

**GUIDELINES FOR
RESOURCE MANAGERS**

ON THE

**ENFORCEABILITY OF FISHERY
MANAGEMENT MEASURES**

DEVELOPED BY

**THE ATLANTIC STATES MARINE FISHERIES
COMMISSION'S LAW ENFORCEMENT
COMMITTEE**

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Introduction

Description: This pamphlet is a “living document” designed to provide fishery resource managers with a guide to the enforceability of various management measures. It is divided into two sections. The first section provides a list of general precepts that make a management measure more enforceable and then graphically depicts the enforceability of the assorted management measures. The second section describes each management measure, outlines the relative advantages and disadvantages, and provides recommendations for how regulations utilizing these measures should be drafted. This document will be updated on an annual basis as new management measures and enforcement capabilities become available.

Background: The Atlantic States Marine Fisheries Commission’s Law Enforcement Committee conducted a survey of its members to rank the effectiveness of enforcing various management measures. Each management measure was evaluated on a scale of one (most difficult to enforce) to ten (easiest to enforce) in four categories: Overall, At-Sea (surface and aerial), and Dockside enforceability.

There is some inherent bias in the survey in that some respondents may have only responded based on what enforcement resources are actually available to them. For example, while some measures may be better enforced at sea, if an agency does not have air or sea assets, they may be more prone to support dockside type measures.

Section I: Enforceability of Fishery Management Measures

GENERAL PRECEPTS

The following list should be used as guiding principles to make a management measure more enforceable. Regulations are more enforceable if they:

- 1) Are simple, realistic and easy to understand.
 - ? Regulations should be straightforward and not contain a variety of exceptions and exemptions.
 - ? Regulations should avoid frequent changes and updates.
 - ? Where practical, considerations should be given to adopt similar management measures among different fishery management plans, across different state boundaries, and mirror federal regulations.
- 2) Are based on controlling inputs (effort control), and not the outputs (catch quota, trip and size limits).
- 3) Promote voluntary compliance.
- 4) Consider the enforcement resources available.
 - ? Managers should avoid unfunded mandates, and must realize that new regulations require new resources. If new resources are not provided, enforcement will need to shift effort from what is currently enforced.

ENFORCEABILITY OF FISHERY MANAGEMENT MEASURES

Each voting member of the Law Enforcement Committee rated the listed management measures based on enforceability. Each member rated the measure based on four criteria: enforceability from land, sea, air, and overall. The overall rating also accounts for the resources available to the committee member (i.e. even if a measure is fully enforceable from sea and air, if the member's agency has no planes or boats available to them, the overall rating would be very low). The rating scale was as follows:

impossible	impractical	difficult	reasonable
0	1-3	4-5	6-10

The ratings of the members have been averaged and are presented here. The ratings have also been used to develop spectrum diagrams which reflect the enforceability of each fishery management measure. On the colored version, the green (higher rating numbers) reflects the easiest to enforce, while the red (lower rating numbers) reflects the most difficult to enforce. On both the colored and non-colored versions, those management measures with the same ratings are listed alphabetically. Therefore, all management measures rated as the number 8 are equally enforceable. Input from enforcement personnel is suggested if the manager has an option on the measure to use..

If the manager wants to specifically target a type of enforcement effort to dockside or at-sea (surface or air) then spectrums two, three and four should be consulted. The spectrums only give a quick snapshot of the enforceability of a management measure. If the manager is seriously considering a specific measure, then they should read the applicable portion of section two where the document provides advantages and disadvantages, as well as recommendations to consider when developing regulations to implement the measure.

Management Measure	Overall	Management Measure	Dockside
Bag/Possession Limits (Low Volume)	8	Bag/Possession Limits (Low Volume)	9
Max/Min Fish Size	8	Max/Min Fish Size	9
Permits	8	Permits	9
Prohibited Species	8	Prohibited Species	9
Closed Seasons	7	Bycatch Enforcement Via Prohibiting Retention	7
Bycatch Enforcement Via Prohibiting Retention	6	Closed Seasons	7
Closed Areas	6	ITOs/IFOs with Weighmasters	7
Days-At-Sea (DAS)	6	Days-At-Sea (DAS)	6
ITOs/IFOs with Weighmasters	6	Trip Limits (High Volume)	6
Bycatch Enforcement Via Amount Landed	5	Vessel Monitoring Systems (VMS)	6
ITOs/IFOs	5	Annual Quotas	5
Vessel Monitoring Systems (VMS)	5	Bycatch Enforcement Via Amount Landed	5
Annual Quotas	4	ITQs/IFQs	5
Bycatch Enforcement Via Amount on Board	4	Bycatch Enforcement Via Amount on Board	4
Gear Regulations	4	Bycatch Enforcement Via Percent Landed	4
Gear Restricted Areas	4	Gear Regulations	4
Trip Limits (High Volume)	4	Closed Areas	1
Bycatch Enforcement Via Percent Landed	3	Gear Restricted Areas	1
Limited Drag or Soak Times	2	Limited Drag or Soak Times	0

Management Measure	At-Sea	Management Measure	Airborne
Closed Areas	8	Closed Areas	7
Closed Seasons	8	Days-At-Sea (DAS)	5
Max/Min Fish Size	8	Closed Seasons	4
Permits	8	Permits	4
Bag/Possession Limits (Low Volume)	7	Gear Restricted Areas	3
Prohibited Species	7	Vessel Monitoring Systems (VMS)	3
Bycatch Enforcement Via Prohibiting Retention	6	Gear Regulations	2
Days-At-Sea (DAS)	6	Annual Quotas	1
Gear Restricted Areas	6	ITOs/IFOs	1
Vessel Monitoring Systems (VMS)	5	ITOs/IFOs with Weighmasters	1
Gear Regulations	4	Limited Drag or Soak Times	1
Bycatch Enforcement Via Amount on Board	3	Prohibited Species	1
Annual Quotas	3	Bag/Possession Limits (Low Volume)	0
ITQs/IFQs	3	Bycatch Enforcement Via Prohibiting Retention	0
ITOs/IFOs with Weighmasters	3	Bycatch Enforcement Via Amount Landed	0
Limited Drag or Soak Times	3	Bycatch Enforcement Via Amount on Board	0
Trip Limits (High Volume)	3	Bycatch Enforcement Via Percent Landed	0
Bycatch Enforcement Via Amount Landed	2	Max/Min Fish Size	0
Bycatch Enforcement Via Percent Landed	1	Trip Limits (High Volume)	0

SPECTRUM OF OVERALL ENFORCEABILITY
OF FISHERY MANAGEMENT MEASURES

Rating Management Measure

- 8 Bag/Possession Limits (low volume)
Maximum/Minimum Fish Size
Permits
Prohibited Species

- 7 Closed Seasons

- 6 Bycatch Enforcement Via Prohibiting Retention
Closed Areas
Days-At-Sea (DAS)
ITQs/IFQs with Weighmasters

- 5 Bycatch Enforcement Via Amount Landed
ITQs/IFQs
Vessel Monitoring Systems (VMS)

- 4 Annual Quotas
Bycatch Enforcement Via Amount on Board
Gear Regulations
Gear Restricted Areas
Trip Limits (High Volume)

- 3 Bycatch Enforcement Via Percent Landed

- 2 Limited Drag or Soak Times

SPECTRUM OF DOCKSIDE ENFORCEMENT
OF FISHERY MANAGEMENT MEASURES

Rating Management Measure

- 9 Bag/Possession Limits (low volume)
Maximum/Minimum Fish Size
Permits
Prohibited Species

- 7 Bycatch Enforcement Via Prohibiting Retention
Closed Seasons
ITQs/IFQs with Weighmasters

- 6 Days-At-Sea (DAS)
Trip Limits (high volume)
Vessel Monitoring Systems (VMS)

- 5 Bycatch Enforcement Via Amount Landed
ITQs/IFQs
Annual Quotas

- 4 Bycatch Enforcement Via Amount on Board
Bycatch Enforcement Via Percent Landed
Gear Regulations

- 1 Closed Areas
Gear Restricted Areas

- 0 Limited Drag or Soak Times

SPECTRUM OF AT-SEA ENFORCEMENT
OF FISHERY MANAGEMENT MEASURES

Rating Management Measure

- 8 Closed Areas
Closed Seasons
Maximum/Minimum Fish Size
Permits

- 7 Bag/Possession Limits (low volume)
Prohibited Species

- 6 Bycatch Enforcement Via Prohibiting Retention
Days-At-Sea (DAS)
Gear Restricted Areas

- 5 Vessel Monitoring Systems (VMS)

- 4 Gear Regulations

- 3 Bycatch Enforcement Via Amount on Board
ITQs/IFQs
ITQs/IFQs with Weighmasters
Limited Drag or Soak Times
Annual Quotas
Trip Limits (high volume)

- 2 Bycatch Enforcement Via Amount Landed

- 1 Bycatch Enforcement Via Percent Landed

Section II: Description of Management Measures

This section defines each management measure and provides a general rating of low, medium or high to describe the enforceability of that measure. The advantages of each measure are discussed, and then some recommendations are made on how the regulation should be written in order to provide for more effective enforcement.

For ease of organization the management measures are listed alphabetically.

Annual Quotas
Bag/Possession Limits (low volume)
Bycatch Enforcement via Amount Landed
Bycatch Enforcement via Amount on Board
Bycatch Enforcement via Percent Landed
Bycatch Enforcement via Prohibiting Retention
Closed Areas
Closed Seasons
Days At Sea (DAS)
Gear Regulations
Gear Restricted Areas
ITQs/IFQs
ITQs/IFQs with Weighmasters
Limited Drag or Soak Times
Maximum/Minimum Fish Size
Permits
Prohibited Species
Trip Limits (high volume)
Vessel Monitoring Systems (VMS)

ANNUAL QUOTAS

Rating: *Overall:* DIFFICULT
 Dockside: DIFFICULT
 At-Sea Surface: IMPRACTICAL
 At-Sea Air: IMPRACTICAL

Definition: A specified amount of a particular species is allowed to be landed per fishing season for that entire fishery. This is almost entirely a management issue. Enforceability issues are primarily determined by the associated measures to manage the quota (e.g., closed seasons, trip limits, etc.)

Advantages:

1) Limited seasons can allow law enforcement to direct efforts towards the fishery when open, and away from the fishery when closed.

Disadvantages:
1) Record intensive. Requires long-term paper tracking procedures.

Recommendations:

1) Consider how quotas will be accounted. This regulation is best enforced dockside, and will require pre-established offloading points to accurately track quota.

2) Use simple open and closed seasons. Other management measures to extend quotas, such as trip limits, can severely complicate and hinder enforcement efforts.

BAG/POSSESSION LIMITS (low volume)

Rating: *Overall:* REASONABLE
 Dockside: REASONABLE
 At-Sea Surface: REASONABLE
 At-Sea Air: IMPOSSIBLE

Definition: Specified amount of a particular species allowed to be landed per trip. Low volumes are generally measured by numbers of fish that can be easily counted on board.

Advantages:

- 5) Easily definable method to quantify allowable harvest.
- 6) Relatively easy to enforce and prosecute.

Disadvantages:

- 1) Has potential to be manpower intensive.

Recommendations:

- 1) Amounts should be consistent across state boundaries and in federal waters.
- 7) Measurement method should be consistent across jurisdictional boundaries.
- 8) A possession limit versus a landing limit allows for enforcement at-sea as well as dockside.
- 9) When possible, require fish to remain intact to facilitate identification.
- 10) Bag limits should remain in effect for 2-3 years, to maintain consistency of the regulation.

BYCATCH ENFORCEMENT VIA AMOUNT LANDED

Rating: Overall: DIFFICULT
Dockside: DIFFICULT
At-Sea Surface: IMPRACTICAL
At-Sea Air: IMPOSSIBLE

Definition: This enforcement measure aims to restrict bycatch of a particular species by limiting the amount of that bycatch landed.

Advantages:

1) None **Disadvantages:**

11) Difficult to enforce and even more difficult to prosecute.

12) Promotes the incentive to cheat by high-grading.

13) Manpower intensive.

Recommendations:

14) Maintain same standards across jurisdictions.

15) Combine this with a regulation to restrict types of gear to prevent bycatch.

16) Policies should be fluid enough to change with industry recommendations.

17) Segregating the bycatch would facilitate enforcement.

BYCATCH ENFORCEMENT VIA AMOUNT ON BOARD

Rating: *Overall:* DIFFICULT

Dockside: DIFFICULT

At-Sea Surface: IMPRACTICAL

At-Sea Air: IMPOSSIBLE

Definition: This enforcement measure aims to restrict bycatch of a particular species by limiting the amount of that bycatch allowed on board a fishing vessel.

Advantages:

1) None **Disadvantages:**

1) Difficult to enforce and even more difficult to prosecute.

2) Promotes the incentive to cheat by high-grading.

3) Manpower intensive.

Recommendations:

18) Maintain same standards across jurisdictions.

19) Combine this with a regulation to restrict types of gear to prevent bycatch.

20) Policies should be fluid enough to change with industry recommendations.

21) Segregating the bycatch would facilitate enforcement.

BYCATCH ENFORCEMENT VIA PERCENT LANDED

Rating: Overall: IMPRACTICAL

Dockside: DIFFICULT

At-Sea Surface: IMPRACTICAL

At-Sea Air: IMPOSSIBLE

Definition: This enforcement measure aims to restrict bycatch of a particular species by imposing a percent bycatch landed limitation.

Advantages:

1) None

Disadvantages:

22) Difficult to enforce and even more difficult to prosecute.

23) Promotes the incentive to cheat by high-grading.

Recommendations:

24) Maintain same standards across jurisdictions.

25) Combine this with a regulation to restrict types of gear used in fishery.

26) Policies should be fluid enough to change with industry recommendations.

27) Segregating the bycatch would facilitate enforcement.

BYCATCH ENFORCEMENT VIA PROHIBITING RETENTION

Rating: *Overall:* REASONABLE
Dockside: REASONABLE
At-Sea Surface: REASONABLE
At-Sea Air: IMPOSSIBLE

Definition: This enforcement measure prohibits retention of bycatch, thereby minimizing bycatch mortality.

Advantages:

28) Easier to enforce and prosecute than any other bycatch enforcement measure presented in this document.

Disadvantages:

1) Promotes the incentive to cheat by high-grading.

29) Detecting a violation of regulations to minimize bycatch mortality once landed is very difficult.

Recommendations:

30) Maintain same standards across jurisdictions.

31) Combine this with a regulation to restrict types of gear to prevent bycatch.

32) Policies should be fluid enough to change with industry recommendations.

33) Segregating the bycatch would facilitate enforcement.

CLOSED AREAS

Rating: Overall: REASONABLE

Dockside: IMPRACTICAL

At-Sea Surface: REASONABLE

At-Sea Air: REASONABLE

Definition: Fishing in specific area is prohibited.

Advantages:

34) Enforceable when appropriate resources are available and there are no exemptions (see recommendations below).

Disadvantages:

1) Requires monitoring capability.

Recommendations: (For an effective closed area, the following recommendations are critical)

1) Clearly defined areas.

35) Regular shaped areas.

36) Large areas.

37) Closed to everything, no exemptions. Where practical, the area should be closed to transiting vessels as well. If transit is allowed, fishing gear and catch should be stowed.

38) Clear definition of the timeframe. Should be consistent and permanent. Rolling closures provide opportunity for violators to claim ignorance on what was closed, and what was opened.

39) Regulated mesh areas are very difficult to enforce.

7) Closed area regulations, ideally, should be enforceable by aircraft or a vessel monitoring system without the need for boarding. This requires very carefully worded regulations and, in some jurisdictions, will still require follow-up to positively identify the operator.

CLOSED SEASONS

Rating: Overall: REASONABLE

Dockside: REASONABLE

At-Sea Surface: REASONABLE

At-Sea Air: DIFFICULT

Definition: Fishing during specific times of the year is prohibited.

Advantages:

- 1) Enforceable.

Disadvantages:

- 1) None

Recommendations:

40) Similar to Closed Areas, ensure that geographic areas are easily defined.

41) Do not allow exceptions (i.e. bycatch).

42) Make times easily recognizable. Regulation must define the opening and closing times down to the minute.

43) Clarify what is allowed to occur before, during, and after the closure. For example: all gear may not be set prior to the opening, and must be hauled in prior to the closure.

44) For high value, short duration fisheries, prohibit fishing with gear type 72 hours before and after the fishery for other species in the target area.

DAYS AT SEA (DAS)

Rating: *Overall:* REASONABLE
 Dockside: REASONABLE
 At-Sea Surface: REASONABLE
 At-Sea Air: IMPRACTICAL

Definition: Specified amount of days allowed to fish for a particular species. Allocated to individuals or groups.

Advantages:

- 1) In its simplest form, without any exception, this is enforceable. **Disadvantages:**
- 1) Manpower intensive unless a VMS tracking system is implemented.

Recommendations:

- 1) Days at sea are easily monitored by a VMS; however, affordability becomes an issue.
- 2) Do not allow any exemptions or additional complications (e.g. associated trip limits).

GEAR REGULATIONS

Rating: *Overall:* DIFFICULT
 Dockside: DIFFICULT
 At-Sea Surface: DIFFICULT
 At-Sea Air: IMPRACTICAL

Definition: Specific gear types or gear modifications are prohibited. “Gear” might include not only the primary methods and tools to harvest the resource, but also include the vessel, horsepower, number of traps, and other such variables.

Advantages:

1) Restricts specific gear types or gear modifications.

Disadvantages:

- 1) A limitation on amount of fixed gear/hooks, traps, or pots is extremely difficult to enforce.
- 2) Extremely manpower intensive.
- 3) Requires specialized gear and training.
- 4) Enforcement agencies suffer liability costs while handling gear.

Recommendations:

- 1) Associate a catch limitation based on reasonable catch using the allowable gear (e.g., minimum fish size to accompany minimum mesh size).
- 2) Standardize gear requirements, measurement procedures, equipment, and techniques across jurisdictions and time periods (i.e., do not use thresholds).
- 3) Trap limits are more enforceable in conjunction with trap tags on all traps at-sea (i.e., not transferable from trap to trap while underway).
- 4) If gear use is prohibited, then don't allow the gear on board.
 - ? Similarly, mesh regulations need to include regulations prohibiting the possession of undersize mesh on board a vessel (i.e., one mesh on board policy).
 - ? Similarly, if a net, pot, longline, etc., is required to be modified to reduce bycatch, prohibit the possession of any gear not properly modified; not just its use.

GEAR RESTRICTED AREAS

Rating: Overall: DIFFICULT

Dockside: IMPRACTICAL

At-Sea Surface: REASONABLE

At-Sea Air: IMPRACTICAL

Definition: Areas where the use and/or possession of specific fishing gear is prohibited.

Advantages:

- 1) None.

Disadvantages:

- 1) Manpower intensive. Often requires a boarding to determine if specific gear is legal; (i.e., mesh size).

Recommendations:

- 1) Prohibit the possession of the restricted gear. It is easier to prove possession than it is to prove use.
- 2) Do not allow the use of similar gears within the area. Law enforcement assets may be able to differentiate between a trap boat and a dragger from a distance, but will probably have to conduct a boarding to differentiate between two types of draggers.

ITQs/IFQs

Rating: *Overall:* DIFFICULT
 Dockside: DIFFICULT
 At-Sea Surface: IMPRACTICAL
 At-Sea Air: IMPRACTICAL

Definition: Individual Transferable Quotas/Individual Fishing Quota. Under these quotas, a specified amount of a particular fish species is allocated to an individual or to a particular vessel or group of vessels.

Advantages:

- 1) ITQs/IFQs are often praised for their safety benefits. By allowing a fishermen a set quota to be caught over a long period of time, the fishermen is able to choose when to fish rather than being forced to fish during bad weather based on arbitrarily determined time periods (derby fisheries).

Disadvantages:

- 45) Spreads out fishing effort over time.
- 46) Manpower intensive, and will require additional enforcement assets.

Recommendations:

- 1) Write regulations to be primarily enforced dockside.

ITQs/IFQs with weighmasters

Rating: Overall: REASONABLE
Dockside: REASONABLE
At-Sea Surface: IMPRACTICAL
At-Sea Air: IMPRACTICAL

Definition: Individual Transferable Quotas/Individual Fishing Quota. Under these quotas, a specified amount of a particular fish species is allocated to an individual or to a particular vessel or group of vessels. A weighmaster program, managed by statistical personnel and accountable to enforcement agencies, would be required to monitor offloadings.

Advantages:

- 1) ITQs/IFQs are often praised for their safety benefits. By allowing a fishermen a set quota to be caught over a long period of time, the fishermen is able to choose when to fish rather than being forced to fish during bad weather based on arbitrarily determined time periods (derby fisheries).

Disadvantages:

- 1) May require additional enforcement assets depending on how quotas are allocated (e.g. quotas allocated by areas).
- 2) Spreads out fishing and associated enforcement effort over time.

Recommendations:

- 1) Can be written to be primarily enforced dockside.
- 2) The statistically managed contracted observer program could be paid for by associated landing fees. These landing fees could be accompanied by a tax break. Law enforcement agencies must have full and immediate access to the data, but are not normally involved unless a problem is suspected.

LIMITED DRAG OR SOAK TIMES

Rating: Overall: IMPRACTICAL

Dockside: IMPOSSIBLE

At-Sea Surface: IMPRACTICAL

At-Sea Air: IMPRACTICAL

Definition: This management measure limits the amount of time between deploying and hauling back the gear, normally to allow for live discards of bycatch.

Advantages:

1) None.

Disadvantages:

47) Extremely manpower intensive; theoretically, would need one observer per vessel for complete compliance.

48) Can only be enforced from sea, or in limited situations from a shoreline observer.

Recommendations:

49) Do not use.

MAXIMUM/MINIMUM FISH SIZES

Rating: Overall: REASONABLE
Dockside: REASONABLE
At-Sea Surface: REASONABLE
At-Sea Air: IMPOSSIBLE

Definition: Possession of fish below or above a specified size, or outside a slot category, is prohibited.

Advantages:

50) Enforceable.

Disadvantages:

- 1) Manpower intensive.
- 2) Difficult to monitor with significant quantities of catch.

Recommendations:

- 1) No filleting at sea. Measurements should include head and tail intact.
- 2) Standardize measurement procedures, equipment, and technique across jurisdictions.
- 51) Maintain consistency in length regulations. Size limits should remain in effect for at least 2-3 years.
- 4) Maintain same size regulations across jurisdictions.

PERMITS

Rating: Overall: REASONABLE
Dockside: REASONABLE
At-Sea Surface: REASONABLE
At-Sea Air: DIFFICULT

Definition: Fishing for specific species is prohibited unless authorized by the issuance and possession of a permit.

Advantages:

- 52) Can track and identify permits and permit holders.

- 53) Suspension of permit is an effective enforcement measure.

Disadvantages:

- 1) Requires manpower or technology to verify permits.

Recommendations:

- 1) Must be carried on board the vessel at all times

- 2) Consider licenses/permits for both the vessel and for the individual.

- 3) Require permit number be displayed prominently on vessel.

- 4) Implement associated permit tracking system.

PROHIBITED SPECIES

Rating: *Overall:* REASONABLE
 Dockside: REASONABLE
 At-Sea Surface: REASONABLE
 At-Sea Air: IMPRACTICAL

Definition: Possession or retention of specific species is prohibited.

Advantages:

1) Enforceable when observed.**Disadvantages:**

1) Manpower intensive to observe prohibited catch.

Recommendations:

54) No exemptions on the prohibited species.

55) Keep prohibition based on species. Do not allow exceptions, such as, where it was taken or how it was harvested.

56) Permitted species kept on board in a form easily differentiated from prohibited species (e.g., no filleting of catch).

TRIP LIMITS (high volume)

Rating: *Overall:* DIFFICULT

Dockside: REASONABLE

At-Sea Surface: IMPRACTICAL

At-Sea Air: IMPOSSIBLE

Definition: Limiting the amount of catch in high, commercial quantities. Generally measured in pounds or tons.

Advantages:

- 1) With adequate assets, this can be accurately measured during offloading.

Disadvantages:

- 1) Manpower intensive to monitor offloads.
- 2) Can not be enforced from sea or air.
- 3) Measurement of large quantities of product at sea is extremely difficult.

Recommendations:

- 57) Implement in conjunction with a “weighmaster” program (see recommendations under ITQ/IFQ with weighmaster).
- 2) Amounts should be consistent across state boundaries and in federal waters.
- 3) Measurement method should be consistent across jurisdictional boundaries.
- 4) A possession limit versus a landing limit allows for enforcement at-sea as well as dockside.
- 5) When possible, require fish to remain intact to facilitate fish identification.
- 6) Bag limits should remain in effect for 2-3 years, to maintain consistency of the regulation.

VESSEL MONITORING SYSTEM (VMS)

Rating: Overall: DIFFICULT
Dockside: REASONABLE
At-Sea Surface: DIFFICULT
At-Sea Air: IMPRACTICAL

Definition: A requirement to keep a positioning transmitter (transponder) on board the vessel. The transponder will transmit position at specified time intervals (hourly, 30 minutes) depending on the fishery and the requirement for position information. The primary enforcement benefit of VMS is to facilitate enforcement of management measures.

Advantages:

- 1) Effective monitoring method of VMS-equipped vessels.
- 58) Enables more effective use of law enforcement resources.

Disadvantages:

- 59) Can not prove fishing activity, adherence to gear, size limits, or prohibited species regulations at this time.
- 60) May be too expensive for fishing fleet and/or enforcement agency.
- 61) It is difficult to detect vessels not complying with requirement.

Recommendations:

- 1) Management should consider the cost and necessary capabilities of the system before implementing a VMS requirement in a fishery.