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Interim estimates of potential catch and gross value of production impacts of draft marine reserves in the North Marine Region

Research by the Australian Bureau of Agricultural
and Resource Economics and Sciences

REPORT TO CLIENT
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Water, Population and Communities
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Summary

This report provides interim estimates of potential catch and gross value of production (GVP) for commercial fisheries potentially displaced from draft marine reserves proposed in the North Marine Region as part of the Australian Government's marine bioregional planning program in Commonwealth waters. It is important to note that these are estimates of the gross value of catch displaced and are not indicative of any structural adjustment that may occur. Charter fisheries have not yet been assessed; however, results for this sector will be included in the final assessment of potential impacts.

This interim report is intended to inform stakeholders of the potential displacement of catch and GVP and enable them to better understand the effect of the proposed marine reserve network for the North Marine Region on their fisheries. Release of these interim estimates also affords an opportunity for further data refining based on consultation with fishery agencies and industry. This report is one aspect of a wider assessment that includes a fisher survey, social impact assessment and economic modelling. These aspects will be considered together with the catch and GVP data in a later final assessment report.

The North Marine Region encompasses Commonwealth waters from the Northern Territory / Western Australian border to around Cape York in Queensland. Eight draft marine reserves are proposed in the region, which would potentially displace activity from Commonwealth, Northern Territory and Queensland fisheries.

In this interim analysis, it is estimated that the North Marine Region proposed reserves would displace an annual average of 378–428 tonnes of commercial fishing catch and a gross value of production of \$2.56–\$3.98 million: \$1.65–\$3.06 million from Commonwealth fisheries (exclusively, the Northern Prawn Fishery); \$0.39 million from Northern Territory fisheries; and \$0.53 million from Queensland fisheries. The Commonwealth Northern Prawn Fishery accounted for 42–49 per cent of catch and 64–77 per cent of GVP potentially displaced by the proposed marine reserve network.

Other commercial fisheries affected by the proposed marine reserve network in the North Marine Region are the Northern Territory Finfish Trawl, Spanish Mackerel and Offshore Net and Line fisheries, together with the Queensland Gulf of Carpentaria Finfish Trawl, Queensland Line Fishery and Queensland Net Fishery.

1 Introduction

The Australian Government is undertaking a marine bioregional planning program in Commonwealth waters. The program includes the process by which the Australian Government identifies areas within Commonwealth waters for inclusion in the National Representative System of Marine Protected Areas. A key principle of the marine bioregional planning program is establishing a network of marine reserves in a manner that minimises socioeconomic costs.

The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) is working with the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) to assess the effects of the proposed marine reserve network in the North Marine Region (Figure 1). DSEWPaC has indicated that the impact assessment will provide important input into the Australian Government's considerations of structural adjustment assistance and the extent of any potential adjustments to fisheries management arrangements to account for displaced fishing effort. The government's considerations about adjustment assistance will also take into account other factors. Important among these will be advice from fisheries managers and industry about the effects of the proposed marine reserves on business operations.

The socioeconomic assessment has three main components:

- 1) **Estimates of direct displacement of commercial and charter fishing by proposed marine reserves.** This analysis aims to provide an indication of the potential fishery catch that would be displaced by the marine reserves and to place a value on those displaced catches. Interim results for commercial fisheries are presented here and revised final estimates, together with charter fisheries, will be included in a final report to be released later.
- 2) **Social impact assessment.** A key part of the social impact assessment is an extensive survey of commercial and charter fishers and fishing businesses that may be affected by the proposed marine reserves. This survey will allow ABARES to better understand the effect on individuals and businesses, as well as indirect impacts up and down the supply chain. In-depth interviews will also be held with some industry and community stakeholders, as well as workshops/focus groups in some affected subregions.
- 3) **Subregional economic modelling.** Economic modelling may be undertaken on smaller coastal regions within the North Marine Region to determine short and long-term effects of the proposed marine reserves on employment and gross regional production.

The formal public consultation period being administered by DSEWPaC runs until 28 November 2011, and is an opportunity for all stakeholders to bring relevant information to the government's attention.

This interim report details estimates of direct displacement of commercial fishing activity by the proposed marine reserves in the North Marine Region (component 1 above). The social impact assessment and subregional economic modelling (components 2 and 3 above) will be addressed in the final report, as will charter fisheries. This interim report is intended to function as an information source for stakeholders on the potential displacement of catch and gross value of production (GVP), so enabling them to better understand the impact of the proposed marine reserve network on their fisheries.

Regional setting

The North Marine Region covers an area of over 625 000 km² of ocean from Joseph Bonaparte Gulf in the west to Cape York in the east. The region encompasses Commonwealth waters, which extend from three nautical miles offshore from the territorial sea baseline, out to the 200 nautical mile limit of Australia's Exclusive Economic Zone. The North Marine Region is adjacent to the territory and state jurisdictional waters of the Northern Territory and Queensland, respectively. Some territory and state-managed fisheries overlap with the North Marine Region (that is, extend into Commonwealth waters). These are managed by territory and state fisheries agencies under Offshore Constitutional Settlement arrangements with the Australian Government.

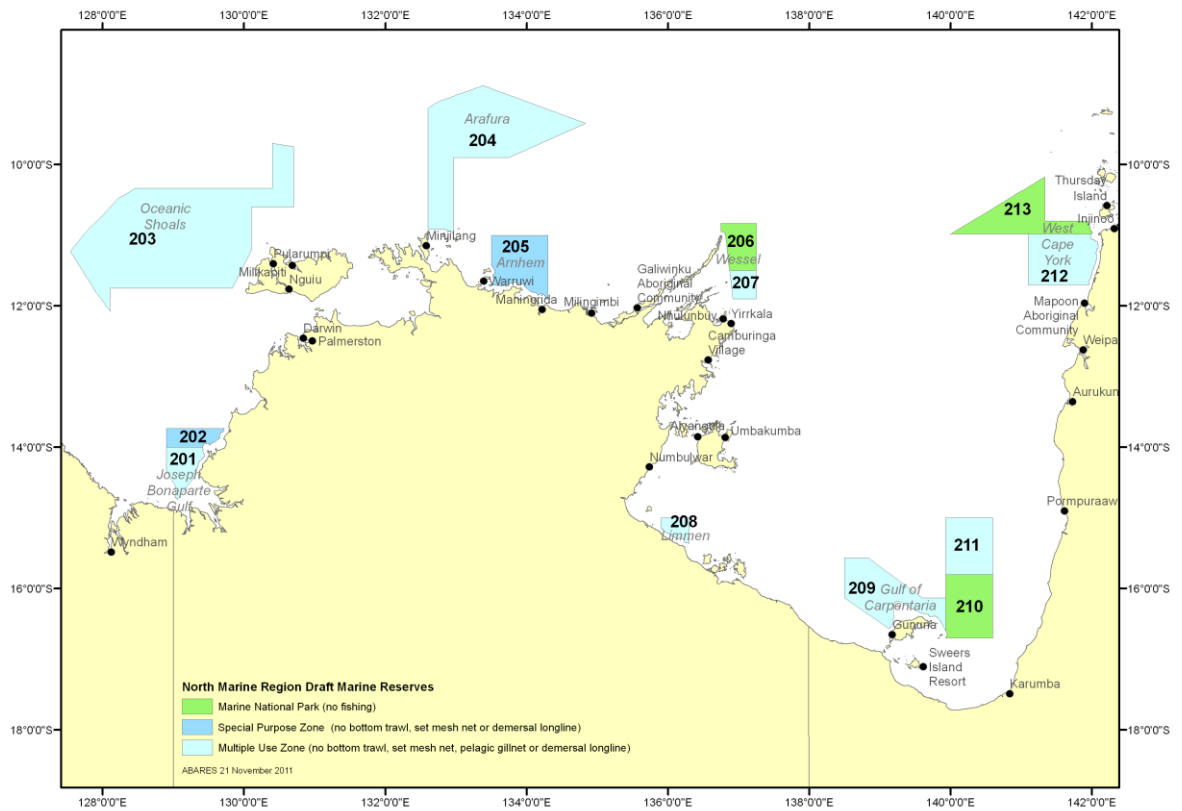
DSEWPaC has proposed a draft marine reserve network across the North Marine Region. This marine reserve network has three levels of zoning, which affect whether fishing activities may or may not occur within an area:

- Marine National Park (green)—all commercial, charter and recreational fishing excluded
- Multiple Use Zone (light blue)—demersal (and semi-demersal) trawl, demersal gillnet, pelagic gillnet and demersal longline excluded
- Special Purpose Zone (dark blue)—demersal (and semi-demersal) trawl, demersal gillnet and demersal longline excluded.

There are eight draft marine reserves in the North Marine Region with internal zone numbering added by ABARES to allow identification of individual zones with a marine reserve. The reserves and internal numbering are: Joseph Bonaparte Gulf (201 and 202), Oceanic Shoals (203), Arafura (204), Arnhem (205), Wessel (206 and 207), Limmen (208), Gulf of Carpentaria (209–211) and West Cape York (212 and 213) (Figure 1).

A detailed description of the North Marine Region can be found in *The North Marine Bioregional Plan: Bioregional Profile* (DEWHA 2008).

Figure 1: Map of proposed marine reserves in the North Marine Region



Note: Zone numbers have been added by ABARES to allow identification of individual zones within a marine reserve.

Source: DSEWPac (proposed marine reserve boundaries); Geoscience Australia (coastline and state boundaries).

2 Methods

Notes and caveats

The estimates of catch and GVP in this report are derived from logbook and market data supplied by the Australian Fisheries Management Authority (AFMA), the Northern Territory Department of Resources – Fisheries, the Queensland Department of Employment, Economic Development and Innovation and ABARES. Draft marine reserve boundaries and zoning were provided by DSEWPaC. Fisheries logbook data combined with market data were used to calculate the annual average displaced GVP. Fishing methods were included or excluded from the different zones based on the zoning framework provided by DSEWPaC (tables 1 and 2).

- The estimates use data at different spatial reporting scales and have correspondingly different accuracy when assessing the displacement of fishing. These are identified in the displacement tables (tables 3 to 9).
- Queensland fisheries report catch aggregated by cells (6-minute or 30-minute grids). These reporting cells often occupy only a portion of a proposed marine reserve. In such cases, the catch and GVP are apportioned based on the percentage of overlap with the reporting cell. It is assumed that catch is taken uniformly across the area of the reporting cell; however, this may not be the case.
- Additional refining of analyses following input from fishing industry representatives and Northern Territory and Queensland fisheries agencies has been undertaken where possible.
- A number of assumptions are made with respect to calculating GVP and the reference period used. These are discussed in the section ‘Rationale for gross value of production calculations’. Potential displacement estimates are given as annual means spanning up to 11 years. Catches in the most recent years may have been higher or lower than the mean. For example, the Queensland Gulf of Carpentaria Developmental Finfish Trawl fishery has consistently grown over the 11-year reference period, so potential displacement of catches in the past three years would be almost twice as large as the full 11-year mean.
- This report uses commercial fishery logbook data. These are generally a good reflection of actual catches but are largely unverified. As commercial fisheries logbook data are provided by fishers and then processed and stored by fisheries agencies, misreporting and data entry errors may arise. In addition, reporting of an operation’s spatial coordinates is not necessarily a completely accurate representation of where fishing occurred.
- Estimates of potential displacement may be affected by data confidentiality constraints such that no estimate can be reported for some fisheries. This is particularly the case for Northern Territory fisheries where no individual results could be reported and a ranking has been provided instead to give some indication of where the major potential impacts exist. As ABARES received confidential data for all jurisdictions, the estimates of overall displacement across all fisheries and reserves is not affected by confidentiality constraints.
- This analysis assumes that fishing is at optimum levels and there is no scope for further expansion of catch in the future. However, it is possible, where a fishery is displaced by a marine reserve, that fishers may be able to move to alternative fishing grounds and maintain the same level of activity, catch and viability of their operation. This may not be the case in other fisheries, but either way will depend on a number of (potentially interrelated) factors

such as economics, distance to port facilities, management arrangements, availability of target species or even the suitability of fishing grounds in adjacent areas.

Consultation

ABARES consulted with industry and Northern Territory and Queensland fisheries representatives on management boundaries and unit prices for GVP calculations. A number of refinements were made to the analyses as a result of this consultation.

Rationale for gross value of production calculations

The objective of this analysis is to provide an indication of the potential fishery catch that would be displaced by the proposed marine reserve network in the North Marine Region and to place a value on the displaced catch. As such, the analysis uses a historical reference period to provide an indication of the magnitude of catches that have been achieved from the areas where fishing would be excluded.

Fishery yields may fluctuate over time and a longer reference period allows for a better understanding of what catches have been achieved in an area and is not limited to current activity. However, a long reference period cannot fully account for a number of factors, such as maximum sustainable resource limits; whether the fishery is in development, fully fished at long-term sustainable levels or in recovery from depletion; or large changes in catch over time due to external drivers.

A 10-year reference period (2001–2010) has generally been used for the Commonwealth Northern Prawn Fishery to determine annual average catches in the areas of the proposed marine reserves. To account for a fisheries closure that was in force during most of the 2001–2010 reference period, estimates for the Gulf of Carpentaria reserve also used data from 1990–2000.

A reference period of 2000–2010 was used for Queensland fisheries. A variable reference period was used for Northern Territory fisheries—2001–2010 for the Finfish Trawl Fishery, 2009–10 for the Spanish Mackerel Fishery and 2006–2010 for the Offshore Net and Line Fishery. A shorter reference period was used where high spatial resolution data have recently become available. In these fisheries, the increase in spatial resolution, from 60-minute to shot-by-shot data, was considered most important for the purpose of resolving catches inside or outside of the proposed reserves.

To place a value on the displaced catch, the preferred approach was to use more recent prices instead of prices obtained in the year of capture. This is because contemporary prices are thought to better reflect likely near-term future prices when effects would be experienced. In all analyses, prices and GVP were adjusted to 2010–11 dollars using the consumer price index. Under this preferred approach, prices were taken from a three-year reference period (2007–08 to 2009–10). GVP was calculated by multiplying the volume of catch recorded in logbooks by the average 'beach price'. Beach prices exclude the cost of transporting, processing, value adding and marketing of fish products for wholesale and retail markets. Where there were no records in the price reference period, the most recent year of data was used.

Commonwealth fisheries

The only Commonwealth fishery to be affected by the proposed marine reserve network in the North Marine Region is the Northern Prawn Fishery. An area within the proposed Gulf of Carpentaria Marine Reserve (zones 209–211) was subject to a seasonal closure (banana prawn season) during most of the standard reference period of 2001–2010. This area, which had previously seen active fishing, was reopened in 2010. To account for this, estimates of potential displacement are provided through both the standard approach, using only catches from 2001–2010, and a second approach that seeks to account for the potential future impact if fishing catch patterns return to those seen in the pre-closure period of 1990–2010. This estimation makes a clear assumption that fishing patterns will return to those of the past, but this may not occur because of significant structural changes in the fishery over recent decades. The location of catches, particularly during the banana prawn season, is subject to some variability from year to year.

Standard methodology (point estimate)

- 1) Operators in the Northern Prawn Fishery record data in their mandatory AFMA logbooks, which can be used to determine location of operations and volumes of species caught. GVP calculations were derived using market data collected by ABARES.
- 2) Estimates of potential displacement from the Northern Prawn Fishery were derived from operations that occurred within the draft marine reserve over the reference period 2001–2010. Demersal prawn trawling would be excluded from all zones based on the zoning framework provided by DSEWPaC.
- 3) GVP was calculated using an average of the most recent three years of price data for each species caught, as supplied by ABARES.
- 4) This report has been filtered so that confidential data (representing fewer than five vessels) are not shown.

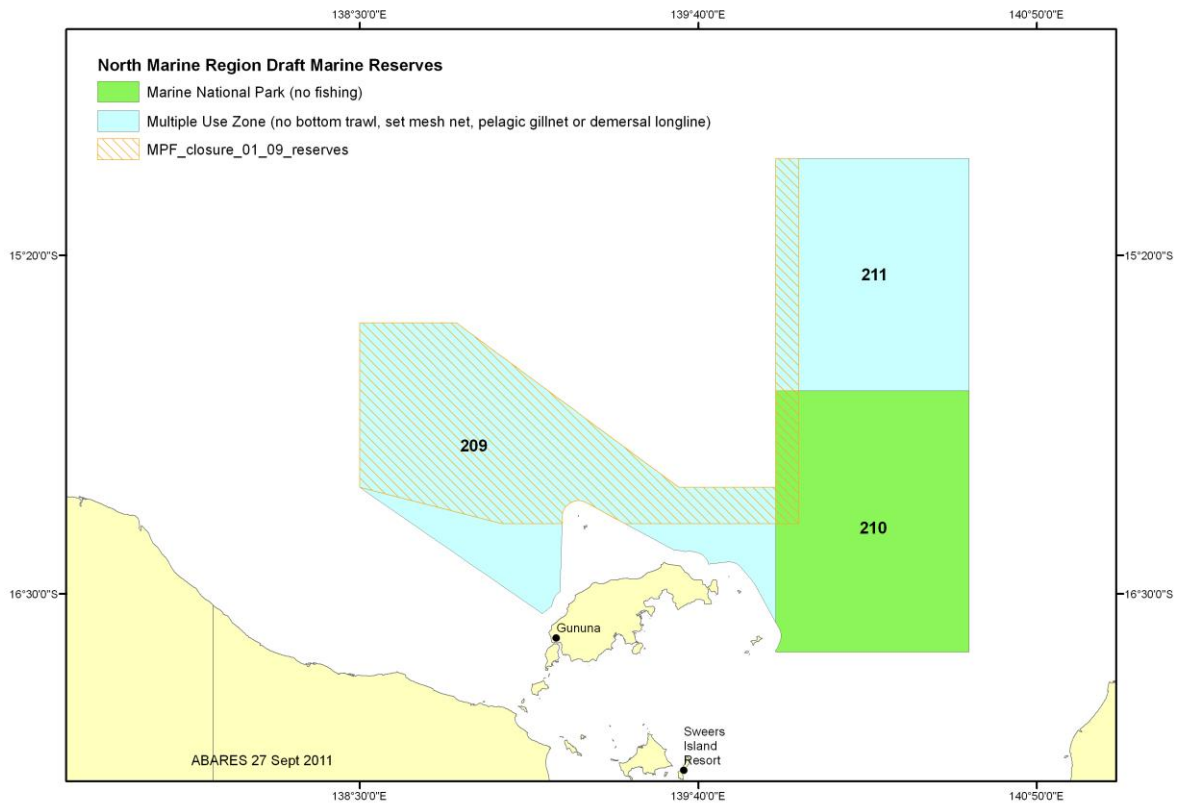
Accounting for the Gulf of Carpentaria seasonal closure (upper estimate)

- 5) For the parts of the proposed Gulf of Carpentaria Marine Reserve (parts of zones 209, 210 and 211) that were partially affected by a fisheries management closure (Figure 2), a second, upper estimate was made. This estimate used different reference periods for different areas and seasons of the fishing year.
- 6) The standard methodology (reference period of 2001–2010) was used for:
 - areas not affected by the fisheries management closure (unshaded in Figure 2)
 - areas affected by the fisheries management closure (shaded in Figure 2) during the months August–December (the second season) when the closure has never applied
 - areas affected by the fisheries management closure (shaded in Figure 2) during the months January–April when the closure continues to apply.
- 7) An alternative methodology was used in areas affected by the fisheries management closure (shaded in Figure 2) during the months May–July when the closure no longer applies. For this area and time of year, an earlier reference period of 1990–2000 was used

and potentially displaced catch and GVP were rescaled to represent the same percentage of the fishery (in terms of tonnage) during 2001–2010.

8) The upper estimate was the sum of the catch and GVP described in stages 6 and 7.

Figure 2: Map of Northern Prawn Fishery management area closure where it intersects with proposed Gulf of Carpentaria marine reserve (hatched area)



Northern Territory fisheries

Complete Northern Territory commercial fisheries data for each fishing operation were provided to ABARES by the Northern Territory Department of Resources. These data contained a license identifier that was used to identify when summaries were confidential (less than five vessels) and could not be revealed. Analysis was undertaken in consultation with the Northern Territory Department of Resources.

- 1) Northern Territory fishers record data in their mandatory logbooks, which can be used to determine where, when and by which method each species is caught.
- 2) Estimates of potential displacement for Northern Territory fisheries were derived from operations using excluded methods (Table 1) that occurred within draft marine reserves.
- 3) GVP was calculated using an average of the most recent three years of price data for the main species caught in each fishery. Annual, aggregate price data for each sector were supplied by the Northern Territory Department of Resources. Northern Territory pricing data are determined annually in consultation with the Northern Territory Seafood Council.
- 4) This report has been filtered so that confidential data (representing fewer than five vessels) are not shown.

Table 1: Northern Territory fishing methods and zoning implications

Fishery	Method	Marine National Park	Multiple Use Zone	Special Purpose Zone
Finfish Trawl	Trawling	x	x	x
Spanish Mackerel	Trolling	x		
Offshore Net and Line	Pelagic (drifting) gillnet	x	x	
Offshore Net and Line	Longline	x	x	x

x indicates method would be excluded.

Queensland fisheries

Complete Queensland commercial fisheries data, not filtered for confidentiality, were provided to ABARES by the Queensland Department of Employment, Economic Development and Innovation. These data contained a vessel count flag that was used to identify which data were confidential (fewer than five vessels) and could not be revealed. Analysis was undertaken in consultation with the Queensland Department of Employment, Economic Development and Innovation and the Queensland Seafood Industry Association. This included exclusion of some fisheries because they occurred only in Queensland state waters.

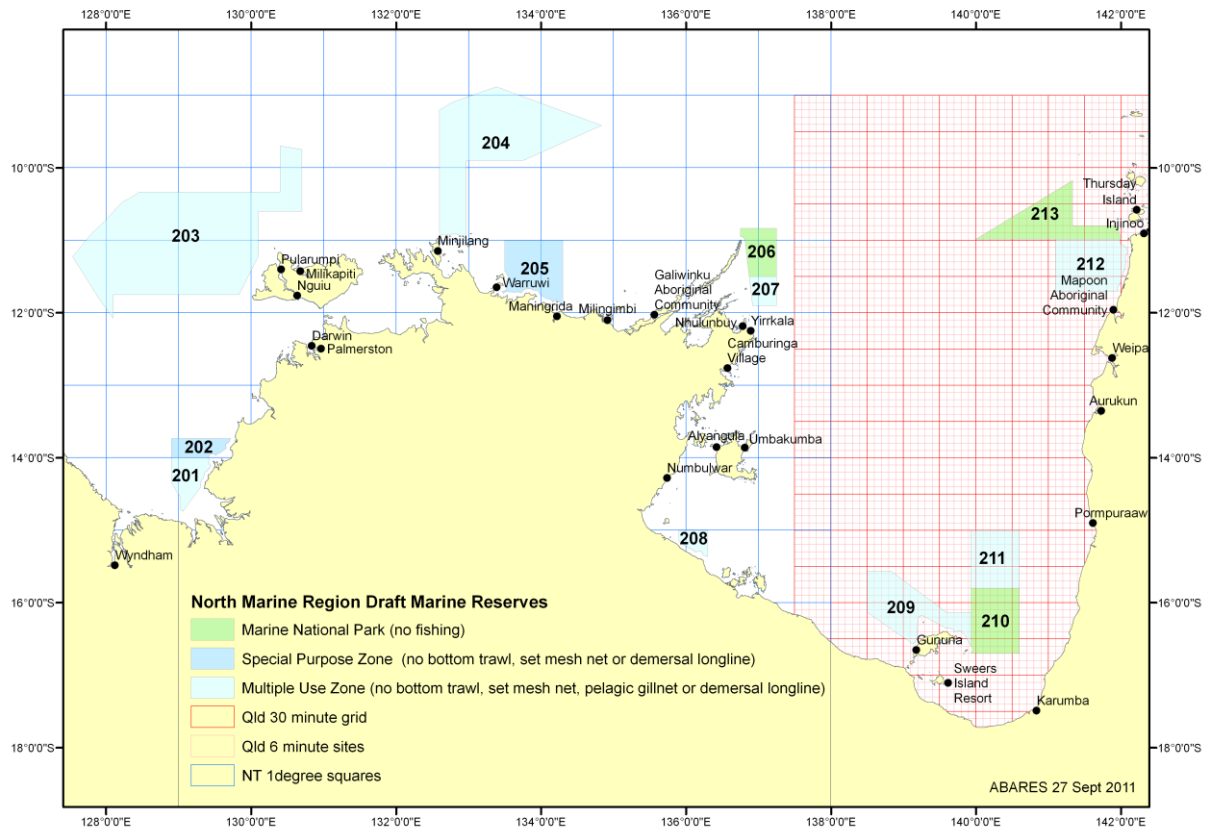
- 1) Queensland fishers record data in their mandatory logbooks, which can be used to determine where, when and by which method each species is caught. Fishing positions are recorded at the scale of sites (6-minute reporting blocks) or grids (30-minute reporting blocks) (Figure 3).
- 2) The 6 and 30-minute reporting blocks were intersected with the draft Commonwealth marine reserves and displacement was estimated according to the proportion of the reporting block that intersected the reserve. This approach assumed fishing was distributed uniformly within the reporting block. Six-minute data were used wherever available; otherwise, 30-minute data were used.
- 3) Estimates of potential displacement for Queensland fisheries were derived from operations using excluded methods (Table 2) that intersected with, or were wholly within, a draft marine reserve. GVP was calculated using 2009–10 price data for the main species caught in each fishery, as supplied by the Queensland Department of Employment, Economic Development and Innovation.
- 4) This report has been filtered so that confidential data (representing fewer than five vessels) are not shown.

Table 2: Queensland fishing methods and zoning implications

Fishery (symbol)	Method	Marine National Park	Multiple Use Zone	Special Purpose Zone
Gulf of Carpentaria Developmental Finfish Trawl	Fish trawling	x	x	x
Line (QFJA)	Longline	x	x	x
Line (QFJA)	Trotline	x		
Line (QFJA)	Dropline	x		
Line (L4)	Line fishing	x		
Line (L4)	Trolling	x		
Net (N3, N9, QFJA)	Set meshnet (demersal gillnet)	x	x	x

x indicates method would be excluded. QFJA = Queensland Fisheries Joint Authority.

Figure 3 Queensland fisheries reporting grid systems overlaid on the outline of the proposed marine reserve network



Note: Commonwealth and Northern Territory fisheries report latitude–longitude data for each operation.

3 Results

These interim estimates show that the proposed marine reserve network in the North Marine Region would potentially displace an annual average of 378–428 tonnes of catch with a gross value of \$2.56–\$3.98 million: \$1.65–\$3.06 million from the Commonwealth Northern Prawn Fishery (the only Commonwealth fishery displaced by the proposed North Marine Region marine reserve network); \$0.39 million from Northern Territory fisheries; and \$0.53 million from Queensland fisheries (Table 3). It is important to note that these are estimates of the gross value of catch displaced and are not indicative of the costs of any structural adjustment that may occur.

Estimates of catch and GVP potentially displaced from individual marine reserves are reported in tables 4 and 5 (Commonwealth fisheries), tables 6 and 7 (Northern Territory fisheries), and tables 8 and 9 (Queensland fisheries).

Table 3: Estimates of jurisdiction catch and gross value of production potentially displaced by the proposed marine reserve network in the North Marine Region

Jurisdiction	Catch (t)	GVP (\$'000)
Commonwealth fisheries	159–209	1 645–3 061
Northern Territory fisheries	117	385
Queensland fisheries	102	533
Total	378–428	2 564–3 980

Note: Commonwealth and Northern Territory estimates are based on shot-by-shot data and therefore have high accuracy. Queensland estimates are based on 6-minute site data and 30-minute grid data and therefore have medium accuracy.

Commonwealth fisheries—catch and gross value of production

Table 4: Commonwealth catch potentially displaced by the proposed marine reserve network in the North Marine Region

Catch (tonnes)	Joseph Bonaparte Gulf		Oceanic Shoals	Arafura	Arnhem	Wessel	Limmen	Gulf of Carpentaria			West Cape York	Total	% of Total fishery catch		
Fishery	201	202	203	204	205	206	207	208	209	210	211	212	213		
Northern Prawn Fishery – Demersal Trawl	*	*	14.8	4.3	2.0	0.6	0.3	1.5	89–131	40–47	3–4	2.2	*	159–209	2.4–3.1
	Multiple use zone (demersal trawl, gillnet and longline excluded)		Special purpose zone (demersal (and semi-demersal) trawl, demersal gillnet and demersal longline excluded)						Marine National Park (all fishing excluded)						

Table 5: Commonwealth gross value of production potentially displaced by the proposed marine reserve network in the North Marine Region

GVP (\$'000)	Joseph Bonaparte Gulf		Oceanic Shoals	Arafura	Arnhem	Wessel	Limmen	Gulf of Carpentaria			West Cape York	Total	% of Total Fishery catch		
Fishery	201	202	203	204	205	206	207	208	209	210	211	212	213		
Northern Prawn Fishery – Demersal Trawl	*	*	166.7	66.9	20.8	6.0	4.7	23.3	848–2 125	428–567	35–37	33.9	*	1 645–3 061	1.9–3.5
	Multiple use zone (demersal trawl, gillnet and longline excluded)		Special purpose zone (demersal (and semi-demersal) trawl, demersal gillnet and demersal longline excluded)						Marine National Park (all fishing excluded)						

Note: Commonwealth catch and GVP estimates are based on shot-by-shot position data and therefore have high accuracy. Reference period is 2001–2010. Confidential data are marked with an asterisk (*). Where ranges are given, the first figure is the estimate from the standard methodology and the second figure is the potential catch after accounting for a Northern Prawn Fishery seasonal management closure, which excluded fishing from parts of zones 209, 210 and 211 during 2001–2009. Column and row totals use best available data given confidentiality constraints and so may be higher than the sum of the values making up the column or row. The grand total value at the bottom right includes all data and is not affected by confidentiality. Fisheries that did not report activity in the proposed marine reserve network or did not use incompatible methods for the zoning are not included in the table.

Northern Territory fisheries—catch and gross value of production

Table 6: NT catch potentially displaced by the proposed marine reserve network in the North Marine Region

Catch (tonnes)		Joseph Bonaparte Gulf	Oceanic Shoals	Arafura	Arnhem	Wessel	Limmen	Total	% of Total fishery catch	Rank order
Fishery	Method	201	202	203	204	205	206	207	208	
Finfish Trawl	Trawling				*	*	*	*	*	2
Spanish Mackerel Fishery	Trolling					*			*	4
Offshore Net and Line Fishery	Pelagic (drifting) gillnet	*		*	*	*	*	*	*	3
Offshore Net and Line Fishery	Longlines	*	*	*	*	*	*	*	*	1
	Total	*	*	*	*	*	*	*	116.7	
	Rank order	7	8	1	4	3	2	6	5	

Table 7: NT gross value of production potentially displaced by the proposed marine reserve network in the North Marine Region

GVP (\$'000)		Joseph Bonaparte Gulf	Oceanic Shoals	Arafura	Arnhem	Wessel	Limmen	Total	% of Total fishery catch	Rank order
Fishery	Method	201	202	203	204	205	206	207	208	
Finfish Trawl	Trawling				*	*	*	*	*	2
Spanish Mackerel Fishery	Trolling					*			*	4
Offshore Net and Line Fishery	Pelagic(drifting) gillnet	*		*	*	*	*	*	*	3
Offshore Net and Line Fishery	Longlines	*	*	*	*	*	*	*	*	1
	Total	*	*	*	*	*	*	*	385.2	
	Rank order	7	8	1	4	3	2	6	5	

Multiple use zone (demersal trawl, gillnet and longline excluded)	Special purpose zone (demersal (and semi-demersal) trawl, demersal gillnet and demersal longline excluded)	Marine National Park (all fishing excluded)
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Note: Northern Territory estimates are based on shot-by-shot locations of operations. Reference periods for means vary (A16 = 2001–2010, A4 = 2009–10, A5 = 2006–2010). Confidential data are marked with an asterisk (*). Northern Territory estimates have high accuracy (latitude–longitude positional data). As individual results cannot be shown because of confidentiality, a ranking has been given to each marine reserve and fishery.

Queensland fisheries—catch and gross value of production

Table 8: Queensland catch potentially displaced by the proposed marine reserve network in the North Marine Region

Catch (tonnes)		Gulf of Carpentaria					West Cape York		Total	% of Total sector
Fishing type	Method	209	210	211	212	213				
GoC Developmental Finfish Trawl	Fish trawling	*		*	7.4	4.2	12.2	2.94		
Line (QFJA)	Longline/trotline/dropline	5.4	*	*	*	*	17.8	22.50		
Line (L4)	Line fishing		2.0			*	2.0	3.32		
Line (L4)	Trolling		2.9			*	2.9	2.04		
Net (N3, N9, QFJA)	Set meshnet (gillnet)	1.5	1.6	5.2	51.8	*	60.1	2.81		
	Total	7.0	6.5	11.7	60.1	12.4	102.4			

Table 9: Queensland gross value of production potentially displaced by the proposed marine reserve network in the North Marine Region

GVP (\$'000)		Gulf of Carpentaria					West Cape York		Total	% of Total sector
Fishing type	Method	209	210	211	212	213				
GoC Developmental Finfish Trawl	Fish trawling	*		*	43.9	25.0	72.1	2.71		
Line (QFJA)	Longline/trotline/dropline	16.2	*	*	*	*	59.8	11.89		
Line (L4)	Line fishing		9.2			*	9.2	5.13		
Line (L4)	Trolling		28.7			*	28.7	2.04		
Net (N3, N9, QFJA)	Set meshnet (gillnet)	6.3	6.8	30.4	267.9	*	311.4	2.48		
	Total	23.1	44.7	51.1	314.8	80.2	533.3			

Multiple use zone (demersal trawl, gillnet and longline excluded)

Special purpose zone (demersal (and semi-demersal) trawl, demersal gillnet and demersal longline excluded)

Marine National Park (all fishing excluded)

Note: Queensland catch and GVP estimates are based on site (6-minute) data where available; otherwise, grid (30-minute) data are used. Reference period is 2000–2010.

Confidential data are marked with an asterisk (*). Queensland estimates have medium accuracy (6-minute site data and 30-minute grid data). For Line (QFJA) only longline is excluded from Multiple use zones (see table 2).

Next steps

These interim estimates of potential direct displacement of fishing activity in the North Marine Region are one element of the full social and economic assessment. The complete assessment, which will follow this report, will contain an analysis of flow of impacts to ports and communities, an analysis of charter fisheries, a social impact assessment and subregional economic modelling.

There is an opportunity to undertake further refinements to these interim displacement estimates before the final assessment report. Further refinement will be based on well-founded ancillary data.

Glossary

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences—a merger of the former Australian Bureau of Agricultural and Resource Economics (ABARE) and Bureau of Rural Sciences (BRS)
AFMA	Australian Fisheries Management Authority
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
GVP	Gross value of production—the nominal value of the landed catch estimated by multiplying the weight of catch by the ‘beach price’ per unit. In the case of a multispecies fishery, the fishery’s GVP is the sum of the GVP of each species.

References

DEWHA (Department of the Environment, Water, Heritage and the Arts) 2008, *The North Marine Bioregional Plan: Bioregional Profile, A Description of the Ecosystems, Conservation Values and Uses of the North Marine Region*, DEWHA, Canberra.