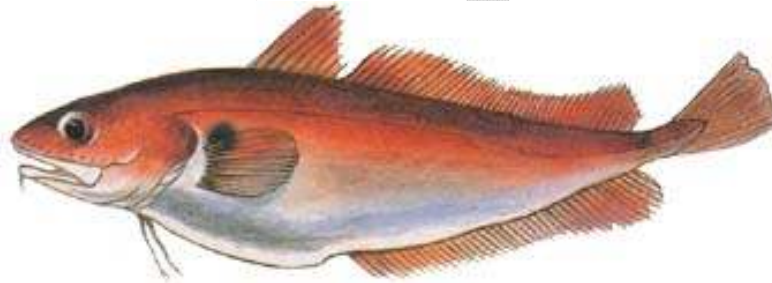


# **SOUTHERN INSHORE FINFISHERY FISHERIES PLAN**



Red cod

**November 2006**

**Red cod (RCO 3)**

**Flatfish (FLA 3)**

**Rough skate (RSK 3)**

**Red gurnard (GUR 3)**

**Stargazer (STA 3 and STA 5)**

**Tarakihi (TAR3 and TAR 5)**

**Elephantfish (ELE3 and ELE 5)**

**School shark (SCH 3 and SCH 5)**

**Yellow-eyed mullet (YEM 3 and YEM 5)**

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## PURPOSE

1 The Southern Inshore Finfisheries (SIF) Plan<sup>1</sup> is a collaborative approach between the Government, tāngata whenua and stakeholders to maximize value to New Zealanders through a sustainable use of SIF stocks and protection of the marine environment. The plan is outcome driven with performance standards and an objectives-based approach to achieve them. Stocks included are RCO 3, RSK 3, STA 3, STA 5, ELE 3, ELE 5, FLA 3, GUR 3, TAR 3, TAR 5, SCH 3, SCH 5, YEM 3 and YEM 5.

2 The plan is incomplete because it only outlines the current situation and the outcomes of the SIF from the Government's perspective. Completion of the plan requires collaboration with tāngata whenua and stakeholders to validate the best available information<sup>2</sup> on the current situation, develop management objectives, access the fishery, decide on management measures and develop an operational plan. In the future they will review the effectiveness of the operational plan and help devise new management measures for the next period of the operational plan.

## CONTEXT

3 Fisheries are one of New Zealand's most important renewable resources. As New Zealand's fifth largest export earner, management of these fisheries is critical to its economic and social well-being. Economic transformation is a priority for the Government and this is supported by its principal advisor, the Ministry of Fisheries (MFish) through its "Statement of Intent (SOI)"<sup>3</sup>. The goal of the SOI is to "Maximise the value New Zealanders obtain through the sustainable use of fisheries resources and protection of the marine environment".

4 A collaborative approach with tāngata whenua and stakeholders is planned to achieve the goal of the SOI through the use of an "outcomes" framework. The three broad outcomes of the SOI are:

- health of aquatic environment protected
- best value able to be realised
- credible fisheries management.

5 To achieve these outcomes for a fishery, the required level of performance will be defined as "standards". The desired results for each fishery, in relation to the standards, will be achieved through fisheries plans using an objectives-based approach. Management objectives will be defined for each standard. Fisheries will then be assessed to see how the existing management framework meets the objectives and standards. Where objectives and standards are not being met new management measures and services will be developed.

6 The SIF plan area encompasses the inshore parts of the South Island (Figure 1) in Fisheries Management Area 3 (South-East Coast) and Fisheries Management Area 5

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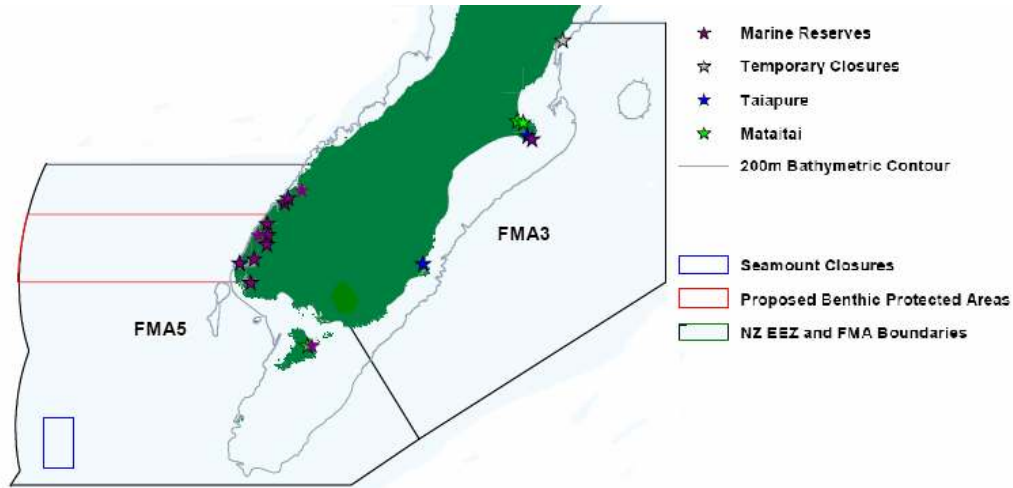
<sup>1</sup> Fisheries plans approved under s111A of the Fisheries Act 1996 will be the key tool to maximise value of New Zealand's fisheries while ensuring statutory obligations are met.

<sup>2</sup> Section 10 of the Fisheries Act 1996 requires the best available information to be used for fisheries management.

<sup>3</sup> Statement of Intent for the period July 2006 to June 2011. Ministry of Fisheries publication 2006. 85 pp.

(Southland Coast). The SIF is a multi-stock<sup>4</sup> fishery that is associated with the sandy-mud coastal areas from close inshore (estuaries) to the edge of the continental shelf (~200m). There are 16 fish species mainly taken by in the SIF and these are managed as 14 stocks or management units (Table 1).

**Figure 1: SIF area, FMAs and other features**



7 The SIF is a shared fishery that is fished by commercial and non-commercial fishers (recreational and customary). About 18 000 tonnes of fish are landed each fishing year. Commercial fishers take around 95% of the catch, predominantly by trawling and set netting, although there are small amounts of lining and Danish seining. Commercial fishers target many different combinations of SIF stocks depending on their seasonal and spatial abundance. The commercial catch of the SIF is valued<sup>5</sup> at around \$ 227 million and is derived from domestic and export markets with much processing carried out locally. Commercial and non-commercial fishers fish different parts of the fishery area. Non-commercial fishers fish within 500 m of the shore while commercial fishers generally fish outside of this area. Some commercial fishing for SIF stocks takes place in Lake Ellesmere, and occasionally in some estuaries and lagoons.

<sup>4</sup> Stocks are species management units. Little is known about biological stock boundaries for these species. Tarakihi and school shark are considered to be one biological stock in New Zealand.

<sup>5</sup> This value is the market value of the commercial catching right (individual transferable quota) of SIF stocks.

**Table 1: SIF species, stocks and main fishing method**

Species common name	Species Scientific Name	Stock	Fisheries Management Area	Main fishing method
<b>Red cod</b>	<i>Pseudophycis bachus</i>	RCO 3	3 & 5	Trawl
Flatfish		FLA 3	3 & 5	Trawl
New Zealand sole	<i>Peltorhamphus novaezeelandiae</i>			
Lemon sole	<i>Pelotretis flavilatus</i>			
Sand flounder	<i>Rhombosolea plebeian</i>			
Greenback flounder	<i>Rhombosolea retiaria</i>			
Yellow-belly flounder	<i>Rhombosolea leporine</i>			
Black flounder	<i>Rhombosolea retiaria</i>			Set net
Brill				
Turbot	<i>Colistium guntheri</i> <i>Colistium nudipinnis</i>			Trawl
<b>Rough skate</b>	<i>Raja nasuta</i>	RSK 3	3 & 5	Trawl
<b>Red gurnard</b>	<i>Chelidonichthys kumu</i>	GUR 3	3 & 5	Trawl
<b>Stargazer</b>	<i>Kathetostoma giganteum</i>	STA 3 STA 5	3 5	Trawl Trawl
<b>Tarakihi</b>	<i>Nemadactylus macropterus</i>	TAR 3 TAR 5	3 5	Trawl
<b>Elephantfish</b>	<i>Callorhinchus millii</i>	ELE 3 ELE 5	3 5	Trawl/set net
<b>School shark</b>	<i>Galeorhinus galeus</i>	SCH 3 SCH 5		Set net/trawl Set net
<b>Yellow-eyed mullet</b>	<i>Aldrichetta fosteri</i>	YEM 3 YEM 5	3 5	Set net Set net

8 Stocks that are caught in the SIF, but are predominantly caught in other fisheries, will be managed under other fisheries plans as follows;

- Blue cod – **Southern Reef Fisheries Plan**
- Barracouta, blue warehou, groper (hāpuku- bass), sea perch, squid, and ling – **Middle Depth Fisheries Plan**
- Smooth skate and spiny dogfish- **Deepwater Fisheries Plan**

9 Other stocks that are caught in small numbers by the SIF will not be included in the SIF plan, or another plan until management action is required. These stocks include rattail, carpet shark, conger eel, long nosed chimaera, prickly dogfish, silverside, southern pigfish, bellows fish, pigfish, flatheads, javelin fish, and lantern fish. It is proposed to monitor landings of these stocks in the meantime.

## SECTION 1: THE CURRENT SITUATION

10 This section provides the best available information on the current situation by providing the best available information across the three broad outcomes of the plan that follow:

- health of the aquatic environment is protected
- best value is able to be realised
- credible fisheries management.

### The Health of the Aquatic Environment is Protected

11 If the aquatic environment is to produce value for current and future generations the ecosystem must remain healthy. Our understanding of the nature (composition, diversity, stability and productivity), and the extent of the stocks and ecosystem of the SIF provides information to address fishing and non-fishing impacts on the aquatic environment.

12 The dominant oceanographic feature influencing the environment of the SIF is the Subtropical Front. This is mixed water from the warm subtropical East Australian current and the cool Sub Antarctic Circumpolar Current. The water temperature of the Subtropical Front varies from 10° C to 16° C in winter and summer respectively. Upwellings and eddies of the Subtropical Front enhance ocean productivity resulting in abundant phyto- and zoo-plankton stocks that are the primary drivers of the ecosystem on the east and south coasts of the South Island.

#### ***Benthos***<sup>6</sup>

**Draft standard will define the permissible level of impact of fishing methods on each habitat identified.**

13 The SIF is associated with relatively flat sandy/mud bottom in shallow coastal water. Trawling impacts on the benthos as the chain, bobbins and trawl doors contact the sea floor during fishing. Rock hopper gear, which allows the net to bounce over rocks, has extended fishing into sandy/mud areas that have small amounts of foul ground. In the SIF area, there is little information on the range and location of broad bottom habitat types. There is little information on the vulnerability of each habitat of the fishing methods used in the SIF.

14 Bryozoan beds off Otago Peninsula, in FMA3, are a rare benthos type with high associated biodiversity and may function as important nursery area for RCO 3 and TAR 3. Commercial trawlers generally avoid bryozoan beds as the net fills up with the skeletal frames of bryozoans.

15 Set netting and longlining have little direct impact on the sandy/mud benthos other than the physical impact of anchors at each end of the net.

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<sup>6</sup> Benthos is the flora and fauna on, or in, the sandy/mud bottom.

## **Protected Species**

**Draft standards will define an acceptable level of fishing-related mortality for marine mammal each marine mammal or seabird**

16 The protected species of greatest concern in the SIF area is the Hector's dolphin. Hector's dolphins are one of the world's least abundant marine mammals, and are classed as "endangered" by the IUCN. Hector's dolphins are also a "threatened species" under the Marine Mammals Protection Act 1978. These classifications of Hector's dolphin are a result of their low abundance, slow reproduction, and that the population has been affected by fishing-related mortalities.

17 Two populations of the endangered Hector's dolphin are associated with the SIF. A population of around 1800 Hector's dolphins occurs in FMA 3, and another of around 100 in FMA 5. Commercial and recreational set netting for SIF species are known to catch and cause mortalities of Hector's dolphins. The catch of Hector's dolphin mostly takes place within 4 nautical miles of the miles of the coastline which is the main habitat of Hector's dolphin. Occasionally, Hector's dolphins are caught by trawling within one nautical mile of the shore. No Hector's dolphins have been recorded as caught by Danish seining, lining or drag netting.

18 A Threat Management Plan is being developed for Hector's dolphin populations. A draft plan for tāngata whenua, public and stakeholder consultation is being developed by DoC and MFish collaborating with stakeholder experts. Progress to date on the plan includes development of goals and objectives, compiling the best available information, and identifying and analysing threats facing the dolphins. The next step is to model the impact of fishing-related mortality on the populations and determine ways to mitigate the threats to the dolphins. Following this, a draft plan will be prepared for public consultation. In the meantime, interim measures to protect the dolphins from any urgent threats are being considered.

19 Set netting of SIF stocks has resulted in some mortalities of seabirds, particularly yellow-eyed penguins off the Otago coast, and little blue penguins off the Canterbury coast. Set net fisheries are not identified as having significant seabird interactions in the National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries.

20 Information gathering about the extent and nature of marine mammal and seabird interaction with set netting and trawling is a priority. However, monitoring of the fishing-related mortality of marine mammals and seabirds is difficult, and mostly relies on the fishers legal requirement to report incidental catches of these animals. The Department of Conservation's (DoC)s incident reporting programme is reasonably effective for mortalities associated with recreational fishing. The reason for this is that this fishing occurs close inshore where marine mammals and seabirds catches are likely to be noticed and reported.

21 Monitoring of marine mammal and seabird mortalities associated with commercial fishing relies on voluntary reporting. At this stage, there are no observer programmes operating on small vessels (<18 m) within this fishery to verify commercial interactions with marine mammals and seabirds. Limited vessel space may require skippers to replace a crew member to accommodate the observer. Consequently, it may be necessary to monitor catch of marine mammals and seabirds on small vessels using monitoring and surveillance technology, ie, video.

22 There are also a number of regulatory and voluntary codes of practice measures that reduce the impact of fishing-related mortality on marine mammals and seabirds (refer services section).

### ***Chinook Salmon***

**Draft standard is to verify that no more than 5 tonnes of salmon is caught annually in the salmon conservation area off Banks Peninsula.**

23 Chinook salmon were introduced into New Zealand from the Northern Pacific in the 19<sup>th</sup> century in an attempt by the Government to establish a commercial fishery. When a commercial fishery could not be established, chinook salmon became a sports fishery managed by recreational anglers. The chinook salmon fishery is now one of the most important recreational fisheries on the east coast of the South Island.

24 Large numbers of chinook salmon were caught at sea by large commercial trawlers in the 1980s, causing conflict with recreational anglers. This resulted in the salmon conservation area (SCA) being closed to large commercial trawlers in 1988 from early December to mid-February each year. Commercial trawler owners challenged this closure because they considered it affected the viability of their fishing operations. This situation was addressed by the establishment of the Salmon at Sea Agreement (Agreement) in 1991. The Agreement is reviewed regularly by commercial and recreational salmon fishers.

25 The Agreement aims to minimise chinook salmon caught by commercial fishers as by catch when targeting SIF stocks (mainly red cod). The Agreement provides for the large domestic (>23m and/or 250kw) trawlers (or approved replacements) that were excluded from fishing in the SCA in 1988, provided they abide by the rules of the Agreement. Chinook salmon catch is monitored within the SCA by Fish and Game New Zealand. The Agreement is supported by regulations that defines the restrictions associated with the salmon conservation area (refer services section).

### ***Other Associated and Dependent Species***

**Draft standard is to determine monitoring requirements that would trigger management action**

26 No other significant associated and dependent species have been identified.

### ***Habitats of Particular Significance to Fisheries Management***

**Draft standard is to identify and protect habitats of significance.**

27 Habitats of particular significance to fisheries management include nursery areas. The nursery areas for juveniles of SIF species occur in shallow inshore areas but there is little information on their exact location. Some nursery areas have been identified for SIF stocks and these are outlined in the services section.

## **Biodiversity**

**Draft Standard is to identify and protect marine biodiversity in the SIF area.**

28 New Zealand's marine biodiversity is to be protected by establishing a network of marine protected areas that is comprehensive and representative of New Zealand's marine habitats and ecosystems. Areas that contribute to protecting marine biodiversity include marine reserves, world heritage sites, and other coastal and marine management tools such as mātaītai reserves and taiāpure-local fishery areas, marine area closures, seasonal closures and area closures to certain fishing methods.

29 The Government aims to achieve a "target" of 10% of New Zealand's marine environment protected by 2010. MFish and DoC are jointly responsible for developing and implementing marine protected area policy to achieve this target. The establishment of marine reserves is a major component of achieving this target. At present, there are a number of marine protected areas in FMAs 3 and 5 (Figure 1). These include ten marine reserves (eight in Fiordland, one in Paterson Inlet, and one in an outer bay of Banks Peninsula), and one seamount closure. There are a number of closed areas and areas with method restrictions. There is also a proposed Fiordland transect benthic protected area.

### **Other Resource Users**

**Draft standard is to provide input on the effects of other resource users on the SIF to agencies that manage these impacts**

30 Regional Councils manage the impacts of land based perturbations on the marine environment. The two primary land based impacts on the environment of the SIF are sediment from land erosion and pollutants associated with storm-water and sewage discharges. Little information is available on human impacts on SIF stocks. It is likely that changes to the coastal environment (especially adjacent to estuaries and coastal lagoons) caused by poor land management and urbanisation are likely to be having negative impacts on stocks whose nursery areas occur in these areas. Identification of this impact is beyond the scope of this document.

### **Stock Assessment**

**Draft standard to be determined for stock assessment.**

31 Stock assessment is the process whereby the state of SIF stocks is assessed. The MFish stock assessment plenary (plenary) considers that it is likely that the biomass of TAR3, SCH3 and SCH5 are at levels that would produce the maximum sustainable yield<sup>7</sup> (MSY).

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<sup>7</sup> Maximum sustainable yield is the greatest yield that can be achieved over time while maintaining the stock's productive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock.

32 Information used for stock assessment, including biological characteristics and indices of abundance follows.

### Biological Characteristics

33 Key biological characteristics of SIF stocks are provided in Table 2.

**Table 2: Key biological characteristics of SIF stocks**

Species	Natural mortality rate (M)*	Fecundity*	Maturity length and Age	Maximum age	Growth	Nursery Areas	Main depth distribution
<b>Very high</b>							
Red cod	0.76	High	50 cm/2yr	6	Fast	>300m	<200m
Sand flounder	1.1-1.3	High	25cm/2yr	6	Fast	Estuaries	<100m
Lemon sole	?	High	25cm/2yr	6	Fast	Estuaries	<100m
Yellow-belly flounder	?	High	25cm/2yr	6	Fast	Estuaries	<100m
Yellow-eyed mullet	0.76	High	50cm/2yr	6	Fast	>300m	<200m
New Zealand sole	0.42-0.6	High	25cm/2yr	6	Fast	Estuaries	<100m
<b>High</b>							
Elephantfish	0.35	Low	60cm/7yr	11+	Moderate	<30m	<200m
Red Gurnard	0.29-0.35	Moderate	23cm/2yr	16	Moderate	<30m	<100m
Rough Skate	0.25-0.35	Low	55cm/5yr	9	Moderate	??	<100m
Turbot	0.26	Moderate	?	16	Moderate		<100m
<b>Medium</b>							
Rig	0.2-0.30	Low	75cm/4yr	20	Slow	<30m	<50m
Stargazer	0.20	Moderate	45/3yr	23	Slow	<200m	<200m
Brill	0.20	Moderate	?	21	Slow	?	<100m?
<b>Low</b>							
School shark	0.10	Low	90cm/12yr	50	Slow	<30m	<200m
Tarakihi	0.08-0.15	Moderate	25cm/4yr	50	Slow	<50m	
Black flounder	<b>Being researched</b>						

\* Fecundity is the numbers of eggs or live young per reproductive season

34 The size of SIF stocks can vary each fishing year. The higher the mortality rate of a stock, the more it is likely to fluctuate each year. Other factors affecting mortality rate include environmental conditions, predators, human activities and fishing levels.

35 Red cod, yellow-eyed mullet and flatfish (apart from turbot and brill) are highly fecund, fast growing and short lived. Consequently, these stocks can vary considerably in size from year to year and are likely to be less vulnerable to fishing.

36 Red gurnard, stargazer, turbot, brill, tarakihi, rig, school shark, elephant fish, and rough skate have biological characteristics give them stable inter-annual populations but leave them vulnerable to overfishing in a mixed species fishery context. These characteristics include late maturity, slow growth and low fecundity. The most vulnerable to overfishing are tarakihi and school shark because they are longer-lived.

37 Development of a shark national plan of action to address issues associated with shark species vulnerability to overfishing is planned for 2007.

38 There is little information on the relative importance of environmental conditions on SIF stocks. However, there is a strong correlation between red cod abundance and sea surface temperature (where abundance increases as sea temperature cools), although there is a 14-month lag.

39 There is little information on predator/prey relationships in the SIF. It is likely that there are stronger predator/prey relationships for those stocks that are more variable from year to year, such as red cod and some flatfish species.

40 The risk of overfishing is increased by taking immature fish (fish below the length at maturity). This risk is further increased if fishing takes place in nursery areas. The nursery areas for juveniles of SIF species occur in shallow inshore areas but there is little information on their exact location. Nursery ground closures off the Canterbury coast and/or minimum size limits probably provide some protection for juvenile elephant fish, rig, flatfish, red gurnard and tarakihi.

### *Indices of Stock Abundance and Biological Information*

41 SIF stocks indices of abundance are determined from standardised catch per unit of effort (CPUE) information from the east coast South Island trawl survey (trawl survey).

42 From 1991 to 1996, winter trawl surveys provided indices of abundance for RCO 3, TAR 3 (sub-adults), STA 3 and RSK 3. Summer trawl surveys since 1996, introduced to try to increase the number of SIF stock abundance indices, were not successful. Consequently, winter surveys are being reinstated in 2007. Industry is investigating the use of hybrid surveys (random tows by commercial trawlers) to establish series of abundance indices for ELE 3, GUR 3, and possibly FLA 3.

43 Indices of abundance for other SIF stocks with landings greater than 200 tonnes are carried out by analysis of trends in CPUE and biological information under adaptive management programmes<sup>8</sup> (AMPs) or research services programmes. Under the latter programme, analysis of standardized CPUE for some FLA 3 species may be available in 2008.

44 AMPs were introduced in 1991 for stocks with limited stock assessment information to see if increased commercial catch levels are sustainable. Under these programmes, industry monitors CPUE and gathers biological information to improve stock assessments over a 5 year period. Biological and fine scale CPUE data collected by commercial fishers has been less than satisfactory for AMPs in recent years and ways to improve performance are needed. AMP information is usually reviewed by the AMP working group at the middle and end of the 5 year programme.

45 YEM 3 stock catch is small and the only index of abundance is comparison of annual landings with the TACC.

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<sup>8</sup> Adaptive management programmes were introduced in 1991 for stocks with limited information to see if increased catch levels are sustainable. Under these programmes, industry gathers information and monitors CPUE to improve stock assessments over a five year period.

*Research*

46 Research is conducted to support stock assessment and impacts of fishing. The 2007-08 Inshore Finfish Fisheries Medium Term Research Plan outlines the monitoring and future research needs for SIF stocks as follows.

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	<b>Assessing stock status Current</b>	<b>Research requirements</b>
<b>RCO 3</b>	<p>The TACC was originally determined using <math>MCY = cY_{av}</math>.</p> <p><i>This Fishstock is monitored using the following methods:</i></p> <ul style="list-style-type: none"> <li>• Comparison of annual landings with TACC</li> <li>• The ECSI winter survey was recently reinstated (INT2006-02) with the next survey scheduled for May 2007. Based on simulation work the WG concluded that the survey should initially be conducted every year (for the first 3 years) and then every second year thereafter.</li> </ul> <p><i>Stock Assessment</i></p> <ul style="list-style-type: none"> <li>• A stock reduction analysis (MIAEL) was undertaken in 1999 using data to the end of 1997/98. RCO biomass is influenced more by recruitment variability than by fishing.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>ECSI trawl survey</b></li> </ul>
<b>FLA 3</b>	<p>The TACC was originally determined using <math>MCY = cY_{av}</math>.</p> <p><i>This Fishstock is monitored using the following method:</i></p> <ul style="list-style-type: none"> <li>• Comparison of annual landings with TACC.</li> </ul> <p>Industry will investigate the use of Hybrid surveys for monitoring ELE 3, GUR 3 and possibly FLA 3.</p>	<p><b>FLA2007-01: Monitoring flatfish abundance in FLA 3</b></p> <p>Recent standardization of FLA 1 CPUE produced surprisingly tenable/stable indices. FLA 2006-02, approved by the RPG and RCC in 2005, aimed to investigate the use of standardized CPUE to monitor flatfish in FLA 3. Unfortunately this project was accorded medium priority and owing to financial constraints was not let.</p> <p><b>Age and Length at maturity</b> for long-lived flatfish species (Brill and Turbot)</p>
<b>SCH 3</b>	<p>SCH 3 is currently managed under an AMP</p> <ul style="list-style-type: none"> <li>• The current 5-year term was initiated on 1 Oct 2004 and is due to terminate in Sept 2009.</li> <li>• The stock is monitored using standardized CPUE from the target set net fishery and unstandardized CPUE from the trawl bycatch fishery.</li> <li>• Size structure of both the trawl and setnet catches (by sex) are recorded by means of logbook programmes.</li> <li>• Landings are also monitored against TACC</li> </ul>	<p>AMP reviews due 2007 and 2009</p>
<b>SCH 5</b>	<p>SCH 5 is currently managed under an AMP</p> <ul style="list-style-type: none"> <li>• The current 5-year term was initiated on 1 Oct 2004 and is due to terminate in Sept 2009.</li> <li>• The stock is monitored using standardized CPUE (set net) and size structure of the catch (by sex).</li> <li>• Landings are also monitored against TACC</li> </ul>	<p>AMP reviews due 2007 and 2009</p>

<b>TAR 3</b>	<p>The TACC was originally determined using <math>MCY = cY_{av}</math> - estimated for all areas except TAR 4 &amp; 10</p> <p><i>TAR 3 is currently managed under an AMP</i></p> <ul style="list-style-type: none"> <li>• The current 5-year term was initiated on 1 Oct 2004 and is due to terminate in Sept 2009.</li> <li>• TAR 2 is currently monitored using standardized CPUE and catch-at age</li> </ul> <p>The ECSI Trawl survey is expected to provide an index of pre-recruit abundance, possibly for the east coast of New Zealand.</p>	<ul style="list-style-type: none"> <li>• AMP reviews due 2007 and 2009</li> </ul>
<b>TAR 5</b>	<p>The TACC was originally determined using <math>MCY = cY_{av}</math> - estimated for all areas except TAR 4 &amp; 10</p> <p><i>This Fishstock is monitored using the following methods:</i> Comparison of annual landings with TACC</p>	<ul style="list-style-type: none"> <li>• No research identified for 2007/08</li> </ul>
<b>STA 3</b>	<p>STA3 is currently managed under an AMP</p> <ul style="list-style-type: none"> <li>• The current 5-year term was initiated on 1 Oct 2003 and is due to terminate in Sept 2008.</li> <li>• STA 3 is currently monitored using standardized CPUE for the RCO3 bottom trawl fishery, annual relative biomass estimates from Tangaroa surveys for the portion of STA 3 on the Chatham Rise and size/age structure of the catch (by sex). The CPUE analysis for the final review should be account for the fact the conversion factor used to estimate green weight had changed over time.</li> <li>• STA 3 was initially monitored using ECSI trawl surveys. When these were discontinued after 2000, an alternative index of relative abundance had to be sought.</li> <li>• The ECSI winter survey was recently reinstated (INT2006-02) with the next survey scheduled for May 2007. The depth range has been extended to 400 m to more effectively monitor STA 3 relative abundance. Based on simulation work the WG concluded that the survey should initially be conducted every year (for the first 3 years) and then every second year thereafter.</li> </ul>	<p><b>ECSI Trawl survey 2007, 2008 &amp; 2009</b> AMP final review in 2008</p>
<b>STA 5</b>	<p><i>This Fishstock is monitored using the following methods:</i></p> <ul style="list-style-type: none"> <li>• Comparison of annual landings with TACC</li> </ul> <p>A CPUE index was developed using bottom trawl data from 1989-90 to 1999-00. The series was last updated to the end of the 2003/04 fishing season (STA2004/02).</p>	<ul style="list-style-type: none"> <li>• <b>Update CPUE index to 2006/07 fishing year</b></li> </ul>
<b>GUR 3</b>  TAC: TACC: 750 RA: CA: RH: 2-9	<p>GUR3 is currently managed under an AMP</p> <ul style="list-style-type: none"> <li>• The current 5-year term was initiated on 1 Oct 2002 and is due to terminate in Sept 2006. The AMP was renewed for a further two years and will terminate in Sept 2008.</li> <li>• The stock is monitored using standardized CPUE (RCO3 and FLA 3 trawl fisheries).</li> <li>• Landings are also monitored against TACC</li> </ul> <p>Industry will investigate the use of Hybrid surveys for monitoring ELE 3, GUR 3 and possibly FLA 3.</p>	<ul style="list-style-type: none"> <li>• AMP to be reviewed in 2008.</li> </ul>

<b>YEM 3</b>	<i>This Fishstock is monitored using the following methods:</i> Comparison of annual landings with TACC.	<ul style="list-style-type: none"> <li>• No research identified for 2007/08 but basic biological information will be researched in the future.</li> </ul>
<b>YEM 5</b>	<i>This Fishstock is monitored using the following methods:</i> Comparison of annual landings with TACC.	<ul style="list-style-type: none"> <li>• No research identified for 2007/08</li> </ul>
<b>SPO 3</b>	<p>SPO3 is currently managed under an AMP</p> <ul style="list-style-type: none"> <li>• The current 5-year term was initiated on 1 Oct 2000 and is due to terminate in Sept 2005. It was subsequently rolled over for one year in 2005 and then another in 2006. The SPO 3 AMP is scheduled to end in Sept 2006.</li> <li>• The stock is monitored using standardized CPUE (set net) and size structure of the catch (by sex).</li> <li>• The ECSI winter survey was recently reinstated (INT2006-02) with the next survey scheduled for May 2007. Based on simulation work the WG concluded that the survey should initially be conducted every year (for the first 3 years) and then every second year thereafter.</li> </ul> <p>Landings are also monitored against TACC</p>	<ul style="list-style-type: none"> <li>• <b>ECSI trawl survey</b> AMP to be reviewed in March/April 2007.</li> </ul>
<b>RSK 3</b>	<i>This Fishstock is monitored using the following methods:</i> <ul style="list-style-type: none"> <li>• Comparison of annual landings with TACC</li> <li>• ECSI trawl survey (winter series).</li> </ul>	<ul style="list-style-type: none"> <li>• <b>ECSI trawl survey</b></li> </ul>
<b>ELE 3</b>	<p>ELE3 is currently managed under an AMP</p> <ul style="list-style-type: none"> <li>• The current 5-year term was initiated on 1 Oct 2001 and is due to terminate in Sept 2006. The AMP has however been rolled over for an additional two years so that it will end in Sept 2008</li> <li>• The stock is monitored using standardized CPUE (RCO trawl fishery) and size structure of the catch (by sex).</li> <li>• Landings are also monitored against TACC</li> <li>• Industry will investigate the use of Hybrid surveys for monitoring ELE 3, GUR 3 and possibly FLA 3.</li> </ul>	AMP to be reviewed 2008.
<b>ELE 5</b>	<p>ELE5 is currently managed under an AMP</p> <ul style="list-style-type: none"> <li>• The current 5-year term was initiated on 1 Oct 2002 and is due to terminate in Sept 2007.</li> <li>• The stock is monitored using standardized CPUE ( trawl fishery) and size structure of the catch (by sex).</li> <li>• Landings are also monitored against TACC</li> </ul>	AMP to be reviewed 2007

47 Current and future MFish and DoC research projects are listed in the services section of the report.

### **Setting the TAC**

48 An important aspect of enabling stakeholders to achieve best value in the SIF is the specification of limits within which each stakeholder group can maximise value. People should be able to realise the best value from the sustainable and efficient use of a fishery. The first step to obtaining best value from a stock is sustainable management of the total harvest so as to ensure best value can be obtained for present and future generations. The Act contains a number of provisions to ensure a stock is managed sustainably. A key measure is the Government setting of a total allowable catch (TAC) for SIF stocks to set an upper limit on take from the SIF.

#### *Total Allowable Catch*

**Draft standard is SIF stocks managed so that stock are either at, above or moving towards MSY under s 13 of the Fisheries Act 1996**

49 Most of the SIF fishery stocks were introduced into the QMS in 1986; the exceptions are YEM which was introduced in 1998-99 and rough skate introduced in 2003-04.

50 Section 13 of the Act requires stocks in the QMS to be managed at a level that is at or above the level that produces the maximum sustainable yield (MSY). The current state of the biomass of SIF stocks in relation to MSY is shown in Table 4.

51 SIF stock TACs have been set based on known, or estimates of, catch levels of customary Maori, recreational, all other sources of fishing-related mortality, and commercial catch. In 1986, most SIF stocks had TACs set below the landings level of the 1983-84 fishing year to rebuild the stocks, apart from RCO 3 and FLA 3 (Table 8). The RCO3 and FLA3 TACCs were set higher than the 1983-84 landings level as nominal catch created by successful quota appeals was taken into account.

52 Most other SIF fishery stocks have had their TACs progressively increased to, or above, the 1983-84 landings level under Adaptive Management Programmes (AMPs). Stocks currently managed under AMPs include TAR 3, STA 3, GUR 3, SPO 3, ELE 3, ELE 5, SCH 3 and SCH 5.

**Table 4: The state of SIF stocks in relation to the MSY**

Stock at a level that would produce the MSY	Unknown if stock at a level that would produce the MSY
	RCO 3
	FLA 3
SCH 3	
SCH 5	
TAR 3	
	TAR 5
	STA 3
	STA 5
	GUR 3
	YEM 3
	YEM 5
	SPO 3
	RSK 3
	ELE 3
	ELE 5

53 The Minister of Fisheries has agreed that a review of the TACs of RCO 3 and FLA 3 should take place as part of the MFish Sustainability Review for the 2007-08 fishing year. These TACs were set high to provide commercial fishers with the flexibility to capitalise on years when these stocks are plentiful. However, some stakeholders have concerns about the sustainability of the RCO 3 and FLA 3 TACs.