

SUMMARY OF EXPERT WORKSHOP

To review the ongoing JARPN II programme
Held at NRIFS, Yokohama
26-30 January 2009



FIRST WITH NEW PROCEDURE

- Difficulties in co-ordinating people and time
- 14 Participants: aim at least two views per discipline (overlapping expertise)
- Logistics:
 - Morning session: presentation of results by proponents and questions of clarification by Panel
 - Rest of day: closed Panel discussion and report writing
- Report:
 - Statement of objectives and summary of results by proponents
 - Panel conclusions and recommendations



SUMMARY & CONCLUSIONS

- **Primary tasks:**
 - **Objective scientific review of results and plans**
 - **In light of stated objectives**
 - **Consideration of lethal and non-lethal methods in this context**
- **Early provision of papers very helpful**
- **Co-operative attitude during meeting**
- **Recognise enormous amount of work**



OBJECTIVES

- **Challenge:**
 - First six years of long-term programme
 - Assessing progress, new plans, sample sizes difficult against often general long-term objectives
- **Recommendation:**
 - In addition to long-term objectives need specific, shorter-term objectives quantified to the extent possible



REVIEW SECTION 1: FEEDING ECOLOGY AND ECOSYSTEM MODELLING

- Aim to provide multispecies management advice
- Highly ambitious for any area (EM)
- Unlikely advice within next few years and may require much longer
- Progress made but considerably more needed esp:
 - Parameters of non-cetacean components
 - Analytical and modelling techniques



PREY CONSUMPTION AND PREFERENCES

- High quality field and laboratory work
- Potential to be of value for ecosystem modelling in a generic and quantitative sense
- However, main concern:
 - Rationale for sampling areas
 - Insufficient work to address uncertainty
 - Many recommendations made pp6-7 (EM)
- Conclusions
 - Some progress but consumption rates not reliable until further analyses have been undertaken



ECOSYSTEM MODELLING

- Substantial effort
- Various degrees of progress wrt 3 approaches;
- Exploratory stage
 - not at stage yet even to draw general conclusions & certainly not management advice
- Likelihood of meeting objectives
 - Considerably more effort on modelling work
- Detailed recommendations pp. 8-9 (EM)



REVIEW SECTION 2

POLLUTION STUDIES

- Valuable contribution thus far
- Is meeting general objectives
 - Recommendations for improvements (pp.11-13):
 - Study design, archiving, incorporation of age data
 - Use of bycaught J-stock animals as comparison group
 - Include fatty acid profiles and stable isotope ratios
 - Link to prey consumption studies



STOCK STRUCTURE

- Large amount of new data/analyses, unique
- Analyses generally sound and consistent with work within and outside SC
 - Good to include morphology/morphometrics
- General difficulty with weakly differentiated populations
 - Limitations to analyses presented
 - Additional analyses recommended (SD/NPM) 17-19
- Conclusion
 - Not possible to reduce Bryde's and minke hypotheses
 - Do contribute to RMP work



ABUNDANCE ESTIMATES

- **Important for a number of objectives**
 - E.g. Biomass, energy requirements, ecosystem modelling
 - Exchange rates and stock structure
 - Collected by dedicated vessels (no permit)
- **Great importance for improving consumption estimation/reducing uncertainty**
 - Confidence intervals wide
 - Increased effort high priority
- **Extrapolations not suitable to examine effects on stocks**



OTHER STUDIES

- Welcomed the simultaneous collection of oceanographic data with whale/prey surveys
 - Expand area of ocean considered
 - Recommendations on how to incorporate the information collected in analyses of whale densities and oceanographic features
 - Pool/compare information from other datasets
- Noted other published work on reproductive biology, physiology, phylogeny



IWC RESOLUTIONS AND DISCUSSIONS

- Ecosystem and environmental change
 - Panel agrees many of objectives relevant e.g. with respect to feeding ecology, pollutant studies, abundance and stock structure



COMPARISON OF LETHAL AND NON-LETHAL TECHNIQUES

- **Controversial within and outside IWC**
- **Not only a scientific question**
- **Full comparison not easy, requires:**
 - **Analysis of information content using different methods in the context of quantitative objectives**
 - **Often suitable comparative data not available and/or poorly defined objectives**
 - **Integration over objectives for multi-disciplinary effort (scientific and logistical)**
 - **Developed sampling design strategies and sample size**



LETHAL/NON-LETHAL

- Panel not in a position to evaluate in absence of sufficient information
- Could not complete this item but made several recommendations
 - A full evaluation of relative merits be undertaken as soon as possible after relevant work completed
 - (1) Specified and quantified objectives
 - (2) Analysis of precision of estimates by technique
 - (3) Evaluation of practicalities of field (lab) techniques in context of integrated objectives, sub-objectives and analyses proposed
 - *If* lethal sampling occurs, design well-specified study to evaluate techniques



SAMPLE size/DESIGN

- Panel unable to complete this part of work
- Proposal did not address adequately
- Need for refined quantified sub-objectives
- **Emphasise:**
 - Not all sources of uncertainty relate to sample size
 - Constrained by effects of catches on stocks
 - Sampling design as or more important than N
- **Must be undertaken asap**
- **Recommendations:**



- **For each objective:**
 - specify quantities of interest needed to achieve objectives
- **For each quantity of interest:**
 - Identify/quantify sources of uncertainty
 - Determine which are functions of sample size
- **Can then determine:**
 - how much progress has been made to achieving objectives
 - What further progress can be expected
 - Effect of changing N on time to achieve objectives
 - Whether sampling design is most appropriate and maximises information for a given N



SOME SPECIFIC COMMENTS

- **Feeding ecology**
 - Evaluate uncertainty and sources of this
 - Temporal and spatial variation in diets/food habits must not be lost when estimating impacts on prey
 - Stratifying (e.g. Coastal, offshore valuable)
 - Areas where many whales feed on common prey needs lower N than where diet diverse
 - Maximise effort over entire area
 - Need to enhance sampling design with covariates (e.g. Stock, season, sex, size, oceanography, prey..)
 - Pseudo-replication in this context



- **Stock structure**
 - Depends on power analyses recommended
 - Assist with N plus geographical and temporal distribution needed
 - Okhotsk Sea important (proportion O- and J-stock)
- **Pollutant studies**
 - Undertake power analyses for relationship between N and ability to detect changes at various levels
 - Evaluate covariates (e.g. Age and sex) to determine animals chosen for more extensive sampling
 - Same animals for all contaminants



EFFECT OF CATCHES

- Panel noted no guidance from SC or Commission
 - Particularly a problem for ongoing programmes with no endpoint
 - Advice would be beneficial for future
 - As a minimum runs needed for research catch=0
 - Especially relevant where other anthropogenic mortality as here (e.g. Bycatches)
 - Expression of performance against possible conservation objectives (IWC or proponents)
- Results should be provided for $MSYR(mat)=1\%$
- Where they exist, ISTs provide best basis for evaluation (not same as using CLA)



COMMON MINKE WHALES

- Information did not provide sufficient basis to provide advice
- Recommend ISTs as preferred approach
 - outdated
 - review and update as matter of urgency to form basis for providing advice
- Additional concern over J-stock results (severe decline for some runs at 1% MSYR(1+))
 - Primary anthropogenic source is bycatch
- Complete in-depth assessment/IR asap



BRYDE'S WHALES

- **ISTs basis**
- **Agreed level of catches posed no threat to stocks**



sei whALES

- Not sufficient
- A number of concerns:
 - Extrapolation of abundance estimate outside survey area
 - Recommend assessment repeated without this based on boundary at 170E and MSYR(mat) 1-4%
 - Recalculate catch limit based on Bryde's *Implementation*



SPERM WHALES

- Effect on stock of small takes is negligible but..
- Throughout report value of these small unrepresentative catches severely questioned



FUTURE REVIEW

- Present review not completed
- Outstanding recommendations
- Major issues to be resolved surround:
 - Sample size/sampling design (including: need to have clearly stated quantified objectives and sub-objectives; question of lethal versus non-lethal methods)
 - Effect of catches on stocks for common North Pacific minke whales (includes updating ISTs wrt stock structure, abundance) and sei whales (abundance estimate, boundary, MSYR)

