NSW GOVERNMENT | Department of Primary Industries

NSW COMMERCIAL FISHERIES REFORM PROGRAM

Share linkage options

Estuary Prawn Trawl Fishery

NOTE: THIS DOCUMENT HAS BEEN PREPARED FOR DISCUSSION WITH THE ESTUARY PRAWN TRAWL 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 Prawn Trawl Fishery

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More information

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Estuary Prawn Trawler on the Clarence River: photo by Darren Hale

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Foreword

The purpose of this paper is to describe potential share linkage options for the NSW Estuary Prawn Trawl Fishery for consideration by the Estuary Prawn Trawl Share Linkage Working Group (the Working Group) at its second meeting in November 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 are not the only feasible share linkage options for this fishery. A hybrid or combination of the linkage options presented in this paper may also be feasible.

Another important part of the reform program is the streamlining of current mangement arrangements to improve industry viability through, for example, increased business flexibility, improved operational efficiency and minimised management costs. The streamlining of current management arrangements will be influenced by the strength of the linkages pursued. Towards the end of this paper is detailed discussion on the management arrangements that may be able to be streamlined, 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 some parts of 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 final 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), the Government's response to the Review, an Information Paper summarising the major findings of the Review and Commercial Fisheries Newsletters – all of which 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)
- Improve investment confidence and support from financial institutions
- Improve management and the public's perception of the NSW commercial fishing industry.

Contents

Major issues facing the NSW Estuary Prawn Trawl Fishery

Some of the major issues facing the NSW Estuary Prawn Trawl Fishery that can be addressed through the reform program (and the linking of shares to resource access) include:

All sectors

- Surplus fishing capacity that can be activated at any time and that poses a risk to the viability of active participants in the fishery. There is significant surplus capacity in all three sectors of the fishery.
- Limited opportunity to improve operational efficiency through, for example, the use of larger nets and more efficient trawl configurations.

Clarence River prawn trawl fishery

- Competition for access to school prawns (and market access) within the fishery, sometimes culminating in representation to DPI.
- Competition for access to school prawns and market access between the fishery and other sectors including the Clarence River prawn set pocket net and inshore ocean prawn trawl fisheries.
- The impact of temporary closures introduced in response to the harvesting (and mortality) of small school prawns by some fishers. The resources/cost of implementing these closures is also an issue.
- The uncertainty and cost associated with extending the season by up to 15 working days.

Hunter River prawn trawl fishery

- Competition for access to school prawns within the fishery, culminating in ongoing debate between fishers from the upper and lower reaches over appropriate seasonal arrangements.
- Competition for access to school prawns (and market access) between the fishery and other sectors including the inshore ocean prawn trawl fishery.
- The seasonal arrangements sometimes impacting opportunity to capitalise on high market prices – before the standard season commences and after that season finishes.

Hawkesbury River prawn trawl fishery

- Competition for access to school prawns within the fishery, sometimes culminating in representation to DPI.
- Risk of increased fishing pressure on squid and lack of information on the resilience of the various species of squid that are taken in the Hawkesbury River.
- A range of other public perception issues, including lack of public confidence that catches can be actively managed in such a way that they do not exceed sustainable levels and ongoing public concerns over bycatch levels.

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 in a particular share class, 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).*

Option 1: Limiting endorsement numbers (minimum shareholdings)

Under this scenario catches are indirectly managed by actively managing the number of endorsement holders in each sector of the fishery. This is achieved by adjusting the minimum shareholding (which determines shareholders' eligibility to an endorsement). The major features of moving to a minimum shareholding system include:

- Forced (as opposed to autonomous) adjustment.

- A very direct and effective mechanism to adjust the number of endorsements in the fishery.
- Depending on the adjustment targets adopted, opportunity to modify or remove some controls that inhibit fishers' profitability and government efficiency.
- Management charges are shared amongst shareholders equally, regardless of the number of shares held.
- Does not guarantee security of investment in a fisher's share within the fishery – endorsement holders continue to compete for their share.

A minimum shareholding regime is an extremely indirect way of managing catch and as such does not offer the higher levels of control over total catches or catches of particular species in the fishery or the security of investment/access associated with the catch and effort quota schemes outlined later in this paper. Total catches of school prawns and other major species would still need to be monitored to ensure that harvest levels do not exceed sustainable limits or levels that result in adverse resource sharing issues. If such a situation occurred, consideration would be given to increasing the minimum shareholding requirements (i.e. to reduce the number of endorsements in the fishery) – instead of the historical response which has been to apply additional input controls to the entire fleet to reduce the fleet's efficiency.

Determining the adjustment targets

Determining a target number of endorsements is the first step. This can be done intuitively, but is best achieved by considering fishers' catch or GVP. For the purpose of this paper total GVP over the three year period 2009/10 to 2011/12, calculated using the average monthly prices for fish sales through the Sydney Fish Market, has been used. The following tables show the numbers of businesses that it took to reach the various percentages of total GVP (60% through to 99%) across these three years.

Table 1 Clarence River (92 shareholders): Numbers of shareholders that contributed towards various percentages of total GVP for the Clarence River EPT sector

60% GVP	70% GVP	75% GVP	80% GVP	90% GVP	95% GVP	97% GVP	99% GVP
18	24	26	30	38	44	47	51

Table 2 Hunter River (27 shareholders): Numbers of shareholders that contributed towards various percentages of total GVP for the Hunter River EPT sector

60% GVP	70% GVP	75% GVP	80% GVP	90% GVP	95% GVP	97% GVP	99% GVP
6	8	9	11	15	18	20	22

Table 3 Hawkesbury River (56 shareholders): Numbers of shareholders that contributed towards various percentages of total GVP for the Hawkesbury River EPT sector

60% GVP	70% GVP	75% GVP	80% GVP	90% GVP	95% GVP	97% GVP	99% GVP
12	16	18	20	27	31	34	38

Discussion required: The Working Group's advice is required on appropriate adjustment targets (i.e. numbers of endorsements) for each sector of the EPT fishery. Issues for consideration include:

- Lower targets (e.g. 12 endorsements in the Hawkesbury instead of 31 endorsements) would provide greater opportunity to increase the fishing efficiency/ time available to those who remain. In other words a greater range of input controls could be relaxed or removed. The remaining shareholders would also have a greater share of the fishery (i.e. less boats could

fish even when conditions are good) and more valuable property right, although obviously these benefits would need to weighed up against the costs of acquiring additional shares.

- Whether shareholders in the fishery are typically diversified fishers or operate in this fishery only (data on this will be available to the working group). If the latter, consideration should be given to a more conservative target (the lower percentages to the left), however, if the former consideration should be given to a less conservative target (the higher percentages to the right).

Calculating the minimum shareholding requirements

The adjustment targets are then used to calculate the minimum shareholdings that would apply. This is achieved by dividing the total number of shares in the fishery by the target number of endorsements.

Table 4 Clarence: Minimum shareholdings required to achieve various target numbers of endorsements

Note: Total number of shares = 15,430

18	24	26	30	38	44	47	51
858	643	593	514	406	351	329	303

Table 5 Hunter: Minimum shareholdings required to achieve various target numbers of endorsements

Note: Total number of shares = 2,800

6	8	9	11	15	18	20	22
465	350	312	255	187	156	140	128

Table 6 Hawkesbury: Minimum shareholdings required to achieve various target numbers of endorsements

Note: Total number of shares = 8,490

12	16	18	20	27	31	34	38
708	531	472	425	315	274	250	224

If shares are surrendered for cancellation prior to implementing the minimum shareholding scheme, for example 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.

Period during which minimum shareholdings must be satisfied

Discussion required: The Working Group's advice is required on an appropriate timeframe for shareholders to satisfy the minimum shareholding requirements in order to remain endorsed to participate in the fishery. Options range from a once-off increase in the short term through to 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, one of the few strategies that can be adopted is to extend the timeframe available for shareholders to satisfy the minimum shareholding requirements.
- Regardless of whether a short term or long term approach is adopted, to streamline administration DPI would seek to align all minimum shareholding periods across fisheries. This would prevent having to issue new fishing business cards etc each time an endorsement is added or removed from a fishing business card.

DPI's preferred position is to pursue a once-off increase in the short term unless significant adjustment and investment in shares would be required (depends on the target selected). In this latter case DPI would support progressively increasing the minimum shareholding requirements over two periods, or three periods in extreme cases.

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 the fisher works or catches.

FishOnline and IVR compliant

FishOnline has been designed to deal with minimum shareholding programs along the lines of that proposed here. Consequently, it is envisaged that FishOnline would not need to be enhanced. The Integrated Voice Response (IVR) system is not relevant to this option.

Option 2: Effort quota (net length regime)

Under this option catch is indirectly managed using headline lengths allocated to businesses proportional to the number of shares held in the relevant share class. The major features of moving to a net length regime include:

- Opportunity for shareholders to choose the amount of headline that they use.
- Opportunity to remove some controls that inhibit fishers' profitability and government efficiency.
- Management charges are attributed to shareholders proportional to the number of shares held by each – instead of sharing the total management charges equally.
- Some control over total catches – by adjusting the total headline available to the sector concerned.
- Does not guarantee security of investment in a fisher's share within a fishery – endorsement holders continue to compete for their share.

A net length regime is also an indirect way of managing catch (by adjusting the total headline available to the sector concerned) and as such does not offer the higher levels of control over total catches or catches of a particular species in the fishery or the security of investment/access associated with the catch and effort quota schemes outlined later in this paper. Total catches of school prawns and other major species would still need to be monitored to ensure harvest levels do not exceed sustainable limits or levels that result in adverse resource sharing issues. If such a situation occurred, consideration would need to be given to reducing the ITCAL (i.e. the total amount of headline available to the fleet) to reduce the total fishing effort – noting that any reductions would apply on a pro-rata basis across all shareholders rather than using the historical approach of introducing an additional control that applies equally and constrains the efficiency/flexibility of active fishers.

Determining the ITCALs

Determining the ITCAL – the total amount of headline – available to each sector of the fishery would be determined by calculating the total amount of headline in use in each sector at a given point in time. The simplest way to do this is to multiply the headline lengths used in each sector by the numbers of active businesses.

For the purpose of this paper, the following headline lengths have been used on the basis that the majority of shareholders in each sector use these amounts of headline in each estuary.

Clarence River: 15 metres

Hunter River: 11 metres

Hawkesbury River: 11 metres

Given that the number of businesses active in each sector of the fishery changes daily, it is proposed that the number of active businesses be determined over the course of a season. The table below shows the number of businesses active for one or more days in each sector of the fishery over the three fiscal years 2009/10 to 2011/12, and the average.

Table 7 Numbers of businesses operating for one or more days and the average 2009/10 to 2011/12

Sector	2009/10	2010/11	2011/12	Average
Clarence River prawn trawl	43	53	51	49
Hunter River prawn trawl	20	21	22	21
Hawkesbury River prawn trawl	38	36	40	38

For the purpose of this paper, the average number of active businesses (the fourth column above) has then been used to estimate the total headline lengths in use in each estuary as follows.

Table 8 Calculation of potential ITCALs (total net length)

Sector	Potential ITCAL
Clarence River prawn trawl	49 x 15m = 735 metres of net
Hunter River prawn trawl	21 x 11m = 231 metres of net
Hawkesbury River prawn trawl	38 x 11m = 418 metres of net

Discussion required: Confirmation is required that the majority if not all shareholders in the Hawkesbury River are using single nets with headline lengths up to 11 metres – as opposed to 22 metres which is permitted downstream of Juno Point only.

If it is established that a reasonable number of shareholders are using more than 11 metres of headline, the number of fishers that are doing so may be able to be used to determine a slightly higher ITCAL for the Hawkesbury River.

Determining the quota of 'net length' available to shareholders

The ITCAL available to each sector would then need to be allocated amongst the shareholders in each sector proportional to the number of shares held, as follows:

Table 9 Calculation of quota (net length)

Sector	Potential ITCAL	Total No. shares	Quota per share (net length)
Clarence River prawn trawl	735 metres	15,430	4.8 cm per share
Hunter River prawn trawl	231 metres	2,800	8.25 cm per share
Hawkesbury River prawn trawl	418 metres	8,490	4.9 cm per share

If shares are surrendered for cancellation prior to implementing the quota system, for example during the exit grant process, the amount of quota per share available to those that remain will be greater than the estimates above.

Acquiring additional quota

Given that fishers do not regularly change headline lengths, it is suggested there would be little benefit providing for the transfer of net length quota. DPI considers that the cost of setting up a

system that provides for the transfer of net length quota would significantly outweigh the benefits, noting that shareholders would be able to gain more net on a longer term basis by acquiring more shares.

Discussion required: The Working Group's support for this is requested, noting that FishOnline has not been set up to allocate, track or transfer 'non-consumable' quotas as per this option. FishOnline has been set up to manage consumable quotas only.

Attributing management charges to shareholders

Under a net length quota system the cost of management is attributed to shareholders proportional to the number of shares held. In other words, a shareholder with a large package of shares (and greater access) will pay a larger share of the management costs than a shareholder with a smaller package of shares.

Enforcement requirements

The maximum headline length allocated to shareholders would need to be readily available to DPI compliance officers. The most effective way to do this would be to record the maximum headline lengths in FishOnline so that they are readily available via the iPads that have recently been issued to compliance officers.

Discussion required: The Working Group's view is sought on any alternate approaches that may be feasible.

FishOnline and IVR compliant

FishOnline would need to be enhanced to record the maximum headline length for each business for compliance purposes. The Integrated Voice Response (IVR) system is not relevant to this option.

Option 3: Effort quota (day regime)

Under this scenario catch is indirectly managed via a 'consumable' quota of days allocated to businesses proportional to the number of shares held in the relevant share class.

The major features of a day regime include:

- Opportunity to adjust or remove a range of controls that inhibit fishers' profitability and government efficiency (noting the scope for this would be greater that than Options 1 and 2 but less than Options 4 and 5)
- Provides for autonomous (as opposed to forced) adjustment.
- Opportunity for shareholders to upscale or downscale their access (and associated management charges which would be proportional to the number of shares held).
- Improved control over total school prawn catches from the fishery, which can be 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 community confidence that the fishery is operating at sustainable levels and that total effort can be managed if a sustainability issue were to arise. This may lead to greater community and government support for proposed changes/streamlining to benefit fishers.

A day regime offers a lower level of control over total catches or catches of a particular species in the fishery or the security of investment/access associated with the catch and effort quota schemes outlined later in this paper. Total catches of school prawns and other major species would still need to be monitored to ensure harvest levels do not exceed sustainable limits or levels that result in adverse resource sharing issues. If such a situation occurred, consideration

would need to be given to reducing the ITCAL (i.e. the total number of days available to the fleet) to reduce the total fishing effort – noting that any reductions would apply on a pro-rata basis across all shareholders rather than using the historical approach of introducing an additional control that applies equally and constrains the efficiency/flexibility of active fishers.

Determining the ITCALs

Determining the ITCALs – the total number of days available to each sector – would be determined by averaging the total number of days fished in each sector over the three financial years 2009/10 to 2011/12.

Table 10 Calculation of potential ITALs (total days)

Sector	Potential ITCAL
Clarence River prawn trawl	1,531 days
Hunter River prawn trawl	780 days
Hawkesbury River prawn trawl	2,373 days

Discussion required: DPI will present for discussion the data used to calculate the sector specific ITCALs above. These discussions may result in changes to the above ITCALs and the day quota that would be available to shareholders as presented below.

Determining the quota of 'days' available to shareholders

The ITCAL available to each sector then needs to be allocated amongst the shareholders in each share class proportional to the number of shares held within that class.

Table 11 Calculation of quota per share (days)

Sector	Potential ITCAL	Total shares	Quota per share (days)
Clarence River prawn trawl	1,531 days	15,430	0.10 days
Hunter River prawn trawl	780 days	2,800	0.28 days
Hawkesbury River prawn trawl	2,373 days	8,490	0.28 days

If shares are surrendered for cancellation prior to implementing the quota system, for example during the exit grant process, the amount of quota per share available to those that remain will be greater than the estimates above.

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.

Discussion required: The Working Group's advice is required on a suitable 'fishing period'. 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's suggests that a two year fishing period would be suitable for the Estuary Prawn Trawl Fishery.

Defining a 'day'

It is proposed that a day be defined as 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 IVR system (if the IVR system is the preferred technology).

Monitoring quota usage

A day quota system requires effort to be monitored from day to day – if the system is to have integrity. The cheapest way to do this is through the current paper-based log book system, however, there's a range of reasons why this would be inadequate including:

- Log books are used to capture a range of information (e.g. catch, effort and disposal information) some of which is not readily available for the purpose of submitting log books in a timely manner;
- Many fishers are tardy in submitting log books in a timely manner in any event;
- Even for log books submitted in a timely manner, data entry by DPI can take time and result in delays in up-to-date information.
- The online log book system in FishOnline is not designed to deal with acquitting quota usage.

One of the most cost effective ways to closely monitor a 'consumable' day quota would be to utilise the Integrated Voice Response (IVR) System recently developed by DPI. This 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 could be done separately either online or by using a streamlined version of the current commercial log book.

Discussion required: The Working Group's view is sought on the IVR system as a cost effective way to monitor quota usage or alternatives that would deliver the integrity required. DPI's preferred position is that the IVR system be utilised, at least until such time as alternate technology (e.g. a smart phone apps) are developed and functional or there is capacity to implement a cost effective Vessel Monitoring System (VMS).

Acquiring additional quota

Acquiring additional day quota 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/TAC for future fishing periods; or
- By transferring 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 – 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.

Discussion required: DPI notes a range of views from various Working Groups at the first meetings regarding transferring quota during a fishing period. Some of the issues raised include:

Reasons for:

- Helps those wanting to fish at a desired level but cannot afford to buy shares

- Helps those who run out of 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
- Helps to ensure the entire ITCAL/TAC is used (i.e. such that there is little or no quota left over at the end of a fishing period).
- In the case of a catch quota – as per option 5 below – transferring quota is one strategy that can be used to reduce discarding.

Reasons against:

- Slows the rate of adjustment
- May stimulate 'quota barons' – 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.

Attributing management charges to shareholders

Under a day quota system the cost of management is attributed to shareholders proportional to the number of shares held. In other words, a shareholder with a large package of shares (and greater access) will pay a larger share of the management costs than a shareholder with a smaller package 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.

FishOnline and IVR compliant

FishOnline and the IVR system have been designed to deal with quota management regimes along the lines of that presented here. Consequently, it is envisaged that neither system would need to be enhanced.

It should, however, be noted that complications may arise for fishers working fishing businesses with many 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, however, a number of potential solutions:

- 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 looking to develop new technology (i.e. a smart phone app) that is 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.

Discussion required: The Working Group's advice is sought on these or other potential solutions to the limitations associated with the IVR system.

Option 4: Effort quota (net length day regime)

Under this scenario catch is indirectly managed by managing a combination of the amount of net (i.e. headline) used and number of days fished by each shareholder. Shareholders could choose the amount of net that they would like to use which, depending on their shareholding, would influence the number of days the shareholder can fish.

The major features of a net length day regime include:

- Opportunity for shareholders to choose the amount of headline that they use (i.e. the current maximum headline limit could be increased or removed all together).
- Opportunity to remove a range of controls that inhibit fishers' profitability and government efficiency (noting the scope for this would be more than for Options 1 to 3 but less than for Options 5).
- Provides for autonomous (as opposed to forced) adjustment.
- Opportunity for shareholders to upscale or downscale their access (and associated management charges which would be proportional to the number of shares held).
- Improved control over total school prawn catches from the fishery, which can be beneficial from a range of perspectives including capacity to deliver sustainability and resources sharing objectives within the fishery and between the fishery and other sectors.
- Improved community confidence that the fishery is operating at sustainable levels and that total effort can be managed if a sustainability issue were to arise. This may lead to greater community and government support for proposed changes/streamlining to benefit fishers.

A net length day regime is, however, an indirect way of managing catch and as such does not offer the higher levels of control over total catches or catches of a particular species in the fishery or the security of investment/access associated with the catch quota scheme outlined later in this paper. Total catches of school prawns and other major species would still need to be monitored to ensure harvest levels do not exceed sustainable limits or levels that result in adverse resource sharing issues. If such a situation occurred, consideration would need to be given to reducing the ITCAL (i.e. the total number of net length days available to the fleet) to reduce the total fishing effort – noting that any reductions would apply on a pro-rata basis across all shareholders rather than using the historical approach of introducing an additional control that applies equally and constrains the efficiency/flexibility of active fishers.

Determining the ITCALs

Determining the ITCALs – or total number of net length days – available to each sector of the fishery would be achieved by multiplying the total number of days available to the sector (as per the previous scenario) by the headline length used by shareholders in that sector.

For the purpose of this paper, the following headline lengths have been used on the basis that the majority of shareholders use these amounts of headline in each estuary.

Clarence River: 15 metres

Hunter River: 11 metres

Hawkesbury River: 11 metres

Based on this approach the ITCALs for the three sectors of the Estuary Prawn Trawl Fishery would be as set out below.

Table 12 Calculation of potential ITCALs (net length days)

Sector	Potential ITCAL
Clarence River prawn trawl	1,531 days x 15m = 22,965 net length days
Hunter River prawn trawl	780 days x 11m = 8,580 net length days
Hawkesbury River prawn trawl	2,373 days x 11m = 26,103 net length days

Discussion required: As per the earlier headline length regime, confirmation is required that the majority if not all shareholders in the Hawkesbury River are currently using single nets with headline lengths up to 11 metres – as opposed to 22 metres which is permitted downstream of Juno Point only.

If it is established that a reasonable proportion of shareholders are using more than 11 metres of headline, the number of fishers that are doing so and how often may be able to be used to determine a higher ITCAL for the Hawkesbury River.

Determining the quota of 'net length days' available to shareholders

The ITCAL available to each sector then needs to be allocated amongst the shareholders in each sector proportional to the number of shares held.

Table 13 Calculation of quota per share (net length days)

Sector	Potential ITCAL	Total No. shares	Quota per share
Clarence River prawn trawl	22,965 net length days	15,430	1.49 net length days
Hunter River prawn trawl	8,580 net length days	2,800	3.06 net length days
Hawkesbury River prawn trawl	26,103 net length days	8,490	3.07 net length days

If shares are surrendered for cancellation prior to implementing the quota system, for example during the exit grant process, the amount of quota per share available to those that remain will be greater than the estimates above.

Example showing how shareholders may use their quota allocation

For the purpose of this example assume there are two shareholders operating in the Hunter River, each holding 200 Hunter River prawn trawl shares – which equates to 612 net length days. The fishing period is a one year fishing period.

Scenario 1: Shareholder A chooses to continue using 11 metres of headline in which case he would be entitled to work a total of 56 days over the course of the fishing period.

Scenario 2: Shareholder B chooses to use 22 metres of headline in which case he is entitled to work a total of 28 days over the course of the fishing period – in other words Shareholder B consumes his net length days at twice the rate because he is using twice as much headline as shareholder A.

A shareholder may change his or her headline length at any time.

Declaring headline lengths

This scheme requires shareholders to advise how much headline they will be using before fishing. A fisher who doesn't change their net length need only do this once (not every day).

Enforcement requirements

The headline lengths in use would need to be readily available to DPI compliance officers. The most effective way to do this would be to record the headline lengths declared/in use in FishOnline so that they are readily available via the iPads that have recently been issued to compliance officers.

Discussion required: The Working Group's view is sought on any alternate approaches that may be feasible.

FishOnline and IVR compliant

FishOnline would need to be enhanced to track the variable headline lengths in use in the fishery for compliance purposes.

With respect to the variable consumption of quota, there are two potential approaches:

- FishOnline could be enhanced to deal with the variable consumption of quota.
- Fishers could be required to declare as part of the pre-fishing report the headline length to be used. This would not require enhancement to FishOnline.

The same complications (and potential solutions) outlined under Option 3 – relating to fishers working fishing businesses with multiple share classes subject to quotas – also apply to this option.

Other issues to consider

Many of the issues relevant to the earlier quota regimes are also relevant to a net length day regime, including:

- Defining the fishing period
- Acquiring additional quota
- Carrying over and borrowing from future ITCALs
- Attributing management charges to shareholders.

There are two issues relevant to the day quota scenario (Option 3) that are also relevant a net length day regime, including:

- Defining a 'day'
- Monitoring quota usage (using the IVR or similar technology).

A possible alternate approach for the Hawkesbury River

Recent discussion between DPI and Working Group members highlighted another potential approach that may be of interest to fishers in the Hawkesbury River, particularly those who target squid. The approach is along the lines of the net length day regime outlined here, but instead of using net length alone it involves considering the total distance between the otter boards to enable individuals to configure their gear (i.e. net, sweep and bridle lengths) as they see fit (to optimise efficiency).

For example, two fishers may hold the same number of shares and intend to work the same number of days, however, one may prefer to use 8 metres of headline and 17 metres of sweep/bridle combined (25 metres in total) whereas the other may prefer to use 12 metres of headline and 13 metres (also 25 metres in total) of sweep/bridles combined.

For this approach to be feasible, shareholders would need to see benefits in re-configuring their headline, sweep and/or bridle lengths – for optimum fishing/economic efficiency. If there are no such benefits, there would be no point pursuing this approach.

The number of days that each shareholder would be allocated under this scheme initially would be the same as the number of days allocated under the net length day scenario outlined.

Option 5: School prawn quota

Under this scenario school prawns taken in the NSW Estuary Prawn Trawl Fishery are managed by catch quota, with catches of school prawns in all other sectors also capped in some way – the concept being that total catches in other prawn harvesting sectors are also managed, whether via catch or effort controls, so that they do not exceed the relevant caps.

The major features of a catch quota system include:

- Optimum opportunity to remove a wide range of controls that inhibit fishers' profitability and government efficiency.
- Provides for autonomous (as opposed to forced) adjustment.
- Opportunity for shareholders to upscale or downscale their access (and associated management charges which would be proportional to the number of shares held).
- Guarantees security of investment in a fishers' share within the fishery.
- Tight control over total school prawn catches from the fishery, which can be beneficial from a range of perspectives including capacity to deliver sustainability and resource sharing objectives within the fishery and between the fishery and other stakeholder groups.
- Community confidence that the fishery is operating at sustainable levels. Confidence that catches cannot increase may lead to greater community and government support for proposed changes/streamlining to benefit fishers, including their fishing efficiency.

These major features must, however, be considered alongside the full range of issues sometimes associated with catch quota schemes, such as implementation/ongoing costs and, for prawn species, the highly variable abundance from year to year which is driven largely by rainfall. These issues are highlighted later in this part (under "Issues to consider") and in Appendix 1.

Determining the ITCALs

Determining the ITCALs for this option requires a number of steps.

Step 1: The first step involves determining an industry wide ITCAL for school prawns. This would be achieved by averaging the total annual NSW school prawn catch over the 15 year period 1997/98 to 2011/12. Based on this approach the industry wide ITCAL for school prawns would be 798.2 tonne.

Step 2: The industry wide ITCAL for school prawns then needs to be apportioned to all relevant sectors. This would be achieved by determining the percentage of the total NSW catch taken in each sector over the three year period 2009/10 to 2011/12. Based on this approach the ITCAL for the Clarence, Hunter and Hawkesbury River Prawn Trawl sectors would be as set out in the following table.

Table 14 Calculation of school prawn ITCALs for the Clarence, Hunter and Hawkesbury sectors

Sector	Percentage of total historic school prawn catch taken	Potential ITCAL
Clarence River prawn trawl	16.6 %	132.6 tonne

Sector	Percentage of total historic school prawn catch taken	Potential ITCAL
Hunter River prawn trawl	5.8 %	46.6 tonne
Hawkesbury River prawn trawl	11.7 %	93.5 tonne

Discussion required: DPI will present for discussion the data used to calculate the industry wide and sector specific ITCALs above. These discussions may result in changes to the above ITCALs and the school prawn quota that would be available to shareholders as presented below.

Determining the 'school prawn quota' available to shareholders

The school prawn ITCAL available to each of the three sectors of the Estuary Prawn Trawl Fishery would then need to be allocated amongst shareholders proportional to the number of shares held as set out in the following table.

Table 15 Calculation of school prawn quota per share for the Clarence, Hunter and Hawkesbury sectors

Sector	ITCAL	Total shares	Quota per share
Clarence River prawn trawl	132,600 kg	15,430	8.6 kg per share
Hunter River prawn trawl	46,600 kg	2,800	16.6 kg per share
Hawkesbury River prawn trawl	93,500 kg	8,490	11.0 kg per share

If shares are surrendered for cancellation prior to implementing the quota system, for example during the exit grant process, the amount of quota per share available to those that remain will be greater than the estimate above.

Other issues to consider

Many of the issues relevant to the earlier quota regimes are also relevant to a catch quota regime, including:

- Defining the fishing period
- Acquiring additional quota
- Carrying over and borrowing from future ITCALs
- Attributing management charges to shareholders
- Monitoring quota usage (using the IVR or similar technology).

Monitoring quota usage

With respect to monitoring catches the IVR system has been designed to require endorsement holders to make a pre-fishing, pre-landing and post landing report using a mobile phone.

Discussion required: The Working Group's view is sought on the IVR system as a tool for monitoring quota usage or on any alternatives that would deliver the integrity required. DPI's preferred position is that the IVR system be utilised, at least until such time as alternate technology (e.g. smart phone apps) are developed and functional.

FishOnline and IVR compliant

FishOnline and the IVR system have been designed to deal with quota management regimes along the lines of that presented here. Consequently, it is envisaged that neither system would need to be enhanced.

The same complications (and potential solutions) outlined under Options 3 and 4 – relating to fishers working fishing businesses with many share classes that are subject to quotas – also apply to this option.

Additional issues to note

Issues to note that are not covered in the share linkage options comparison table – Table 18 Appendix 1 – include:

1. Setting an ITCAL (or TAC in the longer term) may be difficult given that prawn abundance can fluctuate significantly from year-to-year which could result in catch not being maximised.
2. There would need to be total limits (pseudo ITCALs) on school prawn catches in other sectors.
3. If school prawns taken in other sectors are also to be managed by catch quotas, consideration will need to be given to providing for the 'full transferability' between the sectors concerned. This would need to be considered at two levels:
   - Transferring [a new class of] school prawn shares between the sectors concerned
   - Transferring school prawn quota between the sectors concerned.
4. School prawns are also taken in limited quantities in the Queensland trawl fishery, which is managed using input controls.

Hawkesbury River squid quota

At the first Working Group meeting members asked that DPI provide information on a catch quota for squid taken in the Hawkesbury River. Following is an indication of the quota that would be available to shareholders in the Hawkesbury River, using the same methodology applied to the catch quota for school prawns above.

All other issues relating to catch quotas for school prawns are also relevant to a catch quota for squid. It should be noted that if two species, school prawns and squid, were to be quota managed in the Hawkesbury River, fishers would be required to use the IVR system multiple times – once for each quota regime.

Table 16 Calculation of squid quota for the Hawkesbury River

Sector	Potential ITCAL	Total shares	Quota per share (kg)
Hawkesbury squid[1]	31,400 kg	8,490	3.7 kg per share

Discussion required: DPI will present for discussion the data used to calculate the industry wide and sector specific ITCAL above. These discussions may result in changes to the above ITCAL and the quota that would be available to shareholders.

Comparison of share linkage options

The share linkage options investigated in this paper all have pros and cons and address to different degrees the various objectives of the reform program.

Changes to fishing rights can also be difficult for fishers. When linking property rights to resource access it is natural for those affected to focus on how much quota they will get and how the program may adversely affect their business – the negatives are easily speculated and advocated, and the longer term positives seem too far away to be tangible. There is no doubt

[1] Hawkesbury squid includes: Broad squid, Pencil squid, Gould's squid and Bottle squid

that linking property rights to resource access will change the way shareholders manage their businesses and or operate. Some will choose to exit and others, generally those who are able to catch fish more efficiently and more business minded, are more likely to remain and prosper into the future.

The government has advised that the final decision on linkage will be based on merit (i.e. not a shareholder vote), so it is critical that consideration is given to not only the pros and cons of the various linkage options, but their effectiveness delivering on the full range of government and industry objectives of linking property rights to resource access. Table 18 (Appendix 1) compares the five linkage options set out in this paper against a range of short and long term objectives – from government and industry perspectives – that are important to consider.

Applying the share linkage options to two hypothetical Hunter River businesses

Another way to help shareholders weigh up the various linkage options is to provide examples of the quota that would be allocated (or the number of shares required to maintain current catch or effort levels) under each linkage option.

Following is an example of how the various linkage options would affect two hypothetical shareholders, one who is very active in the Hunter River Prawn Trawl Fishery and another who is a diversified fisher (or soon to retire) and has limited activity in the fishery, focussing on the quota that would be allocated to each and the number of shares that each would need to continue their current levels of access – based on 2011/12 data.

Mr Workalot
Shareholding = 100 Hunter River shares
Current headline length = 11m
Current number of days fishing = 103
Current catch per annum = 8,324 kg

Mr Diverse
Shareholding = 100 Hunter River shares
Current headline length = 11m
Current number of days fishing = 37
Current catch per annum 742 kg

Assumptions: Assume a target of 18 endorsements (95% total GVP) for the purpose of the minimum shareholding regime and that both shareholders choose to continue using 11 metres of headline.

Table 17 Effect of the various linkage options on two Hunter River shareholders

Shareholder		Min. shareholding	Net length quota	Day quota	Net length day quota	School prawn quota
Mr Diverse	**Quota allocation**	n/a	8.25 m	28 days	306 net length days (28 days @ 11m of net)	1,660 kg
	No. additional shares to maintain current access	56 shares	46 shares	32 shares (9 more days)	32 shares (9 more days)	Holds more shares than he requires
Mr Workalot	**Quota allocation**	n/a	8.25 m	28 days	306 net length days (28 days @ 11m of net)	1,660 kg
	No. additional shares to maintain current access	56 shares	46 shares	268 shares (75 days)	270 shares (75 days @ 11m of net)	401 shares (6,657 kg)

There are a number of things that can be gleaned from the example above, including:

Transitioning to the new arrangements:

- Transitioning to a new minimum shareholding scheme or a new net length scheme (assuming both continue to use 11 m of net) has the same affect on both shareholders.

- Transitioning to the latter three linkage options has a very different affect on each shareholder. This is because Mr Workalot operates at higher levels and catches more – meaning he requires more shares – whereas Mr Diverse operates at a low level and catches less.
- The pros and cons of transitioning to a new regime needs to be considered alongside the pros and cons that arise once the new regime is bedded-in.

Once the new regimes is in place:

- Under the minimum shareholding program both shareholders would pay the same management charges despite the fact Mr Diverse spends little time and catches little in this fishery. Under the remaining four linkage options the management charges incurred by Mr Diverse would be less than the management charges incurred by Mr Workalot – which is likely to benefit fishers who operate in multiple fisheries.
- Under the minimum shareholding and to a lesser extent the net length quota scheme, neither fisher's share of the resource (or access to it) can be guaranteed because any other shareholder can increase their level of access or catch at any time. Under the latter three linkage approaches additional shares would be needed before a fellow fisher can increase his or her access or catch.
- The increased security associated with the latter three linkage options (particularly a catch quota) coupled with increased demand for shares should, theoretically, result in the value of shareholders' assets (i.e. their shares) increasing – which has benefits when retiring and can be attractive to prospective new entrants considering investing in the fishery.

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 viability commercial fishing industry.

The costs associated with the various linkage options are, however, 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. The profitability of individual shareholders is not the responsibility of the Working Group or the government.
- Promoting industry-wide viability is a longer term objective that is also influenced by a range of things including, pertinent to the reform program underway: 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 promoted improved industry-wide viability – in the medium to longer term – not as touched on above to maintain or improve the profitability of individual shareholders while transitioning to a new management framework.

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 and or VMS etc) to reduce enforcement costs; 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 an indication of the relative costs of the various linkage options having regard to the likely future research, management and compliance needs associated with each.

An indication of the relative costs of the various linkage options will be provided separately.

Refining current management arrangements

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

Refining management arrangements dependent on share linkage

Scope to streamline current management arrangements is in some cases dependent on the form and strength of the management framework or linkage proposed to be pursued.

Table 19 (Appendix 2) shows the streamlining proposals for which the form and strength of share linkage is important. It also shows whether or not the proposal is supported by the various linkage options that have been short-listed by the Share Linkage Working Group to date.

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 also 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 or catch 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 there is a 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.

The main issue to consider is whether there will be an ongoing need to cap boat capacity in the fishery. Given that boats can already be upgraded to 10 metres in all sectors of the fishery (by acquiring a suitable boat licence whether from the Estuary Prawn Trawl Fishery or some other fishery), the main issue requiring consideration is the future use of boats greater than 10 metres in length in the fishery.

Discussion required: The Working Group's view is sought on the option of removing the requirement for boats used in the Estuary Prawn Trawl Fishery to be licensed. In considering this, the future use of boats greater than 10 metres in length in the fishery will need to be discussed.

OG1 notations on boat licences: OG1s play no part in management of the Estuary Prawn Trawl Fishery and (if boat licences are to be retained) may be removed from boat licences.

Byproduct list (Clarence): It has been suggested that bream should be added to the Clarence River byproduct list – so that they may be landed if taken incidentally while targeting prawns. The main issues to consider is whether this will provide an incentive to make BRDs less effective and whether it would result in resource sharing issues with other sector, whether commercial or recreational. If bream are added to the byproduct list, the annual byproduct monitoring program will need to be modified (i.e. a ratio of total annual bream to school prawn catch would need to be developed) and annual landings will need to be monitored.

Discussion required: Confirmation is required that this is a serious industry suggestion that will improve the viability of the fishery and that it is supported by Clarence River Estuary Prawn Trawl shareholders. If confirmed, discussion may be required on a cost effective way to engage other stakeholder groups for their views on the proposal, when to engage them and whether an incidental catch limit is needed.

Byproduct list (Hawkesbury): It has been suggested that the following species be added to the Hawkesbury River byproduct list – so that they may be landed if taken incidentally while targeting prawns or squid:

- Common pike eel (*Muraenesox bagio*)
- Silver trevally (*Pseudocaranx georgianus*): note current classification of 'growth overfished'
- Cuttlefish (*Sepia* spp.): note current classification of 'uncertain'
- Southern Calamari (*Sepioteuthis australis*): note current classification of 'undefined'
- John dory (*Zeus faber*): note current classification of 'fully fished'
- Giant boarfish (*Paristioperus labiosus*)
- Striped scat (*Selenotoca multifasciata*): also commonly known as old maid or butterfish
- Diamond fish (*Monodactylus argenteus*): note current classification of 'undefined'
- Tripletail (*Lobotes surinamensis*)
- Fantail Mullet (*Paramugil georgii*): note current classification of 'moderately fished'
- Stingrays, various (*Dasyatis* sp..)
- Bull shark (*Carcharhinus leucas*)
- Eastern fiddler ray (*Trygonorrhina fasciata*)
- Eastern shovelnose ray (*Aptychotrema rostrata*): note current classification of 'undefined'
- School whiting.
- Herring.
- Catfish.

Discussion required: Confirmation is required that the above species are those that shareholders seek to be permitted to take as byproduct (i.e. incidentally, not targeted). This list was provided to DPI in 2006 by the then EPT MAC representative, who made particular note that:

- The reference to sharks aims to include a range of sharks including the following that are taken incidentally: bull shark; fiddler and shovelnose. These three species are now

individually identified above, however, clarification of the other species that shareholders seek to retain is required.

- The fishers of the Hawkesbury River have indicated that the prohibition on taking fish subject to a size limit should remain. This is strongly supported by DPI noting that silver trevally, which is listed above, is also now subject to a size limit. This will need to be discussed.

Also note that the common and scientific names for the species above have been updated and that clarification of the following species of interest is required:

- Whiting: the 2006 submission indicated stout whiting, however, this is a northern species rarely taken south of Coffs Harbour. The species of interest is likely to be red spot whiting (*Silago flindersil*).
- Herring: the 2006 submission stated "Herring (H.koningsberger)", however, the only herring with a scientific name along these lines is the Largespotted herring (*Herklotsichthys koningsbergeri*) which may be found in the Hawkesbury River but is far more prolific in northern Australia. The species known simply as Herring (*Clupea harengus*) may be the species or one of the species that is of interest to Hawkesbury shareholders.
- Catfish: The 2006 submission stated "Eastern Cobbler/White lipped catfish (P.albilabrus or Euristhmus sp.), however, we're having some difficulty identifying the species of interest. The following may assist the Working Group identify the species of interest, noting that the Seafood Services Australia website includes a searchable online database of the Australian Fish Names Standard AS SSA 5300 that may be useful: Nakedhead catfish (*Euristhmus nudiceps*), Longtail catfish (*Euristhmus lepturus*), Smallhead Catfish (*Euristhmus microceps*), Estuary Cobbler (*Cnidoglanis macrocephalus*), Silver Cobbler (*Arius midgleyi*), Whitelip Catfish (Paraplotosus albilabris)

If the Working Group seeks to pursue this proposal, discussion will be required on a cost effective way to engage other stakeholder groups for their views on the proposal.

Broken Bay, Hawkesbury River: For a number of years now it has been suggested that trawling should be permitted in Broken Bay on weekends at night only (sunset to sunrise).

Discussion required: DPI seeks confirmation on the preferred approach to put to fellow shareholders for comment, noting the sensitive nature of this issue and:

- At the first meeting of the Working Group it was suggested that Broken Bay be opened to trawling over the entire weekend (day and night); and,
- DPI has received views to the contrary from shareholders – with at least one long term shareholder suggesting too much pressure on some grounds in Broken Bay and that the weekend closure gives the grounds a spell and provides for increased profitability through increased catch rates.

NOTE: The suggestion of increased catch rates immediately following weekends – since the weekend closure was introduced – was supported by catch rate data provided to the EPTMAC a number of years ago.

If the Working Group seeks to pursue this proposal, discussion will be required on a cost effective way to engage other stakeholder groups for their views on the proposal.

Appendix 1

Table 18 Comparison of share linkage options

Issue	Minimum shareholdings	Headline length	Days	Days + headline length	Catch quota
Government interests					
Within powers of Act	Yes	Yes	Yes	Yes	Yes
Can be administered	Yes	Yes	Yes	Yes	Yes
Can be enforced	Yes	Yes	Yes	Yes	Yes
FishOnline compliant	Yes	Enhancements required.	Yes	Depends on approach to the variable consumption of quota – refer Option 3	Yes
IVR compliant	Not applicable.	Not applicable.	Yes	Yes	Yes
Promotes voluntary compliance	No	Yes	Yes	Yes	Yes
Manages catch	Indirect (weak)	Indirectly (weak)	Indirectly (strong)	Indirectly (strong)	Directly
Can be used to respond to sustainabilty or resource sharing issues	Indirectly (weak)	Indirectly (weak)	Indirectly (strong)	Indirectly (strong)	Directly: very strong but quota species only
Shareholder interests					
Secure share of catch	Minimal security	Minimal security	Moderate security	Moderate security	Very secure
Investment confidence	Less confidence	Less confidence	Moderate confidence	Moderate confidence	Highest confidence
Scope to tailor access	No	Yes	Yes	Yes	Yes
Scope to tailor fees	No: flat fee	Yes: pay per share	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	Yes	Subject to days allocated and relaxation of input/effort controls	Yes	Yes
Value of rights	Lowest value	Lower value	Moderate value	Moderate value	Highest value
Remove input controls	Some scope	Moderate scope	Moderate scope	Moderate scope	Maximum scope

Addresses public perception issues	Generally yes, subject to public peception issue	Generally yes, subject to public peception issue	Generally yes, subject to public peception issue	Generally yes, subject to public peception issue	Yes
Ongoing adjustment (for viabilty)	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	Yes: autonomous and can be stimulated on as needs basis
Estimated relative cost of scheme	?	?	?	?	?
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	Decided by shareholder: costs proportional to shares held

Discussion required: Opportunity will be provided for the Working Group to review the comparison table above, which will be an important part of the paperwork to be put to shareholders for comment.

Appendix 2

Whilst some linkage options may provide for the removal of a control, this will in some cases be dependent on:

- How conservative the ITCAL is; and,
- Whether catches are monitored and strategies exist to offset any unsustainable increases in catch (e.g. reducing the ITCAL).

The following symbol has been used to denote where this is an issue: 

Table 19 Streamlining proposals and whether the linkage options short-listed to date support their removal or relaxation

Current control	Minimum shareholdings	Headline length	Days	Days + headline	Catch quota
Remove fishing businesses as an effort control	Only once adjustment target is met	No	Yes	Yes	Yes
Allow shares to be transferred to any person	Only once adjustment target is met	No	Yes	Yes	Yes
Remove minimum shareholding requirements	No	No	Yes, but suggested they be retained to stimulate adjustment should the number of endorsements in a sector need to be reduced to maintain/improve viabilty		
Remove 48 hour restriction applying to nominations[2]	Yes	Yes	Yes	Yes	Yes
Remove boat capacity restrictions	Yes	Yes	Yes	Yes	Yes
Remove restrictions on the number of nets that may be used	Yes	Yes	Yes	Yes	Yes
Remove or relax maximum headline length restrictions	Yes	Yes	Yes	Yes	Yes
Remove or relax seasonal restrictions	Yes	Yes	Yes	Yes	Yes
Remove prawn ‘posession’ counts	Yes, subject to the risk of ongoing discarding/mortality of small shool prawns. Another way to provide for the full removal of this control is to require the use of more selective fishing gear				Yes
Remove prawn ‘closure’ counts	Yes, subject to the risk of ongoing discarding/mortality of small shool prawns. Another way to provide for the full removal of this control is to require the use of more selective fishing gear				Yes, if discards factored into setting the ITCAL

[2] This change is occurring as part of the development of FishOnline.

Discussion required: Opportunity will be provided for the Working Group to discuss the streamlining proposals above and where necessary firm up the details of any such proposals to be put to shareholders for comment. For example, if the maximum headline length restrictions are to be relaxed to promote improved fishing efficiency/profitability what would the new maximum headline length be.