

STRING HAUL LIMITS

DRAFT

Intended Audience: All Representatives, the Department of Fisheries and Oceans, All Prawn Fishermen and their Families and Crew and to all Buyers and concerned Stake Holders.

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Summary: This document covers the pilot program for String Haul Limits.

Subject: OPTION # 1, STRING HAUL LIMITS, Submitted under the advice of Industry Representatives by unanimous consent and motion to "Lengthen the Fishing Season", October 26th, 2004. Option papers to be submitted for review, Nov.25th 2004.

1. Introduction:

On October 26th 2004 industry representatives passed a motion to produce pilot fishing plans for a two year term implementation, as soon as possible. All representatives agreed that the progression of shorter fishing seasons must be halted. Some reasons are:

- First, the fishery can be managed more effectively with less fishing intensity. More effective scientific and practical assessment leads to improved fishing opportunity and a higher confidence level for sustainability.
- Second, some control over product availability will lead to ;
 1. improved markets
 2. price competition for product
 3. improved quality product
- Thirdly, but far from last, are;
 1. reasons concerning safety,
 2. dramatic loss of income due to illness or vessel breakdown, and
 3. A preference for a self managed fishing strategy.

Proposed Fishery Solution: String Haul limits

String Haul Limits With no limit on amount of personal catch or number of days fished over 8 months – limited only by spawner index management and number of string hauls. The numbers of string hauls are **based on the previous Status Quo prawn fisheries.**

Elements of the proposal;

1. introduction
 2. background, present system and associated disadvantages
 3. proposed system
 4. advantages over present and alternative systems
 5. conclusions
 6. recommendations
- Appendix I, definitions and explanations
Appendix II, Electronic Monitoring, Equipment and Procedures

The attached proposal highlights pro's and con's of the pilot fishery under review. Thank you for your time and thoughtful consideration.

Tom Orr and Guy Johnston, caucus members charged with presenting string haul limits for the future management option for the West Coast Prawn Fishery.

2. Background

The commercial prawn fishery has experienced the shortest season recorded. The season promises to become even shorter. Updates to the model of spawner index assessment have now included bait types and trap styles as an indicator of commercial efficiency. The estimated effect may reduce the season by one week or more dependant on area, for 2005.

Within the short season, biologists estimate two prawn molts take place. Due to the increased intensity of the fishery, little or no abundance or weight advantage is gained by fishermen as the majority of prawns are landed before molting and subsequent growth can occur. Medium prawns in May become large prawns by August.

Natural phenomena such as water temperature and prawn cycles which are contributing factors to conservation indexing are varied in time and geography. Spawner indexing becomes more difficult to determine in a short intense fishery. Risk adverse management coupled with an intense sixty consecutive day season puts managers and fishers in a pre-cast position unable to adjust fishing strategy to take advantage of surplus stocks. The inability to adjust fishing effort to natural conditions results in lost fishing opportunity.

Fishers have a predetermined short season where they must catch prawns regardless of market conditions.

Vessel breakdowns and personal health issues are becoming concerns as a few days out of the fishery can translate into “disaster” fishing seasons.

Vessel and personal safety has always been a concern, however the fast pace of the fishery has increased risk and decreased chance to successfully compete in a diminishing season.

Many fishermen hope to turn these situations around with a flexible fishing plan that will accommodate and or mitigate many if not all the foreseeable disadvantages that a 63 consecutive day fishery has produced. String haul limits will provide an opportunity for fishers to fish each day at their own desired pace. It will allow for vessel movement and gear transport to be practiced in a safe manner as the season will be personally regulated by string hauls as opposed to a fixed time limit. String Haul Limits will provide an opportunity for fishers to adjust fishing effort to maximize the benefits of good fishing and to minimize poor fishing conditions.

3. Proposed System

String Haul Limits: a Strategy Using Input Controls to Provide Fishing Opportunity over a Longer Period of Time with Individual Licenced Limits of Gear Effort

Fishing System

- May 1st, season opens, appropriate hail in, single licence: 6 strings maximum / stacked for 10 strings
- Electronic monitoring is activated (by condition of licence)
- Fishers hail in on an agreed time frame to service provider, recording;
 - Identification.
 - Area of fishing.
 - Number of string hauls completed.
 - Time and date
- Fishers haul any string, up to 6 string hauls per day.(7am to 7pm condition rescinded)
- Fishers may haul 3 stings twice and let 3 strings soak or any combination as long as the number of string hauls does not exceed the vessels condition of licence.
- Fishers may locate in any open areas of the Coast to fish
- Fishers hail out when string hauls have been exhausted to the exact number accorded to the vessel.(kept track of by hail in reporting, log books, and stored electronic data)
- Fishers are responsible for the delivery of electronic data every 2* months, and vessel log books to the Department.

Season closes to fishers that have used up their allowed number of string hauls: in season management no longer supports commercial fishing activity, or on the prescribed agreed date.

4. Objectives / Advantages

The objective of the pilot “String Haul Limits” is to meet growing expectations from fishers for cost effective enforcement and to have a flexible, long-lasting fishing strategy that is unobjectionable to all stakeholders. To deal with Coast wide challenges to fishing grounds and opportunity by other user groups, string haul limits provide a working example of how all fishing sectors may be regulated to create fair working opportunities. Hauling limits promise to fit seamlessly into the expectations of Coastal Communities, First Nation Groups and Recreational fishermen.

Listed below are objectives fishermen have in mind for a better fishery.

1. **Recorded String Haul Limits may permit fishers to address:**

- Breakdowns
- Extended deliveries
- in season mobility
- Family priorities
- Personal health
- Daily fishing times (7am to 7pm no longer required)
- An active presence on the fishing grounds over a longer period of time

2. **String Haul Limits do not significantly change the nature of the fishery. They do however:**

- a. Maintain the equal opportunity historically provided by the Licence.
- b. No shift in vessel opportunity is expected by the introduction of string haul limits.
- c. Do not shift economic benefits between participants or home ports.
- d. As string haul limits are designed to embrace all fishing styles, no changes in ownership or licence concentration is expected as a direct result of implementation.

Provide a reliable and flexible management base to address:

- 3. **Stock assessment:** As catch per unit effort (CPUE) is a function of stock assessment, string haul limits which accurately record trap effort, become advantageous to monitoring stock expectations.
- 4. **Personal fishing preference:** String Haul Limits provide fishers with the ability to match fishing effort to personal expectations concerning time, level of effort, and where, to fish.
- 5. **Under or over utilized fishing areas:** String Haul Limits provide an equal and flexible opportunity for fishers and management to customize fishing effort by varying string haul limits.
- 6. **Ease of management;** (reduced intensity) Reaction to fleet movement and monitoring data may be assessed with less risk of underassessment with accurate information and a predictable effort resulting in management and fisher confidence in the fishery.
- 7. **Other user groups;** Management has used trap limits as a viable tool to conserve the resource. The use of recorded trap limits may be applied universally to all user groups as a fair method of distributing prawn fishing opportunity.
- 8. **Marketing:** Supply and Demand have been the economic hallmarks of resource based industries. The prawn fishery is no exception. Glutting or producing an over supply of product has reduced demand price paid to fishers. Product availability is critical to many potential markets. The short season has concentrated demand for product from fewer customers resulting in an inability for fishers to influence price by regaining some

control over supply, and the length of the season which is critical to forging new markets. When consumers are denied availability of a product they either purchase from a foreign producer or use substitute products to meet their needs. Both choices decrease present and future demand for domestic product.

9. **Security of Access:** With any management plan the spawner index method of conservation will prevail. Therefore there is no guarantee a fisher will haul all of the string hauls permitted or land the entire quota an IVQ system may promise. Our security of access is dependant on stock strength and having a fishing strategy that can be trusted to ensure the best science and empirical data is not fouled. String haul limits as a fishing strategy can be trusted and enforced to produce sound data. Trusted because trap data has been an integral part of fishery management for years and the enforcement of trap data will be improved.
10. **Calculation of String Hauls for Each Licence:** Sixty three days of fishing is equal to 6 string hauls per day times sixty three, which is 378 strings hauls. Therefore each licence may be accorded 378 string hauls. String Haul limits do not prevent fishers from continuing to fish consecutive days. What they do is permit fishers to use up their 378 string hauls when they see fit, to a maximum each day. In other words, if a fisher decides the weather has turned nasty for hauling, or the vessel breaks down etc., fishing opportunity may not be lost, as it has been in the present system. Every string haul that is not used consecutively, in theory, should permit the spawner index to accommodate that same number of string hauls after the first 63 days. Consequently the fishery would not close on a specified date; vessels would set their own closing date by using up their string hauls.
11. **Future Consideration:** Each management proposal may permit the transfer of string hauls or quota in future to rationalize fishing effort between prawn vessels and other user groups; however these aspects may become the topic of improvements after the two year pilot. String haul limits do not limit future considerations for improved management because they are based on an equal opportunity.
12. **DFO Benefits:** Other objectives are to improve or sustain existing enforcement / management qualities without increasing workloads. String haul limits are expected to:
 - a. Reduce future costs and workload for enforcement / management
 - b. Expedite legal action
 - c. Maintain conditions of licence at sea
 - d. Provide accurate data for fishers and the Department
 - e. Be a flexible management tool for future fishing opportunity.
 - f. Provide a fair and level playing field for participants
13. **Adaptable Season:** Fishers may choose to fish within a proposed 8 month season. Vessels using up string hauls within the first 60 days or so still have the advantage or insurance over lost fishing time providing all of the fishing areas have not closed to stock assessment. Theoretically, every string haul not used before 60 days will have an opportunity to be hauled after 60 days. Equipped with up to date information on the numbers of vessels and string hauls left in the fishery, managers are expected to have less risk involved in a risk adverse fishery. Consequently fishers may benefit from fishing areas remaining open for longer periods of time due to a predictable fishing effort.
14. **Monitoring Strategy:** an advantage to index deployment and estimates of fleet effort: In season monitoring remains unchanged; however a method developed for timely deployment of indexing may be tied to the number of string hauls completed in a specific area based on reported values. A hail in system monitored by the service provider to report completed string hauls to the Department on a regular basis may facilitate

improved management of fishing areas and sub areas. This service is now in place to report vessel movement, strings deployed and completed seasons. A marginal adjustment to include string hauls completed in an addressed time frame should not create undue hardship for participants.

The phone in hail regarding completed string hauls would be supported by electronic monitoring installed on each participating vessel. The phone in hail system would provide timely in season management.

The above is management improvement over the present fishery with little or no cost to the Department or fishermen. The benefit to fishers would be twofold:

- a. More accurate assessment of fishing effort that may provide improved fishing opportunity throughout the Coast.
- b. Enforcement of string hauls is maintained with an ability to cross reference from three sources;
 - I. log book entries (a condition of licence)
 - II. electronic monitoring (proposed condition, GPS, hydraulic sensor, camera)
 - III. hail in (a condition with proposed additions, voice affidavit)

String Haul Limits with electronic monitoring and "hail in" promises to ensure that the data recorded will represent the compliance level of vessels with regard to the conditions of licence. Trap limits have been established with appropriate enforcement. The only incentive generated by this option to beat the system is to haul more strings or traps than permitted. Electronic monitoring is relied upon to fortify the present enforcement attached to six string hauling and trap limits, to mitigate or curtail breach of existing conditions of licence.

5. String Haul Limits Summary

A less intense fishing effort would facilitate more effective assessment that may provide improved fishing opportunity. Moreover, as it is expected some vessels will use up string hauls as fast as possible and others will conserve string hauls, the level of effort at any given time will be less than has been experienced over the course of some 63 days. This may very well provide fishing opportunity throughout the Coast as each month that passes, spawner index levels required to keep areas open fall in accordance with natural expected mortalities, while at the same time fewer and fewer vessels will be left on the grounds fishing. Consider also that growth rates per molt increase product by 30%. A less intense fishery will permit increased growth and thereby sustain traditional landed tonnage while preserving a growing abundance for future fisheries.

The nature of haul limits induces the fisherman to locate good fishing grounds and move on when catches are less than expected. Fishermen will do this as there is no incentive to haul strings of gear that are full of sub legal prawns just to get a few “keepers”. Haul limits do not provide an incentive to “high grade”, the hidden practice in quota fisheries, to dump and destroy less valued product in favor of fulfilling a higher valued quota allotment. Haul limits do not provide an incentive to “quota bust” the impossible task of ensuring that all products are not sold before landed at a designated port for product validation.

String Haul Limits as a management option and fishing strategy is an alternative pilot program to Individual Vessel Quota. There are many advantages of haul limits over IVQ. Most importantly, as a two year pilot, fishermen will have the opportunity to experience all the advantages of an IVQ based fishery without the short comings, not the least of which could be having to “undo” the quota assessments after two years. String Haul Limits do not change the fishery management other than providing enhanced enforcement which will permit fishers an equal number of string hauls. Consequently the adoption of string haul limits leaves little to “undo” after two years as electronic monitoring of fishing vessels is well underway and an acceptable fisheries enforcement tool in Canada and the rest of the World.

15. Recommendations

That String Haul Limits be adopted in whole or part as soon as possible for the West Coast Prawn Fishery for these reasons;

1. Conservation and sustainability of the resource.
2. To accommodate all the different fishing styles and expectations.
3. To maintain enforcement standards now and for future years.
4. To maintain or increase traditional commercial landings and effort.

This option for future management contains two choices. Fishers may fish consecutive days with electronic monitoring without the camera** and end the season when the allotted string hauls are complete. Fishers with the camera may fish any number of stings per day to the maximum permitted and spread their effort over an extended season until their string hauls are exhausted or the spawner index system of conservation has closed the entire Coast.

The fishery, outside of the foregoing will remain unchanged with respect to deletions and additions to current fishing plans. Possibilities to enhance this option are suggested to take place if required or asked for, after the pilot, to simplify implementation and to test the basis of a fundamental management strategy.

* We do not have a firm commitment at this time for electronic data submission.

** There is outstanding discussion of permitting fishing without a camera for the first 63 days.

Appendix I

1. Conditions of Licence and Regulation Requirements for Trap Haul Limits:

All conditions and regulations remain unchanged with the possibility of additional conditions of licence to:

- a. Facilitate the use of electronic monitoring. (to enforce string hauls per day and enforce maximum limit)
- b. Create an equal number of string hauls for each licence based on recent season length, in days multiplied by six. Example, 63 day season X 6= 378 string hauls.
- c. Create a time frame for the season. Example, May 1st to Dec 15th.
- d. Ensure each vessel hauls no more than 6 strings per day (50 trap strings), 10 strings if stacked.
- e. Modify the present system of hail in to include numbers of string hauls

2. Clarifications and Definitions

- a. Stacking conditions remain unchanged, however as with unstacked vessels stacked vessels may haul any number of strings and any string twice as long as the number of string hauls do not exceed 10 in one day.
- b. "Sting haul" is counted as 50 traps hauled
- c. In season monitoring and stock assessment maintains fishery management areas and sub areas to remain open.
- d. Fishery remains open; in areas not closed by stock assessment, for individual vessels with remaining trap hauls, and before final season closing date.
- e. Failure to produce or submit electronic data, hails and or log books result in the penalty to fish with an onboard observer at vessel owner's cost.

3. Cost of Electronic Monitoring Equipment:

Investigation of equipment and equipment providers is ongoing for electronic monitoring and service.

4. Definition of Terms:

Strings (of gear) are defined as a ground line maximum length of 3600 feet with no more than 50 traps attached to the ground line, marked and suspended at each end with red buoys.

String Haul means the lifting of a single string of no more than 50 traps.

Limit means the maximum number of string hauls in one calendar day is six, *and ten for a stacked vessel.

Limit also means the maximum number of string hauls that may be hauled by any one licenced vessel over the course of one year.

Stacked means a single licenced vessel which acquires another licence to fish two licences for one year.

Appendix II

Electronic Monitoring: Proposal and Recommendations

Over the last two years the method for enforcement (electronic monitoring) has been discussed and tested. To extend fishing opportunity beyond the presently diminishing season, prawn fishers must be able to prove the number of string hauls will not exceed that which is now fished. To do this, an electronic recording device including a deck camera (over the work deck area) must be installed and approved for operation by the provider. The Department of Fisheries and Oceans must have access to the stored data in a format previously outlined. The data from each vessel may be analyzed to check for irregularities and or breach of the conditions of licence.

There are a number of equipment providers capable of producing a system of electronic monitoring for the Prawn Fishery. Currently members are investigating a number of possibilities. Cost and reliability are definite factors that will affect choice. Service may be another concern. Currently there are ongoing discussions dealing with the collection of data, data analysis, and the responsibilities of participating parties.

Electronic Monitoring Operations and Procedures for the Option “String Haul Limits”

This is a **draft** recommendation for data requirements and monitoring activity.

The following is not a rigid format; however it explains what fishers might expect from electronic monitoring to enforce string haul limits. There may be more cost effective ways to interface equipment and produce better or the same results. In any case we hope the intent and objective are clear and hopefully that understanding will lead to a monitoring system capable of meeting the needs of Prawn Fishermen.

Equipment:

1. **Data recorder:** c/w operator ability to copy and remove data for processing / recording lines of data every 2 or 3 minutes and every 5 minutes and intermittently, dependant on operations.
2. **Hydraulic sensor:** Different pressures recorded by placing a sensor in the hydraulic line on the high or low pressure side. Sensitivity of pressure recording would detect any operation of the line hauler or drum.
3. **Global Positioning System:** Twenty-four hour recording ability programmed to show speed in knots, and continuous plotting of vessel locations, and time / speed. (Plotting every 2 to 3 minutes hauling gear and every 5 minutes if hydraulics is off.
4. **Camera:** A deck camera with the scope to record traps coming out of the water, being emptied and stored for setting. Camera would be programmed to take 1 frame every 2 or 3 minutes while hauler was engaged, intermittently throughout the rest of the 24 hour period.
5. **Heat sensitive switch:** to turn equipment on. Located around the main engine area, **OR** an ability of the GPS to detect vessel movement over 200 yds. and switch the monitoring equipment on. The later would be preferred.
6. **Light, buzzer and or instrument:** that will show the operator that the equipment is on and working and also keep a running total of the number of “string hauls” made each day.(further investigation may be required to ensure the count of string hauls is not undermined by intermittent use of the hauler for other reasons)

NOTE: The intent of this equipment is to enforce and or deter the hauling of more than 6 stings of gear for a single licensed vessel and not more than 10 strings of gear for a stacked vessel during any one calendar day.

The object of collecting specific data related to the vessel's working day is to be able to make a legal case in a court of law and subsequently successfully prosecute operators of prawn vessels in violation of the terms and conditions of licence.

Enforcement officers and DFO managers must be able to up load* sent in data to review any vessels activity. This data analysis should be made as easy as possible to isolate questionable activity and thereby reduce redundant recorded information. The data should clearly identify the vessel, ensure that all data collected from a vessels recorder is directly attributed to that vessels operation and that the sequence of events be easily determined by cross referencing date, time, hauler activity, GPS info and camera to demonstrate without a doubt, that the vessel in question was hauling a string of gear.

To facilitate DFO data processing, providers of monitoring data should be able to analyze the bulk of data and only forward; questionable activities that show a vessel may be hauling more strings of gear than provided for in the conditions of licence, and requests for data concerning vessels that may have been reported to be in violation of the conditions.

DFO reserves the right to receive all data under the conditions of licence.

From time to time DFO may require the expert testimony of the Equipment Provider concerning the collection of data from on board monitoring equipment.

Equipment Providers will ensure monitoring equipment can be installed and tested for approval before vessel operators engage in fishing activity.

* For information concerning the required up load format, please refer to Mr. Jim Morrison at MorrisonJ@pac.dfo-mpo.gc.ca

The vessel master shall provide to the Department a report of information from the electronic monitoring equipment within 28 days following the end of the prawn fishing season, as follows;

- An MS Excel file listing by date, for those days when the prawn fishing season was open, any days or periods during a day when the electronic monitoring equipment appeared to be non-operational for a time in excess of 10 min.
- An MS Excel file listing for each day when the prawn fishing season was open, a count of the number of hauling events detected by the electronic equipment, including the time of commencement and completion of each haul, the duration of each haul in minutes, and the geographic location of the commencement and completion of each haul.
- An MS Excel file listing those days when the digital data record appears to indicate more than 6 hauls for single licenced vessels, or more than 10 hauls for "stacked" licenced vessels.
- An MS Excel file listing those days when the digital data record appears to indicate that hauling commenced before sunrise, or continued past sunset, as listed by Environment Canada for that date.

- Ms Excel file reports may consist of separate tabs in a single Excel file, rather than separate files.

Operation;

Vessel starts, underway, GPS sensor switches on equipment. Equipment records vessel movement (which will turn the equipment on) and records speed and an intermittent camera frame. Also records the hydraulics as off or on. Vessel slows to pick up buoy and begins hauling. Hydraulic sensor records continuous pressure readings and camera speeds up, to take one frame every 2 or 3 minutes. Last trap or buoy line is hauled from the string and hydraulics are shut off as recorded in the data recorder, camera returns to intermittent frames and GPS continues to record location every 5 minutes. There is a possibility to limit entry lines of data to every 3 and 5 minutes. ***The system of monitoring is not required to monitor every moment of activity, only to record sufficient data to demonstrate the number of string hauls completed in one day.*** The fastest 50 trap string hauls have been estimated at 15 to 20 minutes.

This activity is repeated until the vessel is no longer underway. The monitoring system will shut down by the GPS, or lack of vessel movement. In the case of a vessel underway, the monitoring equipment will stay on.

One month (time interval not confirmed) after the season opens and every month thereafter fishers will be required to submit data from the data recorder. Possibly the recorder could keep track of the string hauls and notify the operator to send in data after a certain number of string hauls. This may be accomplished by accessing the recorder and sending the data in by mail; or the provider may remove data and replace the disc etc. with a new one. It is obvious that no data collected be lost or destroyed. The possibility also exists to send hydraulic sensor and GPS information via satellite to the provider where only questionable activity would be forwarded to DFO. Camera recordings would stay on the vessel for data processing at prescribed intervals.

Failure of operators to provide electronic monitoring data to DFO may result in the penalty of fishing with an on board observer. (To be confirmed by DFO)

Definition of Terms:

Strings (of gear) are defined as a ground line maximum length of 3600 feet with no more than 50 traps attached to the ground line, marked and suspended at each end with red buoys.

Haul means the lifting of a single string of no more than 50 traps.

Limit means the maximum number of string hauls in one calendar day is six, *and ten for a stacked vessel.

Limit also means the maximum number of string hauls that may be hauled by any one licenced vessel over the course of one year.

Stacked means a single licenced vessel which acquires another licence to fish two licences for one year.

Summary of Operations

- Vessel movement detected by GPS and switches on monitoring equipment,
- Vessel is tracked/plotted by GPS every 5 minutes; vessel speed, time and date
- Vessel engages hydraulic system to haul gear. Hydraulic sensor records continuous pressure and activates camera to take one picture every 2 minutes, also activates GPS to record every 2 minutes
- Hydraulic system is disengaged after hauling 1st string which sets GPS back to 5 minute recording, the camera to intermittent frames, and hydraulic sensor is no longer recording.
- Vessel monitoring continues to operate throughout the day recording number of string hauls
- Monitoring system shuts down except for the GPS when vessel no longer moving.
- After a certain number of string hauls the operator sends data to the provider
- Exhausting the number of string hauls permitted for the season, the vessel uses the hail system to notify DFO the vessel is finished hauling for the season and sends in final monitoring data.