CRITICAL HABITAT & MARINE PROTECTED AREA PROGRAMME

WDC WHALE AND DOLPHIN CONSERVATION

The Development of Management Options for Minke Whale and Risso's Dolphins in Scottish proposed MPAs

Southern Trench, Sea of Hebrides and Northeast Lewis

A recommendations document from the WDC Critical Habitat & MPA Programme

Michael J. Tetley, Sarah Dolman and Erich Hoyt

The Development of Management Options for Minke Whales and 2ISSO S $OLPHINS IN 3COTTISH PROPOS

Southern Trench, Sea of Hebrides and Northeast Lewis

Collection of initial assessments and mapping of cetacean distribution, sensitivity to pressures and cumulative management concerns, to help inform the drafting of Management Options for the summer 2015 public consultation on mobile species proposed Marine Protected Areas (pMPAs)

Michael J. Tetley, Sarah Dolman and Erich Hoyt

WDC Critical Habitat & MPA Programme

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Acknowledgements

The following organisations must be thanked and acknowledged for the supply of data and advice regarding the mapping of minke WHALES AND 2ISSO S DOLPHINS IN 3COTTISH pMPAs

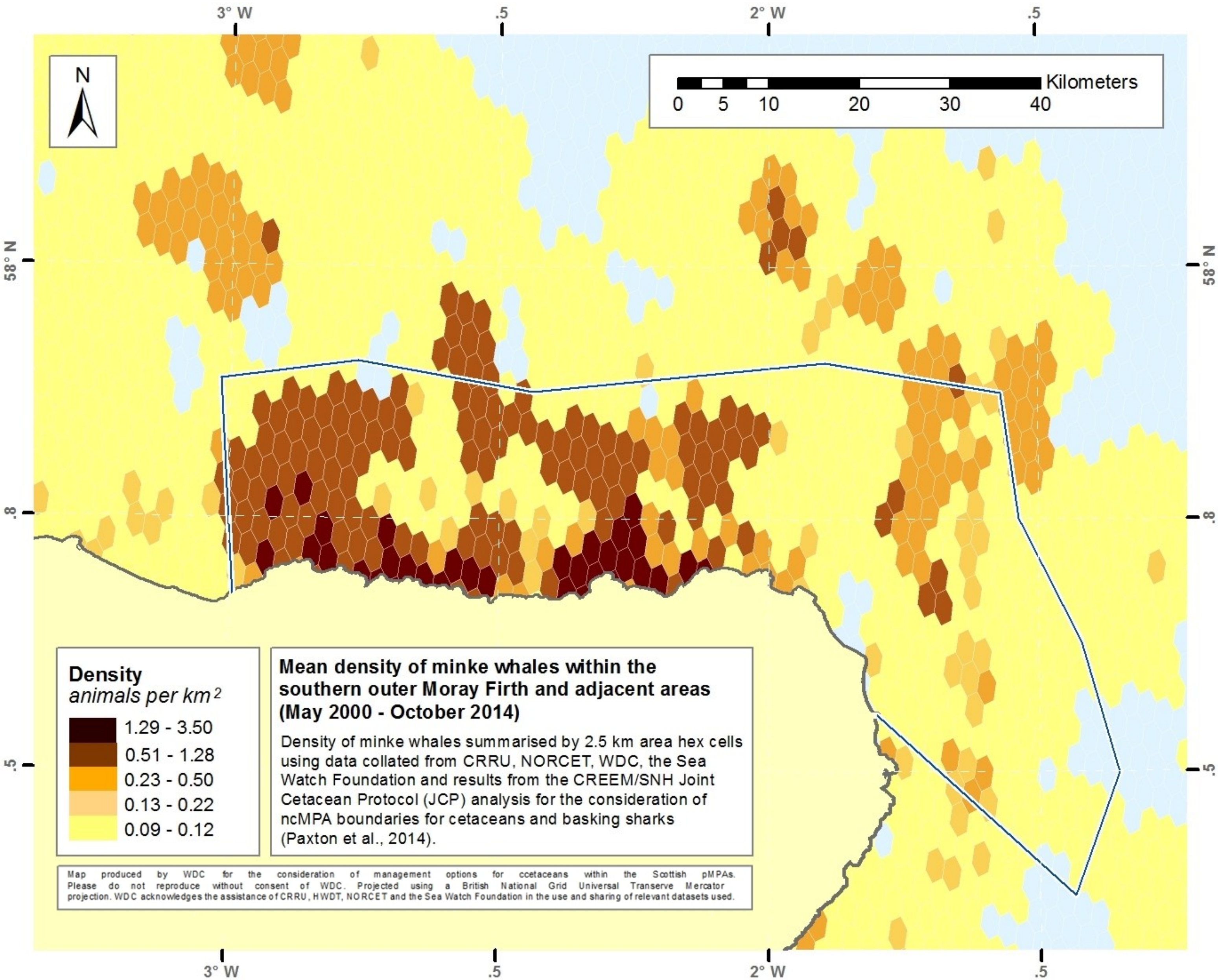
The organisations and agencies below must be thanked and acknowledged for the supply and making available of data and advice regarding the mapping of fishing, renewables, oil and gas and marine traffic activity

Note on the Precautionary Principle

The Precautionary Principle is one of the key elements for policy decisions concerning environmental protection and management. It is applied where there are reasonable grounds for concern that an activity is causing or could cause harm but when there is uncertainty about the probability of the risk and the degree of harm.

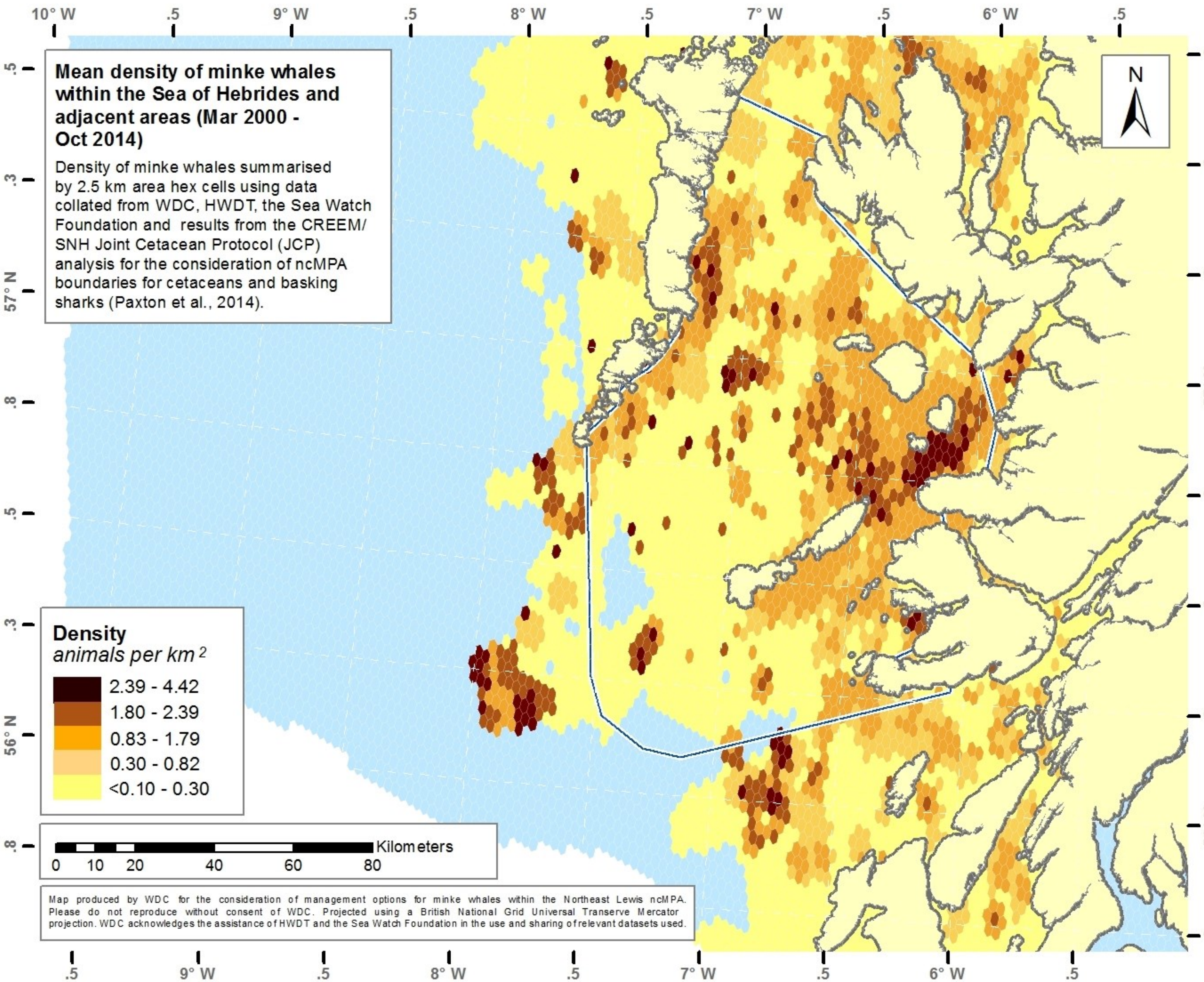
The World Charter for Nature, which was adopted by the UN General Assembly in 1982, was the first international endorsement of the Precautionary Principle. The principle was implemented in an international treaty as early as the 1987 Montreal Protocol and has been endorsed internationally on many occasions. At the Earth Summit meeting at Rio in 1992, Agenda 21 was agreed, which advocated the widespread application of the Precautionary Principle: 'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'.

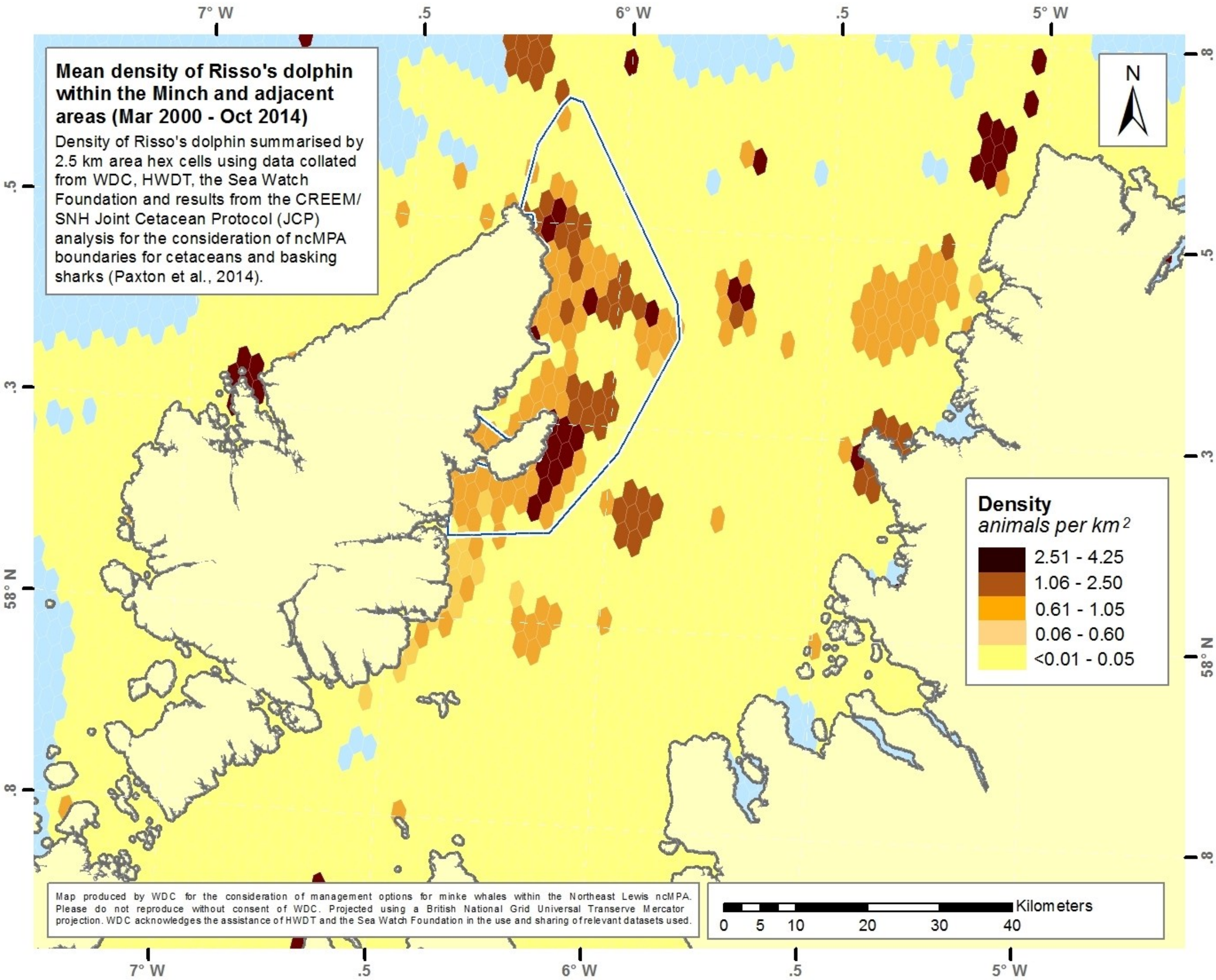
The complexities and challenges associated with data gathering in our seas and oceans have been well documented. Given the paucity of environmental data relating to the marine environment, especially information relating to cetaceans, the setting of conservation objectives and the process of decision making in relation to management actions must be done in the absence of long-term data sets. This necessitates the use of best available evidence and a precautionary approach.



Mean density of minke whales within the southern outer Moray Firth and adjacent areas (May 2000 - October 2014)

Density of minke whales summarised by 2.5 km area hex cells using data collated from CRRU, NORCET, WDC, the Sea Watch Foundation and results from the CREEM/SNH Joint Cetacean Protocol (JCP) analysis for the consideration of ncMPA boundaries for cetaceans and basking sharks (Paxton et al., 2014).


Mean density of minke whales within the Sea of Hebrides and adjacent areas (Mar 2000 - Oct 2014)
Density of minke whales summarised by 2.5 km area hex cells using data collated from WDC, HWDT, the Sea Watch Foundation and results from the CREEM/ SNH Joint Cetacean Protocol (JCP) analysis for the consideration of ncMPA boundaries for cetaceans and basking sharks (Paxton et al., 2014).
N
Density
animals per km 2
2.39 - 4.42
1.80 - 2.39
0.83 - 1.79
0.30 - 0.82
<0.10 - 0.30
Kilometers
0 10 20 40 60 80
Map produced by WDC for the consideration of management options for minke whales within the Northeast Lewis ncMPA. Please do not reproduce without consent of WDC. Projected using a British National Grid Universal Transerve Mercator projection. WDC acknowledges the assistance of HWDT and the Sea Watch Foundation in the use and sharing of relevant datasets used.
10° W
9° W
8° W
7° W
6° W
57° N
56° N



Mean density of Risso's dolphin within the Minch and adjacent areas (Mar 2000 - Oct 2014)
Density of Risso's dolphin summarised by 2.5 km area hex cells using data collated from WDC, HWDT, the Sea Watch Foundation and results from the CREEM/ SNH Joint Cetacean Protocol (JCP) analysis for the consideration of ncMPA boundaries for cetaceans and basking sharks (Paxton et al., 2014).
N
Density
animals per km 2
2.51 - 4.25
1.06 - 2.50
0.61 - 1.05
0.06 - 0.60
<0.01 - 0.05
Map produced by WDC for the consideration of management options for minke whales within the Northeast Lewis ncMPA. Please do not reproduce without consent of WDC. Projected using a British National Grid Universal Transerve Mercator projection. WDC acknowledges the assistance of HWDT and the Sea Watch Foundation in the use and sharing of relevant datasets used.
Kilometers
0 5 10 20 30 40
7° W
.5
6° W
.5
5° W
58° N
.8
.5
.3

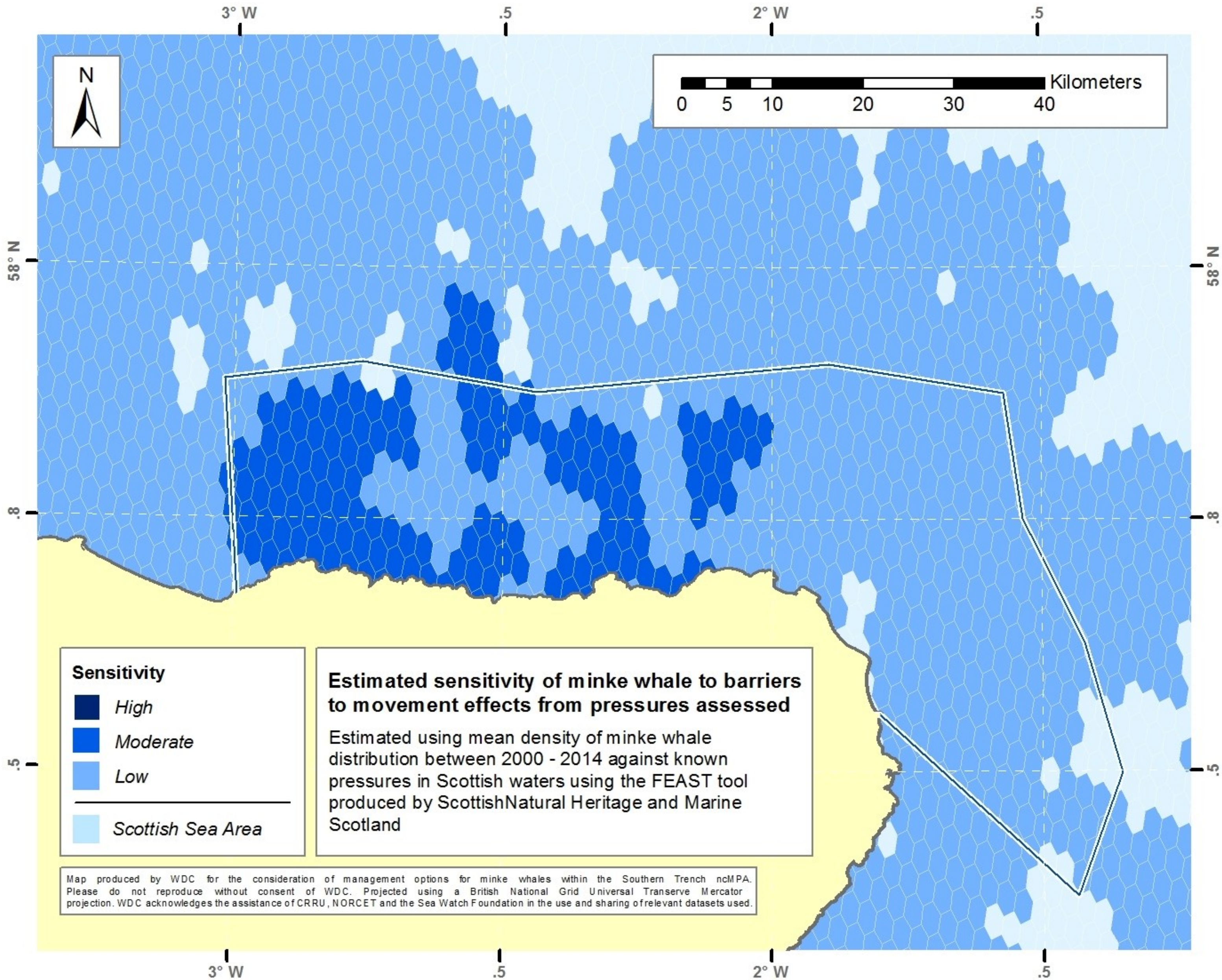
Scottish proposed MPA Management Options

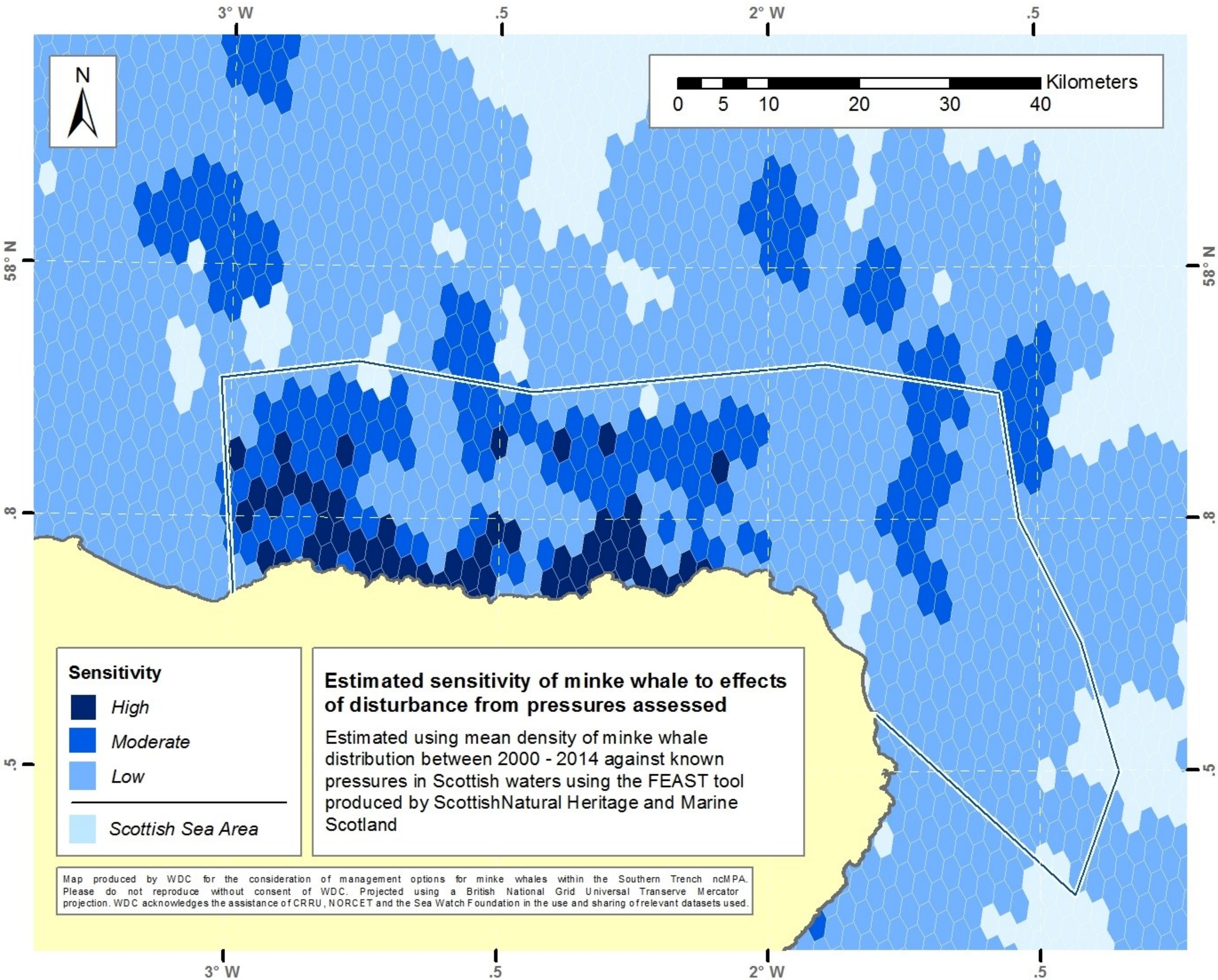
Version Control		
Table No.	Version	Date
1.0	2.0	27.04.15

Sensitivity Matrices for features with pMPAs

Below are estimated sensitivity matrices of minke whales, Risso's dolphins and harbour porpoises to pressure effects identified within the pMPAs. Sensitivity estimates were the guidance from Scottish Natural Heritage (SNH) and Marine Scotland using the FEAST tool developed by Statuary Nature Conservation Bodies (SNCBs) during the UK

Species	Pressure Group	Sensitivity				
		Low	Low - Moderate	Moderate	Moderate - High	High
Minke whale	Barrier to movement		x			
	Disturbance			x		
	Physical trauma			x		
	Ecosystem effects		x			
Risso's dolphin	Barrier to movement		x			
	Disturbance				x	
	Physical trauma		x			
	Ecosystem effects		x			
Harbour porpoise	Barrier to movement		x			
	Disturbance				x	
	Physical trauma			x		
	Ecosystem effects		x			


3° W
.5
2° W
.5
58° N
.8
.5
N
Kilometers
0 5 10 20 30 40
Sensitivity
High
Moderate
Low
Scottish Sea Area
Estimated sensitivity of minke whale to barriers to movement effects from pressures assessed
Estimated using mean density of minke whale distribution between 2000 - 2014 against known pressures in Scottish waters using the FEAST tool produced by ScottishNatural Heritage and Marine Scotland
Map produced by WDC for the consideration of management options for minke whales within the Southern Trench ncMPA. Please do not reproduce without consent of WDC. Projected using a British National Grid Universal Transerve Mercator projection. WDC acknowledges the assistance of CRRU, NORCET and the Sea Watch Foundation in the use and sharing of relevant datasets used.


3° W
.5
2° W
.5
58° N
.8
.5
N
Kilometers
0 5 10 20 30 40
Sensitivity
High
Moderate
Low
Scottish Sea Area
Estimated sensitivity of minke whale to effects of disturbance from pressures assessed
Estimated using mean density of minke whale distribution between 2000 - 2014 against known pressures in Scottish waters using the FEAST tool produced by ScottishNatural Heritage and Marine Scotland
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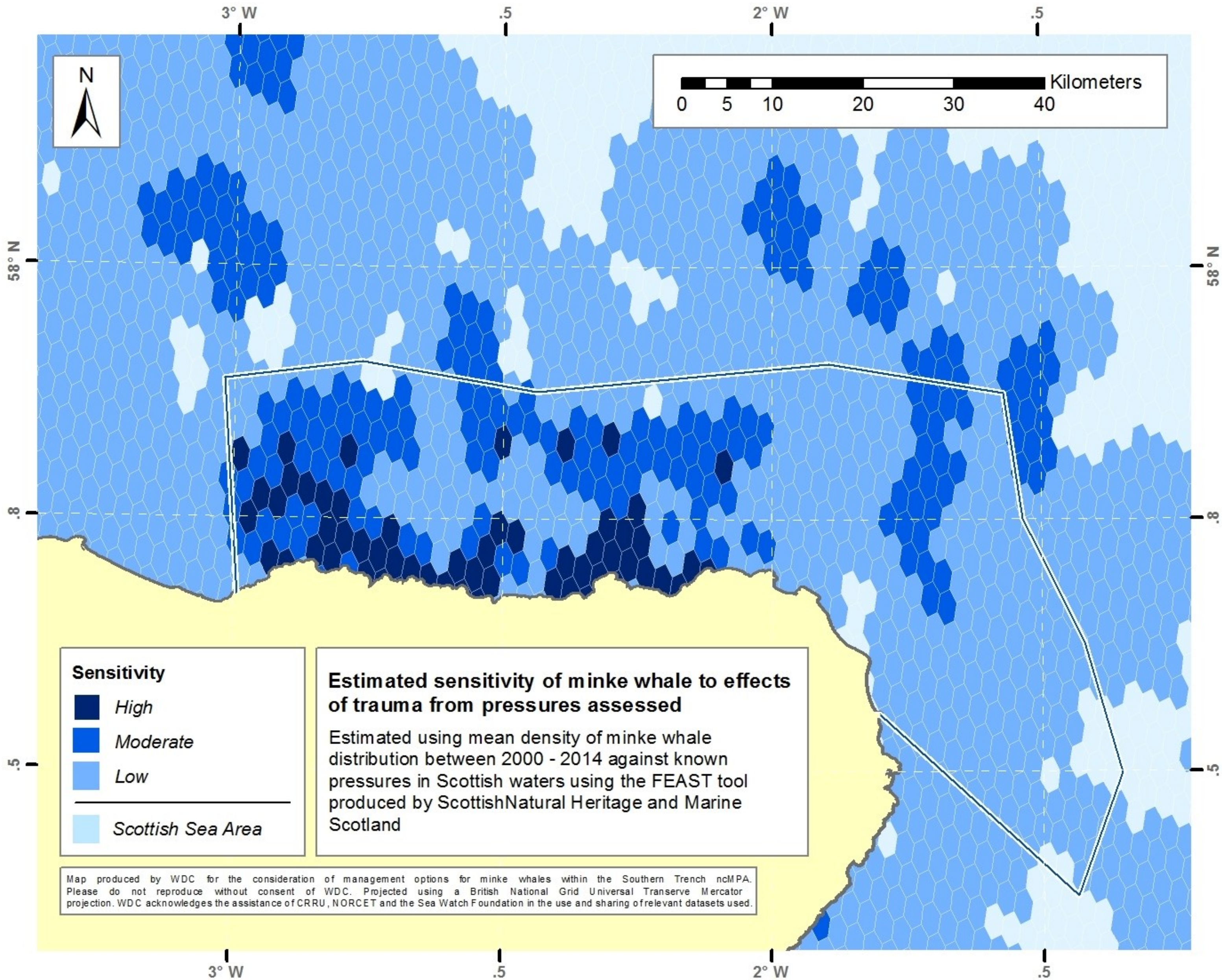
3° W
.5
2° W
.5
N
Kilometers
0 5 10 20 30 40
58° N
.8
.5
Sensitivity
High
Moderate
Low
Scottish Sea Area
Estimated sensitivity of minke whale to effects of trauma from pressures assessed
Estimated using mean density of minke whale distribution between 2000 - 2014 against known pressures in Scottish waters using the FEAST tool produced by ScottishNatural Heritage and Marine Scotland
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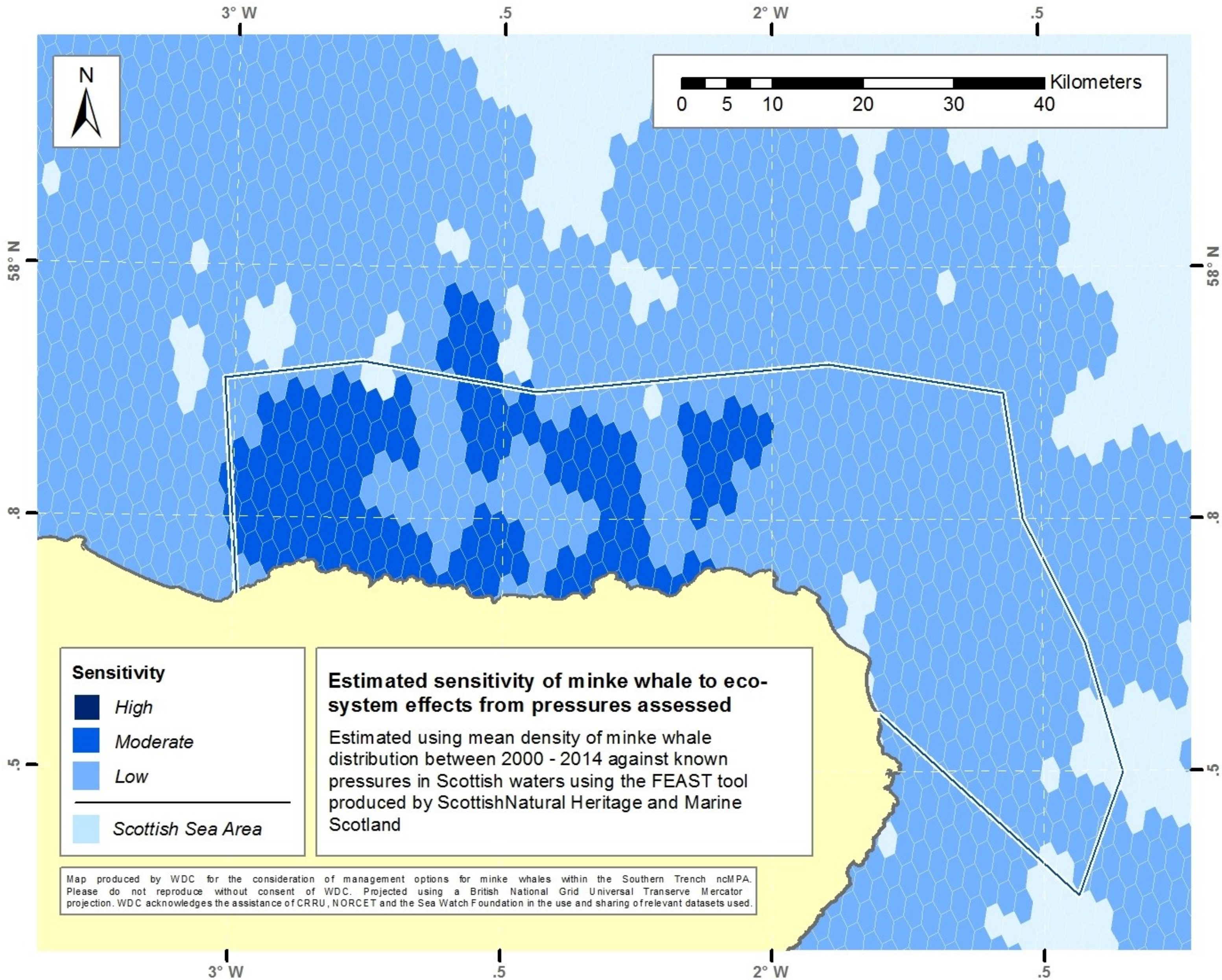
3° W
.5
2° W
.5
58° N
.8
.5
N
Kilometers
0 5 10 20 30 40
Sensitivity
High
Moderate
Low
Scottish Sea Area
Estimated sensitivity of minke whale to eco-system effects from pressures assessed
Estimated using mean density of minke whale distribution between 2000 - 2014 against known pressures in Scottish waters using the FEAST tool produced by ScottishNatural Heritage and Marine Scotland
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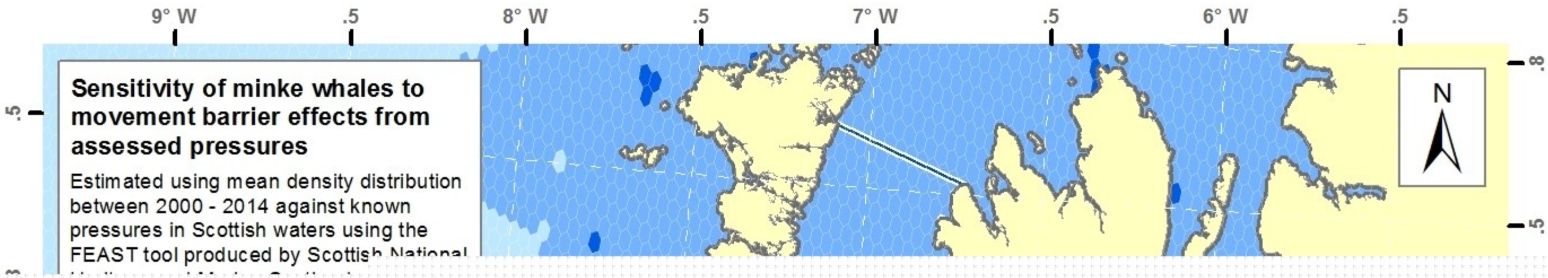
9° W
.5
8° W
.5
7° W
.5
6° W
.5
N
Sensitivity of minke whales to movement barrier effects from assessed pressures
Estimated using mean density distribution between 2000 - 2014 against known pressures in Scottish waters using the FEAST tool produced by Scottish National