



Department of  
Primary Industries

NSW COMMERCIAL FISHERIES REFORM PROGRAM

## Share linkage options

Estuary General Trapping Fishery

**NOTE:** THIS DOCUMENT HAS BEEN PREPARED FOR DISCUSSION WITH THE ESTUARY GENERAL TRAPPING SHARE LINKAGE WORKING GROUP ONLY. IT IS NOT THE FINAL ANALYSIS AND DOESN'T REPRESENT THE INFORMATION THAT WILL BE SENT TO ALL SHAREHOLDERS FOR COMMENT

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Share Linkage Options – Estuary General Trapping Fishery

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**More information**

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## Foreword

The purpose of this paper is to describe potential share linkage options for the trapping component of the NSW Estuary General Fishery for consideration by the Estuary General Share Linkage Working Group (the Working Group) at its second meeting in 2013.

The share linkage options presented in this paper were short-listed by the Working Group at its first meeting having regard to the following hierarchy of linkage options proposed by the independent review team in the *Independent Review of NSW Commercial Fisheries Policy, Management and Administration* (the Review):

1. Where catch quota is a feasible proposition for a species, it should be pursued as the preferred option for linking shares to resource access. In multi-species share classes where species specific catch quotas do not encompass the bulk of the catch taken, the alternate linkage options below may need to be pursued for non-quota species.
2. If species specific catch quotas are not a feasible proposition, shares in that sector should be linked to fishing effort in the form of transferable time/gear based quota.
3. In the event that the two approaches above are demonstrated to not be feasible for a share class (i.e. the financial and other costs heavily outweigh the benefits), shares should be linked to resource access at the endorsement level whereby eligibility for an endorsement is determined by holding a minimum number of the corresponding shares.

The share linkage options presented in this paper may not necessarily be the only feasible share linkage options for this fishery. A hybrid or combination of the linkage options may also be feasible.

Another important part of the reform program is the streamlining of current management arrangements to improve industry viability through, for example, increased business flexibility, improved operational efficiency and reduced management costs. The streamlining of current management arrangements will be influenced by the strength of the linkages pursued (i.e. the strongest form of linkage provides the best opportunity to amend or remove current restrictions). Towards the end of this paper is discussion on some of the management arrangements that may be able to be amended or removed, for further consideration by the Working Group.

Depending on their feasibility, the share linkage options and ancillary reforms will be referred to shareholders for consideration and comment, and a public consultation phase will be needed given the interests of the other fishing sectors and the community in changes to the rules and regulations applying to the State's commercial fisheries. They will then be referred to the Structural Adjustment Review Committee (SARC) along with all submissions received for consideration and recommendations to the Minister for Primary Industries.

The background and justification for the commercial fisheries reform program and the linking of shares to resource access is explained in detail in the *Independent Review of NSW Commercial Fisheries Policy, Management and Administration* (the Review). This, in addition to the Government's response to the Review, an Information Paper summarising the major findings of the Review and Commercial Fisheries Newsletters are available on the Commercial Fisheries Reform Homepage on the NSW DPI website. The overarching objectives of the reform program are to:

- Provide shareholders improved flexibility to tailor their access (and management costs);
- Improve the overall viability of the NSW commercial fishing industry;
- Improve the value of shareholders' property rights (i.e. shares);
- Assist to improve investment confidence and support from financial institutions; and
- Improve management and the public's perception of the NSW commercial fishing industry.

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## Major issue facing the NSW Estuary General Trapping Fishery

Some of the major issues facing the trapping component of the NSW Estuary General Fishery can be addressed through the reform program (and the linking of shares to resource access) while others cannot. Irrespective, all of the issues must be considered when contemplating the possible share linkage options. Some important issues are listed below.

### All sectors

- Surplus fishing capacity that can be activated at any time and poses a risk to the viability of active participants in the fishery. Although variable between the regions, there is significant capacity in all three sectors of the fishery.
- Limited opportunity to improve operational efficiency through, for example, the use of more than the current maximum number of traps.

### Eel fishery

- Complex life-history of long-lived target species.
- Long-term trend of declining commercial landings.
- Competition for access to eels (and market access) within the fishery.
- Significant illegal fishing in closed waters.

### Mud crab fishery

- Competition for access to mud crabs within the fishery and between the fishery and the recreational sector.
- Post-harvest issues such as the grading system and mortality.
- Restriction on the species that may be retained in the gear.
- Significant illegal fishing, including trap and crab theft and black marketing.
- Competition for market access from other jurisdictions.

### Trapping fishery

- Competition for access to fish (including crabs) within the fishery.
- Competition for access to fish between the fishery and the recreational sector.
- Restriction on the species that may be retained in the gear.
- Significant public perception issues in some areas.

## Interim Total Commercial Access Levels (ITCALs)

In this paper there are many references to Interim Total Commercial Access Levels (ITCALs). Understanding ITCALs is important because they are a key element of the catch and effort quota management options set out in this paper. As the term suggests, an “ITCAL” is a temporary limit set for the purpose of and during a period of significant industry adjustment.

Once set, an ITCAL operates in the same way as a Total Allowable Catch (TAC), Total Allowable Commercial Catch (TACC) or a Total Allowable Effort (TAE), but it serves a different purpose and is set in a different way.

A TAC is the total amount of catch that can be taken in a specified period, usually a year. TACs are sometimes setup to apply across all or a range of stakeholder groups however they can also be setup to apply to a given sector only – for example, the TACC applying to the NSW Rock Lobster Fishery applies only to the commercial sector. A TAE is similar but relates to the total amount of effort that may be used in the specified period.

TACs are usually based on a stock assessment that takes into account a wide range of information from a variety of sources including logbooks and scientific surveys etc. TAEs, which act as a proxy for limiting total catch, are based on similar information.

Because of the time and resources required to establish biologically based TACs and TAEs that are scientifically robust, an alternate approach is being pursued for setting the initial total catch and effort levels where necessary. This alternate approach involves:

- Recognising the new total catch and effort levels as ITCALs given that they will not be biologically based as per the vast majority of TACs and TAEs; and,
- Setting the initial ITCALs at levels commensurate with current catch or effort levels in the sector(s) concerned.

This approach was referred to in the Independent Review report:

***“Catch and effort limits are likely to be set, at least initially, at levels commensurate with current levels. While these limits may need to be scaled back over time in some share classes to increase the productivity of the resource or deal with overfishing issues, the issues associated with doing so will be considerably easier once a meaningful linkage has been established.”*** (Independent Review of NSW Commercial Fisheries Policy, Management and Administration Report; pg 72).

In recognition of the role of the ITCALs during the structural adjustment phase and to provide industry with some level of certainty, it is proposed to set the ITCALs for a three year period and only modify them within this period if there is a demonstrable sustainability problem that arises, or if the shareholders themselves request and DPI agrees for it to be modified. After that point, the ITCALs will progressively be turned into TAC/TAEs determined in accordance with the processes and requirements set out in the *Fisheries Management Act 1994 (Part 2, Division 4)*.

If shares are surrendered for cancellation prior to implementing the linkages, for example during the exit grant process, the amount of the ITCAL allocated per share available to those shareholders that remain in the industry will be greater than that estimated in the tables in this paper.

## Option 1: Limiting endorsement numbers (minimum shareholding regime)

Two separate minimum shareholding regimes were identified by the Working Group for further consideration (i.e. mandatory and tiered regime). Under each, catches are indirectly managed by managing the maximum number of endorsement holders in each share class. This is achieved by setting the minimum shareholding requirement for each share class. This is then used to determine each shareholders' eligibility to an endorsement. The difference between the two regimes is that a tiered regime allows shareholders to gain additional access by holding more shares.

Only the mandatory minimum shareholding regime is discussed in detail below. Given that Options 2, 3 and 4 detailed in this paper allow shareholders to gain additional access (i.e. days, trap numbers or kgs) by holding more shares the merit of pursuing a tiered minimum shareholding regime as opposed to the more flexible effort or catch quota regimes is questionable. The Working Group's advice is sought in this regard.

### Mandatory minimum shareholding regime

Under a mandatory minimum share holding regime a shareholder must have enough shares to satisfy the minimum shareholding requirement to be able to operate in the fishery. If a shareholder does not hold enough shares to satisfy the minimum shareholding requirement, that shareholder does not get an endorsement (i.e. irrespective of how many shares a shareholder has, if they do not hold at least the minimum number of shares they shareholder cannot participate in the fishery).

The major features of a mandatory minimum shareholding regime include:

- Forced (as opposed to autonomous) adjustment.
- A very direct and effective mechanism to determine the maximum number of endorsements in the fishery.
- Limited control over total catch and effort in the fishery.
- Limited opportunity to remove or amend current controls that inhibit fishers' efficiency and profitability.
- Management charges are shared amongst shareholders equally, irrespective of the number of shares held.
- The security of investment is not as strong as a catch or effort linkage regime – endorsement holders continue to compete for their share of the available resource.

### Step 1 - Determining the adjustment targets

Determining a target maximum number of endorsements for each share class is the first step. This has been done below using the estimated Gross Value of Product (GVP) of each share class over the three year period 2009/10 to 2011/12. The GVP was calculated using the average monthly prices of fish sold through the Sydney Fish Market. The following tables show the numbers of fishing businesses that accounted for the various percentages of the total GVP (75 through to 99%) across these three years.

Table 1: Eel trapping (167 FBs) Numbers of fishing businesses that account for the various percentages of estimated total GVP by region

Region	FBs	Percentage of estimated GVP					
		75	80	90	95	97	99
1	6	3	3	4	5	6	6
2	39	7	8	11	12	13	15
3	28	7	7	10	11	12	14



Region	FBs	Percentage of estimated GVP					
		75	80	90	95	97	99
4	47	8	9	13	17	19	23
5	11	2	2	3	3	3	3
6	19	1	1	1	1	1	2
7	17	2	3	4	4	5	6

Table 2: Mud crab trapping (211 FBs) Numbers of fishing businesses that account for the various percentages of estimated total GVP by region

Region	FBs	Percentage of estimated GVP					
		75	80	90	95	97	99
1	19	9	10	13	15	15	16
2	45	17	20	25	30	33	38
3	45	20	22	28	32	34	39
4	82	17	20	31	44	51	63
5	12	2	2	2	3	4	5
6	4	2	2	2	2	2	2
7	4	1	1	1	2	2	2

Table 3: Trapping (169 FBs) Numbers of fishing businesses that account for the various percentages of estimated total GVP by region

Region	FBs	Percentage of estimated GVP					
		75	80	90	95	97	99
1	4	2	2	3	3	3	4
2	20	3	4	6	7	8	8
3	29	7	9	13	16	18	21
4	84	17	19	27	34	38	49
5	22	4	4	5	6	7	9
6	4	1	1	2	2	2	3
7	6	3	3	3	3	3	3

## Step 2 - Determining the minimum shareholding requirements

The maximum numbers of endorsements are used to determine the minimum shareholding that would apply for each share class. This is done by dividing the total number of shares in each share class by the maximum number of endorsements. The following tables show the maximum number of endorsements (from the tables above) and the corresponding minimum shareholding that would apply for each share class.

Table 4: Minimum shareholdings required to achieve the maximum number of eel trapping endorsements for the various percentages of estimated total GVP by region

Region	Percentage of estimated GVP											
	75		80		90		95		97		99	
	No.	Min	No.	Min	No.	Min	No.	Min	No.	Min	No.	Min
1	3	250	3	250	4	188	5	150	6	125	6	125

	Percentage of estimated GVP											
	75		80		90		95		97		99	
2	7	711	8	622	11	452	12	415	13	383	15	332
3	7	511	7	511	10	358	11	325	12	298	14	255
4	8	813	9	722	13	500	17	382	19	342	23	283
5	2	688	2	688	3	458	3	458	3	458	3	458
6	1	2,300	1	2,300	1	2,300	1	2,300	1	2,300	2	1150
7	2	925	3	617	4	463	4	463	5	370	6	308

Table 5: Minimum shareholdings required to achieve the maximum number of mud crab trapping endorsements for the various percentages of estimated total GVP by region

Region	Percentage of estimated GVP											
	75		80		90		95		97		99	
	No.	Min	No.	Min	No.	Min	No.	Min	No.	Min	No.	Min
1	9	264	10	238	13	183	15	158	15	158	16	148
2	17	353	20	300	25	240	30	200	33	182	38	158
3	20	281	22	256	28	201	32	175	34	165	39	144
4	17	615	20	523	31	337	44	238	51	205	63	166
5	2	713	2	713	2	713	3	475	4	356	5	285
6	2	238	2	238	2	238	2	238	2	238	2	238
7	1	500	1	500	1	500	2	250	2	250	2	250

Table 6: Minimum shareholdings required to achieve the maximum number of trapping endorsements for the various percentages of estimated total GVP by region

Region	Percentage of estimated GVP											
	75		80		90		95		97		99	
	No.	Min	No.	Min	No.	Min	No.	Min	No.	Min	No.	Min
1	2	250	2	250	3	167	3	167	3	167	4	125
2	3	833	4	625	6	417	7	357	8	313	8	313
3	7	564	9	439	13	304	16	247	18	219	21	188
4	17	600	19	537	27	378	34	300	38	268	49	208
5	4	694	4	694	5	555	6	463	7	396	9	308

	Percentage of estimated GVP											
	75		80		90		95		97		99	
<b>6</b>	1	425	1	425	2	213	2	213	2	213	3	142
<b>7</b>	3	250	3	250	3	250	3	250	3	250	3	250

If shares are surrendered for cancellation prior to implementing the minimum shareholding scheme (e.g. during the exit grant process) the minimum shareholdings required to deliver the adjustment targets will be less than those set out in the tables above.

### Determining the timeframe by which the minimum shareholding requirements must be satisfied in order to remain endorsed

Under a minimum shareholding regime it is important to determine the timeframe by which shareholders must satisfy the minimum shareholding requirements in order to be eligible for an endorsement to participate in the fishery. Options range from requiring shareholders to satisfy the minimum shareholding requirements in a once-off increase in the short-term or progressively increasing the minimum shareholdings over a longer time period. Issues for consideration include:

- Government assistance, in the form of exit grant payments, will only be available in the short term (i.e. throughout 2014) – supporting the concept of a once-off increase in the short term.
- For sectors requiring significant adjustment and significant investment in shares, one of the few strategies that could be adopted is to extend the timeframe to satisfy the minimum shareholding requirements.

Regardless of whether a short term or long term approach is adopted, to streamline administration DPI seeks to align the minimum shareholding periods across fisheries. In other words, the minimum shareholding requirements would need to be satisfied by a set date that coincides with dates applying in other fisheries. This will reduce the administration associated with issuing new fishing business cards etc each time an endorsement is added or removed from a fishing business card.

DPI's preferred position on this issue is to pursue a once-off increase in the short term (e.g. all fishers must satisfy the relevant minimum shareholding requirements by mid 2015 to remain endorsed). However, it may be appropriate to progressively increase the minimum shareholding requirements over two periods if that is what shareholders would prefer (e.g. a reasonable increase by mid 2015 and the balance by mid 2016).

### Attributing management charges to shareholders

If managing endorsement numbers under a minimum shareholding scheme, the cost of management is attributed to shareholders equally. In other words, all shareholders pay the same regardless of how many shares are held or how much fish the shareholder takes.

### Discussion and advice required

The Working Group's advice is required on the following:

- Should a minimum shareholding regime be considered as an option (to be put to shareholders for comment) for any or all of the trapping components of the EGF?
- What are the appropriate adjustment targets (i.e. maximum number of endorsements) for each share class?
- An appropriate timeframe for shareholders to satisfy the minimum shareholding requirements in order to remain endorsed to participate in the fishery.

## Option 2: Effort quota (days regime)

Under a days regime, effort is managed via a consumable quota of days allocated to fishing businesses proportional to the number of shares held. A days regime is an indirect way of managing catch.

The major features of a days regime include:

- Provides for autonomous (as opposed to forced) adjustment.
- Improved opportunity to remove or amend current restrictions that inhibit fishers' efficiency and profitability.
- Improved control over total catches of species from the fishery, which is beneficial from a range of perspectives including capacity to deliver sustainability and resource sharing objectives within the fishery and between the fishery and other sectors.
- Improved Government, industry and community confidence that the fishery is operating at sustainable levels.
- Management charges are attributed to shareholders proportional to the number of shares held.
- The security of investment is not as strong as a catch quota regime. Endorsement holders continue to compete for their share of the available resource.

### Determining the ITCAL and quota available to shareholders

Determining the ITCAL (i.e. the total number of days available for each share class of the fishery) and the quota of days that would be allocated to each shareholder requires a number of steps. This has been done below in two ways (i.e. state-wide and regional basis) over the three year period 2009/10 to 2011/12. This time period was used as the new catch and effort reporting arrangements implemented in 2009 provided for a method to be linked to a share class and a day.

**Step 1:** The first step involves determining the ITCAL for each sector or share class.

#### State-wide ITCAL

This is done by calculating an annual average total number of days for each share class over the three year period 2009/10 to 2011/12. This is done by using the total number of days fishers have reported fishing under the authority of an eel trapping, mud crab trapping and trapping endorsement in those years and dividing the total by 3.

Table 7: State-wide ITCAL of days for the eel trapping, mud crab trapping and trapping sectors

Sector	ITCAL (days)
Eel trapping	1,449
Mud crab trapping	6,661
Trapping	3,609

#### Regional ITCAL

This is done by calculating an annual average total number of days for each share class (i.e. for each region) over the three year period 2009/10 to 2011/12. This is done by using the total number of days fishers have reported fishing under the authority of an eel trapping, mud crab trapping and trapping endorsement in each region from 09/10 to 11/12 and dividing the total by 3.

Table 8: Regional ITCAL of days for the eel trapping share classes

Region	ITCAL (days)
1	66
2	383

Region	ITCAL (days)
3	247
4	437
5	178
6	117
7	20

Table 9: Regional ITCAL of days for the mud crab trapping share classes

Region	ITCAL (days)
1	1,201
2	1,348
3	2,084
4	1,955
5	63
6	1
7	9

Table 10: Regional ITCAL of days for the trapping share classes

Region	ITCAL (days)
1	79
2	163
3	800
4	2,261
5	189
6	34
7	83

**Step 2:** The ITCAL available to each sector then needs to be allocated amongst the shareholders in each sector or share class proportional to the number of shares held. This has been done below in two ways (i.e. state-wide and regional basis) over the three year period 2009/10 to 2011/12.

### State-wide allocation

Table 11: State-wide allocation of the ITCAL of days to eel trapping, mud crab trapping and trapping shareholders

Sector	Total No. shares	ITCAL (days)	Days per share	Days per 125 shares
Eel trapping	21,325	1,449	0.07	8
Mud crab trapping	26,850	6,661	0.25	31
Trapping	21,100	3,609	0.17	21

### Regional allocation

Table 12: Regional allocation of the ITCAL of days to eel trapping shareholders

Region	Total No. shares	ITCAL (days)	Days per share	Days per 125 shares
1	750	66	0.09	11

Region	Total No. shares	ITCAL (days)	Days per share	Days per 125 shares
2	4,975	383	0.08	10
3	3,575	247	0.07	9
4	6,500	437	0.07	8
5	1,375	178	0.13	16
6	2,300	117	0.05	6
7	1,850	20	0.01	1

Table 13: Regional allocation of the ITCAL of days to mud crab trapping shareholders

Region	Total No. shares	ITCAL (days)	Days per share	Days per 125 shares
1	2,375	1201	0.51	63
2	6,000	1348	0.23	28
3	5,625	2084	0.37	46
4	10,450	1955	0.19	23
5	1,425	63	0.04	6
6	475	1	0.002	0.3
7	500	9	0.02	2

Table 14: Regional allocation of the ITCAL of days to trapping shareholders

Region	Total No. shares	ITCAL (days)	Days per share	Days per 125 shares
1	500	79	0.16	20
2	2,500	163	0.07	8
3	3,950	800	0.20	25
4	10,200	2,261	0.22	28
5	2,775	189	0.07	9
6	425	34	0.08	10
7	750	83	0.11	14

Table 15: Comparison of state-wide and regional allocation of the ITCAL of days to eel trapping, mud crab trapping and trapping shareholders

Region	Eel trapping		Mud crab trapping		Trapping	
	State-wide	Regional	State-wide	Regional	State-wide	Regional
1	8	11	31	63	21	20
2	8	10	31	28	21	8
3	8	9	31	46	21	25
4	8	8	31	23	21	28
5	8	16	31	6	21	9
6	8	6	31	0.3	21	10

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7	8	1	31	2	21	14
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## Defining a 'day'

Two options for defining a 'day' include:

- a 24 hour period from the time the endorsed fisher goes fishing, or more specifically from the time the fisher makes a pre-fishing report via the Integrated Voice Response (IVR) system (if the IVR system is the preferred technology); or
- a set 24 hour period (e.g. midnight to midnight).

## Minimum shareholding requirements

Minimum shareholding requirements (i.e. the minimum number of shares that a shareholder must hold to be eligible for an endorsement) can be used in conjunction with a days regime to assist with adjustment in each share class. Given that the total number of shares of each share class (i.e. in each region) is variable, different minimum shareholding requirements can apply in each region.

## Fishing period

An allocation of quota is available to be fished during what is known under the *Fisheries Management Act 1994* as a 'fishing period'. Fishing periods are generally defined as 'one year', however, they can also be longer or shorter.

Realistic options include a one or two year fishing period. Longer fishing periods can result in reduced total management costs and are a feasible proposition for stocks at low risk of overfishing. Stocks at greater risk of overfishing are best managed using shorter (one year) fishing periods. DPI suggests that a one year fishing period commencing on 1 July each year would be suitable for the trapping component of the EG Fishery initially.

## Acquiring additional quota

Acquiring additional quota (i.e. days) could be achieved by a fisher in two ways:

- By transferring relevant shares, which would result in the shareholder having an ongoing right to a greater portion of the ITCAL/TAE for future fishing periods; or
- By transferring (leasing) quota from other relevant shareholders, which may be fished during the balance of the relevant fishing period only.

Share and quota transfers will be able to be done at minimal or no cost using FishOnline or for a fee if done via a paper-based application.

If all (or the last) share of the relevant class is transferred from a business, any quota remaining (i.e. quota that has not been used or not already transferred to another shareholder) would be transferred along with the last share to the new shareholder. This arrangement currently applies in the Abalone, Lobster and SUTS fisheries and has been hardwired into FishOnline.

*Reasons for allowing leasing:*

- Helps fishers wanting to fish at a desired level but cannot buy shares;
- Helps fishers that need more quota and want to top up their allocation without buying shares;
- Helps those who want to transfer their quota to another fisher and use the proceeds for other purposes such as adjusting their business/purchasing more shares; and
- Helps to ensure the entire ITCAL/TAE is used (i.e. such that there is little or no quota left over at the end of a fishing period).

*Reasons against allowing leasing::*

- May slow the rate of adjustment; and
- May stimulate 'quota barons' (i.e. people who purchase significant numbers of shares with the intent of leasing quota to other fishers).



DPI's preliminary view is that the ability to transfer quota is an important component of any (catch or effort) quota management regime, and that the amount of quota that may be transferred to a shareholder during a fishing period should not be restricted unless there is a compelling reason to do so.

Also important to note is that:

- FishOnline has been designed to allow quota transfers and this function cannot be turned on for one quota regime (or fishery) and at the same time be turned off for another – in other words because FishOnline has been set up to provide for quota transfers in the Rock Lobster, Abalone and Sea Urchin fisheries, any other fisheries that proceed to quota management and use FishOnline will need to provide for the transfer of quota unless significant cost to modify FishOnline is incurred; and,
- Modifying FishOnline to introduce limits on the amount of quota that may be transferred to a shareholder during a fishing period will impact the performance (i.e. speed) of FishOnline, come at a cost that will need to be borne by Government or industry and may frustrate shareholders trying to acquire additional quota.

### Transferability of effort quota

If any of the trapping share classes are to be managed using a days regime consideration has to be given to providing for the transferability of effort quota (i.e. days) between regions or having the total amount of effort quota capped or 'locked into' each region. The current shares would be used to authorise access in a region (as is the case now) and the effort quota used to dictate how many days could be worked in a region.

If the total amount of effort quota is capped in each region shareholders have the certainty and security that they hold a set proportion of the effort quota that can be used in the waters of the fishery in the region they hold shares. However, for regions where only a limited number of shares exist, and as a consequence a limited amount of effort quota would be allocated, there may be limited amount of scope for shareholders to acquire additional effort quota.

In contrast, if there was full transferability of effort quota between regions, shareholders could acquire effort quota from other regions to upscale their operation (or vice versa). In this case the amount of effort quota that could be used in the waters of a region is not capped. As a consequence, shareholders would not have the security of knowing how much effort quota could be used in each region, however would have the flexibility to transfer effort quota into or out of a region, e.g. in response to variations in abundance of fish, environmental conditions etc.

### Monitoring quota usage

A days regime requires the effort quota (days) to be monitored on a daily basis if the regime is to have integrity. One way to do this is through the current paper-based log book system, however, there is a range of reasons why this is inappropriate including:

- Log books are used to capture a range of information (e.g. catch, effort and disposal information) some of which may not be readily available for the purpose of submitting log sheets daily;
- Resource intensive for fishers and DPI;
- Inability to monitor and enforce effort quota in real time; and
- The online log book system in FishOnline is not designed to deal with acquitting quota usage.

The most cost effective ways to closely monitor a 'consumable' day quota would be to utilise the IVR system recently developed by DPI or the new smart phone app being built. The IVR system would require fishers to make a pre-fishing report only using a mobile phone. It also provides for real-time monitoring of quota usage and real-time quota balances in FishOnline, which will be accessible by shareholders (and any 'agents' they appoint to access FishOnline on their behalf). Reporting other information would be done separately either online or by using the log book.

FishOnline and the IVR system have been designed to deal with quota management regimes. As a consequence, neither system should need to be enhanced. However, complications may arise for fishers working fishing businesses with numerous share classes that are subject to 'consumable' catch or effort quotas.

Each time a fisher phones in on the IVR system, he or she would need to listen to the full range of quota regimes relevant to the fishing business concerned before choosing the quota regime to report against. Preliminary testing of the IVR system indicates that having more than 3 to 4 quota regimes linked to a fishing business may frustrate some users. There are a number of potential solutions to this problem:

- Move the shares that are linked to a quota regime into a separate fishing business. This would alleviate the need for the fisher to listen to the full range of quota regimes relevant to the fishing business concerned each time he or she uses the IVR system.
- NSW DPI is developing new technology (i.e. a smart phone app) that should be easier for fishers to use than the IVR system, much like using the internet where the user chooses the quota regime he or she is interested in without first having to listen to a list of quota regimes.

### Attributing management charges to shareholders

Under a days regime the cost of management is attributed to shareholders proportional to the number of shares held. Specifically, a shareholder with a large holding of shares (and greater access) will pay a larger share of the management costs than a shareholder with a smaller holding of shares. Paying per share (or day quota) can be beneficial to fishers who are diversified and need only a small number of shares (or days) to compliment their other fishing activities, particularly when compared to a minimum shareholding system where all shareholders are charged the same regardless of how many shares they hold and how many days they fish or how much catch they may take.

### Discussion and advice required

The Working Group's advice is required on the following:

- Should a days regime be considered as an option (to be put to shareholders for comment) for the future management of any or all of the trapping components of the EGF?
- Should state-wide or regional allocations be used?
- Are the ITCALs and how they have been determined appropriate?
- How should a 'day' be defined?
- Whether minimum shareholding requirements should be used in conjunction with a days regime.
- A suitable 'fishing period' and when the fishing period should commence.
- The transferability of effort quota between the regions.
- The use of the IVR or smart phone app systems to monitor effort quota usage.

### Option 3: Effort quota (trap number regime)

Under a trap number regime, effort is managed via a quota of traps and/or hoop nets allocated to fishing businesses proportional to the number of shares held. A trap regime is an indirect way of managing catch.

The major features of a trap regime include:

- It provides for autonomous (as opposed to forced) adjustment.

- Opportunity for shareholders to structure their fishing business around the number of traps that they want to use.
- Potential opportunity to remove or amend current restrictions that inhibit fishers' profitability and efficiency.
- Improved Government, industry and community confidence that the fishery is operating at sustainable levels.
- Management charges are attributed to shareholders proportional to the number of shares held by each.
- The security of investment is not as strong as a catch quota regime and may not be as strong as a days regime. Endorsement holders continue to compete for their share of the available resource.

### Determining the ITCALs

The ITCALs (i.e. the total number of traps and/or hoop nets available for each share class) and the quota that would be allocated to each shareholder have been done below using the following method. Given that the minimum shareholding of 125 shares currently authorises the use of 10 eel, mud crab or fish traps and 'half shares' do not exist, 25 shares equals 2 traps [i.e. 25 shares (or 2 traps) x 5 = 125 shares (or 10 traps)]. The 20 fish trap limit that applies in specific waters of Port Stephens and Wallis Lake has not been factored into the determinations for trapping but is a point for discussion and advice.

Table 16: Regional allocation of the ITCAL of traps to eel trapping shareholders

Region	Shares	No. of 25 shares	ITCAL (traps)
1	750	30	60
2	4,975	199	398
3	3,575	143	286
4	6,500	260	520
5	1,375	55	110
6	2,300	92	184
7	1,850	74	148

Table 17: Regional allocation of the ITCAL of traps or hoops to mud crab trapping shareholders

Region	Shares	No. of 25 shares	ITCAL (traps or hoops)
1	2,375	95	190
2	6,000	240	480
3	5,625	225	450
4	10,450	418	836
5	1,425	57	114
6	475	19	38
7	500	20	40

Table 17: Regional allocation of the ITCAL of traps and hoops to trapping shareholders

Region	Shares	No. of 25 shares	ITCAL (traps)	ITCAL (hoops)
1	500	20	40	40
2	2,500	100	200	200

3	3,950	158	316	316
4	10,200	408	816	816
5	2,775	111	222	222
6	425	17	34	34
7	750	30	60	60

### Combination and hoop net limits

Currently, combination and net limits apply to the use of the hoop or lift net. For example, a holder of a mud crab trapping endorsement who uses 3 hoop or lift nets may use only 7 crab traps and a dual endorsement holder who uses 12 hoop or lift nets may use only 8 crab traps. However, a dual endorsement holder who uses less than 10 hoop or lift nets cannot use more than 10 crab traps, despite the combination limit of 20. Consideration has to be given to the utility of the future use of these restrictions.

### Minimum shareholding requirements

Minimum shareholding requirements (i.e. the minimum number of shares that a shareholder must hold to be eligible for an endorsement) can be used in conjunction with a trap number regime to assist with adjustment in each share class. Given that the total number of shares of each share class (i.e. in each region) is variable, different minimum shareholding requirements can apply in each region.

### Transferability of effort quota

If any of the trapping share classes are to be managed by a trap number regime consideration has to be given to providing for the transferability of effort quota (e.g. traps) between (i) different share classes within a region (e.g. between region 4 meshing and region 4 mud crab trapping) or (ii) different share classes between regions (e.g. between region 4 mud crab trapping and region 5 mud crab trapping) or (iii) both. Alternatively, the total amount of catch quota could be capped or 'locked into' each region.

The current shares would be used to authorise access in a region (as is the case now) and the effort quota used to dictate how much gear could be used in a region. If the total amount of effort quota is capped in each region shareholders have the certainty and security that they hold a set proportion of the effort quota that can be used in the waters of the fishery in the region they hold shares. However, for regions where only a limited number of shares exist, and as a consequence a limited amount of effort quota would be allocated, there may be limited amount of scope for shareholders to acquire additional effort quota (and vice versa).

In contrast, if there was full transferability of effort quota between regions, shareholders could acquire effort quota from other regions to upscale their operation. In this case the amount of effort quota that could be used in the waters of a region is not capped. As a consequence, shareholders would not have the security of knowing how much effort quota could be used in each region, however would have the flexibility to transfer effort quota into or out of a region, e.g. in response to variations in abundance of fish, environmental conditions etc.

### Attributing management charges to shareholders

Under a trap number regime the cost of management is attributed to shareholders proportional to the number of shares held. Specifically, a shareholder with a large holding of shares (and greater access) will pay a larger share of the management costs than a shareholder with a smaller holding of shares. Paying per share (or trap numbers) can be beneficial to fishers who are diversified and need only a small number of shares (or traps) to compliment their other fishing activities, particularly when compared to a minimum shareholding system where all shareholders are charged the same

regardless of how many shares they hold and how many days they fish or how much catch they may take.

### Discussion and advice required

The Working Group's advice is required on the following:

- Should a trap number regime be considered as an option (to be put to shareholders for comment) for the future management of any or all of trapping components of the EGF?
- Are the ITCALs and how they have been determined appropriate (incl. not taking account of the 20 fish trap limit for specific waters of region 4)?
- What is the utility of the future use of combination and/or net limits on the number of traps and hoop nets that can be used at a time?
- Whether the use of minimum shareholding requirements should be used in conjunction with a trap number regime.
- Is there a need to have alternative trap marking arrangements (e.g. tagging system) and if so where should the costs of initiating and administering these be attributed?
- The transferability of effort quota between regions.

### Option 4: Catch quota regime (eels, mud crabs and blue swimmers)

Under a catch quota regime, eels, mud crabs and/or blue swimmer crabs taken in these share classes could be managed by catch quota.

The major features of a catch quota regime include:

- It provides for autonomous (as opposed to forced) adjustment;
- Optimum opportunity to remove controls that inhibit fishers' profitability and efficiency;
- Tighter control over total catches of species from the fishery, which is beneficial from a range of perspectives including capacity to deliver sustainability and resource sharing objectives within and between the fishery and other sectors, respectively;
- Sound Government, industry and community confidence that the fishery is operating at sustainable levels;
- Management charges are attributed to shareholders proportional to the number of shares held; and
- Stronger security of investment relative to effort quota and minimum shareholding regimes.

Two separate catch quota regimes were identified by the Working Group for further consideration, one using weight (kgs) the other using body count (numbers of individuals). Only a catch quota regime using weight is discussed in detail below due to the difficulty in modelling how it could work. Reasons why a catch quota regime using body count is problematic follow and the Working Group's advice is sought in this regard.

- The main issue with a body count regime is that it requires the average weight of an eel (both species), mud crab and blue swimmer crab. Current catch and effort reporting does not include the number of eels or crabs caught and only limited information for some species exists in this regard;
- The weight of an individual crab can vary by as much as 40% throughout the moult cycle;
- The weights of male and female crabs of a given size are different;
- The size distributions of crabs from all NSW estuaries are not the same (i.e. allocation of crab numbers across all regions using a standard estimated weight could disadvantage shareholders in some regions where waters support populations of smaller crabs;

- A body count regime may require individuals to be tagged and possibly prior to landing. Notwithstanding the additional burden on fishers to tag individuals, tagging could lead to limb loss (and subsequent reduction in value) on crabs, injury (and potential infection while being held prior to sale) to eels and possible economic losses; and
- Any costs of a tagging system (e.g. the cost of tags and monitoring) would most likely be borne by fishers.

### Determining the ITCAL and quota available to shareholders

Determining the ITCAL (i.e. the total eel, mud crab and blue swimmer crab quota available to the relevant fishery) and the quota that would be allocated to each shareholder requires a number of steps.

**Step 1:** The first step involves determining an industry wide ITCAL for eels (long- and short-finned combined), mud and blue swimmer crabs (males and females combined). This has been done by averaging the reported commercial landings over the 15 year period 1997/98 to 2011/12.

Table 18: Industry-wide ITCAL of kgs for eels, mud crabs and blue swimmer crabs

Species	Industry wide ITCAL (kgs)
Eels	111,993
Mud crabs	117,808
Blue swimmer crabs	159,944

**Step 2:** The industry wide ITCAL of eels, mud crabs and blue swimmer crabs then needs to be apportioned to the Estuary General Fishery. This has been done by averaging the reported commercial landings for each species across all commercial fisheries (incl. EPTF, OTF, etc) over the 15 year period 1997/98 to 2011/12.

Table 19: Estuary General Fishery ITCAL of kgs for eels, mud crabs and blue swimmer crabs

Species	% of Industry wide ITCAL	EGF ITCAL (kgs)
Eels	100.0	111,993
Mud crabs	99.7	117,455
Blue swimmer crabs	90.2	144,270

**Step 3:** The Estuary General Fishery ITCAL (EGF ITCAL) then needs to be allocated amongst relevant shareholders proportional to the number of shares held. This has been done below in two ways (i.e. state-wide and regional basis) using the three year period 2009/10 to 2011/12. This time period was used as the new catch and effort reporting arrangements implemented in 2009 provided for the catch to be attributed to an endorsement, a method and a day. Catch reported as being taken lawfully was used in the allocation. For ease of interpretation, numbers have been rounded to the nearest decimal point.

### State-wide allocation

Table 20: State-wide allocation of the EGF ITCAL of eels to the relevant shareholders

Share class group	% of EGF ITCAL	kgs	Shares	Kg per share	Kg per 125 shares
Eel trapping	98.5	110,273	21,325	5.2	646.4
Category 1 hauling	0.8	929	17,000	0.1	6.8
Meshing	0.7	764	60,275	0.01	1.6

Hand line & hauling crew	0.02	27	70,925	0.0004	0.1
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Table 21: State-wide allocation of the EGF ITCAL of mud crabs to the relevant shareholders

Share class group	% of EGF ITCAL	kgs	Shares	Kg per share	Kg per 125 shares
Mud crab trapping	93	109,238	26,850	4.1	508.6
Meshing	7.2	8,491	60,275	0.1	17.6
Category 1 hauling	0.3	299	17,000	0.02	2.2
Hand line & hauling crew	0.04	45	70,925	0.001	0.1

Table 22: State-wide allocation of the EGF ITCAL of blue swimmer crabs to the relevant shareholders

Share class group	% of EGF ITCAL	kgs	Shares	Kg per share	Kg per 125 shares
Trapping	60.6	87,415	21,100	4.1	517.9
Meshing	33.3	48,085	60,275	0.8	99.7
Category 1 hauling	6	8,666	17,000	0.5	63.7
Hand line & hauling crew	0.1	105	70,925	0.001	0.2

## Regional allocation

Table 23: Regional allocation of the EGF ITCAL of eels to the relevant shareholders

Region	Share class	% of EGF ITCAL	kgs	Shares	Kg per share	Kg per 125 shares
1	Eel trapping	3.4	3,800	750	5.1	633.3
	Category 1 hauling	0	0	1,000	0	0
	Meshing	0.03	33	4,550	0.01	0.9
	Hand line & hauling crew	0.002	3	4,800	0.001	0.1
2	Eel trapping	25.7	28,756	4,975	5.8	722.5
	Category 1 hauling	0	0	3,250	0	0
	Meshing	0.1	129	13,200	0.01	1.2
	Hand line & hauling crew	0	0	16,475	0	0
3	Eel trapping	17.4	19,429	3,575	5.4	679.3
	Category 1 hauling	0.03	34	1,250	0.03	3.4
	Meshing	0.2	188	6,725	0.03	3.5
	Hand line & hauling crew	0	0	8,125	0	0
4	Eel trapping	33.4	37,361	6,500	5.8	718.5
	Category 1 hauling	0.5	504	6,225	0.1	10.1
	Meshing	0.3	294	20,425	0.01	1.8
	Hand line & hauling crew	0.002	3	23,800	0.0001	0.01
5	Eel trapping	7.8	8,765	1,375	6.4	796.8
	Category 1 hauling	0	0	1,775	0	0
	Meshing	0.01	8	5,300	0.002	0.2
	Hand line & hauling crew	0	0	6,600	0	0
6	Eel trapping	9.0	10,036	2,300	4.4	545.5
	Category 1 hauling	0.2	210	2,050	0.1	12.8

	Meshing	0.1	57	6,050	0.01	1.2
	Hand line & hauling crew	0.02	22	6,300	0.004	0.4
7	Eel trapping	1.9	2,125	1,850	1.2	143.6
	Category 1 hauling	0.2	181	1,450	0.1	15.6
	Meshing	0.05	55	4,025	0.01	1.7
	Hand line & hauling crew	0	0	4,825	0	0

Table 24: Regional allocation of the EGF ITCAL of mud crabs to the relevant shareholders

Region	Share class	% of EGF ITCAL	kgs	Shares	Kg per share	Kg per 125 shares
1	Mud crab trapping	15.9	18,691	2,375	7.9	983.7
	Meshing	0.2	170	4,550	0.04	4.7
	Category 1 hauling	0	0	1,000	0	0
	Hand line & hauling crew	0.00002	3	4,800	0.001	0.1
2	Mud crab trapping	19.1	22,439	6,000	3.7	467.5
	Meshing	0.2	245	13,200	0.02	2.3
	Category 1 hauling	0.1	86	3,250	0.03	3.3
	Hand line & hauling crew	0.01	15	16,475	0.001	0.1
3	Mud crab trapping	36.6	42,982	5,625	7.6	955.2
	Meshing	1.1	1,300	6,725	0.2	24.2
	Category 1 hauling	0.001	1	1,250	0.0009	0.1
	Hand line & hauling crew	0.02	18	8,125	0.002	0.3
4	Mud crab trapping	20.8	24,389	10,450	2.3	291.7
	Meshing	3.9	4,599	20,425	0.2	28.1
	Category 1 hauling	0.1	161	6,225	0.03	3.2
	Hand line & hauling crew	0.004	5	23,800	0.0002	0.02
5	Mud crab trapping	0.6	659	1,425	0.5	57.8
	Meshing	0.2	209	5,300	0.04	4.9
	Category 1 hauling	0	0	1,775	0	0
	Hand line & hauling crew	0.001	1	6,600	0.0001	0.01
6	Mud crab trapping	0.001	1	475	0.003	0.39
	Meshing	0.9	1087	6,050	0.2	22.5
	Category 1 hauling	0.02	22	2,050	0.01	1.35
	Hand line & hauling crew	0	0	6,300	0	0
7	Mud crab trapping	0.1	78	500	0.2	19.4
	Meshing	0.2	287	4,025	0.1	8.9
	Category 1 hauling	0.01	8	1,450	0.01	0.7
	Hand line & hauling crew	0	0	4,825	0	0

Table 25: Regional allocation of the EGF ITCAL of blue swimmer crabs to the relevant shareholders

Region	Share class	% of EGF ITCAL	kgs	Shares	Kg per share	Kg per 125 shares
1	Trapping	0.01	11	500	0.2	2.8
	Meshing	0.01	9	4,550	0.002	0.3



Region	Share class	% of EGF ITCAL	kgs	Shares	Kg per share	Kg per 125 shares
	Category 1 hauling	0	0	1,000	0	0
	Hand line & hauling crew	0	0	4,800	0	0
2	Trapping	0.02	22	2,500	0.01	1.1
	Meshing	0.00002	3	13,200	0.0002	0.03
	Category 1 hauling	0.001	1	3,250	0.0004	0.1
	Hand line & hauling crew	0	0	16,475	0	0
3	Trapping	2.8	3,980	3,950	1	125.9
	Meshing	1.3	1,839	6,725	0.3	34.2
	Category 1 hauling	0.01	13	1,250	0.01	1.3
	Hand line & hauling crew	0	0	8,125	0	0
4	Trapping	56.7	81,737	10,200	8.01	1001.7
	Meshing	11.8	17,069	20,425	0.8	104.5
	Category 1 hauling	0.7	1,033	6,225	0.2	20.7
	Hand line & hauling crew	0.07	105	23,800	0.004	0.6
5	Trapping	0.3	498	2,775	0.2	22.4
	Meshing	0.5	670	5,300	0.1	15.8
	Category 1 hauling	0.1	182	1,775	0.1	12.8
	Hand line & hauling crew	0	0	6,600	0	0
6	Trapping	0.8	1,082	425	2.5	318.1
	Meshing	19.1	27,602	6,050	4.6	570.3
	Category 1 hauling	5.1	7,425	2,050	3.6	452.7
	Hand line & hauling crew	0	0	6,300	0	0
7	Trapping	0.06	85	750	0.1	14.2
	Meshing	0.6	893	4,025	0.2	27.7
	Category 1 hauling	0.01	11	1,450	0.01	1
	Hand line & hauling crew	0	0	4,825	0	0

### Minimum shareholding requirements

Minimum shareholding requirements (i.e. the minimum number of shares that a shareholder must hold to be eligible for an endorsement) can be used in conjunction with a catch quota regime to assist with adjustment in each share class. Given that the total number of shares of each share class (i.e. in each region) is variable, different minimum shareholding requirements can apply in each region.

### Limits on the amount of gear (e.g. traps) that may be used and species restrictions

Similar to minimum shareholding requirements, limits on the maximum number of traps and restrictions of what can be taken in a trap can be used in conjunction with a catch quota regime. It is important to consider having these arrangements in place given that species other than eels, mud crabs and blue swimmer crabs (e.g. bream) are both targeted and taken in traps. Although it may be appropriate to remove the species restrictions (i.e. the species that may be taken) that currently exist for crab and fish traps under a catch quota regime, it may be inappropriate to allow the use of unlimited trap numbers. As an example, if a shareholder could transfer their catch quota of mud and/or blue swimmer crabs to another shareholder and continue to fish using an unlimited number

of traps. This could have consequences from sustainability (e.g. increased fishing pressure on some species), viability (e.g. erosion of investment) and social (e.g. conflict within and between fisheries) perspectives.

In the case of eel trapping, it may be appropriate to maintain the restriction on only taking eels in an eel trap but not having a restriction on how many eel traps a fisher could use.

### Transferability of catch quota

If any of the trapping share classes are to be managed by a catch quota regime consideration has to be given to providing for the transferability of catch quota (i.e. kgs) between (i) different share classes within a region (e.g. between region 4 meshing and region 4 mud crab trapping) or (ii) different share classes between regions (e.g. between region 4 mud crab trapping and region 5 mud crab trapping) or (iii) both. Alternatively, the total amount of catch quota could be capped or 'locked into' each region.

The current shares would be used to authorise access in a region (as is the case now) and the catch quota used to dictate how many kgs could be taken in a region. If the total amount of catch quota is capped in each region shareholders have the certainty and security that they hold a set proportion of the potential catch that can be taken in the waters of the fishery in the region they hold shares. However, for regions where only a limited number of shares exist, and as a consequence a limited amount of catch quota would be allocated, there may be limited amount of scope for shareholders to acquire additional catch quota (or vice versa).

In contrast, if there was full transferability of catch quota between regions, shareholders could acquire catch quota from other regions to upscale their operation. In this case the amount of catch quota that could be used in the waters of a region is not capped. As a consequence, shareholders would not have the security of knowing how much catch could be taken in each region, however would have the flexibility to transfer catch quota into or out of a region, e.g. in response to variations in abundance of fish, environmental conditions etc.

### Monitoring quota usage

Similar to a days regime, a catch quota regime requires the catch quota (kgs) to be monitored on a daily basis if the regime is to have integrity. However, as opposed to fishers only having to make a pre-fishing report under a days regime, monitoring catches using the IVR system would require endorsement holders to make a pre-fishing, pre-landing and post-landing report using a mobile phone or via the new smart phone app being developed by DPI.

It should be noted that the same IVR system complications regarding multiple catch and effort quotas as those mentioned in the days regime option would exist under a catch quota regime.

### Attributing management charges to shareholders

Under a catch quota regime the cost of management is attributed to shareholders proportional to the number of shares held. Specifically, a shareholder with a large holding of shares (and greater access) will pay a larger share of the management costs than a shareholder with a smaller holding of shares. Paying per share (or kgs) can be beneficial to fishers who are diversified and need only a small number of shares (or kgs) to compliment their other fishing activities, particularly when compared to a minimum shareholding system where all shareholders are charged the same regardless of how many shares they hold and how many days they fish or how much catch they may take.

### Harvest limits for other sectors

If any of the trapping share classes are to be managed by a catch quota regime consideration should be given to setting total limits (notional ITCALs) on mud and blue swimmer crab catches in other fisheries (i.e. Estuary Prawn Trawl, Ocean Trawl and Ocean Trap and Line fisheries).

## Discussion and advice required

The Working Group's advice is required on the following:

- Should a catch quota regime be considered as an option (to be put to shareholders for comment) for any or all of the trapping components of the EGF?
- Are the ITCALs and how they have been determined and allocated appropriate (i.e. should specific share classes not be allocated catch quota)?
- Where the calculated catch quota per share in the tables above is low, should that be allocated to those share classes or allocated elsewhere?
- Whether the use of minimum shareholding requirements should be used in conjunction with a catch quota regime (NB. a starting point for discussion is the adjustment targets mentioned under the minimum shareholding regime - Option 1).
- The use of limits on the amount of gear and species restrictions that could be used in conjunction with a catch quota regime.
- The transferability of catch quota between share classes/regions.
- The use of the IVR or smart phone app systems to monitor catch quota usage.
- How the catch of these species in other fisheries/sectors should be dealt with.

## Costs associated with the share linkage options

A major consideration for shareholders will be the costs associated with the various linkage options, particularly given the proposed development and introduction of a new cost recovery framework. The cost of management is also an issue for Government given current industry subsidies and the Act's [secondary] objective to promote a viable commercial fishing industry.

The costs associated with the various linkage options are only one part of the overall picture in terms of shareholder profitability and the Government's obligation to promote industry-wide viability. Some important points to note include:

- Individual shareholder profitability is influenced by a wide range of issues many of which are outside the direct control of the State Government. Examples include: the cost of boats and equipment; the price received for product harvested; and the fishing ability and business skills of the shareholder concerned.
- Promoting industry-wide viability is a longer term objective of the reform program that is also influenced by a range of things including: the cost, complexity and flexibility afforded by the management frameworks put in place and the removal/relaxation of controls that inhibit the operational and business inefficiency of fishers.

Overall, these issues need to be considered alongside the range of social and economic benefits that arise from linkage shares to resource access, including gaining a stronger 'social licence' to operate and increased asset (i.e. share) values etc.

The role of Government is to establish a framework that promotes improved industry-wide viability in the medium to longer term, not to maintain or improve the profitability of individual shareholders.

While it would be ideal to have firm costings for each option, NSW DPI is unable to provide definitive advice on the actual costs that would be payable. This will be influenced by a wide range of things including: the final design of the linkage options; if a quota scheme is pursued, the number of shares held; the number of shareholders remaining; the adoption of technology (e.g. the IVR system) to reduce enforcement costs; streamlining current controls; and the new cost recovery framework once implemented. Speculating on specific management costs payable by shareholders at this point in time would be misleading.

The best approach at this stage is to give a general indication of the relative costs of the various linkage options having regard to the likely future research, management and compliance needs associated with each.

## Refining current management arrangements

A significant part of the reform program is to streamline current management arrangements.

### Refining management arrangements dependent on share linkage

Scope to streamline current management arrangements is generally dependent on the form and strength of the management framework or linkage proposed to be pursued. Some of the restrictions that currently apply (e.g. species restrictions, trap numbers, combination limits etc) have been mentioned previously in this paper. There are likely to be others that need to be identified.

### Controls that may be refined regardless of share linkage

Streamlining the following current management arrangements is not so dependent on the form and strength of the management framework or linkage proposed to be pursued.

**Maximum shareholdings:** The current default maximum shareholding of 40% of the shareholding in the fishery is ineffective and proposed to be removed on the basis that there is negligible to nil risk of a monopoly in the relatively small scale fisheries in NSW. This will streamline administration and reduce the longer term management costs. A new maximum shareholding could be introduced in the future if an unacceptable consolidation of shares becomes evident.

**Foreign ownership restrictions:** It is proposed that the restrictions on foreign ownership of shares be removed on the basis that there is negligible to nil risk of a significant foreign ownership of the relatively small scale fisheries in NSW. Foreign ownership is an issue managed by the Commonwealth, not the States. This will streamline administration and reduce the longer term management costs.

**Registering 'eligible fishers':** The requirement to register 'eligible fishers' against fishing businesses is being removed as part of the development of FishOnline, which will automatically check that nominated fishers are already licensed. This will streamline the nomination process.

**Boat licences:** Under an output (i.e. catch or effort quota) regime boat licences would no longer be required to [indirectly] manage catch. The same principal applies under an effort control regime (days, day + net length, net length etc.) if the regime establishes a strong relationship between effort and catch. Removing boat licences presents a range of administrative and business efficiencies, including reduced paperwork and ongoing licensing costs for fishers.

### Discussion and advice required

The Working Group's advice is required on identifying a full list of current restrictions (e.g. specific fishing closures, other than Recreational Fishing Havens and Marine Park zoning arrangements which are beyond the scope of this specific reform program) for review and potential amendment.

## Comparison of the share linkage options

Table 26: Comparison of share linkage options

Issue	Minimum shareholdings	Days	Trap numbers	Catch quota
<b>Government interests</b>				
Within powers of Act	Yes	Yes	Yes	Yes
Can be administered	Yes	Yes	Yes	Yes
Can be enforced	Yes	Yes	Yes	Yes
FishOnline compliant	Yes	Yes	Yes	Yes
IVR compliant	Not applicable.	Yes	May not be applicable	Yes
Promotes voluntary compliance	No	Yes	Yes	Yes
Manages catch	Indirect (weak)	Indirectly (stronger)	Indirectly (stronger)	Directly
Can be used to respond to sustainability or resource sharing issues	Indirectly (weak)	Indirectly (stronger)	Indirectly (stronger)	Directly: very strong for quota species only
<b>Shareholder interests</b>				
Secure share of catch	Minimal security	Moderate security	Moderate security	Highest security
Investment confidence	Lowest confidence	Moderate confidence	Moderate confidence	Highest confidence
Scope to tailor access	No	Yes	Yes	Yes
Scope to tailor fees	No: flat fee	Yes: pay per share	Yes: pay per share	Yes: pay per share
Fish more efficiently	Subject to adjustment target and relaxation of input/effort controls	Subject to days allocated and relaxation of input/effort controls	Yes	Yes
Value of rights	Lowest value	Moderate value	Moderate value	Highest value
Remove input controls	Limited scope	Moderate scope	Moderate scope	Maximum scope
Addresses public perception issues	Generally yes, depending on the issue	Generally yes, depending on the issue	Generally yes, depending on the issue	Yes

Ongoing adjustment (for viability)	Yes: forced on an as needs basis	Yes: autonomous and can be stimulated on as needs basis	Yes: autonomous and can be stimulated on as needs basis	Yes: autonomous and can be stimulated on as needs basis
Estimated relative cost of scheme	TBD	TBD	TBD	TBD
Cost per shareholder	No choice: all shareholders pay the same.	Decided by shareholder: costs proportional to shares held	Decided by shareholder: costs proportional to shares held	Decided by shareholder: costs proportional to shares held