

Response from SSC re: Castlemaine fishery.

The Terms of Reference (TORs) of the Standing Scientific Committee require the committee to provide independent scientific advice to IFI giving the current status of Irish salmon (*Salmo salar L.*) stocks in individual rivers relative to the objective of meeting biologically referenced “Conservation Limits” and the catch advice which will allow for a sustainable harvest of salmon in 2010 and into the future. The Conservation Limit applied by the Standing Scientific Committee to establish the status of individual stocks is the “maximum sustainable yield” (MSY) also known as the stock level that maximizes the long-term average surplus, as defined and used by the International Council for the Exploration of the Sea (ICES) and the North Atlantic Salmon Conservation Organisation (NASCO).

In line with the Government decision to move to single stock fishing on stocks meeting and exceeding Conservation Limits by 2007, it is necessary to obtain and examine river specific information and provide precautionary catch advice, river by river, on an estimate of the availability of salmon in each individual river for the fishery year (season) in question.

Overview of Status of Stocks and Precautionary Catch Advice for 2011

The Standing Scientific Committee has advised that in 2011:

- Harvest of salmon should only be allowed on stocks from rivers where there is a surplus above the Conservation Limit identified and that no more than this surplus should be harvested.
- Harvest fisheries should not take place on stocks from rivers without an identifiable surplus above the Conservation Limit.
- No harvest fisheries should take place on those stocks from rivers where the average rod catch has been less than 10 salmon annually and which are not meeting Conservation Limits, until such time as additional information becomes available to assess the status of these stocks relative to their Conservation Limits.

As noted by the International Council for the Exploration of the Sea (ICES) in its advice to the North Atlantic Salmon Conservation Organization (NASCO)

“Due to the different status of individual stocks within the stock complex, mixed stock fisheries present particular threats to stock status “ (ICES 2010).

The objective of the catch advice from the SSC is to ensure that harvest fisheries only take place on river stocks meeting and exceeding Conservation Limits. The means to achieve this objective is to only allow harvest fisheries which can specifically target single stocks which are meeting their Conservation Limits.

Scientific advice is therefore to fish within the river or as close to the river as possible (i.e. the estuary of that river) on stocks which are meeting Conservation Limits.

The SSC strongly advise that all fisheries should operate only on the target stock as close to the river mouth or within the river to achieve this. This occurs in all salmon fisheries currently except in the case of the Killary Harbour (Ballinakill) fishery, where there are two significant contributing stocks (Delphi and Erriff) both of which are meeting and exceeding their Conservation Limits. Similarly, the draft net fishery operating in the Bangor District exploits predominantly stocks from either the Owenmore and the Owenduff rivers, again both of which are meeting and exceeding their Conservation Limits. In both instances the fishery takes place as close to the river mouth as possible.

These are the only such situations considered to date by the SSC as in other instances there are more than two contributing stocks and/or one or all of the contributing rivers are failing to meet Conservation Limits or given the disproportionate size of the contributing stocks, a potential mixed stock fishery would pose a threat to the attainment of Conservation Limits immediately or in the future to the smaller stock.

Even where all exploited stocks in a common estuary are meeting their Conservation Limits, mixed stock fisheries introduce greater uncertainty into predicting the effects of management measures and pose a greater threat to small stocks or populations, especially if these are of low relative productivity and/or subject to high exploitation. As the number of stocks (or populations) increases, the number of fish that must be released from the fisheries in order to meet Conservation Limits must also increase. When the number of populations is large, it may be impossible to ensure a high probability of the simultaneous achievement of spawner requirements in each individual unit. The overall objective should be to achieve a flexible but sustainable fishery without compromising conservation goals by fishing only on identifiable single river stocks which are shown to have a harvestable surplus over the Conservation Limit. Fishing within the river or as close to the river as possible (i.e. within the estuary of that river) on stocks which are meeting Conservation Limits is the best way to achieve this..

Previous Scientific Advice for the Rivers entering Castlemaine Harbour for 2010 and 2011.

The Scientific Advice for the rivers entering Castlemaine Harbour in 2010 and again in 2011 was the same as for all other rivers i.e. fisheries on stocks should only take place on stocks which are meeting or exceeding their Conservation Limits and the fishery should take place within or as close to the individual rivers as possible in order to reduce the extent of mixed stock fishing..

The results of genetic analyses carried out in 2009, were reviewed by the SSC and in their opinion the scientific advice already provided was still valid as the fishery had the potential to exploit stocks from five or six individual rivers, some of which were below their Conservation Limits.

They SSC noted at that time that the presence or absence of any of the stocks in this study was not conclusive on the basis of a single year of analysis and all of the stocks could potentially contribute to the Castlemaine mixed stock fishery. The SSC recommended that further work should be carried out to establish the temporal

consistency and range of the fishery within Castlemaine Harbour i.e. the distribution of the stocks entering the bay over the fishing season and thence their vulnerability to capture. Also, it was felt that the absence of any specific information on the status of some of the smaller rivers entering Dingle Bay and Castlemaine Harbour was a limitation in interpreting the overall impact of such a mixed stock fishery on these smaller stocks as the absence of fish revealed by the survey may simply be due to these stocks having been over fished in the past. The genetic status of the spawning population in these small rivers was also unclear i.e. were they discrete and stable populations or were they small unstable entities with no definable population structure?

Pilot Fishery in 2010

The Minister of State at the Department of Communications, Energy & Natural Resources in 2011 allowed a pilot fishery to take in place inside Castlemaine Harbour and requested advice from Inland Fisheries Ireland (IFI) on :

“how a commercial salmon fishery could be operated on salmon stocks in the Castlemaine Harbour Special Area of Conservation in a sustainable manner, maximizing the opportunities for commercial fishing while ensuring that stocks are not over-exploited”.

A monitoring programme, which included a sampling programme for genetic samples of fish, was designed and implemented by IFI and local fishermen in 2010. Arising from this, two specific documents were made available and reviewed by the SSC:

- 1 Report on the Pilot Salmon Fishery Operation in Castlemaine Harbour in 2010
- 2 Genetic Stock Identification of the Castlemaine Pilot Salmon Fishery 2010

In summarizing the findings of both current reports above, the SSC note the following results:

1 The temporal stability of the samples from the Emlagh and Behy

“The two population samples from both the Behy and Emlagh rivers included in the baseline of this study samples show significant evidence of a high degree of temporal instability suggesting that these rivers have low population integrity. Therefore, these rivers may constitute genetically ephemeral populations related to varying and typically small numbers of spawners in each generation (number of effective breeders was estimated to be 14 and 25 for the two Emlagh temporal replicates, respectively, and 8 and 123 for two Behy replicates). Temporal samples from other rivers in the Castlemaine Harbour area (e.g. Owenascaul) have not been screened and it is recommended that screening and analysis of these be undertaken.”

The SSC acknowledges this new information and note that these are very small populations and indications of low population integrity and stability of such small populations while not unexpected, is based on the comparison of only two samples. Therefore, further sampling would be justifiable to confirm the status of these populations. However, given the current evidence the SSC will not consider these rivers as discrete populations for the purposes of catch advice in 2012 and may

incorporate the estimated number of returns and spawners with the larger rivers with which they show most genetic affinity if this can be clarified.

2 Fish originating from outside Castlemaine Harbour

The genetic report indicates that approximately 90% of the fish captured in the fishery derives from rivers within Castlemaine Harbour/Dingle Bay area. Approximately, 2.2% of salmon samples analysed (based on individual assignment) were from fish originating from rivers outside Caslemaine Harbour/Dingle Bay. This figure could be lower if technical limitations to the assignment were taken into account. The number of rivers potentially comprising this group was large and no single river appeared to have a significant and consistent contribution to the catches in any area. The small remaining percentage represented unclassified fish

The proportions of the fish originating from the larger rivers in the area in the fishery were :

The Laune – 64.4%

The Maine – 18.2%

(Both of these rivers flow into Castlemaine Harbour)

The Caragh – 5.6%

(This river flows into Dingle Bay)

Each of these rivers is meeting its 1SW Conservation Limit and producing a surplus from current calculations for the 2010 fishery i.e. Laune – CL 2,555 (surplus 5,100), Maine – CL 1,487 (surplus 750), Caragh – CL 872 (surplus 464)

Locations A and B which were the fishing locations outside Castlemaine Harbour at Cromane were more likely to take salmon from mixed stocks.

Review of Catch Advice from the SSC for the Castlemaine area for 2011

Advice previously given by the SSC is to fish only on single stocks meeting Conservation Limits and that fisheries in rivers are more likely to fulfill this objective.

Given that all of the fishery areas in the pilot fishery caught fish from more than one river, fishing in Castlemaine Harbour still clearly constitutes a mixed stock fishery. Given also that there are stocks originating outside of Castlemaine, albeit probably at a very low level in the fishery, it will not be possible to guarantee that the fishery will have no impact on these populations, particularly if they are already below Conservation Limits.

It should be noted that the Caragh river flows into Dingle Bay. The pilot fishery showed that fish from this river population will also be captured in a fishery operated within the Castlemaine Harbour area. This stock is currently meeting its Conservation Limit.

The pilot study has shown that stocks from all three rivers will be intercepted if a fishery takes place in the harbour and that it will not be possible to manage the catch of fish from each river individually. The status of all stocks contributing must be taken into consideration. The pilot study has also indicated that fishing further out and West into Castlemaine Harbour will increase the likelihood of catching fish from a greater number of rivers.

Therefore the Standing Scientific Committee advise that in order to operate a commercial salmon fishery on salmon stocks in the Castlemaine Harbour Special Area of Conservation in a sustainable manner, maximizing the opportunities for commercial fishing while ensuring that stocks are not over-exploited”

- The fisheries should take place only on single stocks, which are meeting their Conservation Limits.
- Fishing inside the rivers Laune, Maine and Caragh is advised as this will reduce the possibility of intercepting fish from other rivers.
- If it is not possible to operate the fisheries within these rivers, then the fisheries should take place as close as possible to the rivers (i.e. the river mouths) or the estuaries of the individual rivers in order to reduce the possibility of intercepting fish from neighbouring and other rivers.