In this work, the working group should take into consideration results obtained in the continued joint research program.

4. Red king crab (Paralithodes camtschaticus)

Even though the TAC on the red king crab now is set at national levels, the Commission wants a continuation of the joint scientific cooperation. Therefore a joint working group on the cooperative research on the red king crab in the Barents Sea will be established.

The aims of this group will be to enhance joint research tasks on the king crab as well as exchange of knowledge from national research activities on the crab. This working group should respond to requests from the Joint Russian-Norwegian Fishery Commission.

The working group should meet at least once a year.

The ongoing three-year program will be reported to the Commission in 2008.

Norwegian investigations

Nation:	Norway	Survey title:	Red king crab survey
Organisation:	IMR		
Time period:	15.08 – 03.09	Vessel:	R/V “Johan Ruud”
Target species:	Red king crab	Secondary species:	
Area:	Fjords in Finnmark		
Purpose:	Abundance estimation and ecological investigations		
Reported to:	Internal IMR survey report. PINRO		

Nation:	Norway	Survey title:	Red king crab survey
Organisation:	IMR		
Time period:	14 days in October	Vessel:	Hired vessel
Target species:	Red king crab	Secondary species:	
Area:	Off the coast of Finnmark		
Purpose:	Abundance estimation and ecological investigations		
Reported to:	Internal IMR survey report. PINRO		

Nation:	Norway	Survey title:	Red king crab trial fishing
Organisation:	IMR		
Time period:	15.09 – 31.12	Vessel:	4 Hired vessels
Target species:	Red king crab	Secondary species:	
Area:	Fjords in Finnmark		
Purpose:	Methodological investigations		
Reported to:	Internal IMR survey report. PINRO		

Russian investigations:

Nation:	Russia	Survey title:	Research on the red king crab stock in the spawning period by trawl survey
Organisation:	PINRO		
Time period:	April-May	Vessel:	1 trawler
Target species:	Red king crab	Secondary species:	Cod, haddock
Area:	The Barents and White seas, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	Study of spatial distribution of the red king crab during moulting and spawning; collection of biological data(size, sex and age composition, eksoskeleton, etc.); crab tagging to study migration; underwater video.		
Reported to:	PINRO report for internal use		

Nation:	Russia	Survey title:	Stock assessment of the red king crab by trawl survey
Organisation:	PINRO		
Time period:	August-September	Vessel:	1 trawler
Target species:	Red king crab	Secondary species:	Cod, haddock
Area:	The Barents and White seas, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	Collection of data for assessment of the total and fishable stock of the red king crab; study of the crab distribution in the period before commencement of its fishery; collection of biological data.		
Reported to:	PINRO report for internal use. VNIRO		

Nation:	Russia	Survey title:	Red king crab trap survey
Organisation:	VNIRO		
Time period:	January-February and September - Desember	Vessel:	5 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Study of the distribution of red king crab. Stock assessment. Trap survey.		
Reported to:	VNIRO report for internal use. PINRO		

Nation:	Russia	Survey title:	Testing of autonomous underwater video-computer recorder
Organisation:	PINRO		
Time period:	April-September	Vessel:	1 vessel
Target species:	Red king crab	Secondary species:	Other demersal fish species
Area:	The Barents and White seas, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	The use of autonomous underwater video-computer recorder to conduct underwater video filming of demersal fishes and crustaceans with registration of video filming in the computer.		
Reported to:	PINRO report for internal use.		

Nation:	Russia	Survey title:	Estimation of trap's effective area and coefficient of catchability of trawl
Organisation:	VNIRO		
Time period:	September-November	Vessel:	1 trawler and 2 vessel with traps
Target species:	Red king crab	Secondary species:	Demersal fish species
Area:	The Barents and White seas, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	The estimation of trap's effective area and coefficient of catchability of bottom trawl for the stock assessment of Red king crab including parallel trap and trawl investigation and use of autonomous underwater video-computer recorder. Diving survey.		
Reported to:	VNIRO report for internal use.		

Nation:	Russia	Survey title:	Investigations aimed at elaboration of measures to decrease the red king crab by-catches in the trawl fishery for demersal fish.
Organisation:	PINRO		
Time period:	August-November	Vessel:	1 trawler
Target species:	Red king crab	Secondary species:	Cod, haddock and other demersal fish species
Area:	The Barents and White seas, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	Search of means for minimisation of the red king crab by-catches in fisheries for cod and haddock. Recommendation on improvement of trawl design.		
Reported to:	PINRO report for internal use.		

Nation:	Russia	Survey title:	SCUBA-diving survey of red king crab
Organisation:	PINRO, VNIRO		
Time period:	March-April	Vessel:	2 vessels, boats
	June		SCUBA-divers
	August-September		
Target species:	Red king crab	Secondary species:	
Area:	Internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of biological data (size, sex and age composition of aggregations and other data necessary for the stock assessment and estimation of TAC). Estimation of juvenile red king crab.		
Reported to:	PINRO report for internal use. VNIRO		

Nation:	Russia	Survey title:	Aquaculture of red king crab
Organisation:	PINRO, VNIRO		
Time period:	January-December	Vessel:	2 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of material for experimental works on the crab males rearing until optimal filling of the legs. Development of biotechniques for aquaculture of red king crab		
Reported to:	PINRO report for internal use. VNIRO		

Nation:	Russia	Survey title:	Trap survey of red king crab. CPUE indicies gathering. Biological sampling
Organisation:	PINRO		
Time period:	January-December	Vessel:	10 vessels 10 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of data on catch per unit effort, study of biology, abundance dynamics, migration, feeding, trophic links with local species and distribution of the crab. Evaluation of the red king crab effect on the benthos ecosystem.		
Reported to:	PINRO report for internal use. VNIRO		

5. Fishing technology and selectivity of fishing gears

Research activity in these fields is carried out with the aim to develop:

- fishing gears that are more species and size selective and that have less negative impact on fish that escape the gear, and have less negative ecosystem effects in general.
- Improved survey gears and methodology

Norwegian investigations:

Nation:	Norway	Survey title:	Experiments with new shrimp trawl
Organisation:	IMR		
Time period:	23.03 – 08.04	Vessel:	Hired vessel
Target species:	Shrimp	Secondary species:	
Area:	Barents sea		
Purpose:	Experiments with new shrimp trawl		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Comparison of bottom trawl gears
Organisation:	IMR		
Time period:	03.10 – 18.10	Vessel:	Hired Vessel
Target species:	Demersal species	Secondary species:	
Area:	Barents Sea		
Purpose:	Bottom trawl technology development		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Catch efficiency for pelagic and bottom trawls
Organisation:	IMR		
Time period:	03.09 – 24.09	Vessel:	Hired vessel
Target species:		Secondary species:	
Area:	Barents Sea		
Purpose:	Changes in trawl efficiency		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Development of trawl sampling gear
Organisation:	IMR		
Time period:	11.03 – 25.03	Vessel:	R/V "G.O.Sars"
Target species:		Secondary species:	
Area:	Barents Sea		
Purpose:	Technology for reduced impact of bottom trawl on benthic habitats, development of new survey trawl, haddock and cod midwater trawling		
Reported to:	Internal IMR survey report		

Russian investigations:

Nation:	Russia	Survey title:	Study of comparative fishing efficiency "trawl – long-line". Refinement of methods for Greenland halibut stock assessment
Organisation:	PINRO		
Time period:	May-December	Vessel:	1 long-liner 1 trawler
Target species:	Greenland halibut, Cod, haddock	Secondary species:	Catfishes
Area:	Exclusive Economic Zone of Norway and Spitsbergen area		
Purpose:	Collection of data to validate a method of trawl and long-line survey of Greenland halibut stocks		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008		

Nation:	Russia	Survey title:	Selectivity studies of new sorting systems
Organisation:	PINRO		
Time period:	January -December	Vessel:	1 trawler
Target species:	Cod, haddock, Greenland halibut	Secondary species:	Saithe, northern wolfish, spotted catfish
Area:	Exclusive Economic Zone of the Russian Federation		
Purpose:	Evaluation of actual results of application of technical regulatory measures in the fishery for cod and haddock in areas with different regimes of their application.		
Reported to:	PINRO survey report for internal use		

Nation:	Russia	Survey title:	Selectivity studies of new sorting systems
Organisation:	PINRO		
Time period:	January -December	Vessel:	1 trawler
Target species:	Cod, haddock, Greenland halibut	Secondary species:	Saithe, northern wolfish, spotted catfish
Area:	The Barents Sea, Spitsbergen area, Exclusive Economic Zone of Norway		
Purpose:	Evaluation of actual results of application of technical regulatory measures in the fishery for cod and haddock in areas with different regimes of their application.		
Reported to:	PINRO survey report for internal use		

6. Optimal harvesting of commercial species in the Barents Sea ecosystem

The project will be carried out according to the mandate from the Joint Norwegian-Russian Fisheries Commission. Details of the work are given in the report from the Basic Document Working Group. The work involves several projects and researchers that may work independently of each other. In many cases, the same data will be used in different sub-projects. In the end, the different sub-projects will be synthesized to give an overall picture of the ecosystem and what we might expect of the long-term yield from each stock taking into account its interaction with other stocks and with the environment. The work plan consists of two steps:

- In step 1 (2005 - 2007) the possible long-term yield of cod will be evaluated using existing data and models
- In step 2 (2008 - 2014) the long-term yield of the main commercial species will be evaluated taking into account species interdependence using a joint multispecies model

7. Monitoring of pollution levels in the Barents Sea

PINRO and IMR will continue to monitor pollution levels in accordance with national programmes. Scientists from both institutes plan to discuss and exchange results from investigations during the meeting of scientists in March 2007.

The investigations of both countries are based on material collected during the surveys in the Barents Sea (see chapter 2 of this appendix).

8. Research program of the stock structure of Northeast arctic cod

Research was conducted in this research program during the period 2002-2004. This included field works, genetic analysis and exchange of personnel and collected samples.

The research program on stock structure should continue in 2007 in order to reach a general agreement on the interpretations of the results obtained from the research program. Discussion on this should take place during the joint IMR/PINRO March meeting and a joint report should be submitted to the 36th session of the Joint Russian/Norwegian Fisheries Commission in 2007.

9. Investigations on age and growth of fish

The Parties will continue the cooperation on establishing an international historic database on growth in length and weight of fish as well as catch statistics archived at PINRO and IMR. The exchange of age reading specialists and material will continue in 2007 according to the established routines. Meeting between specialists in age reading of capelin will be held in Murmansk in spring and a similar meeting on cod, haddock and Greenland halibut will take place in Bergen in summer 2007. Exact timing of the meeting will be decided by correspondence.

10. Marine mammals

The effect of marine mammals, including the White Sea population of harp seals, on biological resources of the Barents and Norwegian Seas is considerable. Besides, harp, hooded and grey seals and minke whales are hunted. There is, therefore a need for joint research on marine mammals, including boat based as well as airborne surveys. The joint Russian-Norwegian research should be aimed at assessments of distribution and abundance of the most important species, and their trophic linkages with other resources.

Norwegian activities in 2007 include sampling of biological material from harp seals during commercial sealing in the southeastern Barents Sea and in the Greenland Sea. Abundance estimation of hooded seals will be performed in aerial and boat based surveys in the Greenland Sea, and biological material will be collected from the same species during research surveys. Abundance estimation surveys of grey seals will also be conducted at the Norwegian coast. Surveys to estimate abundance of minke whale will be carried out in the eastern Barents Sea,

whereas satellite tags will be deployed on minke whales and other whale species in the Barents Sea.

In 2007, the Russian Party will continue annual multispectral aerial surveys of harp seals of the White Sea population on their whelping and moulting grounds as well as during their feeding migrations, using the Russian research aircraft. Besides, complex airborne surveys are planned during investigations of white whale as well as joint surveys on the ecology of minke whales and other whales and seals in the framework of the annual joint ecosystem surveys.

Telemetric investigations of harp seals will be carried out in the White Sea in a joint Norwegian-Russian project. In another joint Norwegian-Russian project, various aspects of migration, biology, ecology and behaviour of white whales will be studied in the White Sea and Barents Sea. Also, research on biology, ecology and migration of bearded seals and ringed seals will continue

Norwegian investigations:

Nation:	Norway	Survey title:	Abundance estimation of hooded seals
Organisation:	IMR		
Time period:	10.03 – 10.04	Vessel:	1 rented vessel, helicopter, aeroplane
Target species:	Hooded seal	Secondary species:	
Area:	Greenland Sea		
Purpose:	Estimation of hooded seal pup production using ship, helicopter and aeroplane		
Reported to:	ICES, NAMMCO; JFNRFC		

Nation:	Norway	Survey title:	Monitoring of biological parameters in harp seals
Organisation:	IMR		
Time period:	25.03 – 01.05	Vessel:	1 sealer
Target species:	Harp seal	Secondary species:	
Area:	Southeastern Barents Sea		
Purpose:	Collection of biological material from harp seals during commercial sealing		
Reported to:	ICES, NAMMCO; JNRFC		

Nation:	Norway	Survey title:	Monitoring of biological parameters in harp seals
Organisation:	IMR		
Time period:	25.03 – 01.05	Vessel:	1 sealer
Target species:	Harp seal	Secondary species:	
Area:	Greenland Sea		
Purpose:	Collection of biological material from harp seals during commercial sealing		
Reported to:	ICES, NAMMCO; JNRFC		

Nation:	Norway	Survey title:	Monitoring of biological parameters in hooded seals
Organisation:	IMR		
Time period:	01.07 – 31.07	Vessel:	Research vessel (“Lance”)
Target species:	Hooded seal	Secondary species:	
Area:	Greenland Sea		
Purpose:	Collection of biological material from hooded seals during research survey		
Reported to:	ICES, NAMMCO; JNRFC		

Nation:	Norway	Survey title:	Abundance estimation Grey seals
Organisation:	IMR		
Time period:	10.11-10.12	Vessel:	1 coast guard vessel, 1 rented vessel
Target species:	Grey seals	Secondary species:	
Area:	Norwegian coast		
Purpose:	Abundance estimation Grey seals		
Reported to:	NAMMCO		

Nation:	Norway	Survey title:	Sighting survey Minke whale
Organisation:	IMR		
Time period:	26.06 – 06.08	Vessel:	2 rented vessels
Target species:	Minke whale	Secondary species: Other whales	
Area:	Eastern Barents Sea		
Purpose:	Sighting survey Minke whale		
Reported to:	IWC, NAMMCO		

Nation:	Norway	Survey title:	Telemetric tagging of minke whales
Organisation:	IMR		
Time period:	28.08 – 17.09	Vessel:	1 coast guard vessel
Target species:	Minke whales	Secondary species: Other whales	
Area:	Barents Sea		
Purpose:	Telemetric tagging of minke whales		
Reported to:	IWC, NAMMCO		

Joint investigations:

Nation:	Russia/Norway	Survey title:	Marine mammals survey
Organisation:	PINRO, IMR		
Time period:	01.08-30.10	Vessel:	2 research vessels from Norway, 2 research vessels from Russia, Airborne laboratory AN-26 "Arktika"
Target species:	Pelagic fishes, 0-group, marine mammals	Secondary species:	Seabirds, oceanographic and hydrobiological parameters at the sea surface, ice conditions
Area:	The Barents Sea		
Purpose:	Investigation of the effect of marine mammals and seabirds as well as oceanographic conditions including ice conditions on the main commercial fish species		
Reported to:	Survey report for internal use at IMR and PINRO; NAMMCO; JNRFC		
Comment:	***The Russian Party will participate in the survey only if additional scientific quotas of cod and haddock of 7000 tonnes and 6000 tonnes, respectively, are allocated for research from the Russian national quota.***		

Nation:	Russia/Norway	Survey title:	Harp seal tagging in the White Sea
Organisation:	PINRO, IMR		
Time period:	01.04-31.05	Vessel:	1 helicopter
Target species:	Harp seal	Secondary species:	
Area:	The White Sea coast		
Purpose:	Study of the harp seal biology and ecology, using satellite telemetry		
Reported to:	Survey report for internal use at IMR, PINRO; ICES; NAMMCO; JNRFC		

Russian investigations:

Nation:	Russia	Survey title:	Multispectral aerial survey of whelping and moulting grounds of harp seal in the White Sea
Organisation:	PINRO		
Time period:	March-April	Vessel:	Airborne laboratory AN-26 "Arktika"
Target species:	Harp seal	Secondary species:	White whale and other species of marine mammals
Area:	The White Sea		
Purpose:	Study of distribution and estimation of number of the White Sea harp seal on whelping and moulting grounds for further calculation of number of animals in the population and the use of data obtained in the ecosystem modelling.		
Reported to:	Survey report for internal use at PINRO; ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP), ICES AFWG; Joint Russian-Norwegian Fisheries Commission, NAMMCO		

Nation:	Russia	Survey title:	Investigation of reproduction biology and ecology of harp seal in the White Sea
Organisation:	PINRO		
Time period:	February-May	Vessel:	Coastal and ice hunting helicopter 1 sealer or R/V
Target species:	Harp seal	Secondary species:	Bearded seal, white whale and other species of marine mammals
Area:	The White Sea		
Purpose:	Investigation of biology and ecology of harp seal in the White Sea for further use in calculations of number of animals in the population and the use of data obtained in the ecosystem modelling.		
Reported to:	Survey report for internal use at PINRO; ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP), ICES WG on Marine Mammal Ecology (WGMME), ICES AFWG; Joint Russian-Norwegian Fisheries Commission, NAMMCO		

Nation:	Russia	Survey title:	Coastal research and observations on the White Sea harp seal and minke whale
Organisation:	PINRO		
Time period:	April-September 4 expeditions of 20-30 days duration each	Vessel:	Coastal expedition with the use of available transport, motor boat “Zodiak”
Target species:	Harp seal Minke whale	Secondary species:	White whale and other species of marine mammals
Area:	Coast of the Barents and White Seas		
Purpose:	Collection of biological data, study of distribution and estimation of number, as well as migration routes of the target and secondary species for further use of data obtained in the ecosystem modelling.		
Reported to:	Survey report for internal use at PINRO; ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP), ICES WG on Marine Mammal Ecology (WGMME), ICES AFWG; Joint Russian-Norwegian Fisheries Commission, NAMMCO, IWC		

Nation:	Russia	Survey title:	Aerial survey of marine mammals within the frames of their complex estimation during annual Russian-Norwegian ecosystem research
Organisation:	PINRO		
Time period:	September	Vessel:	Airborne laboratory AN-26 “Arktika”
Target species:	Minke whale humpback whale, white-beaked dolphin	Secondary species:	Harp seal, walrus and other species of *Cetacea* and *Pinnipedia*, seabirds
Area:	The Barents Sea		
Purpose:	Study of the effect of marine mammals and seabirds on the main commercial fishes for further use in ecosystem models for management of commercial living marine resources.		
Reported to:	Survey report for internal use at PINRO; Joint Russian-Norwegian Fisheries Commission, ICES AFWG, ICES WG on Marine Mammal Ecology (WGMME), NAMMCO, IWC.		

Nation:	Russia	Survey title:	Surveys, observations and collection of biological samples during coastal expeditions and vessel-based observations
Organisation:	PINRO		
Time period:	05.03-30.04	Vessel:	Coastal observations and expeditions including the use of boats and coastal hunting
Target species:	Ringed seal Bearded seal	Secondary species:	Harp seal, white whale, walrus, grey seal and bay seal
Area:	Coast of the Barents, White and Kara Seas		
Purpose:	Investigations of number, feeding, distribution, sex and age composition of the target and secondary species for further use in the study of the effect of marine mammals on the main commercial fishes by the way of development and implementation of ecosystem models for management of commercial living marine resources		
Reported to:	Survey report for internal use at PINRO; ICES WG on Marine Mammal Ecology (WGMME), ICES AFWG, Joint Russian-Norwegian Fisheries Commission, NAMMCO.		

Nation:	Russia	Survey title:	Surveys, observations, collection of biological samples and tagging with satellite telemetric tags of white whale (by capture of alive white whale)
Organisation:	PINRO		
Time period:	June-August	Vessel:	Coastal expeditions, vessel's (including the use of boats and motor boats) and airborne surveys
Target species:	White whale	Secondary species:	Bearded seal, walrus, grey seal, bay seal and other species of marine mammals
Area:	Coast of the White, Barents, and Kara Seas		
Purpose:	Investigations of biology and ecology of white whale and other species of marine mammals, as well as migration routes of white whales to understand their place and role in the ecosystem of the West sector of the Arctic including their effect on the main commercial fish species in the Barents and White seas		
Reported to:	Survey report for internal use at PINRO; ICES, NAMMCO, IWC.		

11. Investigations on survey methodology

In 2007, investigations in the field of survey methods and comparison of techniques and standard methods will continue. A workshop on survey methodology will take place in Bergen during the first half of 2007.

12. Russian-Norwegian Fisheries Science Symposia

The 12th Russian-Norwegian Symposium will be held in Tromsø, Norway in August 2007.

The title of the symposium is: "Long term bilateral Russian-Norwegian scientific co-operation as a basis for sustainable management of living marine resources in the Barents Sea"

Theme sessions:

- Establishment and maintenance of long time marine data bases
- Development and implementation of new methods and models
- Long term changes in the Barents Sea ecosystem

13. Development of an exchange program of scientists

In 2007 it will be developed a program for exchange of scientists between PINRO, VNIRO and IMR, on all levels (students – research technicians – senior scientists).

The program will be developed during the first half of 2007, and considered during the March meeting. The program should include exchange between the institutions at their laboratories and at their research vessels during investigations. The institutions will agree on the program before its implementation.

14. Development of joint assessment model for herring stock

On 14-16 February 2006, in Bergen (Norway), a second meeting of scientists from Russia and Norway was held, where the progress reached in this field was noted and the scheme of future model and plan for further work were made. According to this plan the Parties have an intention to continue development of a unified method for the stock assessment and estimation of TAC based on Russian and Norwegian models. For this purpose, VNIRO, PINRO and IMR plan to conduct a number of additional researches and meetings of scientists in 2007.

15. Joint three-year program on benthic living animals

Work on this program has proceeded according to the decisions made during the March Meeting. Joint field work was done during the ecosystem survey in August to September 2006, and

16. Catch volumes needed for investigations of marine resources and monitoring of the most important commercial species, as well as management tasks

The catch volumes shall enable each party to carry out all tasks described in "Joint Norwegian – Russian Scientific Research Program on Living Marine Resources in 2007" including surveillance activities to provide recommendations on area closures/reopening as well as other decisions on management of fishing activities on living marine resources in ICES Subarea I and II.

To solve these tasks the following catch quantities (upper limits of scientific quotas) are decided for each party for 2007:

- 8 000 tonnes of cod
- 4 000 tonnes of haddock including bycatch of other ground fish species
- 2 000 tonnes of capelin
- 4 900 tonnes of Greenland halibut

The parties agreed that the quota of Greenland halibut allocated for research purposes will not be increased in the years to come.

Both Parties will make all efforts to fulfill their respective parts of the program.

All catches taken for research and management purposes should be recorded in the catch statistics separately.

Protocol

of the second meeting of the
WORKING GROUP ON ELABORATION OF PROPOSAL ON JOINT MANAGEMENT MEASURES FOR GREENLAND HALIBUT
Kirkenes, 4. – 6. October 2006

According to the protocol of the 34. session of the Joint Norwegian-Russian Fisheries Commission (JNRFC), item 8.1, and the protocol of the Norwegian-Russian Scientist Meeting (NRSM) in March 2006, item 2e, delegations from Russia and Norway forming the Working Group on elaboration of proposal on joint management measures for Greenland halibut (hereafter referred to as the WG) met in Kirkenes from the 4th to the 6th of October. The members of the delegations are listed in Appendix 1. This was the second meeting in the WG, the first was held in Copenhagen at 28th of April 2006.

After an introductory session with pieces of practical information and presentation of the delegation members, the following agenda was adopted:

Agenda:

1 Discussion on how the mandate is to be understood, time schedule for the work etc.
2 Agreement on the main principles of work, what kind of information that will be considered, what the final product will look like
3 Agreement of what kind of information to report to the 35. session of the Joint Norwegian-Russian Fisheries Commission (JNRFC)
4 Presentation of the various sources of information brought to the WG by members, and discussion of their implication
5 Preparation of protocol
6 Discussion of further plans for the WG
7 Closing of the meeting and signing of the protocol

Ref. Item 1 on the agenda, the parties exchanged points of view on the mandate given by JNRFC and further elaborated by the NRSM (Appendix 2). The agreement on the establishment of the WG and its tasks are stated in the protocol of the 34. session of the NRFC. Under item 8.1 it is said: "The parties agreed to establish a working group to collate information on the geographic distribution of the Greenland halibut stock, and on the catch history and scientific research on the stock, with aim to formulate a proposal for joint regulation measures. The working group is to report to the annual meetings of the Joint Norwegian-Russian Fisheries Commission". This mandate was further elaborated by NRSM and specified in three points:

1. Present data on the geographical distribution of Greenland Halibut in relevant exclusive economical zones and international waters. All relevant data from fisheries and scientific surveys should be considered. If possible the considerations of possible influence from climate variations should be taken into account.

2. Tabulate catches, total and divided by country, distributed by ICES areas I, IIa and IIb.

3. Tabulate and document the extent of historic research of the stock.

Both parties acknowledged the fact that these three types of information normally used for dividing transboundary stocks between relevant zones, and recognized that the WG was not asked to draw any conclusions about division of the stock based on these types of information.

However, the members shared the view that the report from the WG meeting should contain comments as to the strengths and weaknesses of the various elements of the information and also indicate how the pieces of information could be weighted when the conclusions are to be drawn by managers.

It was also discussed what time schedule the WG should work according to, and how far it would be possible to come with the work during the present meeting. It was agreed that results on zonal attachment should be given during the present meeting, but that the conclusions reached should be considered tentative, since they are based on a limited amount of data.

The WG further discussed how far back in time catch statistics would be available, and how it should be further divided by areas, countries etc. The members recognized a dilemma here; the WG is asked to consider "all available data", while it is known that the further back one goes, the less reliable the catch statistics will be. It was agreed to evaluate the total amount of catch statistics that was brought to the WG, and then to comment upon the quality of different time periods and advice on what periods should be given more weight when considering its usefulness for TAC division purposes.

According to the mandate the catches are listed by countries and by ICES areas I, IIa and IIb. The data on zonal attachment is presented according to the relevant zones in the area, i.e. NEEZ, REEZ, International waters ("The loophole"), the "Grey zone", and the fishery protection zone around Svalbard (the Spitsbergen archipelago).

It was also discussed how the last point in the mandate, to "Tabulate and document the extent of historic research of the stock" should be treated. It was agreed to make one table with general information on research activities and another with more detailed biological information on Greenland halibut collected in scientific cruises.

Ref. item 2 and 3 on the agenda, the WG agreed that it was possible to report practically all information on the three mandate points discussed above, to the 35. session of the JNRFC. It was decided to present data relevant for the various topics together with comments on the data quality. It was further decided to put a summary of the relevant information up front in the protocol, but keeping all text, tables and figures in the body of the protocol (except the Table given in the Appendix 3). The WG did not consider it a part of the present work to give specific advice on how the various data sources might be used to draw conclusions about joint regulation measures.

Ref. item 4 on the agenda, both parties presented the information brought to the group, and formed subgroups to elaborate the different types of information. The summary of the work is given below, and further down in the document the total material is given.

Summary of information about stock status, biology, distribution, catch history and research activities

Stock status and biology of the North East Arctic Greenland Halibut (NEAGH)

Based on the material from several decades of research on the stock, and in particular from the last few years of intensified studies under the joint research program, it is concluded that the NEAGH is a self-contained stock, which predominantly is distributed in the Barents Sea and adjacent areas to the west and north. From the spawning areas along the western continental slope of the area, the larvae are transported north- and eastwards to nursery areas, which are

mainly found between Svalbard and Franz Josef Land. As the young grow older, they gradually migrate south- and westwards.

Distribution
During 2004 and 2005, an extensive mapping of the distribution areas of NEAGH was made, during collaborative surveys. The results of this mapping on various zones of the area, are given in Table 2. It is noted, that one cannot be sure that these years are representative for a typical situation, since climatic shifts and state of the stock are likely to affect the distribution pattern. Data from other periods are presented to shed light on possible effects of climate and variations of stock size. The group identified the most important areas of research for improving estimates of relative abundance over the whole distribution area.

The working group agreed that the combined data collected with Alfredo and Campelen trawls from 2004 and 2005 represents the best total coverage of the stock. However, the coverage area in 2005 was slightly less than that in 2004 and both years were characterized by incomplete coverage of the whole distribution area (Fig. 6).

The swept area estimates from surveys in 2004 and 2005 shows that approx. 53-70 % of the biomass is found in the NEEZ, 5-6 % in REEZ and 22-36% in the fishery protection zone around Svalbard (the Spitsbergen archipelago). In terms of numbers the percentage in these zones was 15-31%, 31-36 % and 36-47% respectively. In all other areas combined, estimates were 2-5% by weight and 1-3% by numbers (for more details se Table 2).

Catch statistics
The period from 1973 – 1991 is characterized by relatively high quality of the data and is not hampered by the fishing moratorium.

Research activities
Both parties documented a substantial amount of research activities, which are reflected in Table 6 and Appendix 3.

1. Geographical distribution

1.1 Life cycle, reproductive biology and migration of the Greenland halibut

Genetical analyses did not reveal any genetic difference between specimens sampled from the Halten Bank to north of the Spitsbergen archipelago, but these samples were significantly different from specimens sampled at Faroe Island, Greenland and in Canadian waters (Knutsen *et al., in subm.*). Therefore Northeast Arctic Greenland halibut stock (NEAGH) seems to be a self-contained unit with limited exchange with other areas.

Spawning of the Northeast Arctic Greenland halibut occurs in autumn and winter. The main spawning grounds are located in the deep waters (500-800 m) of the continental slope between 70° and 75°N (Figure 1) (Albert et al., 2001; Nedreaas, Smirnov, 2004).

Distribution and density of the spawning concentrations are variable and depend chiefly on the number of spawners, structure of the mature part of the population as well as on oceanographic conditions in every specific year. The majority of the first maturing Greenland halibut individuals approach the area of reproduction from the north and, if the conditions are favourable, spawn mostly in its northern part (Subarea IIb), while large repeat spawners prefer more southerly areas (Subarea IIa) (Smirnov, 2006).

According to the classification of fish by the type of egg laying Greenland halibut belongs to pelagophilic species. During egg and larvae drift, the first settling of individuals from newly appeared yearclasses takes place. Direction of ichthyoplankton drift and posterior distribution of juveniles is much dependent on localization of the parental stock (Ådlandsvik et al., 2004). Water circulation in the spawning areas of Greenland halibut is characterized by the fact that southern parts of the main spawning grounds located between 70° and 73°N are situated in the zone separating the Norwegian and North Cape Currents. The Norwegian Current carries its waters along the continental slope towards Spitsbergen stretching its effect over the areas north of 73°N. The North Cape Current flows to the Barents Sea. Therefore, the more females of Greenland halibut spawn south of 73°N, the higher the probability of mass juveniles penetration to the Barents Sea shelf. Prerequisites for the drift of juveniles to the southern Barents Sea are increased abundance of the spawning stock, high percentage of older age groups in the spawning stock and lowered water temperature in the area of the continental slope.

Ichthyoplankton research and data from international surveys for 0-group of commercial species indicated that until the end of 1980's (in particular in 1979, 1980, 1983 and especially in 1987) a recurrent drift of large number of juvenile Greenland halibut to the eastern Barents Sea was observed. In 1990's, because of low abundance of spawners against the background of high water temperature on the spawning grounds, the northern component of the drift was predominant (to Subarea IIb) (Smirnov, 2006).

At the end of summer – beginning of autumn, juvenile Greenland halibut being 7 cm long start to switch to the bottom way of living. During the long (8-10 months) period of drift, juveniles cover great distances and their settling to the bottom occurs over a wide area in zones the most distant from the spawning grounds and being the margins of the population area.

In the Barents Sea and adjacent waters, a few main areas where bottom juveniles of Greenland halibut are concentrated were identified. The West Spitsbergen Current brings juveniles to the fjords of the West and North Spitsbergen and further to the northeast along the continental slope. With the branches of the current via straits between the Spitsbergen and Franz Josef Land juveniles are brought to the northern areas of the Barents Sea shelf. The Northern Branch of the North Cape Current transports juveniles to the northern part of the Hope Island Deep and adjacent areas of the Central Bank and Hope Island area. The Main Branch of the North Cape Current and further the Murman Current deliver ichthyoplankton to the slopes of Central Basin (Nizovtsev, 1989).

The first 3-4 years of life Greenland halibut spend close to the areas of settling, as a rule in shallow waters at the depth of 100-300 m concentrating at the sites with complex bottom topography covered by soft sediments, mainly in the large bottom depressions where to Atlantic waters penetrate (Smirnov et al., 2000). During trawl surveys in 1996-2004, the densest concentrations of bottom juveniles of Greenland halibut were found in the areas with depths more than 200 m from the Erik Eriksen Strait (between the King Carl Land and Northeastern Land) to the Franz-Victoria Trough (between the Franz Josef Land and Victoria Land) (Høines and Smirnov, 2002).

With growth and maturation, the Greenland halibut gradually shift towards spawning grounds and inhabit greater depths (Figure 2). Having reached maturity and spawned for the first time, individuals start seasonal migration between the areas of reproduction and feeding (Nizovtsev, 1989). Throughout the year the species is therefore caught as by-catch in Russian cod fishery over a large area (Figure 3).

From the above it is seen that Greenland halibut is distributed over a vast area of the Barents Sea and adjacent waters, however, by the main role of different areas played in maintaining vitality of the population they can be differentiated as follows. The Norwegian Sea (Subarea IIa) is the main area of spawning and feeding of individuals from older age groups. The Bear Island – Spitbergen area (Subarea IIb) is the main area for feeding of juveniles and spawning of the first maturing individuals. The Barents Sea (Subarea I) is the feeding area for both juveniles (northern and central parts) and adults (central and southern parts).

1.2 Greenland halibut distribution from survey data

Our results clearly show that the vast majority of adult Northeast Arctic Greenland halibut throughout the year are distributed along the continental slope between the Norwegian mainland and the Spitsbergen archipelago, while further eastwards in the Barents Sea its distribution remains severely limited. Juveniles were mainly found north and east of the Spitsbergen archipelago to White Island and Franz Josef's Land, thus firmly establishing these areas as nursery grounds for the species. Spawning grounds were confirmed located largely on the upper slope areas north and south of Bear Island.

Data from Russian and Norwegian surveys in the northern Barents Sea (north and east of the Spitsbergen archipelago and in the area of the Franz Josef Land), which have become joint surveys since 2000, showed that a considerable proportion of juveniles (28-56%) settled in the area of the REEZ (Table 1). Figure 4 shows the distribution of catch rates of Greenland halibut from joint Russian-Norwegian ecosystem survey in 2006.

Russian stratified surveys for Greenland halibut having been conducted since 1984 cover the area of about 140 thousand square miles from the Novaya Zemlya in the east to the continental slope (depth of 900 m) in the west. Despite the fact that these surveys are carried out during pre-spawning and spawning period (October-December) when Greenland halibut migrate to the west and concentrate on the continental slope, from 11 to 43% (about 20% on the average) of the Greenland halibut fishable stock (fish longer 30 cm) abundance were distributed in the ICES Subarea I (east of 30°E) (Figure 5) (Smirnov, 2002).

In August-September 2004 and 2005 Russian and Norwegian research vessels covered most of the Barents Sea and Spitsbergen area by Campelen-1800 trawl, and in the same period Norwegian vessels covered the deeper areas from 62 – 80 N (in 2004) and 68 – 80 N (in 2005) by Alfredo-5 trawl. In total this was a coverage, which included most of the distribution area of the Northeast Arctic Greenland halibut stock (Fig. 6). In 2005 also a coverage using the Alfredo-5 trawl in the whole Barents Sea, also included the deeper slope area and the REEZ, was conducted by Norwegian vessels. Patterns of distribution and abundance from these coverages are given in Thangstad *et al.* (in prep). The swept area estimates from surveys in 2004 and 2005 shows that approx. 53-70 % of the biomass is found in the NEEZ, 5-6 % in REEZ and 22-36% in the fishery protection zone around Svalbard (the Spitsbergen archipelago). In terms of numbers the percentage in these zones was 15-31%, 31-36 % and 36-47% respectively. In all other areas combined, estimates were 2-5% by weight and 1-3% by numbers (for more details se Table 2).

There is limited information on seasonal variations in distribution. Due to ice conditions, the young fish areas may only be surveyed during late summer. The main area of adult Greenland halibut was surveyed three times a year from August 2003 until March 2005. Figure 7 shows a concentration in distribution during the spawning season in Nov-Dec, otherwise only minor differences were seen.

Commenting on distribution of Greenland halibut in EEZs it should be emphasized that estimated proportions are imprecise because they are based on the survey data, which always have some uncertainty, and that they will also vary in dependence on environmental conditions and stock dynamics.

Thus, due to peculiarities of distribution, drift of eggs and larvae as well as active migration, the Greenland halibut at different stages of its life and annual cycles forms concentrations in all economic zones of the Barents Sea (Nedreaas, Smirnov, 2004), that indicates the Greenland halibut to be a transboundary stock.

1.3 Remaining uncertainties of total distribution area

The above description of total distribution of Northeast Arctic Greenland halibut depends largely on results obtained during the last few years. Therefore the results may not be representative of the typical situation. There are still some methodological problems. Some of them may be solved in the course of the new 3-year program, while some will be more difficult to solve. . Below is a list of the most important questions that need to be addressed, together with a brief description of relevant planned research activities.

a. Eastern boundary of juvenile distribution

Figure 6 shows relative high catch rates of Greenland halibut in the area just west of Franz Josefs Land. Little is known about the distribution further east, but Russian surveys from late 1980s found Greenland halibut in the deeper areas also east of the archipelago. Data from the Russian-Norwegian juvenile surveys show that length-groups corresponding to age groups 2-3 have not reached their eastern boundary within the survey area (Eliassen, 2006). The extent of the problem may be difficult to estimate from surveys alone due to the severe ice conditions in these areas. Possible solutions include controlled experiments of abiotic tolerance levels, survey of antifreeze compounds, and calculation of total area exposed to environments within estimated tolerance levels. But, even taking into account possible progress in this field it seems to be difficult to get accurate data, especially when it comes to historic data on eastern boundary of the distribution of Greenland halibut. The reason for this is that it is not possible to observe the distribution of warm waters under the ice coverage where fish distribute.

b. Length-dependent catchability

Both video analyses and trawl experiments with auxiliary bags have shown that the proportion of Greenland halibut that are lost beneath the trawl is higher for the smaller individuals (Albert *et al.* 2003). This may result in underestimation of abundance of juveniles. In addition, the largest individuals are able to avoid the bottom trawl a long distance ahead of the approaching trawl (Albert *et al.* 2006). Both of these effects may be accounted for when calculating survey indices. Preliminary correction equations exist, but further experiments are needed to improve the corrections.

c. Methods of combining data from several sampling trawls

The most complete survey coverage of the stock (Fig 6) depends on combining trawl indices from two different Norwegian bottom trawls. A method for this combination is described in Thangstad *et al*. (*in prep.*) based on a few parallel trawl experiments. To ascertain an accurate combination of different survey series these experiments should be conducted in both juvenile and adult fish areas, and may also include Russian trawl types.

d. Pelagic distribution

Experiments with vertical longlines have shown that adult Greenland halibut may frequently be found pelagically between 300 and 600 m depth from the continental slope and some distance out in the Norwegian Sea (Vollen and Albert, *in prep*). Preliminary analyses of archival tags indicate that this pelagic activity is mainly associated with the continental slope and occupies around 20% of the time (Albert and Vollen, *in prep.*). As more archival tags are recaptured, this estimate will be improved and seasonal patterns may be found.

e. Long-term variations

The distribution of Greenland halibut depends on size of the stock and temperature conditions in the sea. According to Milinsky (1944), in the abnormally warm 1930s when the stock was in good state the Russian catches in the eastern Barents Sea were up to 1400 kg per 1 trawling, which was very high if taken into account the fishing capacities at that period. Therefore, the total distribution area in previous periods and mean long-term perspective is not known, but in the future an attempt may be done to estimate it by combining environmental models with estimates of environmental tolerance of Greenland halibut.

f. Age reading

The problems with age reading of Greenland halibut leads to additional uncertainties in zonal attachment of this species. The existing disagreements in age reading hamper a reliable picture of Greenland halibut distribution by age groups. In 2006 a large effort was started to validate the age reading method.

2. Catch statistics

In the years prior to 1970, the catches of Greenland halibut were not specified by species and countries in the official ICES publications (Bulletin Statistique). However, for instance for Norway, catches of Greenland halibut for several decades before 1970 were specified by species, quantity and area (not ICES-areas) in the official national statistics (published by the Central Bureau of Statistics). For the reasons mentioned the catch statistics compiled and presented at this WG meeting is a combination of official ICES figures, official national figures and figures provided and used by members of the Arctic fisheries working group in ICES.

From the early 1970's and onwards the quality of the data is assumed to be substantially higher than for the preceeding years, while the period after the introduction of the moratorium is characterized by heavy restrictions on fishery effort and catches.

Comments to the quality and sources of statistics:
Before 1970, Norwegian catches are based on official national figures by the Central bureau of statistics. From 1970 and onwards the Norwegian catches are based on official ICES statistics. (Bulletin Statistique)

Data on catches by USSR/Russia in 1946-1963 is based on monograph by G.P. Nizovtsev (1989). The source of data on catches used by Nizovtsev and its reliability is unknown. The availability of catch data for this period is limited and difficult to ascertain. Data on catches by USSR/Russia in 1964 – 1972 is used by ICES for assessment of the Greenland halibut stock and published in the reports of the ICES AFWG.

For the period 1973-2005 the figures for both USSR/Russia and Norway are based on official ICES statistics (Bulletin Statistique/STATLANT database).

Final comment:
The period from 1973 – 1991 is characterized by relatively high quality of the data and is not hampered by the fishing moratorium.

3. Research activities

The participants of the WG presented information on scientific researches and agreed on a unified format for this data.

The participants agreed that regular observations and collection of biological and fishing data began in 1960s and in the previous period investigations of Greenland halibut were occasionally conducted.

The amount of fundamental biological data collected by the scientists from both countries is given in Appendix 3. The whole historic period of researches was divided in several parts according to the main study results of certain biological aspects of Greenland halibut. (Table 6).

A significant progress in biological studies of Greenland halibut was achieved during the work according to 3-year (2002-2004) joint research Russian-Norwegian programme. The intensification of the research in last years was largely caused by allocation of scientific quotas for the programme.

According to the task of the 34th session of JNRFC (item 8.1 in the Protocol), the scientists from Russia and Norway at March meeting in 2006 developed a new 3-year (2007-2009) joint research programme. In the protocol of this meeting (Appendix 4 to the protocol from the 2006 March-meeting) it is stated: “The Russian part informed that in their view, the realization of this research program requires an additional scientific quota of Greenland halibut”.

4. References

Albert, O.T., E.M.Nilssen, A. Stene, A.C. Gundersen and K.H. Nedreaas, 2001. Maturity classes and spawning behaviour of Greenland halibut (*Reinhardtius hippoglossoides*). Fisheries Research, 51: 217-228.

Albert, O.T., Harbitz, A., and Høines, Å.S., 2003. Greenland halibut observed by video in front of survey trawl: Behaviour, escapement, and spatial pattern. Journal of Sea Research, 50: 117-127.

Albert, O. T., Harbitz, A., Larsen, R.B., and Karlsen, K.-E. 2006. Spatial structure and encounter rate of Greenland halibut in front of bottom-trawls. *pp 147-151 in:* Ross Shotton (Ed.): Conference on the Governance and Management of Deep-sea Fisheries (part 2), FAO Fisheries Proceedings 3/2, 487 pp

Albert and Vollen, *in prep.* Can Pitch & Roll DST distinguish between pelagic and demersal behaviour of adult Greenland halibut?

Eliassen, E.D., 2006. Variasjoner i utbredelse, tallrikhet og vekst av ung blåkveite. M.Sc. Thesis. University of Tromsø, 2006.

Høines, Å.S. and Smirnov, O. 2002. Investigations on demersal fish in the Svalbard area autumn 2000 and 2001, with special attention on juvenile Greenland halibut. JOINT IMR – PINRO REPORT.

Knutsen, K., Jorde, P.E., Albert, O.T., Hoelzel, A.R., and Stenseth, N.C., *in subm.* Population genetic structure in the North Atlantic Greenland halibut: influenced by oceanic current systems? Submitted to CJFAS.

Milinsky, G.I. 1944. Materials on biology and fishing of the Barents Sea Greenland halibut.

Trudy PINRO. 1944. Vyp.8. pp.375-387 (in Russian)

Nedreaas, K., Smirnov, O. 2004. Stock characteristics, fisheries and management of Greenland halibut (*Reinhardtius hippoglossoides* (WALBAUM)) in the Northeast Arctic. *Management strategies for commercial marine species in northern ecosystems. Proceedings of the 10th Norwegian-Russian Symposium. Bergen, Norway, 27-29 August* 2003. – Bergen, Norway, IMR, 2004. – 56-78.

Nizovtsev G.P. 1989. On the relationship between recruitment and the maternal stock of

Greenland halibut in Barents and Norwegian Seas // 3-rd ICES Symp. Early Life

History Fish. - ICES, 1989. – Paper No.53. – 9 pp.

Smirnov, O.V. 2002. Results of the Russian survey of Greenland halibut in the Barents Sea in 2001 - Working document AFWG 2002, # 32.

Smirnov, O.V. 2006. Greenland halibut of Norwegian-Barents Sea population. – Murmansk, PINRO Press, 2006 – 117 pp. (in Russian)

Smirnov O.V., Dolgov A.V., Guzenko V.V., Lepesevich Yu.M. and Ozerov Yu.B. (2000). New data on ichthyofauna and hydrological regime of waters off the archipelagos Spitsbergen and Franz Josef Land. Proceedings of the Final Session of PINRO Scientific Council by the results of research in 1998-1999. Murmansk, PINRO Press. 2000. Part 1, 79-92. (in Russian)

Thangstad, T., Å.S. Høines and O.T. Albert. *in prep.* Seasonal dynamics in distribution of Northeast Arctic Greenland halibut (*Reinhardtius hippoglossoides*).

Vollen, T. and Albert, O.T., *in prep.* Pelagic occurrence of adult Greenland halibut (*Reinhardtius hippoglossoides*) in relation with prey availability.

Ådlandsvik, B., Gundersen, A.C., Nedreaas, K.H., Stene, A., and Albert, O.T., 2004. Modelling the advection and diffusion of eggs and larvae of Greenland halibut (*Reinhardtius hippoglossoides*) in the north-east Arctic. Fisheries Oceanography, 13: 403-415.

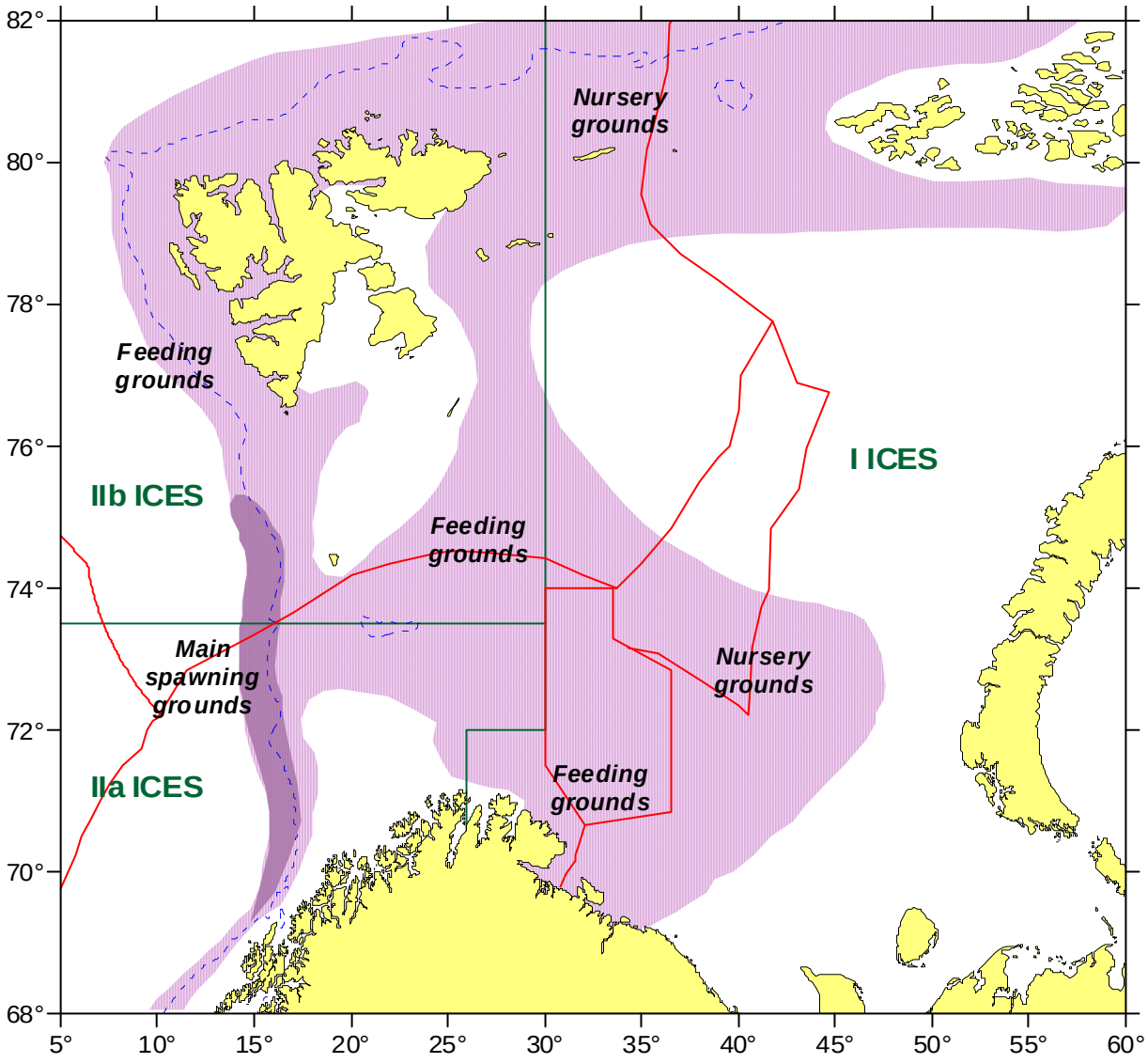

Figure 1. Map of Greenland halibut distribution in the Barents Sea (after Nedreaas & Smirnov 2004)

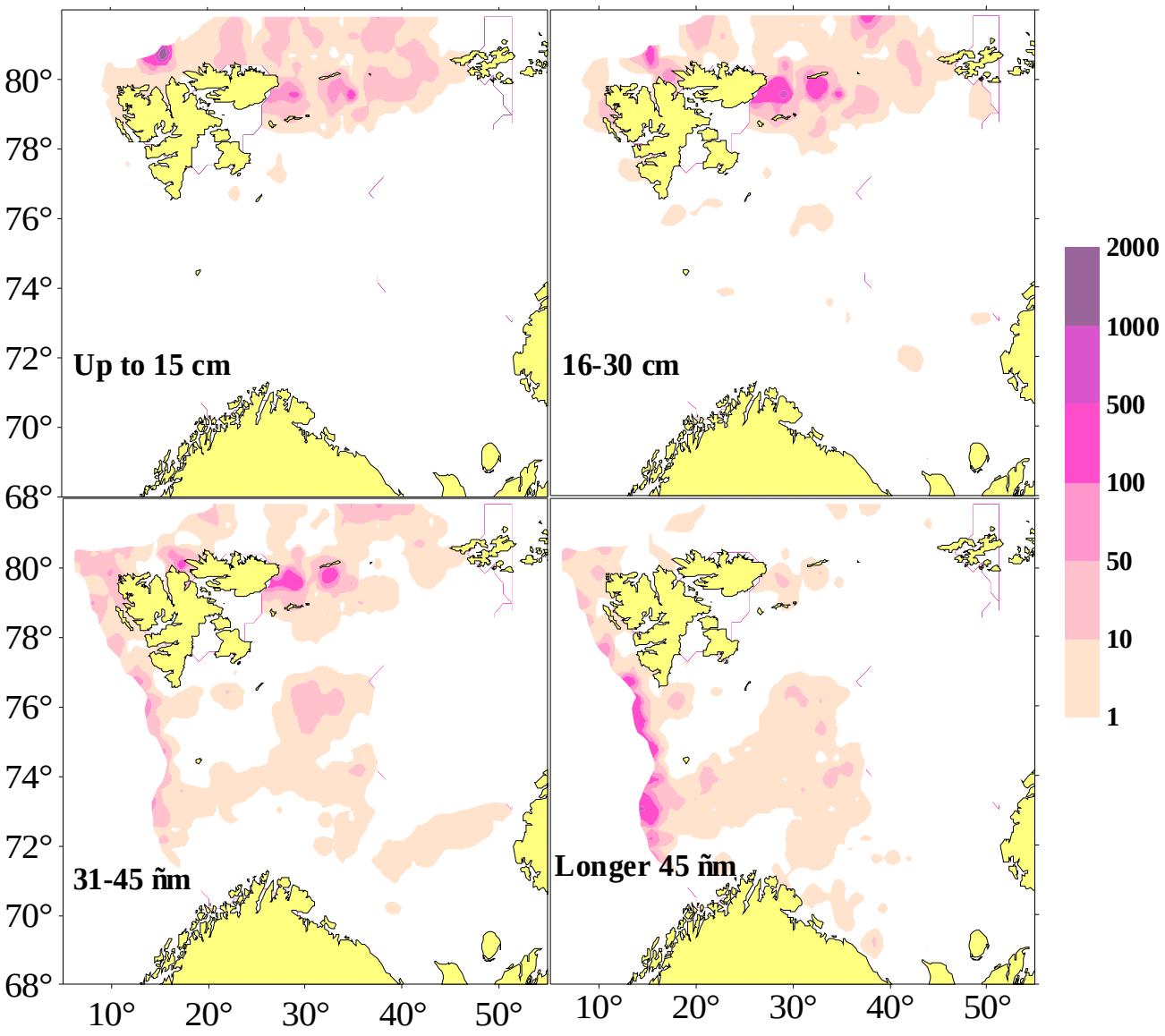

Figure 2. Distribution of catches of Greenland halibut by length in September-December from Russian trawl surveys, individuals/1-hour tow (data combined for 1999-2004)

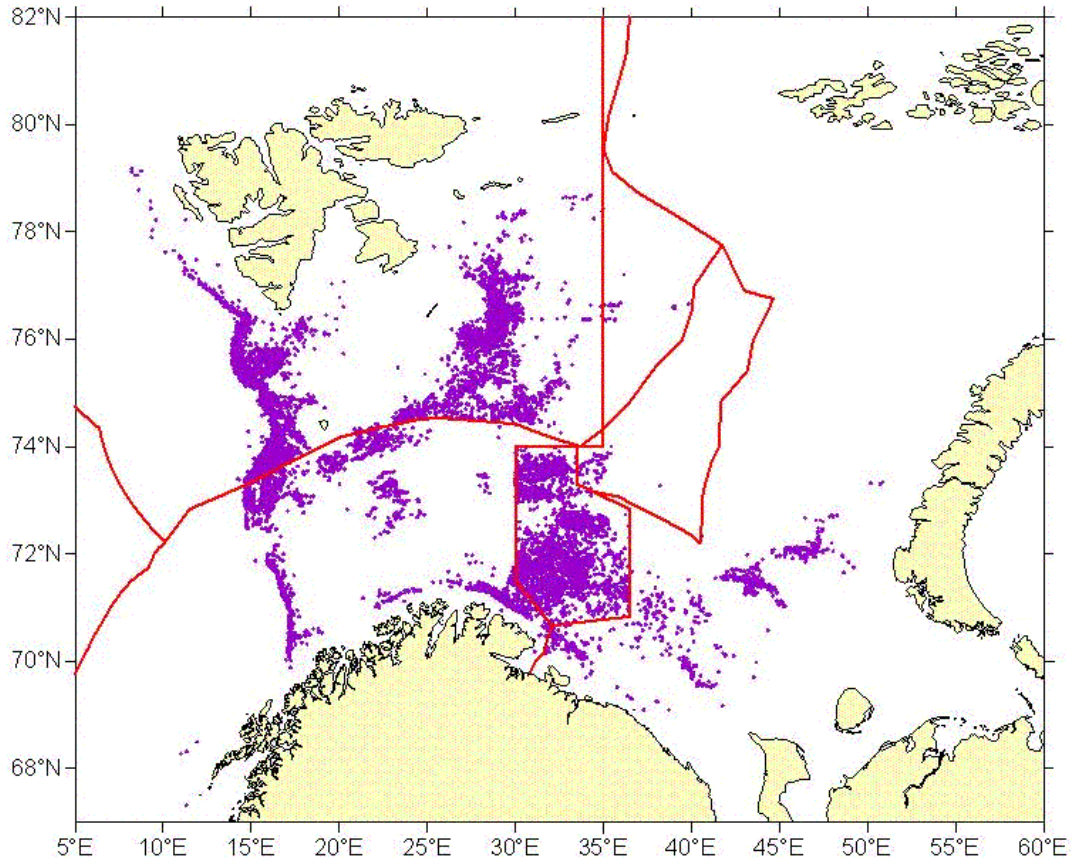

Fig. 3 The occurrence of Greenland halibut in catches of Russian vessels fishing for cod in 2005 (based on daily reports from vessels). This pattern is typical for last 5-7 years.

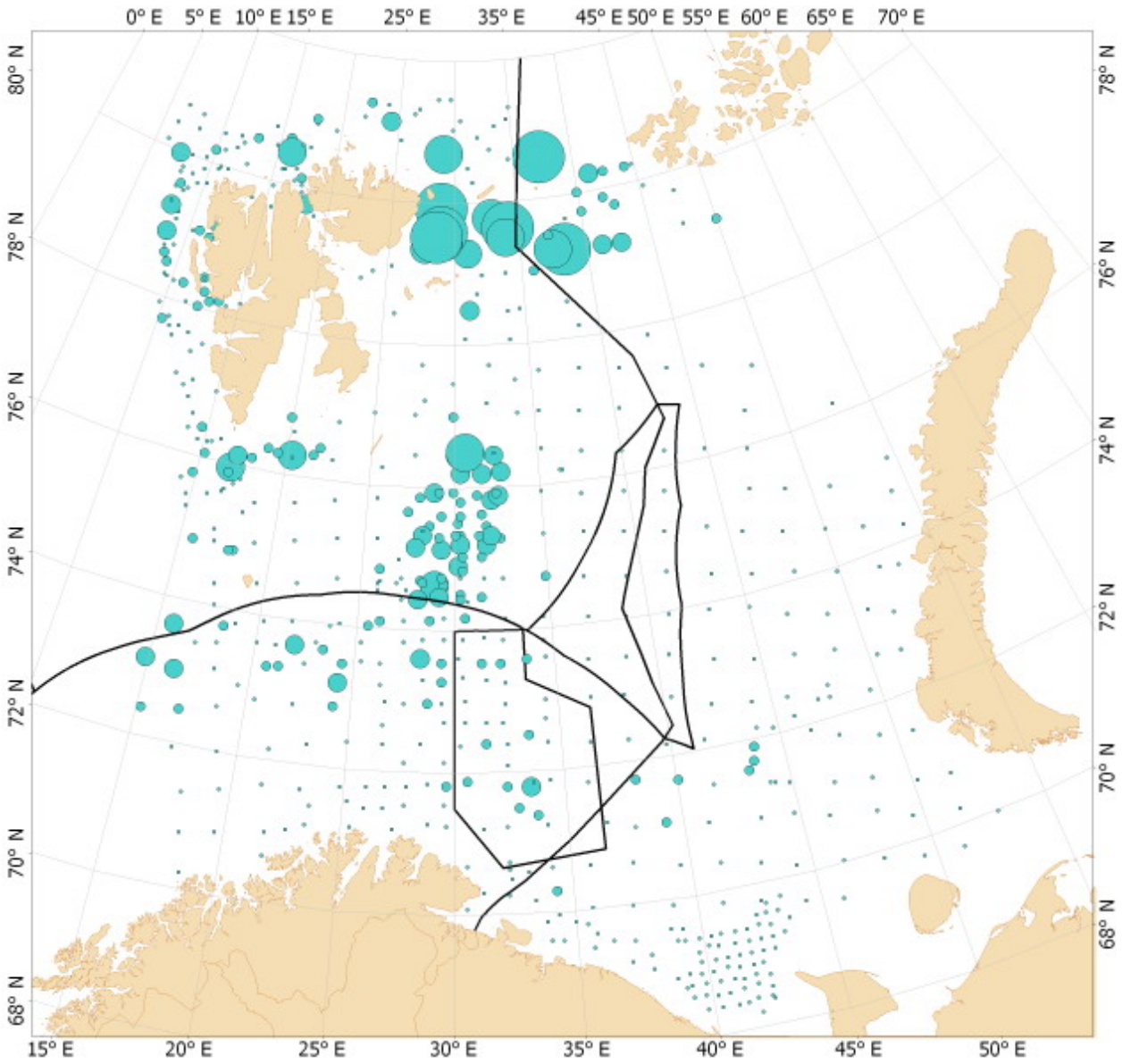

Fig. 4 Catch rates of Greenland halibut (Kg/nm) from joint Russian-Norwegian ecosystem survey in Aug-Sep 2006.

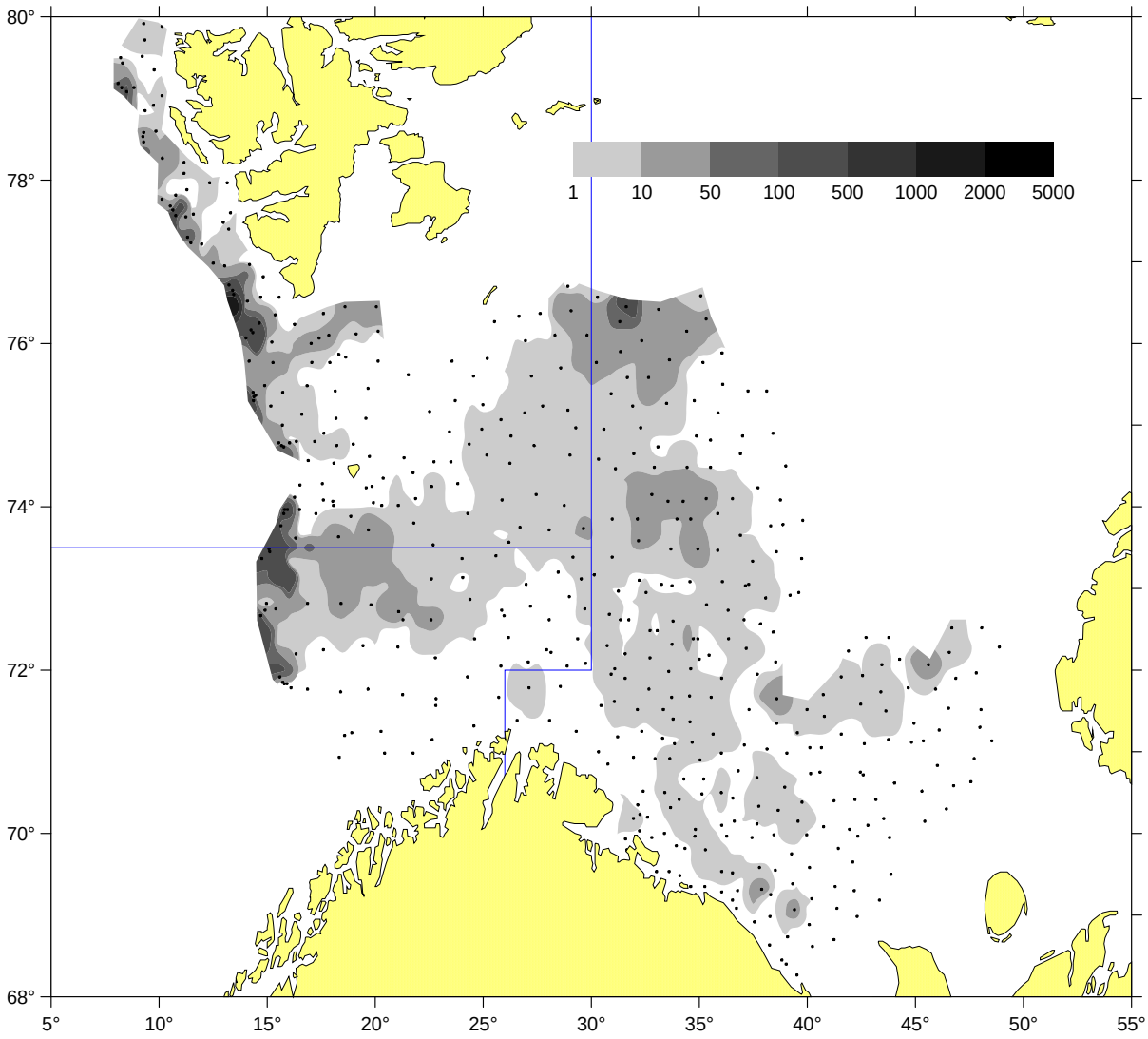

Fig. 5. Distribution of Greenland halibut in October-December from the data of Russian survey 2003, spec./1 hour trawling

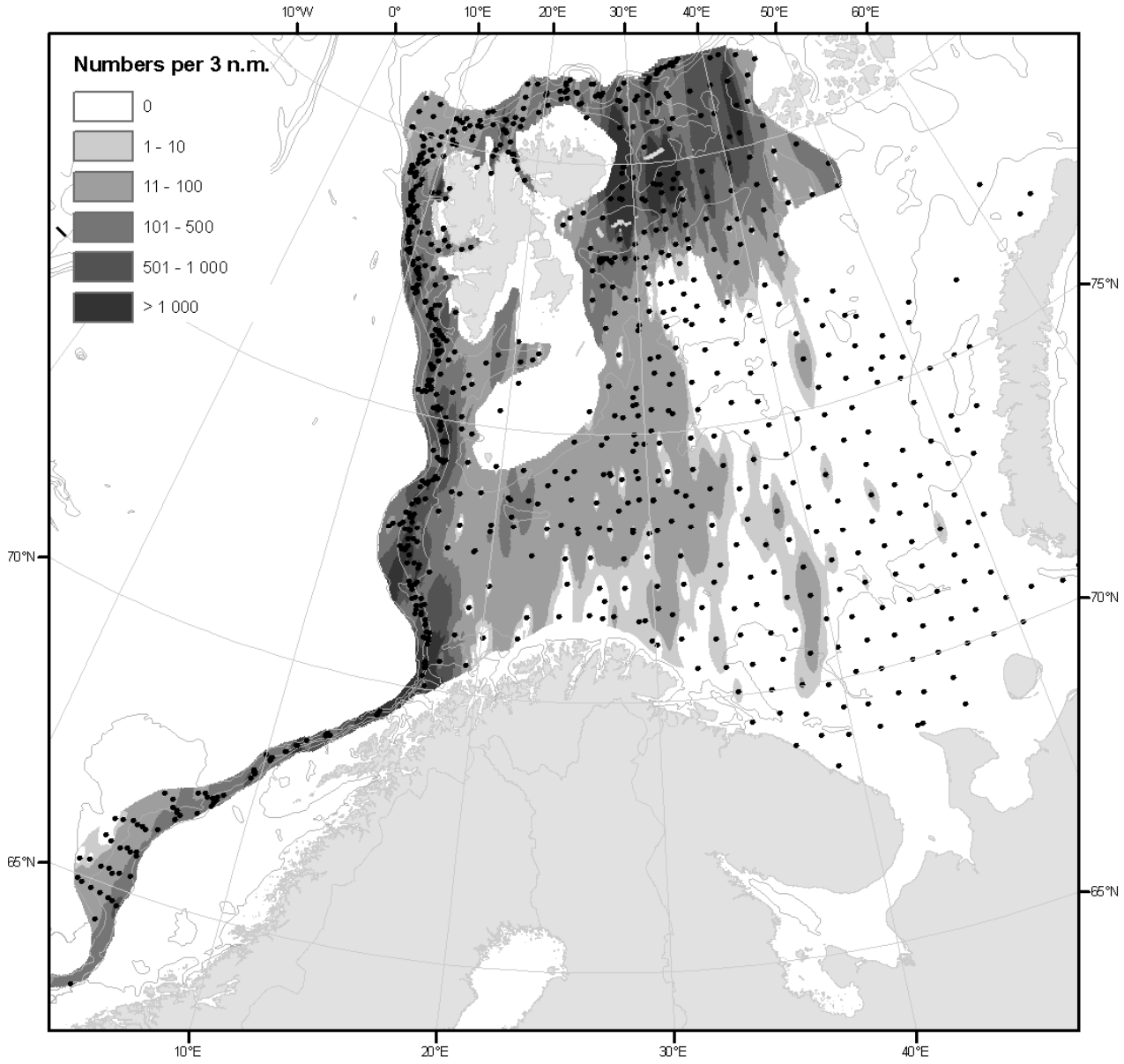

Fig. 6. Total density distribution of Greenland halibut from Russian-Norwegian bottom trawl surveys, August-October 2004. Dots denote sampling stations.

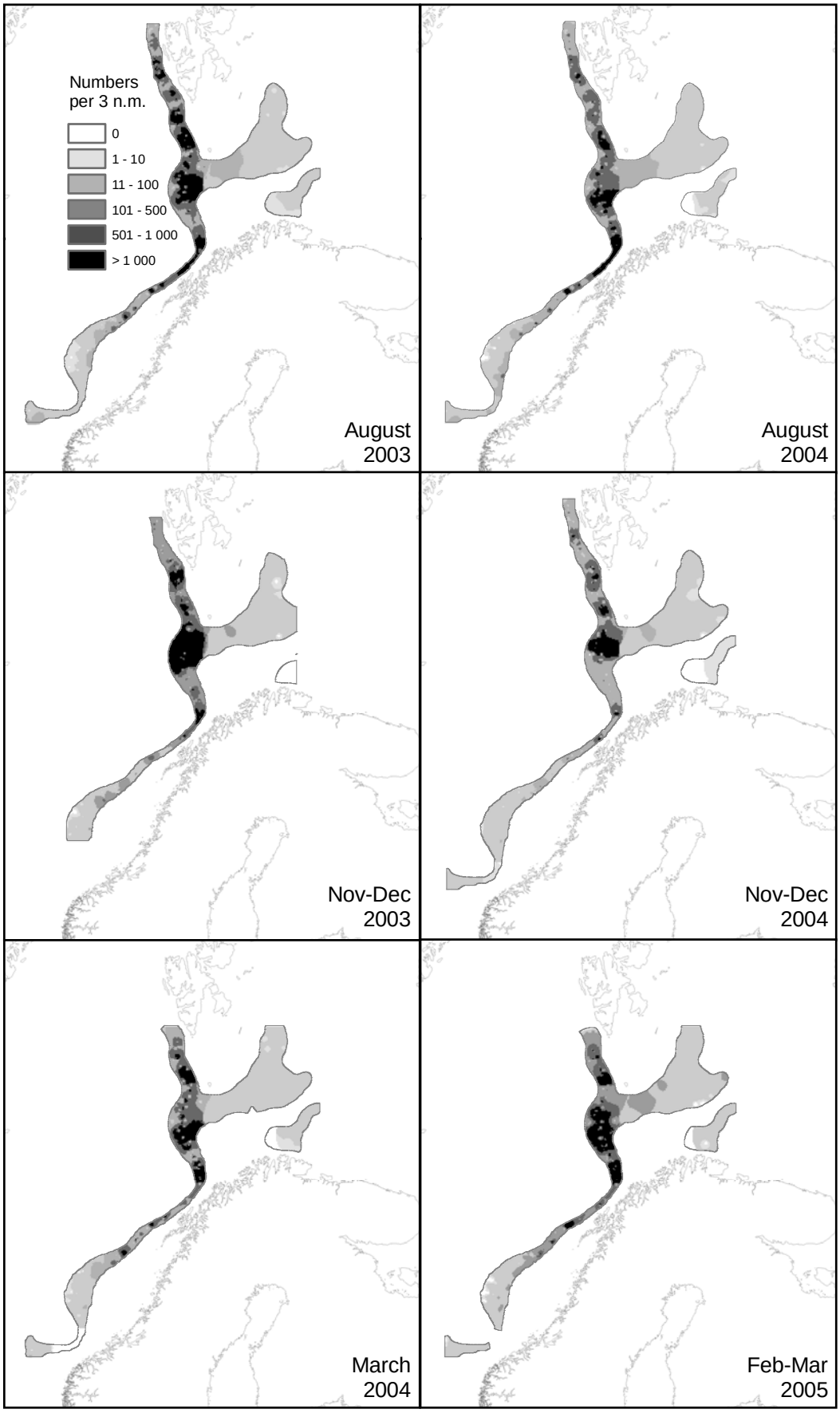

Fig. 7 Total density distribution of adult Greenland halibut from seasonal bottom trawl surveys along the slope 2003-2005. Solid line encircles the survey area.

Table 1. Abundance indices of young Greenland halibut based on the data of trawl surveys northeast of Spitsbergen and in the Franz Josef Land area, thousands specimens

A. Norwegian data (source – AFWG report 2005)

Year	Total	REEZ	% REEZ
1998	64279	20357	32
1999	38140	15651	41
2000*			
2001	92475	42955	46
2002	193641	98211	51
2003*			
2004	166989	57593	34

B. Russian data

Year	Total	REEZ	% REEZ
1999	19316	7105	37
2000*			
2001	45470	25396	56
2002*			
2003*			
2004	129761	66957	52

C. Joint Russian-Norwegian data
(source - IMR/PINRO Joint Report Series)

Year	Total	REEZ	% REEZ
2001	55072	21097	38
2002	108905	29975	28
2003*			
2004	138695	76273	55

* limited area coverage due to hard ice condition

Table 2. Swept area estimates from three surveys covering the total distribution area of the Northeast Arctic Greenland halibut stock.

Biomass

	August 2004 Alfredo & Campelen						August 2005 Alfredo						August 2005 Alfredo & Campelen					
Length	NEZ	SVAL	REZ	INTER	GREY	TOTAL	NEZ	SVAL	REZ	INTER	GREY	TOTAL	NEZ	SVAL	REZ	INTER	GREY	TOTAL
< 10	0	11	0	0	0	12	0	0	0	0	0	0	0	8	1	0	0	8
10-15	0	34	72	0	0	106	0	0	0	0	0	0	0	519	764	0	0	1 283
15-20	0	188	384	0	0	571	0	0	0	0	0	0	1	743	557	0	0	1 300
20-25	0	939	1 880	0	0	2 819	0	199	168	0	0	367	0	403	429	0	0	832
25-30	8	1 436	2 266	0	5	3 715	1	733	1 202	0	0	1 937	9	1 274	2 154	0	0	3 437
30-35	151	1 623	1 141	0	0	2 915	143	2 921	2 518	0	0	5 583	200	5 124	3 885	0	0	9 209
35-40	1 633	4 403	390	281	204	6 910	1 606	7 087	1 270	0	95	10 057	1 457	10 045	1 908	0	104	13 514
40-45	4 140	5 897	408	408	611	11 464	4 260	10 304	529	327	653	16 072	3 934	15 290	1 338	679	856	22 097
45-50	13 643	7 904	726	0	710	22 983	10 402	13 076	476	0	735	24 689	9 630	15 647	1 206	1 013	1 199	28 694
50-55	34 036	6 297	229	0	917	41 479	24 901	8 327	652	67	585	34 532	24 375	10 820	0	1 450	899	37 545
55-60	30 058	3 784	1 566	0	275	35 683	25 242	4 996	244	0	488	30 969	23 970	5 725	0	0	2 142	31 836
60-65	17 939	3 148	465	0	213	21 766	19 343	4 274	87	0	529	24 233	18 966	4 240	0	1 355	389	24 950
65-70	11 231	2 404	0	0	212	13 846	14 580	3 025	98	0	0	17 703	15 028	3 158	0	0	950	19 135
70-75	5 781	919	0	0	20	6 720	8 191	1 199	71	0	0	9 461	8 191	1 334	0	0	0	9 525
75-80	2 675	324	0	0	34	3 033	3 863	480	0	0	0	4 343	3 863	480	0	0	0	4 343
80-85	1 252	169	0	0	0	1 421	2 277	235	0	0	0	2 512	2 277	235	0	0	0	2 512
85-90	249	34	0	0	0	284	796	93	0	0	0	889	796	93	0	0	0	889
> 90						0						0						0
Total (tons)	122 796	39 513	9 527	688	3 202	175 726	115 606	56 948	7 315	394	3 085	183 347	112 695	75 136	12 242	4 497	6 538	211 108
Percentage	69.9	22.5	5.4	0.4	1.8	100.0	63.1	31.1	4.0	0.2	1.7	100.0	53.4	35.6	5.8	2.1	3.1	100.0

Abundance

Length	NEZ	SVAL	REZ	INTER	GREY	TOTAL	NEZ	SVAL	REZ	INTER	GREY	TOTAL	NEZ	SVAL	REZ	INTER	GREY	TOTAL
< 10	0	10161.7	432.8	0	0	10 595	0	0	0	0	0	0	0	6862.5	540.3	0	0	7 403
10-15	0	4 790	10 054	0	0	14 844	0	0	0	0	0	0	0	72 861	107 359	0	0	180 219
15-20	0	7 880	16 134	0	0	24 014	0	0	0	0	0	0	31	31 213	23 389	0	0	54 633
20-25	0	16 012	32 067	0	0	48 079	0	3 397	2 867	0	0	6 264	0	6 874	7 310	0	0	14 184
25-30	70	11 923	18 813	0	40	30 847	9	6 087	9 984	0	0	16 081	77	10 577	17 884	0	0	28 539
30-35	689	7 402	5 202	0	0	13 294	654	13 320	11 484	0	0	25 458	910	23 364	17 718	0	0	41 993
35-40	4 456	12 015	1 063	766	557	18 859	4 383	19 340	3 466	0	258	27 448	3 976	27 414	5 208	0	283	36 880
40-45	7 211	10 271	711	710	1 064	19 968	7 420	17 948	921	569	1 137	27 995	6 852	26 632	2 331	1 183	1 490	38 488
45-50	15 945	9 237	849	0	829	26 860	12 157	15 282	556	0	859	28 855	11 254	18 286	1 410	1 183	1 402	33 535
50-55	27 779	5 139	187	0	749	33 853	20 323	6 796	532	55	478	28 184	19 894	8 831	0	1 183	734	30 642
55-60	17 700	2 228	922	0	162	21 013	14 865	2 942	143	0	287	18 237	14 115	3 371	0	0	1 261	18 748
60-65	7 833	1 375	203	0	93	9 504	8 446	1 866	38	0	231	10 581	8 281	1 851	0	592	170	10 894
65-70	3 721	796	0	0	70	4 587	4 830	1 002	32	0	0	5 865	4 979	1 046	0	0	315	6 339
70-75	1 482	236	0	0	5	1 723	2 100	307	18	0	0	2 426	2 100	342	0	0	0	2 442
75-80	540	65	0	0	7	612	780	97	0	0	0	876	780	97	0	0	0	876
80-85	202	27	0	0	0	229	367	38	0	0	0	405	367	38	0	0	0	405
85-90	33	4	0	0	0	37	104	12	0	0	0	116	104	12	0	0	0	116
> 90	0	0	0	0	0	0	30	9	0	0	0	39	30	9	0	0	0	39
Total	87 660	99 564	86 639	1 476	3 577	278 916	76 468	88 443	30 043	624	3 250	198 828	73 750	239 683	183 148	4 142	5 654	506 377
Percentage	31.4	35.7	31.1	0.5	1.3	100.0	38.5	44.5	15.1	0.3	1.6	100.0	14.6	47.3	36.2	0.8	1.1	100.0

Table 3a. Greenland Halibut. Nominal catch (t) of Greenland Halibut combined. By countries

Year	Norway	Russia	Others	Total
1935	1534	n/a	0	1534
1936	830	n/a	0	830
1937	616	n/a	0	616
1938	329	n/a	0	329
1939	459	n/a	0	459
1940	846	n/a	0	846
1941	1663	n/a	0	1663
1942	955	n/a	0	955
1943	824	n/a	0	824
1944	678	n/a	0	678
1945	1148	n/a	0	1148
1946	1337	25	0	1362
1947	1409	28	0	1437
1948	1877	110	0	1987
1949	198	177	0	375
1950	1853	221	0	2074
1951	2438	423	0	2861
1952	2576	377	0	2953
1953	2208	393	0	2601
1954	3674	416	0	4090
1955	3010	290	0	3300
1956	3493	446	0	3939
1957	4130	505	0	4635
1958	2931	1261	0	4192
1959	4307	3632	0	7939
1960	6662	4299	0	10961
1961	7977	3836	0	11813
1962	11600	1760	0	13360
1963	11300	3240	0	14540
1964	14200	26191	0	40391
1965	18000	16682	0	34682
1966	16434	9768	119	26321
1967	17528	5737	1002	24267
1968	22514	3397	257	26168
1969	14856	19760	9173	43789
1970	15871	35578	38035	89484
1971	9466	54339	15229	79034
1972	15983	16193	10872	43048
1973	13989	8561	7349	29899
1974	8791	16958	11972	37721
1975	4858	20372	12914	38144
1976	6005	16580	13469	36054
1977	4217	15045	9613	28875
1978	4082	14651	5884	24617
1979	2843	10311	4088	17242

n/a – not available

Table 3a. Greenland Halibut. Nominal catch (t) of Greenland Halibut combined. By countries (continued).

Year	Norway	Russia	Others	Total
1980	3157	7670	2457	13284
1981	4201	9276	1541	15018
1982	3206	12394	1189	16789
1983	4883	15152	2112	22147
1984	4376	15181	2326	21883
1985	5464	10237	4244	19945
1986	7890	12200	2785	22875
1987	7261	9733	2118	19112
1988	9076	9430	1081	19587
1989	10622	8812	704	20138
1990	17243	4764	1176	23183
1991	27587	2490	3243	33320
1992	7667	718	217	8602
1993	10380	1235	318	11933
1994	8428	283	515	9226
1995	9368	794	1572	11734
1996	11623	1576	1148	14347
1997	7661	1038	711	9410
1998	8435	2659	799	11893
1999	15004	3823	690	19517
2000	9083	4568	646	14297
2001	10896	4694	784	16374
2002	7143	5584	566	13293
2003	8207	4384	846	13437
2004	13933	4662	298	18893
2005	13425	4883	940	19248

Table 3b. Average – periods of 10 years.

Year	Norway	Russia	Others	Total
1935-44	873	n/a	-	873
1945-54	1872	217	-	2 089
1955-64	6961	4 546	-	11 507
1965-74	15 43	18 697	9401	43 441
1975-84	4 83	13 663	5 559	23 405
1985-94	11162	5 990	1 640	18 792
1995-04	10 35	3 378	806	14 320

Table 3c. Average - periods of 5 years

Year	Norway	Russia	Others	Total
1935-39	754	n/a	-	754
1940-44	993	n/a	-	993
1945-49	1 194	68	-	1 262
1950-54	2 550	366	-	2 916
1955-59	3 574	1 227	-	4 801
1960-64	10 348	7 865	-	18 213
1965-69	17 866	11 069	2 110	31 045
1970-74	12 820	26 326	16 691	55 837
1975-79	4 401	15 392	9 194	28 986
1980-84	3 965	11 935	1 925	17 824
1985-89	8 063	10 082	2 186	20 331
1990-94	14 261	1 898	1 094	17 253
1995-99	10 418	1 978	984	13 380
2000-04	9 852	4 778	628	15 259

Table 3d. Average - selected periods

Year	Norway	Russia	Others	Total
Before 1964	2 857	739	-	3 597
1964-91	10 522	14 552	5 891	30 965
1973-91	7 882	11 569	4 751	24 202
1992 - 05	10 090	2 922	718	13 729

Table 3e. Average - periods of 10 years in %

Period	Norway	Russia	Others	Total
1935-44	100%	n/a	0%	100%
1945-54	90%	10%	0%	100%
1955-64	60%	40%	0%	100%
1965-74	35%	43%	22%	100%
1975-84	18%	58%	24%	100%
1985-94	59%	32%	9%	100%
1995-04	71%	24%	6%	100%

Table 3f. Average - periods of 5 years in %

Period	Norway	Russia	Others	Total
1935-39	100%	n/a	0%	100%
1940-44	100%	n/a	0%	100%
1945-49	95%	5%	0%	100%
1950-54	87%	13%	0%	100%
1955-59	74%	26%	0%	100%
1960-64	57%	43%	0%	100%
1965-69	58%	36%	7%	100%
1970-74	23%	47%	30%	100%
1975-79	15%	53%	32%	100%
1980-84	22%	67%	11%	100%
1985-89	40%	50%	11%	100%
1990-94	83%	11%	6%	100%
1995-99	78%	15%	7%	100%
2000-04	65%	31%	4%	100%

Table 3g. Average - selected periods

Year	Norway	Russia	Others	Total
Before 1964	79%	21%	0%	100%
1964-91	34%	47%	19%	100%
1973-91	33%	48%	20%	100%
1992 - 05	73%	21%	5%	100%

Table 4a. GREENLAND HALIBUT. Nominal catches (t) in Sub-areas I, IIa and IIb.

	ICES-area I				ICES-area IIa					ICES-area IIb				
Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total
1970	1675	2336	0	4011	1970	6 408	76	8 466	14 950	1970	7 788	33 166	29 569	70 523
1971	1951	3441	21	5413	1971	4 974	491	5 392	10 857	1971	2 541	50 407	9 816	62 764
1972	3116	4366	1067	8549	1972	11 715	21	3 897	15 633	1972	1 152	11 806	5 915	18 873
1973	2947	1700	1020	5667	1973	7 861	22	307	8 190	1973	3 181	6 839	6 061	16 081
1974	2167	2329	755	5251	1974	6 593	-	1 259	7 852	1974	31	14 629	10 000	24 660
1975	216	3774	2505	6495	1975	2 265	515	386	3 166	1975	433	16 083	11 995	28 511
1976	1203	600	676	2479	1976	3 490	43	452	3 985	1976	1 312	15 940	12 361	29 613
1977	1371	360	542	2273	1977	1 446	6 960	1 990	10 396	1977	1 400	7 725	7 096	16 221
1978	1148	211	232	1591	1978	2 084	8 809	1 999	12 892	1978	850	5 631	3 653	10 134
1979	727	182	36	945	1979	2 051	6 929	1 307	10 287	1979	65	3 200	2 815	6 080
1980	490	100	12	602	1980	2 529	2 014	930	5 473	1980	138	5 556	1 515	7 209
1981	641	564	25	1230	1981	3 077	2 031	176	5 284	1981	483	6 681	1 340	8 504
1982	505	200	8	713	1982	2 487	2 459	101	5 047	1982	214	9 735	1 080	11 029
1983	490	196	1	687	1983	4 257	5 031	212	9 500	1983	136	9 925	1 899	11 960
1984	593	81	17	691	1984	3703	5459	404	9566	1984	80	9 641	1 905	11 626
1985	602	122	1	725	1985	4791	6894	495	12180	1985	71	3 221	3 748	7 040
1986	557	615	7	1180	1986	6389	5553	122	12064	1986	944	6 032	2 656	9 632
1987	984	259	12	1255	1987	5705	4739	142	10586	1987	572	4 735	1 964	7 271
1988	978	420	20	1418	1988	7859	4002	452	12313	1988	239	5 008	609	5 856
1989	2039	482	0	2521	1989	8050	4964	208	13222	1989	533	3 366	496	4 395
1990	1304	321	7	1632	1990	8233	1246	195	9674	1990	7 706	3 197	974	11 877
1991	2029	522	164	2715	1991	11189	305	1855	13349	1991	14 369	1 663	1 224	17 256
1992	2349	467	0	2816	1992	3586	58	154	3798	1992	1 732	193	63	1 988
1993	1754	867	88	2709	1993	7977	210	148	8335	1993	649	158	82	889
1994	1165	175	249	1589	1994	6382	67	127	6576	1994	881	41	139	1 061
1995	1352	270	121	1743	1995	6354	227	363	6944	1995	1 662	297	1 088	3 047
1996	911	198	72	1181	1996	9508	466	770	10744	1996	1 204	912	306	2 422
1997	610	170	77	857	1997	5702	334	364	6400	1997	1 349	534	270	2 153
1998	859	491	72	1422	1998	6661	530	284	7475	1998	915	1 638	443	2 996
1999	1101	1203	111	2428	1999	13064	734	189	13987	1999	839	1 886	390	3 115
2000	1021	1169	16	2206	2000	7536	690	180	8406	2000	526	2 709	450	3 685
2001	925	951	11	1887	2001	8740	726	285	9751	2001	1 231	3 017	488	4 736
2002	791	1167	3	1961	2002	5780	849	85	6714	2002	440	3 568	478	4 486
2003	949	735	52	1736	2003	6778	1762	496	9036	2003	620	1 887	298	2 805
2004	812	633	4	1449	2004	11633	810	42	12485	2004	1 395	3 219	252	4 866
2005	575	595	4	1174	2005	11756	1406	158	13320	2005	1 094	2 882	868	4 844

Table 4b.

ICES-area I					ICES-area IIa					ICES-area IIb				
Average - periods of 10 years					Average - periods of 10 years					Average - periods of 10 years				
Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total
1970-74	2 371	2 834	573	5 778	1970-74	7 510	122	3 864	11 496	1970-74	2 939	23 369	12 272	38 580
1975-84	738	627	405	1 771	1975-84	2 739	4 025	796	7 560	1975-84	511	9 012	4 566	14 089
1985-94	1 376	425	55	1 856	1985-94	7 016	2 804	390	10 210	1985-94	2 770	2 761	1 196	6 727
1995-04	933	699	54	1 687	1995-04	8 176	713	306	9 194	1995-04	1 018	1 967	446	3 431

Table 4c.

ICES-area I					ICES-area IIa					ICES-area IIb				
Average - periods of 5 years					Average - periods of 5 years					Average - periods of 5 years				
Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total
1970-74	2 371	2 834	573	5 778	1970-74	7 510	122	3 864	11 496	1970-74	2 939	23 369	12 272	38 580
1975-79	933	1 025	798	2 757	1975-79	2 267	4 651	1 227	8 145	1975-79	812	9 716	7 584	18 112
1980-84	544	291	300	1 578	1980-84	3 211	4 951	1 336	8 607	1980-84	210	7 610	5 488	13 851
1985-89	1 032	380	8	1 420	1985-89	6 559	5 230	284	12 073	1985-89	472	4 472	1 895	6 839
1990-94	1 720	470	102	2 292	1990-94	7 473	377	496	8 346	1990-94	5 067	1 050	496	6 614
1995-99	967	466	91	1 526	1995-99	8 258	458	394	9 110	1995-99	1 194	1 053	499	2 747
2000-04	900	931	17	1 848	2000-04	8 093	967	218	9 278	2000-04	842	2 880	393	4 116

Table 4d.

ICES-area I					ICES-area IIa					ICES-area IIb				
Average - selected periods					Average - selected periods					Average - selected periods				
Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total
1970-91	1 261	1 054	324	2 638	1970-91	5 325	3 117	1 398	9 839	1970-91	2 011	10 645	5 395	18 051
1973-91	1 105	686	318	2 109	1973-91	4 950	3 578	684	9 212	1973-91	1 724	7 306	3 863	12 892
1992 - 05	1 084	649	63	1 797	1992 - 05	7 961	634	260	8 855	1992 - 05	1 038	1 639	401	3 078

Table 4e.

ICES-area I					ICES-area IIa					ICES-area IIb				
Average - periods of 10 years in %					Average - periods of 10 years in %					Average - periods of 10 years in %				
Period	Norway	Russia	Others	Total	Period	Norway	Russia	Others	Total	Period	Norway	Russia	Others	Total
1970-74	41%	49%	10%	100%	1970-74	65%	1%	34%	100%	1970-74	8%	61%	32%	100%
1975-84	42%	35%	23%	100%	1975-84	36%	53%	11%	100%	1975-84	4%	64%	32%	100%
1985-94	74%	23%	3%	100%	1985-94	69%	27%	4%	100%	1985-94	41%	41%	18%	100%
1995-04	55%	41%	3%	100%	1995-04	89%	8%	3%	100%	1995-04	30%	57%	13%	100%

Table 4f.

ICES-area I					ICES-area IIa					ICES-area IIb				
Average - periods of 5 years in %					Average - periods of 5 years in %					Average - periods of 5 years in %				
Period	Norway	Russia	Others	Total	Period	Norway	Russia	Others	Total	Period	Norway	Russia	Others	Total
1970-74	41%	49%	10%	100%	1970-74	65%	1%	34%	100%	1970-74	8%	61%	32%	100%
1975-79	34%	37%	29%	100%	1975-79	28%	57%	15%	100%	1975-79	4%	54%	42%	100%
1980-84	34%	18%	19%	100%	1980-84	37%	58%	16%	100%	1980-84	2%	55%	40%	100%
1985-89	73%	27%	1%	100%	1985-89	54%	43%	2%	100%	1985-89	7%	65%	28%	100%
1990-94	75%	21%	4%	100%	1990-94	90%	5%	6%	100%	1990-94	77%	16%	8%	100%
1995-99	63%	31%	6%	100%	1995-99	91%	5%	4%	100%	1995-99	43%	38%	18%	100%
2000-04	49%	50%	1%	100%	2000-04	87%	10%	2%	100%	2000-04	20%	70%	10%	100%

Table 4g.

ICES-area I					ICES-area IIa					ICES-area IIb				
Average - selected periods					Average - selected periods					Average - selected periods				
Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total	Year	Norway	Russia	Others	Total
1970-91	48%	40%	12%	100%	1970-91	54%	32%	14%	100%	1970-91	11%	59%	30%	100%
1973-91	52%	33%	15%	100%	1973-91	54%	39%	7%	100%	1973-91	13%	57%	30%	100%
1992 - 05	60%	36%	3%	100%	1992 - 05	90%	7%	3%	100%	1992 - 05	34%	53%	13%	100%

Table 5. GREENLAND HALIBUT in Sub-areas I and II.

Nominal catch (t) by countries (Subarea I,Divisions IIa and IIb combined) as officially reported to ICES.

Year	Denmark	Estonia	Faroe Isl.	France	Fed. Rep. Germany	Greenl.	Iceland	Ireland	Lithuania	Norway	Poland	Portugal	Russia[3]	Spain	UK (Engl. & Wales)	UK (Scotland)	Total
1984	0	0	0	138	2 165	0	0	0	0	4 376	0	0	15 181	0	23	0	21 883
1985	0	0	0	239	4 000	0	0	0	0	5 464	0	0	10 237	0	5	0	19 945
1986	0	0	42	13	2 718	0	0	0	0	7 890	0	0	12 200	0	10	2	22 875
1987	0	0	0	13	2 024	0	0	0	0	7 261	0	0	9 733	0	61	20	19 112
1988	0	0	186	67	744	0	0	0	0	9 076	0	0	9 430	0	82	2	19 587
1989	0	0	67	31	600	0	0	0	0	10 622	0	0	8 812	0	6	0	20 138
1990	0	0	163	49	954	0	0	0	0	17 243	0	0	4 764 [2]	0	10	0	23 183
1991	11	2564	314	119	101	0	0	0	0	27 587	0	0	2 490 [2]	132	0	2	33 320
1992	0	0	16	111	13	13	0	0	0	7 667	0	31	718	23	10	0	8 602
1993	2	0	61	80	22	8	56	0	30	10 380	0	43	1 235	0	16	0	11 933
1994	4	0	18	55	296	3	15	5	4	8 428	0	36	283	1	76	2	9 226
1995	0	0	12	174	35	12	25	2	0	9 368	0	84	794	1 106	115	7	11 734
1996	0	0	2	219	81	123	70	0	0	11 623	0	79	1 576	200	317	57	14 347
1997	0	0	27	253	56	0	62	2	0	7 661	12	50	1 038	157 [2]	67	25	9 410
1998	0	0	57	67	34	0	23	2	0	8 435	31	99	2 659	259 [2]	182	45	11 893
1999	0	0	94	0	34	38	7	2	0	15 004	8	49	3 823	319 [2]	94	45	19 517
2000	0	0	0	45	15	0	16	1	0	9 083	3	37	4 568	375 [2]	111	43	14 297
2001 [1]	0	0	0	122	58	0	9	1	0	10 896 [2]	2	35	4 694	418 [2]	100	30	16 365
2002 [1]	0	219	0	7	42	22	4	6	0	7 011 [2]	5	14	5 584	178 [2]	41	28	13 161
2003 [1]	0	0	459	2	18	14	0	1	0	8 347 [2]	5	19	4 384	230 [2]	41	58	13 578
2004 [1]	0	0	0	0	9	0	9.3	0	0	13 840 [2]	1	50	4 662	186 [2]	43	0	18 800
2005 [1]	0	170	0	32	8	0	0	0	0	13 425 [3]	0	23	0	0 [3]	29	18	13 705

[1] Provisional figures.

[2] Working Group figures.

[3] USSR prior to 1991.

Table 6. Publications regarding, distribution, biological characteristics and fisheries of Northeast Arctic Greenland halibut from 1960s to present time.

Time period	Objects	References
1964-1967	Area of spawning grounds, period of mass spawning, first representative data on age-length structure of stock	Lahn-Johannessen 1965 1972, Sorokin 1967, Nizovtsev 1968 1969 1970, Hognestad 1969
1964-1970	Feeding	Nizovtsev 1972 1989a
1965-1973	Seasonal migrations between spawning and feeding grounds	Lahn-Johannessen 1965 1972, Nizovtsev 1989a
1968-1971	Gametogenesis and the sexual cycle	Sorokin et Grigoryev 1968, Fedorov 1968 1969 1971
1978-1980	Nursery grounds to the northeast of Spitsbergen and near Fr. Josef Land	Borkin 1983, Nizovtsev 1983a
1980s	Peculiarities of growth and maturation, dynamics of length-age structure of the stock	Kovtsova et Nizovtsev 1985, Nizovtsev 1987
	Migration and recruitment patterns in the Spitzbergen area	Godø et Haug 1987
	Distribution and feeding of larval Greenland halibut	Haug et al. 1989
	Relationship between recruitment and maternal stok	Nizovtsev 1983b 1989b
	Effect of environmental conditions on stock distribution	Nizovtsev 1985, Kovtsova, Nizovtsev, Tereshchenko 1987
1990s	Biological implications of a multi-gear fishery, gear selection	Nedreaas et al. 1996, Huse et al. 1997
	Fecundity	Smirnov 1998, Gundersen et al. 2000
	Spawning, recruitment, migrations	Hylen et Nedreaas 1995, Smirnov 1995, Stene et al. 1999, Albert et al. 2001a, Albert et Høines 2003, Albert et al. 2001b, Albert 2003, Ådlandsvik et al. 2004
	Feeding	Shvagzhdis 1991, Michalsen et Nedreaas 1998, Dolgov et Smirnov 2001, Hovde et al. 2002, Wollen et al. 2004
2002-	Russian-Norwegian research program on Greenland halibut	Papers and manuscripts on distribution, behaviour and other biological aspects of this stock

Signed by

From Russia

_____
Yury Lepesevitch

From Norway

_____
Harald Gjøsæter

Kirkenes 06. October 2006

APPENDIX 1

Delegations:

Russian Delegation:

Yuri Lepesevitch	-	Research Director, PINRO, Murmansk (head of delegation)
Yuri Kovalev	-	Head of department, PINRO, Murmansk
Konstantin Drevetnyak	-	Head of department, PINRO, Murmansk
Oleg Smirnov	-	Senior scientist, PINRO, Murmansk
Vadim Sokolov	-	Administration of the Murmansk Region, Murmansk
Sergei Sennikov	-	Deputy head of department, PINRO, Murmansk (interpreter)

Norwegian Delegation:

Harald Gjøsæter	-	Head of research group, IMR. Bergen (head of delegation)
Åge Høines	-	Senior scientist, IMR, Bergen
Ole Thomas Albert	-	Senior scientist, IMR, Bergen
Thorbjørn Thorvik	-	Head of section, Directorate of Fisheries, Bergen
Modulf Overvik	-	Advisor, Directorate of Fisheries, Bergen

APPENDIX 2

MANDATE - WORKING GROUP ON ELABORATION OF PROPOSAL ON JOINT MANAGEMENT MEASURES FOR GREENLAND HALIBUT
The working group will consist of scientists and managers from Norway and Russia.

Scientists participating from Norway:
Ole Thomas Albert
Harald Gjøsæter
Åge Høines
Kjell Nedreaas

Scientists participating from Russia:
Konstantin Drevetnyak
Yuri Lepesevitch
Vladimir Shibanov
Oleg Smirnov

Managers participating from Norway and Russia will be appointed later. The Working Group should meet in Copenhagen in April 2006 (during the meeting in ICES Arctic fisheries working group). The Working Group should further meet in Kirkenes in October 2006.
The working group shall consider all data available.

The Working group shall:

1. Present data on the geographical distribution of Greenland Halibut in relevant exclusive economical zones and international waters. All relevant data from fisheries and scientific surveys should be considered. If possible the considerations of possible influence from climate variations should be taken into account.

2. Tabulate catches, total and divided by country, distributed by ICES areas I, IIa and IIb.

3. Tabulate and document the extent of historic research of the stock.

These data should be prepared by both institutions before the meeting in October 2006
The Working Group will report annually to the Joint Russian-Norwegian Fisheries Commission.

Appendix 3

	Russia					Norway**			
	Number of cruises	Age samples	Length samples	Maturity and feeding	Number tagged	Number vessels	Specimen samples	Length samples	Number tagged
1962	28		2240				2240		149
1963	37		3394				2384		90
1964	43	1060	53563	4617			512		200
1965	50	749	58435	5856					
1966	44	2051	42092	3932	1429				
1967	55	4541	66101	11462	2262				
1968	31	4177	58338	13586	54				
1969	26	3673	65188	11470	3317				
1970	35	5695	80175	18784	5815		131	1433	
1971	37	8394	94535	20937			494	6231	
1972	29	6047	98571	15345			668	2725	
1973	29	1433	14500	5331	1003		2397	2604	
1974	23	2312	28993	9956			1149	4095	
1975	25	2216	28256	8220				2824	
1976	26	1489	21351	5468					
1977	22	1742	11185	4965			635	635	
1978	33	1444	7995	2994			788	788	
1979	20	899	11625	2427			886		
1980	24	1952	20128	4739		7	549	1946	
1981	17	3183	22429	4690		15	1283	9382	
1982	21	1950	26160	3886		19	1731	9085	
1983	22	2376	43177	7226		18	811	6329	638
1984	18	2390	23388	5489		7	444	11095	806
1985	16	2305	23583	3780		11	505	9709	998
1986	18	2133	37154	6134	42	13	805	7862	
1987	23	2729	25927	5760	5	19	1067	11329	
1988	21	1713	18498	3824		13	905	17567	
1989	19	1827	24789	3951	46	25	1595	19561	
1990	15	2282	29665	5580		20	1612	34350	
1991	4	1098	5889	1653		22	2090	25913	
1992	7	1282	16725	2021		36	8805	125834	
1993	9	1711	5420	2038		47	13562	115464	
1994	10	719	3906	754		54	14503	107706	
1995	24	1504	7982	1500		53	10265	85775	2519
1996	21	769	15344	1910		54	8975	67124	3105
1997	32	2538	98342	14051	241	51	22738	77605	2704
1998	37	3796	170191	18901	953	68	8438	65378	
1999	48	4226	270917	24370	1291	88	7001	57409	
2000	59	4804	275685	37818	317	54	7436	63471	
2001	40	2909	110159	12867	204	48	6994	71507	1094
2002	92	2542	134313	24564	889	53	5738	60116	2694
2003	55	1616	146049	16309	698	63	8587	118920	6662
2004	45	3882	123563	16501	920	75	10884	156859	8360
2005	37	4490	137091	14460	431	75	15860	154376	3726
2006*						24	3938	36163	12310

* Preliminary

**Before 1980 no information on sampling available in electronic format. The period 1962 - 1988 are incomplete and must be regarded as minimum.

Program of joint Russian-Norwegian research into Greenland halibut

During implementation of the 3-year program (2002-2004) of joint Russian-Norwegian research into Greenland halibut, the results of which were submitted to the 34th Session of the Joint Russian-Norwegian Fisheries Commission, the scientists have collected and analysed large amount of biological data on Greenland halibut applying both traditional and new methods. The results achieved permitted to extend significantly knowledge on distribution, biology and behaviour of Greenland halibut at different stages of its life cycle as well as on its stock dynamics.

At the same time, in the work to undertake the given tasks the new challenges that still need to be met were revealed. In particular, the true accuracy of ageing, biological differences between males and females etc. are among them. Stock assessment with traditional mathematic methods used in ICES explicitly depends on these issues.

Taking into account the importance of the accuracy of Greenland halibut stock estimation for deciding on rational exploitation of this species, there is a need to continue investigations in the framework of the new joint programme on improvement of methods for assessment of Greenland halibut stock and development of optimal long-term strategy for harvesting of this stock.

The Joint Russian-Norwegian Fisheries Commission (Protocol of the 34th Session, item 8.1) entrusted Russian and Norwegian scientists with the task to elaborate and discuss such a program at their meeting in March 2006.

The new program will include the following studies (Appendix 10 to the Report of the 34th Session), to be completed within the three-year period 2007-2009:

- improve the methods of ageing;
- improve methods of survey and aggregation of data from different surveys;
- make quantitative estimation of Greenland halibut stock who distribute in pelagic layers;
- investigate sexual dimorphism and effect of fisheries on population structure;
- improve methods of stock assessment;

- develop optimal long-term harvesting strategy.

To collect data for the issues above both parties will conduct research within the frames of the joint project and in accordance with national programs (Appendix 10 to the Report of the 34th Session). Responsibility for its implementation should be shared between both parties. Data (as e.g. catch and biological data, and otolith images) that are sampled as part of this joint project will be made available for both parties on a disaggregated format. Data will be used in cooperation between the two parties.

The Russian part informed that in their view, the realization of this research program requires an additional scientific quota of Greenland halibut.

1. Improvement of age reading methods

1.1. Background

The accuracy of age reading is necessary for realistic simulation and projection of the stock using age aggregated models like VPA. Estimation of Greenland halibut age from otoliths is a hard task. Except for the youngest individuals (age 2-3), which age determination is less difficult, the correctness of reading annuli was not verified by using other methods. Preliminary results from tagging experiments showed that when using the method currently applied, the age of older individuals might be underestimated.

Thus, the ultimate goal of the present project is to improve the very basis of analytical stock assessment methods.

1.2. Objectives

a) to analyse traditional methods of age reading and to make a grounded conclusion on their validity and suitability (unsuitability) for the stock modelling;

b) to develop and test alternative methods of age estimation.

1.3 Methods

- workshops and working meetings of experts in age reading;
- comparative age reading using different recording structures (scales and otoliths);
- use of oxytetracycline in combination with tagging;
- statistical analysis aimed at studying the effect of age determination accuracy on estimates of the population parameters.
- Study marginal increments in otoliths by sampling throughout the year
- Establish a joint database of otolith and scale images for research, exchange and training

2. Improvement of survey methodology and aggregation of data from different surveys

2.1. *Background*

There is the barest necessity to improve quality of data series from surveys used for VPA tuning. It is necessary to combine data available and to expand survey coverage of the stock in both temporal and spatial aspects, as well as to improve data processing with the account for the current stock perception.

Long-term data series on catch per unit effort are also used for tuning in the estimation of the Greenland halibut stock using VPA. In recent years, under the ban of the target fishery for the Greenland halibut, such data have been collected during experimental Norwegian and Russian trawl fishery limited in time and fishing effort. Russian scientists have an opinion that data obtained by this way are not sufficiently reliable and, thus, needs further improvement through all-the-year-round monitoring of the Greenland halibut stock.

Presence of observers onboard vessels in the area of continental slope will increase reliability of the catch statistics and allow collecting fisheries and biological data along all the lines of the present program.

2.2. Objectives

a) to construct time series of survey data for the previous years by abundance and size composition for each sex on the basis of the widest possible coverage of the population using the available time series (from surveys and CPUE) and contemporary knowledge;
b) to construct and document data series on length-age keys and maturity ogives in relation to this stock;
c) to make data from Russian and Norwegian surveys, and from different trawl types comparable;
d) to increase accuracy of catch statistics (estimates of catch volume).

2.3. Methods

- data collection during all-the-year-round monitoring of the stock;
- statistical analysis of accuracy of length-age keys, maturity ogives and abundance;
- analysis of seasonal and year-to-year dynamics of catch per unit effort using trawls and long-liners.
- Comparative trawling by different gear types

3. Quantitative estimation of Greenland halibut stock distributed in pelagic layers

3.1. Background

Traditionally, and in the view of stock assessment, Greenland halibut is regarded as a demersal species. However, the latest experiments with vertical long-liners on the continental slope showed Greenland halibut individuals to occur also in the water column.

Distribution of the Greenland halibut in pelagic layers may affect the results of bottom trawl surveys, as a part of the population is left out of fishing gear reach. To gain a better insight into this problem it is necessary to estimate the pelagic component of the Greenland halibut stock.

3.2. Objectives

a) to estimate a proportion (number) of Greenland halibut distributed in the pelagic layers in dependence on area, depth, season, oceanographic conditions and biological state of fish;
b) to decide on the necessity to correct trawl survey data and to suggest a method of making correction.

3.3. Methods

- collection of data on Greenland halibut occurrence in the pelagic layers using vertical long-liners and midwater trawls;

- analysis of data obtained using DST-tags.

4. Investigation of sexual dimorphism and effect of fisheries on population structure

4.1. Background

One of the main specific features of the Greenland halibut determining its biology, behaviour, stock dynamics and results of fishery is a pronounced sexual dimorphism. However, this factor has not been taken into account in the modelling.

4.2. Objectives

a) to evaluate biological parameters of the Greenland halibut for males and females separately (mean length and weight at age by years, the largest size, the oldest age and proportion mature at age by years);
b) to recalculate survey results as well as total annual catch by sex for the longest possible period;
c) to estimate natural mortality and fishing mortality rates by sex.

4.3 Methods

- analysis of historic data;
- estimation of mortality rates using the Bertalanffy's models or other known mathematical instruments.

5. Improvement of the stock assessment methods

5.1.Background

The present project should be based on the results from implementation of other parts of the program and constitute an analysis of their effect on practical work on the stock assessment using analytical methods. This chapter will take priority closer to the completion phase.

5.2. Objectives

a) to evaluate the method of stock assessment currently used in ICES and to propose measures for its refinement;

b) to analyse alternative methods of stock assessment that do not depend on age composition and to conclude on their application.

5.3. Methods

- Analysis of results from modelling based on VPA.
- Differentiated estimation of abundance and biomass of Greenland halibut males and females using VPA and XSA.
- Endeavours to apply other methods and approaches to the Greenland halibut stock assessment (Gadget, production models, Traffic light approach, etc.)

6. Development of optimal long-term harvesting strategy

6.1. Background

The ultimate goal of the whole program is to increase the precision of estimates and to elaborate sound advice on the Greenland halibut stock management.

Since 1990's, management of the main target species in the North Atlantic has been based on the principle of precautionary approach. For many important stocks reference points such as spawning stock biomass and fishing mortality have been estimated, based on which an optimal exploitation strategy can be designed.

6.2. Objectives

a) to estimate reference points for the Greenland halibut stock;

b) to identify goals and objectives of the Greenland halibut stock management and to describe them from the viewpoint of compliance with "Basic document regarding the main principles and criteria for long term, sustainable management of living marine resources in the Barents and Norwegian Seas" ;

c) to work out draft rules for making decisions on the size of TAC.

6.3. Methods

- The use of modern analytical approaches to estimate reference points.
- Consultations with representatives of authorities and industry.
- The formation within the Joint Commission of an *ad interim* Working Group to elaborate rules on the Greenland halibut.

VEDLEGG 13

KONTROLLTILTAK

Omlasting

Det er forbudt å omlaste fisk til fartøy som ikke har rett til å seile under flagget til medlemstater i NEAFC, eller flagg til stater som ikke har status som NEAFC-samarbeidsland.

Satellittsporing

Transportfartøy som mottar fisk skal være underlagt sporingsplikt på lik linje med fiskefartøy.

Rapportering ved omlasting

Det er rapporteringsplikt for fiske- og transportfartøy involvert i omlasting til havs. Rapportering skjer til flaggstatens kontrollorgan. Inntil elektronisk rapportering etableres skal rapportene sendes manuelt i samsvar med gjeldende regelverk:

- Fiskefartøyet skal sende melding om omlasting 24 timer før omlastingen starter
- Fartøyet som mottar fangst skal senest 1 time etter at omlastingen har funnet sted, sende rapport om omlastingen
- Meldingen skal inneholde informasjon om tid og posisjon for omlastingen og opplysninger om fartøy som har levert fangst og hvem som har mottatt fangst, samt omlastet kvantum spesifisert på art i rund vekt
- Mottaksfartøyet skal senest 24 timer før landing finner sted, også gi opplysninger om hvor fangsten skal landes
- Fiskefartøy som har til hensikt å lande i tredjeland skal ved utseiling fra de respektive lands økonomiske soner gi opplysninger om hvor fangsten skal landes.

Utveksling av informasjon

Partene forplikter seg til å gi den annen part fangstopplysninger om kvoteregulerte bestander, på anmodning.

Partene skal månedlig utveksle informasjon om kvoter av torsk og hyse nord for 62ºN, på fartøynivå inntil slik informasjon blir løpende oppdatert på Internet som et alternativ til månedlig utveksling.

Inspeksjoner ved landing

For å oppnå en effektiv kontroll med landinger skal mobile grupper med inspektører fra begge land, på bakgrunn av informasjon om mulige overtredelser av fiskerilovgivningen, kunne iverksette kontrolltiltak i tredjeland og eventuelt forfølge sakene videre. Gruppene må raskt kunne dra til landingshavn for å kunne observere landingen.

Utveksling av inspektører i Smutthullet og Gråsonen

Partene er enige om å samarbeide om gjennomføring av inspeksjoner av fiskefartøyer i Smutthullet og det tilstøtende området i Barentshavet under inspeksjon av fartøyer med egne staters flagg. Her skal partene etter avtale gi inspektører fra en part oppholdsrett på den andre partens fartøyer for å gjennomføre inspeksjoner av fartøyer med egen stats flagg som driver fiske i Smutthullet og det tilstøtende området i Barentshavet.

Report of the Basic Document Working Group (BDWG)

to the 35th Session of The Joint Norwegian-Russian Fishery Commission

30 October- 03 November 2006.

on

Harvest Control Rule for Management of Fishery on North East Arctic Haddock and Optimal Long Term Harvest in the Barents Sea Ecosystem

By;
B. Bogstad[1], H. Gjøsæter[1], K. Korsbrekke[1], I.Røttingen[1], S.Tjelmeland[1],
K.Drevetnyak[2], Y.Kovalev[2], Y. Lepesevich[2] , A. Filin[2]

1) Institute of Marine Research (IMR), Norway
2) Polar Research Institute of Marine Fisheries and Oceanography (PINRO), Russia

Content:

1. Introduction
2. Harvest control rule for North East Arctic Haddock
3. Optimal long-term harvest in the Barents Sea ecosystem
4. Appendices

Executive Summary

This is a report made by the Russian-Norwegian "Basic Document Working Group" (BDWG). There was not a particular meeting of the BDWG in 2006 and the current report has been made by correspondence. Harvest control rules for Northeast Arctic (NEA) Haddock, and work made in accordance to the working plan to provide a scientific assessment of optimal long-term yield of the most important commercial species in the Barents Sea, were discussed.

Northeast Arctic Haddock

ICES has evaluated the harvest control rule for NEA Haddock. The present BDWG report gives the results from the evaluation. The BDWG recommends that the Joint Russian-Norwegian Fisheries Commission at their 35th session, on the basis of the discussion in the present BDWG report, replace a 3-year rule with a 1-year rule. This will suggest that the Joint Russian-Norwegian Fisheries Commission in the management of the NEA haddock should apply the following HCR:

- *TAC for the next year will be set a level corresponding to F_{pa}.*
- *The TAC should not be changed by more than +/- 25% compared with the previous year's TAC.*
- *If the spawning stock falls below B_{pa}, the procedure for establishing TAC should be based on a fishing mortality that is linearly reduced from F_{pa} at B_{pa} to F= 0 at SSB equal to zero. At SSB-levels below B_{pa} in any of the operational years (current year and a year ahead) there should be no limitations on the year-to-year variations in TAC.*

However, this modified HCR seems not to come into effect in the management of NEA haddock before 2008. ICES stated in their 2006 report on the TAC level for 2007 the following:

"This year's assessment shows considerable changes in total biomass, spawning biomass, and fishing mortality in comparison with assessments of previous years, due to the revision of biological data, a small redefinition of the stock and revision of the catch data, and could therefore not be used as a basis for advice.

The recent increase in SSB (through the years 2001-2004) has been associated with catches less than 130 000 tonnes (including misreported catches). In the absence of a reliable assessment and since these catches appear to have led to an increase in the stock, ICES recommends keeping catches below this level. "

Thus, due to the absence of a reliable assessment of stock status the advice from ICES on TAC for NEA Haddock for 2007 was not made on the basis of the agreed HCR.

Scientific assessment of optimal long term yield

A brief report on the research programme for estimation of long-term yield of marine organisms in the Barents Sea taking into account species interactions and effect of ecosystem factors is presented in section 4.

1. Introduction

According to point 12.2 in the protocol of the 30th session of the Commission it was agreement on the necessity to develop a "Basic document regarding the main principles and criteria for long term, sustainable management of living marine resources in the Barents- and Norwegian Seas" - and that this document should be regarded as a normative basis for a long term strategy for sustainable management of the most important joint fish stocks of the two nations. To develop this "Basic document" a working group of specialists from Russia and Norway was appointed.

The Basic Document Working Group (BDWG) submitted their report to the meeting of the 31st session of the Commission. The report formed a basis for discussions on the harvest control rule for cod and haddock, which was decided at that meeting. The Parties agreed that the BDWG during the following year should illustrate how these decision rules would work. The working group prepared a progress report on the evaluation of the harvest control rule to the meeting of the 32nd session of the Commission.

At the 32nd session, the Commission confirmed that the joint stocks of NEA cod and haddock should be managed in accordance with the management strategies formulated at the 31st session of the Commission. In addition, the Commission agreed that BDWG should continue their evaluation of the management strategies.

In 2005 the harvest control rule for NEA cod, including measures for ensuring rebuilding of the stock in cases when SSB falls below Bpa was evaluated by ICES and found consistent with the precautionary approach to fisheries. At their 34th session, the joint Russian-Norwegian Fisheries commission agreed to set the TAC for NEA cod in accordance with the evaluated HCR.

In 2006 work has been carried out on the revision of historical data and on the evaluation of the agreed harvest control rule for NEA haddock. The present BSWG gives a summary of this work and also recommends that modification of the HCR for NEA haddock is made by the 35th session of the Joint Russian-Norwegian Fisheries Commission.

The report contains also a description of progress in the work on evaluation of the NEA haddock harvest control rule and in the work on scientific estimation of long term optimal yield from the important fish stocks in the Barents Sea.

2. Harvest control rule for Northeast Arctic Haddock

The work of IMR and PINRO on revising historical data, revision of biological reference points, development of models and carrying out simulation runs in order to evaluate harvest control rule for NEA haddock is continued. This work is going in accordance with the plan adopted by the Commission in 2004, and has taken place in the following steps which includes revision of historical data, considerations of biological reference points, stock recruitment considerations and simulations for evaluation of harvest control rules:

- ICES Workshop on Biological Reference points for North East Arctic Haddock (WKHAD), 6-10 March 2006. Report ICES CM 2006/ACFM:19
    - Revision of historical data. No revision of biological reference points

- ICES Arctic Fisheries Working Group, April 2006 Report ICES CM 2006/ACFM: 25
    - Stock assessment on basis of revised data. Evaluation of harvest control rule

- ICES Advisory for fisheries management ACFM May 2006
    - Preliminary evaluation of harvest control rule

- ICES ad hoc North East Arctic haddock group June 2006
    - Evaluation of harvest control rule (extended stock-recruitment relations)

ICES answer to the special request

The results of the evaluation are given in section 3.3.3 (special request) in the ACFM report (Appended). The main conclusion from the evaluation (carried out using simulation models) is the following:

The evaluation indicates that the management plan based on a 3-year rule and with constraints on the interannual variation in TACs is only in agreement with the Precautionary Approach in the absence of implementation error. In that situation the risk to B_{lim} is estimated as close to 0% and the risk to F_{lim} at 5%.

Unreported landings have increased in recent years (2002-2005) and are considered to be similar to those for Northeast Arctic cod; i.e. ~30% of the agreed TAC. When implementation errors of this order of magnitude are used in the simulations, the agreed management plan is no longer in agreement with the Precautionary Approach because the risk to F_{lim} is estimated around 63%.

The simulation indicate that a 1-year rule in connection with a maximum change of 25% in TAC appears to perform much better compared to the 3-year rule because it is less sensitive to implementation error (under the assumption that the implementation error can be estimated and used in the assessment process).

2.2 Comments from the BDWG

The BDWG, on the basis on the above evaluations, will recommend that 3-year rule in the management plan is replaced by a 1-year old rule.

This will suggest that the Joint Russian-Norwegian Fisheries Commission in the management of the NEA haddock should apply the following HCR:

- *TAC for the next year will be set a level corresponding to Fpa.*
- *The TAC should not be changed by more than +/- 25% compared with the previous year's TAC.*
- *If the spawning stock falls below B_{pa}, the procedure for establishing TAC should be based on a fishing mortality that is linearly reduced from F_{pa} at B_{pa}, to F= 0 at SSB equal to zero. At SSB-levels below B_{pa} in any of the operational years (current year and a year ahead) there should be no limitations on the year-to-year variations in TAC.*

In the harvest control rule for NEA cod, it is stated that: "At SSB-levels below B_{pa} in any of the operational years (current year, a year before and 3 years of prediction) there should be no limitations on the year-to-year variations in TAC."

However, this does not correspond exactly to the mathematical formulation of the rule given by ICES AFWG. We suggest that this sentence is reworded to "At SSB-levels below B_{pa} in any of the operational years (current year and 3 years of prediction) there should be no limitations on the year-to-year variations in TAC."

Thus, the reference to 'a year before' is taken out in the suggested HCR for haddock given above and should also be taken out in the agreed HCR for NEA cod.

ICES Advice on TAC for NEA haddock for 2007

The HCR seems not to come into effect in the management of NEA haddock before 2008. ICES stated in their 2006 report on the TAC level for 2007 the following:

This year's assessment shows considerable changes in total biomass, spawning biomass, and fishing mortality in comparison with assessments of previous years, due to the revision of biological data, a small redefinition of the stock and revision of the catch data, and could therefore not be used as a basis for advice.

The recent increase in SSB (through the years 2001-2004) has been associated with catches less than 130 000 tonnes (including misreported catches). In the absence of a reliable assessment and since these catches appear to have led to an increase in the stock, ICES recommends keeping catches below this level.

Thus, due to the absence of a reliable assessment of stock status the advice from ICES on TAC for NEA Haddock for 2007 is not made on the basis of the agreed HCR.

3 Optimal long-term harvest in the Barents Sea Ecosystem

Optimal long-term harvest in the Barents Sea Ecosystem

The work has been conducted in compliance with the program adopted at the 33rd session of the Commission, and working plan adopted at the March meetings in 2005 and 2006. At the March meeting in 2006 it was decided that the two sub-projects on marine mammals should be combined into one.

During the past year quantitative relations between cod and capelin growth rate on the one hand and food supply, water temperature and abundance on the other hand have been obtained. Based on histological investigations of cod ovaries a relation between skipped spawning and condition was estimated. A study of cod cannibalism has been undertaken for the whole period covered by the Arctic Fisheries WG assessment by combining quantitative stomach content data from 1984 with Russian frequency of occurrence data. Harp seal consumption in the north-western Barents Sea has been estimated for the period May-August using combined data on last 15 years.

Results from these studies were included into the EcoCod and STOCOBAR models. The work on further improvement of these models will be continued.

Related to the EcoCod model, the following has been achieved during the past year:

-The model has been extended with a capelin-herring-plankton sub-model.

-A preliminary and experimental analysis with the full model has been made and the modelling system has been presented at the symposium on implementation of the ecosystem approach to fisheries management in Bergen in September 2006. The project was also presented at the ICES symposium on management strategies in Galway in June 2006.

-A method for establishing long-term temperature scenarios that preserve the autocorrelation properties of the Kola section data has been made, but not yet implemented in EcoCod.

Related to the STOCOBAR model, the following has been achieved during the past year:

- A method for establishing of stochastic long-term temperature and capelin scenarios has been made.

- Preliminary runs under different stochastic scenarios of year-to-year variability in temperature and state of the capelin stock have been made.

It is expected that with future developments the STOCOBAR will be a tool for identification of ecosystem shifts in the Barents Sea when demand to adopt harvesting control rules to the current ecological situation.

Five working meetings between specialists from PINRO and IMR were held in 2006 (three at IMR and two at PINRO). The annual report on joint work will be presented by the co-ordinators of the project at the March meeting in 2007.

4 APPENDIX:

ICES Report on the evaluation of the harvest control rule for NEA haddock

3.3.3 Special requests

3.3.3.1 Harvest control rules for Northeast Arctic haddock (Subareas I and II)

At the 33rd meeting of the Joint Russian-Norwegian Fisheries Commission (JRNC) in November 2004, the following decision was made:
"The Parties agreed that the management strategies for cod and haddock should take into account the following:

conditions for high long-term yield from the stocks

achievement of year-to-year stability in TACs

full utilization of all available information on stock development

On this basis, the Parties determined the following decision rules for setting the annual fishing quota (TAC) for Northeast Arctic cod (NEA cod):

- *estimate the average TAC level for the coming 3 years based on F_{pa}. TAC for the next year will be set to this level as a starting value for the 3-year period.*
- *the year after, the TAC calculation for the next 3 years is repeated based on the updated information about the stock development, however the TAC should not be changed by more than +/- 10% compared with the previous year's TAC.*
- *if the spawning stock falls below B_{pa}, the procedure for establishing TAC should be based on a fishing mortality that is linearly reduced from F_{pa} at B_{pa}, to F= 0 at SSB equal to zero. At SSB-levels below B_{pa} in any of the operational years (current year, a year before and 3 years of prediction) there should be no limitations on the year-to-year variations in TAC.*

The Parties agreed on similar decision rules for haddock, based on F_{pa} and B_{pa} for haddock, and with a fluctuation in TAC from year to year of no more than +/-25% (due to larger stock fluctuations)."

ICES comments

The evaluation of the harvest control rule is provided below. The advice on levels of catch and effort for 2007 consistent with the harvest control rule for North East Arctic haddock is provided in Section 3.4.3.

For Northeast Arctic haddock, ICES is requested to comment on "*aspects of the agreed harvest control rule in relation to the recruitment dynamics for the haddock stock*". ICES evaluated the above decision rules through simulation studies, for details see the Technical Annex below.

The evaluation indicates that the management plan based on a 3-year rule and with constraints on the interannual variation in TACs is only in agreement with the Precautionary Approach in the absence of implementation error. In that situation the risk to B_{lim} is estimated as close to 0% and the risk to F_{lim} at 5%.

Unreported landings have increased in recent years (2002-2005) and are considered to be similar to those for Northeast Arctic cod; i.e. ~30% of the agreed TAC. When implementation errors of this order of magnitude are used in the simulations, the agreed management plan is no longer in agreement with the Precautionary Approach because the risk to F_{lim} is estimated around 63%.

ICES comments that a 1-year rule in connection with a maximum change of 25% in TAC appears to perform much better compared to the 3-year rule because it is less sensitive to implementation error (under the assumption that the implementation error can be estimated and used in the assessment process).

ICES has evaluated the harvest control rule for this stock taking into account the historic pattern of sporadic recruitment, which may need specific measures to protect large year-classes as they recruit to the fishery.

Technical Annex to the ICES response

For North-East Arctic haddock, ICES evaluated the decision rule in June 2006.

The evaluation of HCRs for NEA haddock has been carried out using simulation models. Important issues for the evaluation of harvest control rules are the choice of population model, inclusion of uncertainty in population model, the choice of initial values for simulations, the formulation of harvest control rules for use in the evaluation (constant F rules, how to reduce F when SSB<$\mathbf{B}_{pa}$, limit on year-to-year variation in catch, etc.), and performance measures for harvest control rules (yield, stock size, F, probability of SSB<$\mathbf{B}_{lim}$, annual variation in catches, etc.). The evaluation of the HCR takes implementation error into account. The harvest control rule for NEA haddock is summarized in Figure 3.3.3.1.1.

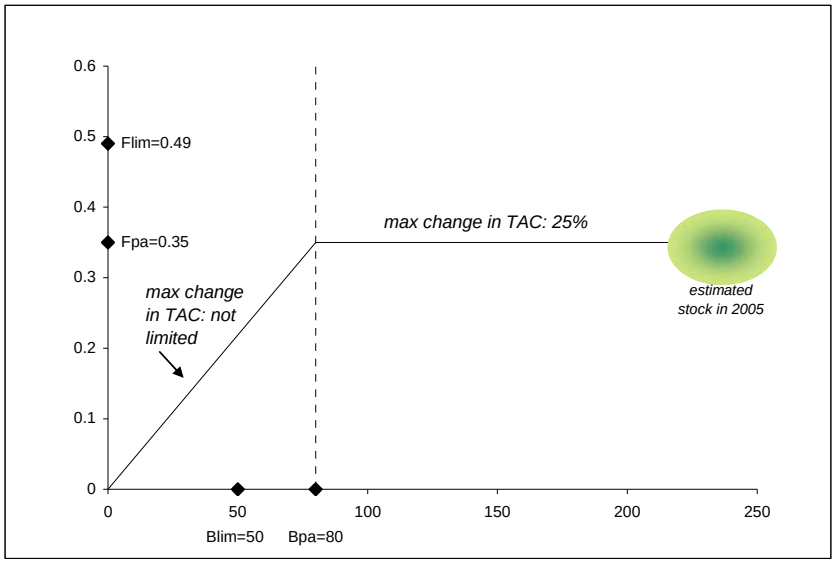

Figure 3.3.3.1.1 Harvest control rule for NEA haddock with estimated (uncertain) stock size in 2005.

Reference points

	ICES considers that:	ICES proposed that:
Precautionary Approach reference points	$\mathbf{B}_{lim}$ is 50 000 t.	$\mathbf{B}_{pa}$ be set at 80 000 t.
	$\mathbf{F}_{lim}$ is 0.49.	$\mathbf{F}_{pa}$ is set at 0.35.

Recruitment estimation

The recruitment pattern of a spasmodic spawner like NEA haddock is an important feature of the stock dynamics. The initial analysis suggested grouping the recruitment in three classes: (1) "low" recruitment, (2) periodic good recruitment possibly linked to the "outstanding" yearclasses and (3) the "outstanding" yearclasses themselves. The length of the periods with "low" recruitment is highly variable. The latter part of the series (after 1980) shows period of length 4 or 5 years. The seventies was a long period with "low" recruitment while the early part had a more varying pattern.
The recruitment cycle that was implemented in the simulations consisted of 4 years with "Low recruitment", 1 year with "Good recruitment", 1 year with either

“Outstanding” (Prob=0.3) or ”Good” (Prob=0.7) recruitment and then 1 year with ”Good recruitment”. This simulation will be similar to the conditions observed in the 1980’s and early 1990’s.

Scenarios
Several different scenarios were evaluated (see Table 3.3.3.1.1):

- The (agreed) 3-year rule with different levels of implementation bias
- A 1-year rule with different levels of implementation bias
- A 1-year rule without constraints on interannual variations in TACs and different levels of implementation bias
- A 1-year rule with a higher (145 kT) trigger level.

Simulations are carried out over 120 years. Only the results for the last 100 years are considered in the summary statistics (20 years *burn-in time*).

Results of the evaluation
The agreed HCR appears to perform well under the assumption that no implementation bias exists. In that case the probability of being below B_{lim} is 0% and the probability of fishing mortality above F_{lim} is 5%. When implementation bias of 30% is assumed (close to recently estimated bias), there is still a low probability of being below Blim (2%) but with a high probability of being above Flim (63%). Therefore, the 3-year rule is not very robust to implementation errors.
The 1-year rule is much more robust to implementation error. The simulations assume that the implementation error is known and accounted for in the following assessment. Therefore the effect is similar to setting a TAC corresponding to a higher F. These simulations represent a situation where it is still is possible to track trends in F and stock size. The simulations do not cover the situation where information of unreported landings is not available. In those situations the assessments are likely to be biased.
The stock-recruitment analysis that forms the basis of the simulations, suggests increased recruitment for SSB above 150 kt. This indicates that a triggerpoint higher than 80 kt could be considered (see scenario 16-20).
The risks of being below B_{lim} under different scenarios and with different implementation errors are shown in figure 1.

Table 3.3.3.1.1 **Summary table of simulation settings and results. Note: The Results of Run 16 were incorrect in the original Table provided by the Ad Hoc group, the Table below contains the correct figures. Also new runs 17-20 have been included, for information.**

Run no	Rule	TAC constr.	Trigger point	Impl. error	Intended F	Realised F	Catch (tonnes)	SSB (tonnes)	Prob. SSB<Blim (50kt)	Prob. SSB<Bpa (80kt)	Prob. F>Flim
1	3-year	25 %	80	no	0.35	0.36	170583	285771	0.00	0.000	0.05
2	3-year	25 %	80	10 %	0.38	0.43	166415	225059	0.00	0.00	0.23
3	3-year	25 %	80	20 %	0.41	0.53	146807	166376	0.00	0.03	0.49
4	3-year	25 %	80	30 %	0.43	0.64	132582	129565	0.02	0.20	0.63
5	3-year	25 %	80	40 %	0.44	0.72	122663	108073	0.08	0.35	0.72
6	1-year	25 %	80	no	0.35	0.35	170185	289197	0.00	0.00	0.01
7	1-year	25 %	80	10 %	0.35	0.39	169244	249254	0.00	0.00	0.08
8	1-year	25 %	80	20 %	0.35	0.44	158765	207645	0.00	0.01	0.26
9	1-year	25 %	80	30 %	0.35	0.50	143088	166750	0.01	0.06	0.48
10	1-year	25 %	80	40 %	0.36	0.57	125689	125637	0.03	0.22	0.63
11	1-year	No	80	no	0.35	0.36	171332	280743	0.00	0.00	0.01
12	1-year	No	80	10 %	0.35	0.40	170216	239414	0.00	0.00	0.08
13	1-year	No	80	20 %	0.35	0.45	160677	196835	0.00	0.00	0.28
14	1-year	No	80	30 %	0.35	0.50	143145	154704	0.00	0.02	0.53
15	1-year	No	80	40 %	0.34	0.55	127700	124576	0.00	0.12	0.70
16	1-year	25 %	145	no	0.35	0.35	170759	290222	0.00	0.00	0.01
17	1-year	25 %	145	10 %	0.35	0.40	169091	246206	0.00	0.00	0.08
18	1-year	25 %	145	20 %	0.35	0.44	159079	199174	0.00	0.00	0.27
19	1-year	25 %	145	30 %	0.34	0.48	146776	164051	0.00	0.01	0.45
20	1-year	25 %	145	40 %	0.32	0.51	138888	145027	0.00	0.02	0.51

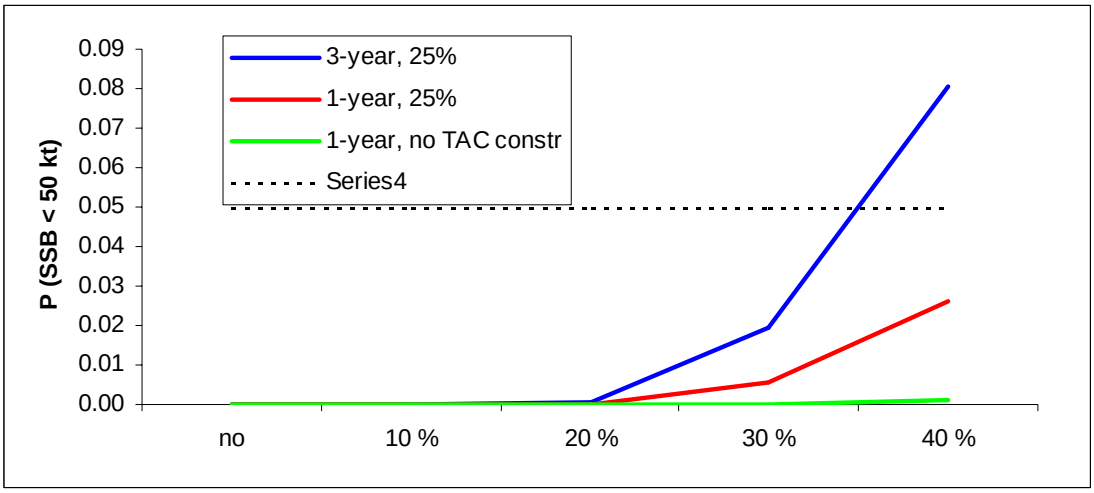

Figure 3.3.3.1.2 **The probability of SSB being below 50000 tonnes (y-axis) associated with implementation error (x-axis) for the 3-year rule with 25% TAC constraint (blue), for the 1-year rule with 25% TAC constraint (red), and for the 1-year rule with no TAC constraint (green).**

Reality check

In order to check the realism of this recruitment function, a reality check was carried out. The historic mean value of fishing mortality was used to check that recruitment, stock size and catches were close to the historic averages calculated from the VPA. The simulation was based on F=0.48 (independent of SSB), a 1-year rule, no limit on annual variation in TAC and the settings for weight, M, maturity and fishing pattern as used by AFWG, except that the simulations are now made for 120 years, of which the results for the last 100 are considered (20 years of burn-in time). The reality check gave a higher recruitment (+14%), higher SSB (+23%) and higher catch (+17%) compared to the historic mean. This is probably linked to two different aspects:

- The historic time series has long periods with fishing mortalities well above the average (F=0.48) driving the stock to down to low and less productive levels.
- The present exploitation pattern (used in the simulations) is probably more favourable than the historic pattern.

The higher SSB and recruitment in the reality check could indicate that the risks to B_{lim} that are calculated in the simulation trials could be underestimated.

Conclusions

The evaluation indicates that the management plan based on a 3-year rule and with constraints on the interannual variation in TACs is only in agreement with the Precautionary Approach in the absence of implementation error. In that situation the risk to B_{lim} is estimated as close to 0% and the risk to F_{lim} at 5%.

Unreported landings have increased in recent years (2002-2005) and are considered to be similar to those for Northeast Arctic cod; i.e. ~30% of the agreed TAC. When implementation errors of this order of magnitude are used in the simulations, the agreed management plan is no longer in agreement with the Precautionary Approach because the risk to F_{lim} is estimated around 63%.

The simulation indicate that a 1-year rule in connection with a maximum change of 25% in TAC appears to perform much better compared to the 3-year rule because it is less sensitive to implementation error (under the assumption that the implementation error can be estimated and used in the assessment process).