



# Review of Management Controls for the Barracouta 5 Fishery (BAR 5) in 2016

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# 1 Submission Information

MPI welcomes written submissions on any or all of the proposals contained in the Consultation Document. All written submissions must be received by MPI no later than 5pm on Monday 11 July 2016.

Written submissions should be sent directly to:

Deepwater Fisheries Management  
Ministry for Primary Industries  
P O Box 2526  
Wellington 6011

or emailed to [FMSubmissions@mpi.govt.nz](mailto:FMSubmissions@mpi.govt.nz)

## 1.1 OFFICIAL INFORMATION ACT 1982

All submissions are subject to the Official Information Act and can be released (along with personal details of the submitter) under the Act. If you have specific reasons for wanting to have your submission or personal details withheld, please set out your reasons in the submission. MPI will consider those reasons when making any assessment for the release of submissions if requested under the Official Information Act.

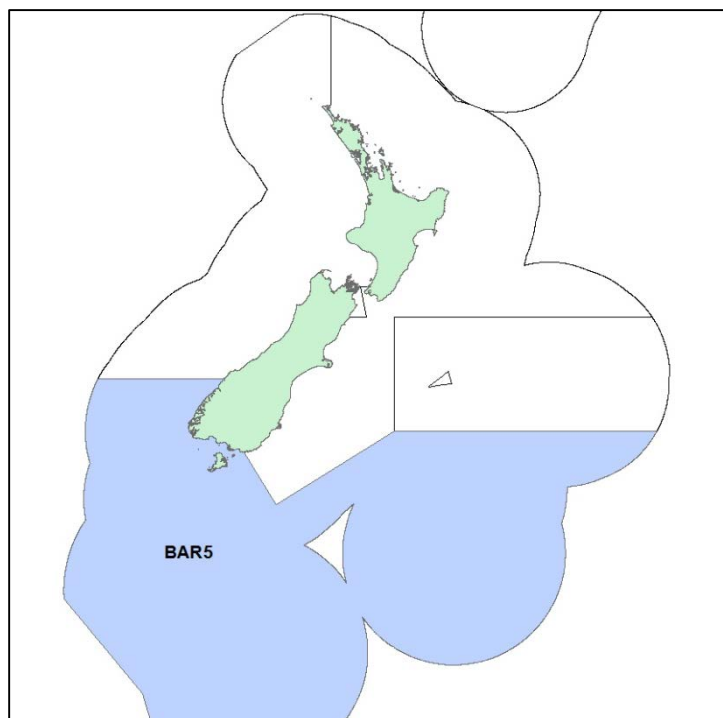


Figure 1: Quota management area (QMA) for BAR 5

## 2 Executive Summary

The Ministry for Primary Industries (MPI) is seeking tangata whenua and stakeholder input to inform a review of catch limits and other management controls for the barracouta (*Thyristes atun*) stock in quota management area 5 (BAR 5; Figure 1).

A total allowable catch (TAC) was set for BAR 5 and the total allowable commercial catch (TACC) was lowered from 9,282 to 7,470 tonnes for the 1998/99 fishing year due to indications of reduced recruitment and reduced abundance. The 1998/99 total allowable catch (TAC) of 7,475 tonnes, including a 2 tonne customary allowance and a 3 tonne recreational allowance, has remained unchanged since. No allowance for other sources of fishing-related mortality within the TAC was set at that time. Catches have averaged 7,585 tonnes per year over the last ten years, with a maximum of 9,479 tonnes caught in 2005/06. BAR 5 annual catch entitlement (ACE) has been overcaught in four of the last ten years, with the highest overcatch occurring in 2005/06.

The status of all barracouta stocks relative to the biomass that can support the maximum sustainable yield ( $B_{MSY}$ ) is unknown, however a 2016 catch per unit effort (CPUE) analysis indicates that BAR 5 CPUE remains high after a significant increase in 2007-2009. This new information suggests that the BAR 5 stock is likely to have increased in abundance, and will likely support increased utilisation.

MPI proposes the following options for the TAC, TACCs, and associated allowances for the 2016-17 fishing year (Table 1).

Table 1: Proposed TACs, TACCs and allowances for BAR 5 in 2016-17 (all values in tonnes)

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	Other sources of fishing-related mortality
Status quo	7,475	7,470	2	3	0
Option 1	7,625	7,470	2	3	150
Option 2	8,370	8,200	2	3	165
Option 3	9,470	9,280	2	3	185

In all cases MPI proposes to retain the existing small allowances for customary Māori and recreational fishing. In order to account for fish that escape from gear and other sources of cryptic mortality, an allowance for other sources of fishing-related mortality that is 2% of the TACC is included in all options.

## 3 Purpose

### 3.1 NEED FOR ACTION

A CPUE analysis presented in 2016 shows that the BAR 5 CPUE index increased significantly from 2007 to 2009, and it has remained consistently high in subsequent years. There is agreement by the Deepwater Fisheries Assessment Working Group that this may reflect a genuine increase in the abundance of the stock. Concurrently, catches of BAR 5 have been consistent, exceeding available ACE in four of the last ten years. This suggests that the declines of the late 1990s have been reversed and there is an opportunity for increased utilisation in the fishery by moving the TACC towards its previous level.

### 3.2 MANAGEMENT APPROACH

Barracouta is managed under the National Fisheries Plan for Deepwater and Middle-Depth Fisheries (National Deepwater Plan), which was approved by the Minister of Fisheries under section 11A of the Fisheries Act 1996. Within the National Deepwater Plan it is classed as a Tier 2 species; Tier 2 fisheries are typically less valuable bycatch fisheries or are only target fisheries at certain times of the year. There are no stock assessments available for any barracouta stock, however, new CPUE analyses are available in 2016 for BAR 5 as part of routine fishery characterisations conducted for Tier 2 species.<sup>1</sup> This analysis provides an indicator of relative abundance and has identified the potential for increased utilisation for BAR 5. In the absence of current and reference biomass estimates, the Harvest Strategy has not been applied to this stock.

## 4 Background Information

### 4.1 BIOLOGICAL CHARACTERISTICS OF BARRACOUTA

Barracouta are found around New Zealand in coastal waters. Barracouta are part of the shelf (30–300 m) mixed fishery and are usually a prevalent species in these depths around the South Island. Juveniles are found throughout New Zealand (though they are less common on the west coast of the South Island (WCSI)) in inshore waters less than 100 m, while adults are found down to approximately 400 m (including the WCSI).

<sup>1</sup> A characterisation summarises the available information for a species with the aim of developing methods for monitoring that species.

Barracouta are thought to reach a maximum age of 10 years and a maximum length of 100 cm, although ~80 cm has been the maximum observed in BAR 5 since 1999. Ageing studies carried out in the mid-1970s showed that the maximum age rarely exceeded 10 years. No age data are available for the period prior to the onset of commercial fishing, which developed rapidly from 1968.

Barracouta reach sexual maturity at about 50–60 cm fork length (FL) at about 2–3 years of age. Barracouta spawn mainly in late-winter/spring (August–September) on the east and west coasts of both of the main islands, and in late spring (November–December) in Southland and around the Chatham Islands. Some spawning activity may also extend into summer/autumn. Tagged barracouta have moved considerable distances to spawn (up to 500 nautical miles).

## 4.2 COMMERCIAL FISHERY

Barracouta are caught in coastal waters around mainland New Zealand, The Snares, Auckland Islands, and Chatham Islands, out to depths of about 400 m. New Zealand's barracouta fisheries have been managed within the quota management system (QMS) since 1986. Barracouta stocks are managed within five quota management areas (QMAs), and BAR 5 covers fishery management areas (FMAs) 5 and 6 (Figure 1).

The BAR 5 fishery is both a target and a bycatch fishery. Catches by New Zealand vessels increased significantly in the late 1960s with the addition of foreign vessels around New Zealand. Over 99% of the recorded catch is taken by trawlers. Major target fisheries have been developed on spring spawning aggregations (Chatham Islands, Stewart Island, and the west coast South Island) as well as on summer feeding aggregations, particularly around The Snares. Consequently, BAR 5 comprises both a target fishery for barracouta, and barracouta taken as bycatch by other fisheries, such as squid (particularly the Snares squid trawl fishery), jack mackerel, and warehou. An inability to balance available BAR 5 ACE with large barracouta catches may have necessitated fishers moving away from the Snares squid trawl fishery in recent years once all BAR 5 ACE has been caught. In good squid years this could represent some forfeiture of available squid (a valuable species) to meet catch limits for barracouta (a less valuable species).

Barracouta stocks were introduced into the quota management system (QMS) on 1 October 1986. The BAR 5 TAC (now TACC) was initially gazetted at 9,010 tonnes, and raised to 9,282 tonnes for the 1990/91 fishing year following decisions by the Quota Appeal Authority. In 1998/99 a TAC of 7,475 tonnes was set for BAR 5 and the TACC was reduced from 9,282 to 7,470 tonnes. Included within the TAC was a 3 tonne recreational fishing allowance, and a 2 tonne customary allowance. No allowance for other sources of fishing-related mortality was set at that time.

Annual catches and TACC for BAR 5 since 1997/8 are shown in Figure 2 below. BAR 5 catch has regularly exceeded the TACC since it was reduced for 1998/99. However underfishing carry-forward provisions apply in this stock, and the available ACE in any given year was exceeded on only four occasions (Figure 2).

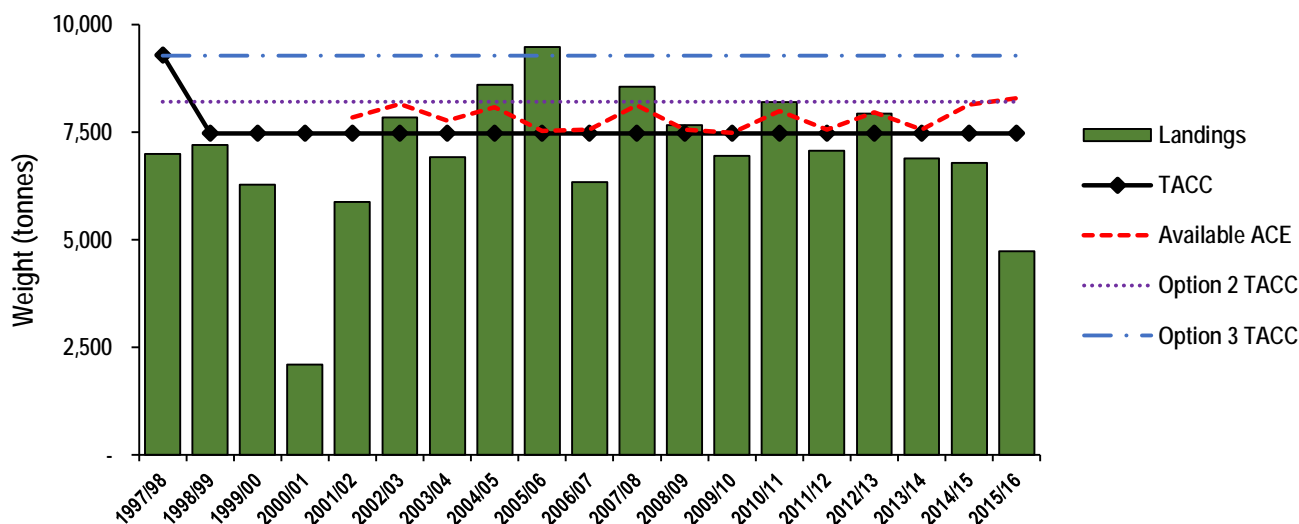


Figure 2: Annual catches vs TACC and available ACE for BAR 5 between 1997/8 and 2015/16 (as at April 2016), including TACC levels proposed for Options 2 and 3.

### 4.3 RECREATIONAL FISHERY

Barracouta are occasionally caught recreationally but are typically used as bait for other fishing rather than for consumption. They are predominantly taken on boats, with a small proportion taken from land, and primarily by rod and reel, with a small proportion taken by net methods. The main method used to manage recreational harvests of barracouta is daily bag limits. Fishers can take up to 30 barracouta as part of their combined daily bag limit in BAR 5. There is currently no bag limit in place in the other FMAs.

A panel survey in 2012 estimated a recreational harvest of 1.4 tonnes for BAR 5<sup>2</sup>. An allowance of 3 tonnes for recreational fishers is provided for within the current BAR 5 TAC. MPI considers that this allowance should be retained under all proposed options.

### 4.4 MĀORI CUSTOMARY FISHERY

The reported customary catch for BAR 5 is nil and barracouta is likely taken by Māori under their recreational allowance. A nominal allowance of 2 tonnes for customary fishing is provided for within the current BAR 5 TAC. MPI considers that this allowance should be retained under all proposed options, as it provides for future customary use of the BAR 5 stock.

### 4.5 OTHER SOURCES OF FISHING-RELATED MORTALITY

There is likely to be some mortality associated with fish escaping from trawl nets or dead fish lost from burst nets. To account for this, MPI proposes to add an allowance for other sources of fishing-related mortality that represents 2% of the TACC under all proposed options.

<sup>2</sup> Wynne-Jones, D; Gray, A; Hill, L; Heinemann, A (2014). National panel survey of marine recreational fishers 2011-12: Harvest estimates. *New Zealand Fisheries Assessment Report 2014/67*. 139 p.

## 4.6 PREVIOUS REVIEW

The BAR 5 catch limit was last reviewed in 1998/99 in response to the TACC regularly being undercaught, including catches less than 50% of the TACC in the previous four years. The TACC was decreased from 9,282 tonnes to 7,470 tonnes on this occasion, and has remained unchanged since.

## 4.7 SCIENCE INFORMATION

A CPUE analysis presented in 2016 shows that the BAR 5 CPUE increased significantly from 2007 to 2009, and has remained consistently high in subsequent years. The Deepwater Fisheries Assessment Working Group considers that the CPUE may provide an index of barracouta abundance. MPI considers that the CPUE results indicate a likely increase in abundance in the stock with the potential to support an increase in TAC.

# 5 Legal Considerations

## 5.1 SETTING MANAGEMENT MEASURES

The lack of an estimate of stock status means the TAC for the BAR 5 stock would be set under section 13(2A) of the Fisheries Act 1996 (the Act). This section is relevant for stocks for which the maximum sustainable yield (MSY) is not able to be reliably estimated using the best available information.

Section 13(2A) requires the Minister for Primary Industries (the Minister) to set a TAC that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the MSY. MPI considers that the CPUE analysis is the best available information to determine the status of the stock. This analysis suggests a sustained increase in stock abundance and the potential for increased utilisation in the fishery. The options within this paper provide the Minister with a choice on how he fulfils his obligations under this section.

Section 12(1)(b) of the Act requires that the Minister provide for the input and participation of tangata whenua and have particular regard to kaitiakitanga before setting or varying a TAC. MPI will provide relevant Fisheries Forums opportunity for engagement on the proposed options.

Under section 13(3) of the Act, relevant social, cultural and economic considerations must be considered by the Minister in determining an appropriate way and rate to move the stock towards or above a level that can produce the MSY.

The TAC must be apportioned between the relevant sectors and interests set out under the provisions of section 21 of the Act. Section 21 requires the Minister to allow for Māori customary non-commercial interests, recreational fishing interests, and for any other sources of fishing-related mortality, when setting or varying the TACC.

Recreational and customary Maori allowances are currently set at 3 tonnes and 2 tonnes, respectively, and MPI proposes to retain these allowances for all options.

MPI proposes that a proportional allowance for other sources of fishing-related mortality, set at 2% of the TACC, be added to BAR 5 TAC including if the status quo TACC is retained. This allowance accounts for unreported barracouta mortality such as loss due to burst nets.

## 5.2 KEY CONSIDERATIONS

When making a decision concerning the TAC for a stock, the Minister must have regard to interdependence of stocks, the biological characteristics (discussed above) and any environmental conditions affecting the stock.

Sections 9(a) and (b) of the Act also require the Minister to take into account that associated or dependent species be maintained at or above a level that ensures their long-term viability, and that the biological diversity of the aquatic environment should be maintained.

The key environmental interactions associated with the BAR 5 stock are discussed below with reference to the likely impacts of the proposed management options. As barracouta is both targeted and taken as bycatch in this area, fishing effort may increase if the TAC for this stock were to increase.

### 5.2.1 Interdependence of stocks

Barracouta is caught as bycatch in squid, jack mackerel, and warehou fisheries in BAR 5. An increase in BAR 5 TAC will increase the ability of fishers to balance barracouta bycatch with available ACE, and may increase the amount of time they can spend fishing before all available BAR 5 ACE is caught. While this may increase the amount of fishing effort in the squid, jack mackerel, and warehou fisheries, the increase is likely to be minor in the context of existing fishing. MPI does not consider increasing BAR 5 ACE to pose a sustainability risk to these fisheries (noting the proposal to reduce the TAC for JMA 3).

### 5.2.2 Protected species interactions

All proposed options (except the status quo) could result in an overall increase in barracouta target fishing effort, and would enable an extended period of activity in the Snares squid fishery. This may result in increases to the known interactions with protected species in the southern fisheries, as outlined below. However, MPI considers that current management processes will ensure that the long-term viability of these affected protected species populations is not negatively impacted.

#### 5.2.2.1 Seabirds

Management of seabird interactions with New Zealand's commercial fisheries is driven through the 2013 National Plan of Action to Reduce the Incidental Captures of Seabirds in New Zealand fisheries (NPOA Seabirds). The NPOA Seabirds reflects New Zealand's obligations under customary international law to take into account the effects of fishing on associated species such as seabirds. The NPOA Seabirds has established a risk-based approach to managing fishing interactions with seabirds, targeting management actions at the species most at risk as a priority but also aiming to minimise captures of all species to the extent practicable.

The level of risk from commercial fishing to individual seabird species has been identified through a comprehensive hierarchical risk assessment that underpins the NPOA Seabirds. Seabird interactions from the target fisheries that take BAR 5 as bycatch generally occur at low rates, although interactions are known to occur. The Snares squid trawl fishery and the barracouta target fishery mainly catch NZ white-capped albatross, Southern Buller's albatross, white-chinned petrel and sooty shearwater.

Regulatory and non-regulatory management measures are in place to mitigate and manage interactions with seabirds. Mandatory measures include the requirement that all trawl vessels

over 28 m in length deploy bird mitigation devices (such as bird bafflers or tori lines) during fishing. Non-regulatory management measures include vessel-specific vessel management plans (VMPs). The VMPs describe on-board practices vessels must follow to reduce the risk of seabird interactions, including offal management and good factory cleanliness. MPI monitors each vessel's performance against its VMP and works with the Deepwater Group Ltd to rectify any issues that arise during the fishing season. This practice will continue during the 2016-17 fishing year.

Fishing effort in BAR 5 is expected to increase relative to recent years for all proposed TAC options (except the status quo). Targeted fishing for barracouta and non-targeted fishing that captures barracouta both have the potential to increase to a moderate degree. With the range of regulatory and non-regulatory measures in place, the management proposals should have limited additional effects on seabirds. However considering the potential increase in effort in fisheries that target barracouta or take it as bycatch, the effectiveness of these mitigation measures will be monitored throughout the year.

#### 5.2.2.2 *Marine mammals*

Fisheries that take barracouta as bycatch are responsible for some New Zealand sea lion and fur seal mortalities, particularly the squid fisheries on the Snares shelf. MPI works closely with industry to increase awareness amongst the fleet of the risk of interactions, and emphasises the importance of adherence to the current marine mammal operational procedures (MMOPs). The MMOPs aim to reduce the risk of interactions with marine mammals by requiring that vessels minimise the length of time the fishing gear is on the surface, remove all dead fish from the net before shooting the gear, steam away from any congregations of marine mammals before shooting the gear, and appoint a crew member to watch for marine mammal interactions every time the gear is shot or hauled. In addition, the use of sea lion exclusion devices (SLEDs) is a voluntary MMOP employed by the industry when fishing in SQU 6T. Performance in relation to these procedures is audited by MPI, which will continue into the 2016/17 fishing year.

Under all options except the status quo, fishing effort in the fisheries that take barracouta as bycatch is expected to increase. In the context of Snares fishing effort this may represent a small increase, and there may be some associated additional risk to marine mammals. Increasing BAR 5 TAC and TACC is expected to increase fishing effort in the Snares squid fishery in statistical areas 027-029, but is not expected to affect squid fishing around the Auckland Islands in SQU 6T. In the last five fishing years, there has been a maximum of two New Zealand sea lion captures estimated per year in the Stewart-Snares shelf squid fishery. Consequently the potential effect on New Zealand sea lions of raising the TAC for BAR 5 is expected be minimal. Continued adherence to MMOPs (including the use of SLEDs) should minimise any adverse impact of increased fishing effort in BAR 5 on New Zealand sea lions and other marine mammals. MPI will monitor the effectiveness of these mitigation measures throughout the year and any issues with marine mammal captures will be managed as standard.

#### 5.2.3 *Benthic impacts*

Since QMS introduction in 1986, more than 90% of barracouta taken in BAR 5 has been taken using bottom trawl or midwater trawl gear that is fished on or close to the bottom. There are impacts on benthic habitat associated with bottom trawl fishing in particular.

Management measures to address the effects of trawl activity in deepwater fisheries have focused on 'avoiding' these effects in specific areas. This has been achieved through closing areas to bottom trawling; first with seamount closures in 2001 and then with Benthic

Protection Areas (BPAs). The implementation of BPAs in 2007 effectively closed approximately 30% of the New Zealand EEZ to bottom trawling. A monitoring regime to ensure these closures are adhered to was also implemented.

The options to increase the BAR 5 TAC and TACC will result in an overall increase in barracouta fishing effort, although an increase in fishing effort for fisheries that take barracouta as bycatch is more likely. These increases are likely to be small-to-moderate in the context of current fishing effort for both targeted barracouta catch and barracouta bycatch. Most of the additional effort from any increase in the catch limit for BAR 5 will likely be in areas that have previously been fished, somewhat limiting further benthic impacts.

MPI will continue to monitor the trawl footprint of all deepwater fisheries, including those that take barracouta as bycatch, on an annual basis.

## 6 Proposed Options

### 6.1 TOTAL ALLOWABLE CATCH

MPI is consulting on the options set out in Table 1. All options involve increases to BAR 5 TAC, though only options 2 and 3 would see an increase in TACC. Catch and effort for barracouta reported in BAR 5 in recent years is used as the basis for the proposed options. Given recent catch and indications of increased abundance, MPI considers that there is potential for increased utilisation of BAR 5.

In all cases MPI proposes to retain the existing small allowances for customary Māori fishing (2 tonnes) and recreational fishing (3 tonnes). An allowance for other sources of fishing-related mortality that is 2% of the TACC is included in all options.

### 6.2 OPTION 1 (STATUS QUO PLUS OTHER MORTALITY ALLOWANCE)

Under this option the TAC for BAR 5 would increase to 7,625 tonnes, including a 2 tonne Māori customary allowance, a 3 tonne recreational allowance, and the addition of a 150 tonne allowance for other sources of fishing-related mortality.

Option 1 would not change the amount of effort in the barracouta target fishery. However this option would not provide fishers with the opportunity for increased utilisation in barracouta and potentially associated fisheries.

### 6.3 OPTION 2

This option involves setting the BAR 5 TAC at 8,370 tonnes with a TACC of 8,200 tonnes. The TACC increase of this option is based on maximum catches for BAR 5 over the last five years, and represents a 9.8% increase in the TACC. This TACC supports catches in keeping with the history of the stock (Figure 2). A TACC of 8,200 tonnes would allow fishers greater ability to cover catch with ACE if catch increases to the level of 2010/11 (Figure 2).

Based on 2015 export prices, a 9.8% increase in barracouta exports represents a potential \$2.5 million increase in value per annum. An increase in barracouta TAC would also enable a potential increase in squid catch, and associated increased revenue.

Fishing effort will likely increase as a result of BAR 5 TAC increase. This is likely to be concentrated in areas that have previously been fished, limiting further benthic impacts.

Mitigation measures designed to reduce the capture of seabirds, marine mammals, and protected fish species will continue to be employed on all fishing vessels as a requirement of operation. As there may be an increase in effort in fisheries that catch barracouta as bycatch and are known to have some interactions with seabirds and marine mammals, capture rates will be monitored by MPI throughout the year, to ensure increased effort in BAR 5 is not having an undue negative impact on these species.

## 6.4 OPTION 3

Under this option, the TAC would be increased to 9,470 tonnes, including a TACC of 9,280 tonnes. The TACC increase of this option is based on maximum catches for BAR 5 over the last ten years, and represents a 24% increase in the TACC. This TACC level represents a return to the 1997/98 TACC level. A TACC of 9,280 tonnes would allow fishers greater ability to cover catch with ACE if catch approaches the level of 2005/06 (Figure 2), and would support increased catches in the future which are possible considering the recent CPUE levels. There is an increased risk associated with this option. If adopted, MPI will continue to periodically monitor the CPUE abundance index and respond if there are indications of a decline.

Option 3 would allow for a much larger increase in barracouta catch. Considerations of the impact this may have on key environmental interactions are the same as in Option 2. A 24% increase in barracouta exports could represent up to \$6.2 million in additional revenue per annum, based on 2015 export prices. In addition, the BAR 5 TAC increase could enable increased squid catch, which in good squid years could represent considerable additional revenue.

## 7 Other Matters

### 7.1 DEEMED VALUES

Deemed values are an economic tool that provides incentives for commercial fishers not to catch in excess of their individual ACE. Ensuring deemed value rates are appropriately set is a fundamental principle of the QMS. Deemed values are reviewed whenever the TAC for a stock is reviewed.

Current deemed value rates for all barracouta stocks including BAR 5 are given in Table 2 below. MPI is not proposing to make any changes to the deemed value rates for barracouta at this time.

Table 2: Current deemed value rates (\$/kg) for all barracouta stocks

Stock	Interim	Annual								
		100-110%	110-120%	120%+	100-120%	120-140%	140-160%	160-180%	180-200%	200%+
BAR 1	0.12	0.25	0.50	1.00						
BAR 4	0.12	0.25	0.50	1.00						
BAR 5	0.12	0.25	0.50	1.00						
BAR 7	0.12				0.24	0.29	0.34	0.38	0.43	0.48
BAR 10	0.12				0.25	0.30	0.35	0.40	0.45	0.50

## 7.2 RECREATIONAL CONTROLS

There is no information to suggest a change to recreational controls would be needed and no changes to the recreational daily bag limit are proposed.

## 8 Conclusion

MPI is seeking information and views from tangata whenua and stakeholders to support the development of final advice to the Minister on management settings for BAR 5 for the fishing year commencing 1 October 2016.

Available information suggests the biomass of BAR 5 increased from 2007-2009 and has remained constant since then. Catch has exceeded available ACE in four of the last ten years.

Option 1 proposes the addition of a proportional allowance for other sources of fishing-related mortality and an associated increase in TAC, while retaining the other management settings. The other options propose an increase to both the TAC and TACC, and the addition of a proportional allowance for other sources of fishing-related mortality. The recreational and Māori customary fishing allowances are both retained at their current nominal levels for each option. Options 2 and 3 both propose an increase to the TAC and TACC, representing a 9.8% and 24% increase in TACC respectively relative to the status quo. Option 2 provides for maximum levels of harvest seen over the last five years, and Option 3 provides for levels of commercial harvest seen in the last ten years.