



Project Profile – Quota Management System (QMS)

Client: Fisheries and Oceans Canada, Pacific Region

Project and System Overview:

The Quota Management System facilitates the setting and transfer of quota across a variety of integrated commercial fisheries in keeping with complex and inter-dependent business rules and legislation. QMS was built to strictly enforce business rules, but made flexible enough to override those rules in order to accommodate operational exceptions that occur in the normal course of business.

Electric Edge Systems created QMS for the Pacific Region of Fisheries and Oceans Canada (FOC) in support of a newly introduced Integrated Fisheries Management Plan. Electric Edge was involved in all aspects and phases of system development from technical design and data modeling through database creation, programming, unit testing, integrated testing, change management, system implementation, and ongoing support.



QMS works in conjunction with two other FOC systems: The Pacific Licensing System (PLS) and the Fishery Operations System (FOS) which provide commercial licence and fishing activity data respectively.

Fishing Season Set-Up

QMS allows quota officers to set-up, verify, and confirm key data for an upcoming season, using the following process:



1. Season Set-Up Procedure

The following steps are taken to set-up a new season:

- Species aggregate and fishing area aggregate combinations are defined for each fishery
- Total allowable catch (TAC) is defined and confirmed for each quota applicable species/area aggregate
- Rules governing quota transfers are defined and confirmed
- Other key data is entered and confirmed

2. Completion and Confirmation of Active Data

QMS confirms that all trips on record have landed and catch has been assessed and confirmed. Also, the system checks whether all pending quota transfers have been processed or withdrawn. These two key steps ensure that each licence's finalized catch and quota figures are known before the rollover to the new season can proceed.

Fishing Season Rollovers

In the fisheries served by QMS, a season rollover closes-off trips and final remaining quota on licenses, and assigns quota to each licence for the applicable species and area aggregates, taking into account each licence's share of the TAC, underages or overages from the season that has just closed, and any other applicable adjustments.

QMS has largely automated season rollovers, replacing what had been a complex, costly, and error-prone manual process. This has resulted in far better accuracy, increased simplicity, and a tremendous saving of time and money.

Detection of Changes to Licence Data

At Fisheries and Oceans Canada, basic vessel licence data is stored in an external system known as “PLS” (Pacific Licensing System). In the past, when changes to licence data were made in PLS, it was up to the PLS users to identify whether each change may be relevant to quota officers and to notify the officers accordingly. The types of key licence changes include new licence issues, moving licences from one vessel to another, and the retiring of licences.

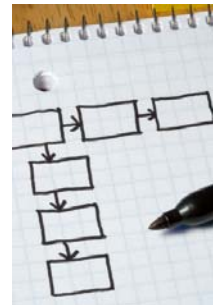
Electric Edge Systems created QMS to automatically detect relevant changes to licence data and display notifications to quota officers on the QMS “main page” (displayed to every user after logging in). Officers can then process the notifications, which automatically makes adjustments or generates new reports (e.g. by issuing new licence quota “amendments”), based upon the type of licence.

Reporting and Correspondence

In various situations, such as the reallocation of quota, notification must be sent from QMS to all relevant licence holders. Electric Edge created QMS to allow the set-up of contact lists for individual licenses or groups of licenses. In the case of processed quota reallocations, the relevant contacts are notified and all related correspondence is tracked in the system. This record of communication history provides a crucial tool for dispute resolution.

Electronic Quota Reallocation Request Submissions

QMS allows for electronic submission of quota transfer requests. QMS also interacts with a fax-to-email service so that signed transfer request documents can be faxed into the system and associated with the corresponding electronically submitted reallocation request. This links the documents together in one place, replacing the previous practice of storing signed paper originals outside of the system in filing cabinets.



Operational Data Analysis Reporting

Special reports are available to quota officers for the purpose of identifying oddities in operational data. Such anomalies may be due to unexpected or inconsistent data provided by third-party contractors. The reports allow quota officers to investigate the oddities and resolve potential issues before the information is reported to licence holders, helping to ensure that the highest quality of data is released and minimizing the potential for disputes.

Additional reports are provided for the identification of trips that do not arrive in port, or have not been fully reported by specific deadlines at the end of each season. These reports facilitate the adjustment of final values for quota calculation in a new fishing season.

Automated Data Adjustments

The handling of late or incomplete trips requires specific data alterations in order to correctly manage quota for the fleet. Previously these situations required a quota officer to request manual data changes to ensure that the correct adjustments were made to the system. Now, when these triggering events occur, QMS automatically adds catch adjustments to the system to remove catch from the season in which the trip finished after the season rollover. At the same time, another set of adjustments adds the catch to the new season. Reports are generated regarding the automated adjustments so that quota officers have the information that they need in the event of a dispute.



QMS – Functional Summary:

The following are just a few areas of functionality provided by QMS for Fisheries and Oceans Canada:

- **Recording of Reallocation (quota transfer) Request Details.** Whether submitted electronically or keyed in by a quota officer, all details regarding quota reallocations are recorded. The information captured includes the licenses and vessels involved as well as the details of the quota to be transferred, electronic copies of signed reallocation request forms, and supporting reports that show the results of all business validation tests and the net effect of the reallocation on both licenses.
- **Searching of Reallocation Requests.** Reallocation requests at any stage (pending, processed, or withdrawn) can be found and reviewed using a comprehensive set of search criteria. The criteria include the source and destination licence numbers, species involved in the reallocation, type of quota (temporary, permanent, or underage), effective date, and reallocation status.
- **Operational Reporting.** Various reports are provided to aid the quota officers in their daily work. Some reports are geared toward analysis of operational data for oddities and exceptions, some are built to aid in dispute resolution by providing a clear picture of historical reallocations, and others are legal or quasi-legal reports to be given to licence holders regarding the current or past status of their licence(s).
- **Communications.** Easy and clear communication is critical to keep the fishing fleet active. Standard communication requirements exist for reallocation requests in the form of validation and confirmation reports which are routinely sent (faxed or e-mailed directly from the system) to the holders of both licenses involved in a quota reallocation. All details of this type of communication are tracked so that a quota officer knows exactly what was sent to whom on which date. Some correspondence occurs without being tracked. This type of communication includes licence status reports, which can be requested at any time by licence holders or their representatives (such as quota brokers) and sent out via fax or e-mail from the system.
- **New Season Setup.** Previously all key configuration data had to be verified by the users in a clumsy, manual process. The way in which the data was presented to the quota officers for verification often did not match the way that those details were presented in the Integrated Fisheries Management Plan (IFMP). This has been resolved and the quota officers can now enter and verify this key data using simple interfaces that closely match the IFMP. This greatly reduces confusion and moves control back to the quota officers.
- **Automated Season Rollovers.** Once a costly and error prone manual process, rollovers are now streamlined and can be handled without the intervention of technical staff. A series of checklist items are presented to the quota officers. The officers enter, verify, and then confirm each step before moving on to the next step. The first set of steps involves setting up the new season's key data. The next set involves ensuring that licence fees are calculated for the new season and that wording for reporting purposes is defined for the upcoming season. The final set of steps consists of verifying that active fishing data has been committed. When all steps have been completed and confirmed, the rollover of quota to the new season can be implemented (once a preview of the pending changes has been performed).