

**COMMERCIAL FISHERS' COMPLIANCE DECISION MAKING: PERCEPTIONS,
EXPERIENCES AND FACTORS INFLUENCING REGULATORY COMPLIANCE**

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EXECUTIVE SUMMARY

STUDY OBJECTIVES AND APPROACH

This report presents research findings about commercial fishers' compliance decision making. The study addressed three objectives:

1. To examine commercial fishers' experiences and perceptions of fisheries compliance.
2. To identify factors influencing compliance behaviour and measure their relative importance.
3. To identify implications for fisheries compliance management.

These objectives were investigated using a mixed-method approach. Methods included a literature review, in-depth interviews with 20 skippers and a postal questionnaire survey of commercial fishers ($n = 104$). Study participants were commercial fishers operating within the South-East fin fishery, a mixed fishery, which was used as a case study. Near the study conclusion, a workshop was held between researchers and Ministry of Fisheries' staff to discuss study results and highlight management implications.

Study findings pertain to the case study South-East commercial fin fishery. Care must be taken if generalising study findings to other fisheries, given the particular characteristics of the South-East fin fishery.

A range of fishing-related characteristics was evident amongst study participants, including those who did and did not own quota, use of a variety of fishing techniques, fishing from a wide spread of locations and involvement in fishing operations of different scales.

The term 'compliance' was defined initially using the simple terms 'keeping within the fisheries rules and regulations'. For the survey phase of the study, it was necessary to develop a more detailed operational definition for compliance. The operational definition derived for 'major rule breaches' was misreporting, dumping, trucking, using illegal gear or techniques, or fishing within a prohibited area; whereas 'minor rule breaches' were all other lesser offences (i.e. those not relating to a major rule).

STUDY FINDINGS

Two main theoretical approaches to understanding compliance behaviour were identified from the literature: (i) deterrence, and (ii) normative and social influences. A third category of 'other' factors also was linked to commercial fishers' compliance decision making. From these three categories, a list of 16 specific factors was derived. These factors formed the basis for the interview and survey phases of the study.

PERCEPTIONS AND BEHAVIOUR

Some aspects of the fisheries management system met with comparatively low levels of support from commercial fishers, including the number of regulations and the system of deemed values. The Quota Management System was supported by study participants (about half of those surveyed held quota). A general perception of too many regulations was evident; however, perceptions about the size of penalties for offending were almost evenly split between those who thought they were too harsh or just right. The penalties received by the fishers themselves were usually considered to be unfair, although this varied by the type of penalty. Fishers' reported being inspected by fisheries officers approximately three times per year (this varied by individual).

Reported violation rates for major rules were lower than for minor rules. Fishers' thought that others were breaking the rules more often than themselves - self-reported personal major rule violation rates were approximately half the rate identified for other commercial fishers. Respondents believed the likelihood of being caught and prosecuted was higher for breaking major rules than for minor rules.

Respondents' self-reported past histories of offending indicate that detection of major rule breaches was quite uncommon (less than 20% of respondents acknowledged they had ever been caught) in comparison with minor rule breaches (almost 50% of respondents had been caught breaking minor rules). Of the 34 respondents who reported that they break the major rules, 23 (68%) reported they had never been caught breaking major rules. For those who said they never break major rules (68), 13% (8) acknowledged being caught breaking major rules at least once in the past.

Fishers who had received penalties for commercial fishing offences (approximately half of all respondents) identified a range of penalties that they had received, including fines for lateness, impounded vessels and loss of permits and quota. On balance, the penalties received were perceived by these individuals to be unfair (especially in relation to late fees).

Most respondents had never reported other commercial fishers' offending to the authorities. In response to a hypothetical scenario of seeing a major rule breach, just over half of survey respondents said they would raise it directly with the fisher concerned, while nearly one-fifth would report it directly to a fisheries officer. Smaller numbers of respondents said they would report it anonymously or do nothing.

Study results, from self-reported behaviour, suggest relatively low levels of offending in the case study fishery relative to international research. There is little evidence to support the existence of large scale 'opportunistic' styled offending. In the main, respondents said they complied with the major rules always. Most other respondents said they complied with the major rules most of the time (but not quite always), whereas compliance with minor rules was slightly lower.

Study results indicate that the operative norm amongst case study subjects was to comply on a voluntary basis with the rules.

RELATIVE IMPORTANCE OF FACTORS INFLUENCING COMPLIANCE DECISIONS

Multiple factors influence compliance decision making and their influence is inter-woven. The literature identifies the importance of considering multiple factors in combination; this study supports that recommendation.

The conventional deterrence model of compliance behaviour does not fully explain the compliance decision making of commercial fishers operating in the SE fin fishery. Study findings indicate that deterrence factors (the risks and rewards associated with offending) were not the key drivers of participants' compliance decisions. More important influences on fishers' compliance decision making were normative and social factors.

Those normative and social factors which appeared to be key drivers of compliance related to morality, personal reputation and the influence of others. The concept of legitimacy was of least utility in explaining compliance decisions, that is, the perceived fairness of the rules, the agencies that oversee them, and the opportunities for involvement.

Concepts of sustainability (protecting the fisheries resource for the future, protecting livelihoods and fishing lifestyles) were to the fore in terms of factors that were almost universally supported. However, these sustainability factors did not appear to influence compliance decision making directly.

MANAGEMENT IMPLICATIONS

Study findings are supportive of the contemporary model of deterrence that includes social/normative factors as well as deterrence factors. A flexible adaptive management response using the range of modes within the Fisheries Compliance Service Model may have the greatest utility for the Ministry, with a focus on the voluntary and assisted modes of compliance having the best fit for most study participants in the SE fin fishery.

Goals of fisheries managers and fishers appear to be most aligned around the concept of sustainability and protecting the future of fish stocks. This appears a strong theme on which to

base the compliance/regulatory framework, at least in terms of getting support from commercial fishers and as a rationale for compliance.

Many compliance management suggestions were received from commercial fishers who participated in this study. These comments are provided verbatim and contain valuable suggestions. Similarly, management implications have been distilled from the research literature, which provide the Ministry with a broad set of management implications related to the study topic.

With respect to the research methodology employed in this study, interviewees and survey respondents were forthcoming in identifying levels of offending using self-reported rates of offending, as well as perceived rates of offending for other commercial fishers. Areas for further research are identified.

1. INTRODUCTION

1.1 INTRODUCTION

This report presents research findings about commercial fishers' compliance decision making. The study was undertaken for the Ministry of Fisheries ('the Ministry') and addressed three objectives:

1. To examine commercial fishers' experiences and perceptions of fisheries compliance.
2. To identify factors influencing compliance behaviour and measure their relative importance.
3. To identify implications for fisheries compliance management.

These objectives were investigated using mixed methods: a literature review, in-depth interviews with skippers and a postal questionnaire survey of commercial fishers. Near the study conclusion, a workshop was held between researchers and Ministry staff to discuss study results and highlight management implications.

A case study approach was adopted, focusing on the South-East (SE) commercial fin fishery¹. This mixed fishery stretches along the eastern and southern coasts of the South Island, from Point Jackson in the north to Te Waewae Bay in the south. This inshore fishery was selected by the Ministry because the fishery is diverse and has a wide range of types of fishers, who are likely to display different motivations and behaviours. Therefore it presented the opportunity to examine a wide range of factors that may influence compliance decision making.

1.2 DEFINITIONS OF FISHERIES COMPLIANCE

The term 'fisheries compliance' has been defined by researchers in various ways. Young refers to fisheries compliance as "all behaviour by subjects that conforms to the requirements of behavioural prescriptions within a specific compliant system" (Young 1979:4 cited in Hønneland 1999:705). A behavioural prescription is essentially a rule that provides guidelines for certain conduct and actions. Hønneland (1999:705) defines a compliance system as "a set of behavioural prescriptions designed to regulate an interdependent group of human activities in a coherent fashion". These definitions indicate that compliance relates to a specific fisheries management system and that, in order to study the phenomenon, a more simple definition was required, that could be understood by commercial fishers.

For the purposes of this study, an **operational** definition was developed, in conjunction with the Ministry of Fisheries. The definition placed emphasis on major regulatory conditions for on-water fishing activity to ensure it was relevant to the research subjects:

'meeting fisheries harvest regulations regarding reporting², appropriate use of gear and techniques, and not fishing within prohibited areas'.

Interviews with skippers included discussion about what they considered to be fisheries regulation compliance, which distilled to a **simple** definition:

¹ The South-East fin fishery is defined geographically and by fish species. A list of 13 species was selected from within this fishery for this study. These species and the fishery's geographic area combine to form the scope of this case study. The species are: Barracouta (BAR 1), Blue Cod (BCO 3), Butterfish (BUT 3), Elephant Fish (ELE 3), Flat Fish (FLA 3), Gurnard (GUR 3), Red Cod (RCO 3), Rough Skate (RSK 3), School Shark (SCH 3), Spiny Dogfish (SPD 3), Rig (SPO 3), Stargazer (STA 3) and Tarakihi (TAR 3).

² The term 'dumping' refers to the illegal act of discarding quota fish species that are caught by commercial fishers. This is usually driven by the desire to avoid utilising / acquiring Annual Catch Entitlement (ACE) or paying the relevant deemed value when unable to obtain ACE.

'keeping within the fisheries rules and regulations'.

For the survey phase of the project, behaviours that constituted non-compliance with major and minor rules were outlined. These **detailed operational** definitions were:

- Major rule breaches include: misreporting, dumping, trucking, using illegal gear or techniques, or fishing within a prohibited area.
- Minor rule breaches are 'all other lesser offences' (i.e. those not relating to a major rule).

1.3 FISHERIES COMPLIANCE MANAGEMENT

A key element in the management of any fisheries is regulation. The objectives of regulations usually include managing fish mortality to ensure the preservation of fish stock and generating economic efficiency in the industry, as well as ensuring that regulations are cost effective and efficient (Harte 2007, Vince and Haward 2009). Regulations usually occur as restrictions on inputs (e.g. the number of vessels able to participate in a fishery, restrictions on vessel size, engine power, gear type and size, and fishing effort/seasonal restrictions), and output restrictions (quantities of fish caught and/or landed) (Hatcher et al. 2000). The success of the regulations requires compliance by those involved in the fishery (Bose and Crees-Morris 2009). Ensuring compliance with fisheries regulations can be difficult and costly, especially if there are illegal gains from violating regulations that create strong financial disincentives for fishers to comply.

Most fisheries management regimes allocate considerable resource to the enforcement of regulations. It is therefore important to consider the factors that will enable higher levels of compliance and reduce the propensity to violate the regulations, and whether these factors can be influenced by management authorities.

The Ministry of Fisheries 'Fisheries Service Delivery Model' (table 1.1) identifies four compliance management styles - the more conventional deterrence based compliance oriented styles (i.e., enforced and directed) and alternative approaches (i.e., assisted and voluntary). The model is discussed later (section 7.1) with respect to the modes of management supported by study findings, and a fit is proposed between the model and the types of compliance behaviour exhibited by individual fishers.

1.4 STUDY LIMITATIONS

A case study approach was chosen in order to examine decision making in depth, in line with other international research conducted on this topic. Specifically, the SE fin fishery offered the opportunity to examine a wide range of factors. However, by nature, case study results are limited in how broadly they may be generalised. These limitations are commonplace with case study research. The findings may have application beyond the immediate case study (the SE fin fishery), but any generalisation of findings requires acknowledgement of the case study and careful consideration of contextual differences.

In the context of the scale of this case study fishery (population of 250 fishers) the data provides good coverage³. A consequence of the relatively small population size is a difficulty in producing robust statistical tests of significant relationships. With respect to the analysis of some study findings (especially assessment of the relative importance of factors), the size of the study sample resulted in small numbers within some analytical categories. Ideally the survey instrument would be re-administered on a larger sample so that significant findings could be further tested at a scale beyond the scope of the case study.

³ The resulting sample size was n=104 and the response rate was 41.6%. The sample size of this study is not dissimilar to some other studies (e.g., Hatcher et al. 2000 - n=235; Hatcher & Gordon 2005 - n=214). The response rate obtained in this study is above those reported in other published studies on fisheries compliance (refer Appendix 5).

This study relies on fishers' self-reported behaviours and perceptions. Self-reporting raises the issues of social desirability and impression management (see for e.g., Cook & Campbell 1979, Huizinga & Elliott 1986). Researchers have identified that research subjects tend to report what they believe the researcher expects to see/hear, or what reflects positively on their own abilities, knowledge, beliefs, or opinions (Cook & Campbell, 1979). However, self-reporting of criminal behaviour is accepted as valid and reliable within the research literature (Huizinga & Elliott 1986) and has been used previously as a method for researching compliance amongst commercial fisheries (e.g., Hatcher & Gordon, 2005; Kupernan & Sutinen, 1998; Neilson & Mathiesen, 2003).

1.5 REPORT STRUCTURE

Study methods are described in section 2, following which relevant literature is reviewed (section 3). From the literature, a framework is derived to classify the types of factors found to influence commercial fishers' compliance decision making. Sample characteristics are described for interview and survey participants in section 4. Data collected from both the interviews and the survey are presented in sections 5-7. The first of these (section 5) details fishers' perceptions of compliance and their compliance behaviour. Section 6 examines the factors influencing fishers' compliance decisions and the relative importance of these factors. Implications from the data for fisheries compliance management are discussed in section 7. Section 8 presents a summary of key findings from the study and concludes with suggested research prospects.

Table 1.1: Fisheries Service Delivery Model

SERVICE DELIVERY CATEGORIES	VOLUNTARY	ASSISTED	DIRECTED	ENFORCED
Behaviours	Voluntarily comply and informed	Attempting to comply and uninformed	Propensity to offend (opportunistic)	Criminal intent and illegal activity
Intervention Information	<ul style="list-style-type: none"> Enabling Legislation Area and ethnicity specific communication plans Brochures, publications and signage that accurately convey legal and technical requirements Organisational information that directly supports decision making 	<ul style="list-style-type: none"> Area specific communication plans Brochures, publications and signage that highlight areas of specific concern Compliance collection planning Organisational information that directly supports decision making 	<ul style="list-style-type: none"> Brochures, publications and signage that highlight consequences of non-compliance Compliance collection planning Compliance tactical intelligence reporting Organisational information that directly supports decision making 	<ul style="list-style-type: none"> Compliance collection planning Compliance tactical intelligence reporting Internal information that directly supports decision making Compliance operational and strategic intelligence reporting
Intervention Stakeholder Agreements	<ul style="list-style-type: none"> Compliance rate discussion and agreement of comprehensive measures Inspection focus 	<ul style="list-style-type: none"> Compliance rate with focus on improvement advice Formal agreement with general standards 	<ul style="list-style-type: none"> Compliance rate with focus on direction of required activity Formal agreement with performance standards defined 	<ul style="list-style-type: none"> Enforcement activity with clear understanding that voluntary, assisted and directed states have been breached
Intervention Action	<p><i>Plan and Respond</i></p> <ul style="list-style-type: none"> Engage with stakeholders in all sectors – commercial, non-commercial (customary and recreational) and international Support iwi, regional and recreational forums Deliver education services to non-commercial Inform services to commercial 'Trusted Fisher' status designed 	<p><i>Intelligence and Risk Entities</i></p> <ul style="list-style-type: none"> Compliance tactical intelligence reporting Identification of risk <p><i>Plan and Respond</i></p> <ul style="list-style-type: none"> Engage through education and intervention with 'no' and 'low' risk <p><i>Enforcement</i></p> <ul style="list-style-type: none"> Identified breaches of law will be 'warning' focused 	<p><i>Intelligence and Risk Entities</i></p> <ul style="list-style-type: none"> Identification of risk Target 'medium' risk <p><i>Plan and Respond</i></p> <ul style="list-style-type: none"> Compliance tactical intelligence report responses Develop enforcement plans that are principally patrol and inspection focused <p><i>Enforcement</i></p> <ul style="list-style-type: none"> Inter-agency collaboration Identified breaches of law will be 'infringement' and 'summary proceedings' focused 	<p><i>Intelligence and Risk Entities</i></p> <ul style="list-style-type: none"> Identification of risk Target 'high' risk <p><i>Plan and Respond</i></p> <ul style="list-style-type: none"> Compliance tactical, operational and strategic intelligence report responses Develop enforcement plans that are principally inspection and investigation focused <p><i>Enforcement</i></p> <ul style="list-style-type: none"> Inter-agency collaboration Identified breaches of law will be 'prosecution' focused
Intervention Assessment and Measurement	<ul style="list-style-type: none"> Define clearly relevant compliance measures and rates across sector dimensions Compliance rate monitoring and reporting (agreed Voluntary measures) Effectiveness of education programmes <p><i>Review and design compliance best practice</i></p>	<ul style="list-style-type: none"> Compliance rate monitoring and reporting (agreed Assisted measures) Effectiveness of education programmes <p><i>Review and design compliance best practice</i></p>	<ul style="list-style-type: none"> Compliance rate monitoring and reporting (agreed Directed measures) Effectiveness as deterrent <p><i>Review and design compliance best practice</i></p>	<ul style="list-style-type: none"> Compliance rate monitoring and reporting (agreed Enforced measures) Effectiveness as deterrent <p><i>Review and design compliance best practice</i></p>

2. METHODS

2.1 OVERVIEW OF METHODOLOGY

A mixed method approach was followed, including both qualitative and quantitative social science methods, specifically a literature review followed by in-depth semi-structured interviews and a postal questionnaire survey. Table 2.1 summarises the study methodology.

2.2 LITERATURE REVIEW

The literature review had two purposes. These were to identify factors known to influence compliance decision making, so that they could be examined as part of this study, and to describe current research practice, so that the study methodology could be based on best scientific practice. The review also identified researchers who had published work on commercial fisheries compliance; they were later contacted directly to obtain copies of data collection instruments.

The literature search encompassed both published and unpublished literature. This included relevant information already held by Ministry of Fisheries. Academic databases were searched, including the Science Direct and Proquest databases, and the New Zealand Fisheries Management Research database (Te Whare a Tonganui). Internet searches, using google and google scholar, were also conducted. Literature from reference lists in relevant articles/books was sourced and notable authors contacted.

2.3 INTERVIEWS

Interviews were conducted with a selection of commercial fishing skippers in order to identify their experiences and perceptions of compliance behaviour and management, and the key factors that influence their compliance decision making. Interview findings informed the development of the study questionnaire, as well as providing rich data about perceptions, experience and factors influencing compliance decision making. A full report on the interview data was submitted to the Ministry in December 2009.

2.3.1 STYLE OF INTERVIEW

Semi-structured face-to-face interviews were undertaken with 20 skippers of commercial fishing vessels operating within the SE fin fishery during November 2009. A total of 19 interviews were completed (one interview included two skippers). A small number of interviews involved input from spouses/partners. This was considered to be appropriate, given their direct involvement in aspects of the fishing operation, including day to day administration and reporting to the Ministry. In some cases, skippers seemed to be more forthcoming owing to their spouse's input and encouragement.

2.3.2 INTERVIEWEE SELECTION

Potential interviewees were identified from the Ministry of Fisheries' database of Annual Catch Entitlement (ACE)⁴ holders. Participants were selected at random from the ACE register. This register included the contact details of 176 individuals or businesses registered as holding ACE for selected fish stocks within the SE fin fishery over two consecutive fishing years (2007/08, 2008/09).

⁴ This is a tradable commodity amongst licensed commercial fishers. A register is maintained of all individuals and companies who hold or trade Annual Catch Entitlement.

Table 2.1: Summary of methodology

STUDY AIM	STUDY OBJECTIVE	METHOD	DETAILS OF METHOD
<p>1. To examine commercial fishers' experiences and perceptions of fisheries compliance.</p> <p>2. To identify factors influencing compliance behaviour and measure their relative importance.</p>	<p>1. To review the published research literature in order to identify (1) factors that influence compliance behaviour, and (2) ways in which compliance behaviour has been studied (research methods).</p>	<p>Literature review</p>	<p>The literature review identified known factors affecting compliance behaviour. The method involved a search of published and unpublished information from a range of sources (including academic databases). Literature from reference lists in the articles/books was also sourced and several notable authors were contacted. The literature review confirmed the proposed mixed-methods approach and suggested specific areas of enquiry for the data collection stages of the research.</p> <p>The review also generated an annotated bibliography of specific reports on the topic of commercial fisheries compliance and compliance management.</p>
	<p>2. To identify the key factors that influence commercial fishers' compliance decision making using a case study of the SE fin fishery.</p>	<p>Interviews</p>	<p>Semi-structured face-to-face interviews with skippers of commercial fishing vessels ($n = 20$) randomly selected from the Annual Catch Entitlement (ACE) holders database. Questions were developed from findings of the literature review and direct contact with international researchers.</p> <p>Interview findings informed the design of the postal questionnaire and assisted with interpretation of survey data, as well as providing qualitative data.</p>
	<p>3. To measure the extent to which the factors (identified from the literature review and interviews) influence compliance decision making using a case study of the SE fin fishery.</p>	<p>Postal questionnaire</p>	<p>Postal questionnaire of skippers ($n = 104$) of commercial fishing vessels (derived from Ministry of Fisheries' ACE and Crew Registers) for selected fish stocks within the SE fin fishery over two consecutive fishing years (2007/08, 2008/09).</p> <p>Questions were based on results from the literature review and interview.</p>
<p>3. To identify implications for fisheries compliance management</p>	<p>4. To Identify management options for maximising compliance behaviour.</p>	<p>Workshop</p>	<p>Half-day workshop between researchers and Ministry staff to discuss study findings, held 5 May 2010.</p>

In total, 33 names were randomly drawn from the ACE register. Some people did not participate for the following reasons:

- they resided outside the planned interview area, which was the eastern and southern coasts of the South Island ($n = 3$)
- they were unable to be contacted ($n = 1$)
- they chose not to participate ($n = 4$)
- they were ineligible (did not or no longer caught the types of fish included within the case-study scope, or did not employ skippers) ($n = 4$). Two of the ineligible ACE holders provided contact details of contract/lease skippers they used, who were interviewed

This process yielded 19 interviews with a total of 20 skippers (one interview had two skippers present). All commercial fishers contacted were resident in New Zealand and spoke English.

Selected interviewees were initially contacted by a letter (appendix 1) sent in October/November 2009 explaining the study and seeking their participation. A slip was enclosed (along with a return post-paid envelope) to enable those not wishing to participate to opt out. Participants were then contacted by phone and email to arrange the interview time and place, with a reminder telephone call immediately prior to the interview.

Interviews were conducted at various locations throughout the eastern and southern coasts of the South Island. Venues were chosen by the interviewee, and included skippers' private homes, family members' homes, on-board vessels, in workshops, and at work cafeterias and bars. While an incentive to participate was not publicised prior to undertaking the interviews, a token of gratitude was left with participants at the conclusion of their interview (a petrol voucher).

It was evident from interviews that some of the interviewees had been prosecuted for fisheries offences and some had not. This meant a range of compliance experiences was captured within the set of interviews.

2.3.3 INTERVIEW TOPICS

Factors thought to influence fishers' compliance (identified from the literature review) were formulated into interview questions (appendix 2) in order to examine their relevance to the SE fin fishery. Questions covered the following topics:

1. Demographics and fishing characteristics
2. Compliance behaviour (experiences and perceptions)
3. Deterrence factors ('risk and reward'):
 - Sanction certainty (the perceived risk of being caught).
 - Sanction severity (level of expected penalty for offending).
 - Commercial gain (expected gain from either non-compliance or compliance including 'inducement'). Inducement is where authorities attempt to raise the expected value of compliance rather than reducing the expected value of non-compliance and commonly involves a reward (Hønneland 1999).
4. Normative/social factors (social mores and norms):
 - Legitimacy (of regulatory and compliance systems).
 - Morality/moral development.
 - Habit/practice (how well regulations fit existing fishing practice).

- Behaviour of others (perceptions of others' compliance behaviour and likelihood of offending, including mutual trust amongst individuals to comply).
- Attitude of others (towards regulatory system and offending).
- Personal reputation (including standing amongst peers in industry and broader community, and likely damage caused when offenders are prosecuted or seen to be breaking the regulations).

5. Other factors:

- Industry characteristics (e.g., price fluctuations, scale and type of businesses).
- Economic characteristics.
- Previous compliance behaviour (past history of offending).
- Conviction (the extent to which individuals may be convinced to modify their fishery practices based on other peoples' views).
- Personal characteristics (e.g., dependency of the individual on the fishery as a source of income, age, and experience in the industry).
- Operational characteristics (aspects relating to the type of operation, including size of vessel and business structure).

6. Fishers' identification of potential compliance management initiatives.

Participants were asked to self-report their level of compliance with fisheries regulations, as well as previous convictions. This informed the decision to use self-reporting for the survey stage of the research.

The interview schedule acted as a guide, with the interviewer varying from its structure in response to the flow of the interview and to accommodate new material.

2.3.4 ETHICAL CONSIDERATIONS

All interviewees were invited for interview at a place and time of their choosing. Participation was voluntary and ethical procedures for human subjects (after Tolich and Davidson 1999) were followed.

In all correspondence, and at the beginning of each interview, interviewees were provided with information explaining the purpose of the research, that the interview was voluntary, their identity would not be disclosed and that all data would be confidential to the researchers. They were advised that the names of interviewees would not be disclosed to the Ministry and that findings would be reported in such a way that they protected the interviewee's identity. Informed consent to participate in the interview was then sought and gained from all participants (appendix 3 presents a copy of the consent form).

2.3.5 ANALYSIS OF INTERVIEW DATA

Sixteen of the 19 interviews conducted were audio-recorded (with the interviewee's consent), supplemented by hand-written notes (the other three interviews were documented only with handwritten notes). As part of the consent discussion held at the beginning of the interview, interviewees could chose whether their interview was taped – three people preferred not. Interview notes were prepared subsequent to interview completion. Thematic analysis of qualitative data was undertaken, with data coded around key themes.

2.4 POSTAL SURVEY

The postal survey was designed to measure the extent to which defined factors (identified from the literature review and interviews) influenced compliance decision making in the case study fishery. To this end, a postal questionnaire survey was administered during February/March 2010 to skippers of commercial fishing vessels who held ACE ($n = 133$) or worked for people who held ACE (crew members, $n = 138$) for fish stocks (within the case study area and species) over two consecutive fishing years (2007/08, 2008/09).

The size of the target population was 271 individuals, which reduced to 250 when ineligible were removed (i.e., 'returns to sender' and duplicates), from which a sample of 104 usable questionnaires was obtained. This gave a response rate of 42% (104 returns/250 posted eligibles), which comprised 43% for ACE holders (55 returns/128 posted) and 40% for crew (49 returns/122 posted). In general, response rates overall were higher than the average expected rate for self-completion surveys.⁵

2.4.1 QUESTIONNAIRE

Questions were formulated based on the findings from interviews and the literature review. Factors that were apparent as having the greatest relevance to interviewees' decisions to comply with fisheries regulations were translated into survey questions. The survey statements were developed using the terminology of the interviewees, as well as the knowledge gained from the literature review. For example, the question statement 'I have too much to lose to break the rules', incorporated words often used by interviewees - there was '*too much to lose*' in breaking the rules.

In addition, questions were adopted (and adapted) from questionnaires obtained from direct contact with researchers in the field of commercial fisheries compliance (Kuperan & Sutinen 1998, Nielsen & Mathiesen 2003, Hatcher & Gordon 2005). Question content was customised to suit the New Zealand fisheries context. The questionnaire is presented in appendix 4.

Closed-ended questions were used where possible, since the objective was to measure relative influence of the factors. The survey was designed to take about 15 minutes to complete, in order to minimise respondent burden and maximise response rate.

2.4.2 ADMINISTRATION

Respondents were posted the questionnaire together with a letter explaining the purpose of the survey and a freepost envelope for questionnaire return. A small non-monetary gift (a book of stamps and a pencil) was enclosed to encourage participation. A reminder letter (with an additional copy of the questionnaire) was sent to non-respondents after three weeks.

Survey respondents were advised (in the covering letter) that their participation was voluntary, their identity would not be disclosed, all data would be confidential to the researchers and results would be reported in a format that protected respondents' identities.

2.4.3 ANALYSIS

Data were entered into an Excel spreadsheet and then imported into a statistical analysis software package for analysis. Analysis included frequency counts, percentages, and measures of central tendency (mean, mode, median) for specific survey items and response sets, as well as the identification of differences between any sample sub-groups (based on the range of factors examined).

The final two questions of the questionnaire invited open-ended responses. The first of these (Q31) asked 'Do you have any suggestions on how the Ministry of Fisheries can improve compliance with the fisheries regulations?'. The second asked for any further comments. The comments received were transcribed

⁵ Oppenheim (1992) puts the response rate for postal surveys at less than 40%.

verbatim (where practicable with some minor corrections for grammar and spelling). Details in some responses were omitted in order to protect the respondent's anonymity.

2.5 METHODOLOGICAL CONSIDERATIONS ASSOCIATED WITH SELF-REPORTED COMPLIANCE BEHAVIOUR

The findings of the qualitative phase of the study indicated that interviewees were comfortable talking with the researcher about their compliance histories. The range of offences identified by individual skippers (and the self-reported penalties received) was an indication that interviewees were prepared to share this information. There was nothing to indicate that the responses given by skippers during the interviews were not valid.

The ethical precautions taken with this study were such that there was nothing to gain or lose based on the given responses. Only one of the 20 skippers interviewed chose not to answer the question about their previous history of offending.

The low rate of declines to the invitation for interview (4 out of 33 contacts – see section 2.3.2) is indicative perhaps that skippers were prepared to take the time to share their views on the topic of compliance. It is not clear how the experiences of those who chose not to participate in this study may have differed from those interviewed.

The ethical practices applied in the survey stage of this research were very similar to those applied to the interviews. The promise of confidentiality and the style of questioning (using closed-ended categorical responses rather than asking people to specifically describe their past experiences) were intended to put respondents at ease. There were fewer means of checking the validity of responses to survey questions compared with the interviews, where verbal and non-verbal cues were present.

Past experiences of compliance (previous history of offending) was identified as a key factor influencing decision making for many interviewees (as reported in section 3.2.3). Therefore, questions about this were included in the questionnaire.

2.6 WORKSHOP

A half-day workshop was held (in Wellington on 5 May 2010) with relevant staff from the Ministry to discuss study findings and identify their implications for achieving high compliance behaviour. The researchers communicated study findings (in particular factors that influence compliance and their relative importance) by way of a brief written paper in advance of the workshop. Workshop participants were asked to contribute towards the identification of implications from the research. Outcomes from the workshop informed the management implications section of this report (section 7).

3. LITERATURE REVIEW

This literature review synthesises research findings about fishers' compliance behaviour in order to identify the factors that influence such behaviour. In addition, the literature was considered in terms of research approaches and methods used to study this topic, in order to confirm the approach adopted for this study. An annotated bibliography summarising key studies was prepared and submitted to the Ministry (October 2009).

3.1 UNDERSTANDING FISHERS' COMPLIANCE BEHAVIOUR

3.1.1 COMPLIANCE BEHAVIOUR THEORIES

The theoretical concepts for understanding fishers' compliance with fishery regulations are drawn from criminology, economics, psychology and sociology. Compliance in terms of wider natural resource use or common pool resource use is also informed by the disciplines of anthropology, political science and resource management. Contemporary fisheries management regimes are relatively young, and so is the research on fishers' compliance (Gezelius 2006, Hauck 2008).

This section briefly describes the two main theoretical approaches to understanding compliance behaviour: (i) deterrence, and (ii) normative and social influences. The aim of these theoretical approaches is to explain why individuals comply with certain regulations and, on the basis of this information, how management agencies can enhance compliance. The following sections summarise key factors underpinning fishers' compliance, methodological issues associated with measuring compliance, and the management implications identified by researchers.

3.1.2 DETERRENCE

Compliance in fisheries management is often considered from a neo-classical economic perspective (Hatcher et al. 2000, Nielsen 2003, Gezelius 2006). In this economic approach, an individual is seen as self-interested and rational, whereby the choices made by an individual are a result of calculations of risks, costs, and expected benefits. It follows that the resulting decision is made based on a consideration of the relative costs and benefits from non-compliance (which is usually expressed as a deterrence equation). In other words, individuals are driven purely by self-interest and respond to changes in the tangible immediate incentives and penalties (Kuperan & Sutinen 1998). Compliance occurs when crime does not pay, or in other words, where the expected penalty is larger than the illegal gain. This is the 'conventional' deterrence model (figure 3.1).

This theory is largely based on Becker's (1968) general deterrence model, which was the first economic model to explain criminal activity (Hønneland 1999, Kuperan & Sutinen 1998, Nielsen 2003, Nøstbakken 2008, Sutinen & Kuperan 1999). Becker argued that criminals behave essentially like any other individual in attempting to maximise personal 'utility' or, in other words, personal gain. 'Utility' in economics is a term meaning 'satisfaction' or 'benefit' that people may gain from consuming goods and services (Baumol & Blinder 1997). In this model, an individual will commit a crime if the expected utility from committing this crime exceeds the utility from engaging in legitimate activity. This is based on the assumption that an individual, when deciding whether to comply, will only consider the potential illegal gain against the severity and certainty of sanctions.

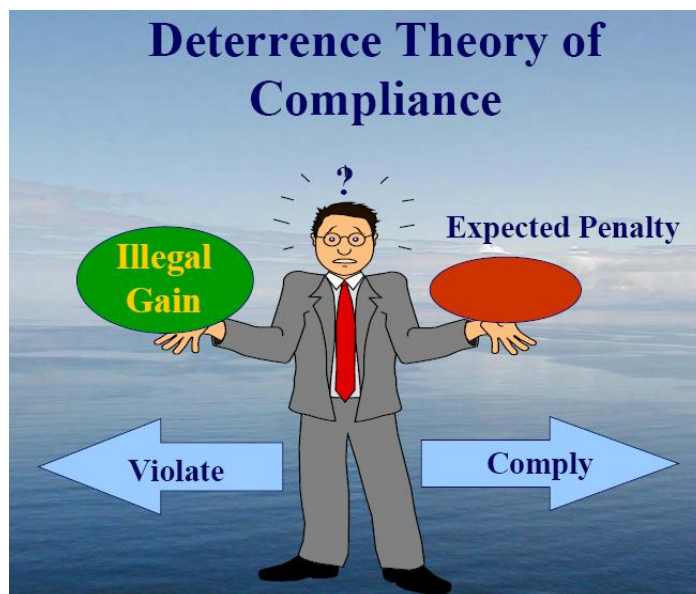


Figure 3.1: A conventional ‘deterrence’ model of compliance (Sutinen n.d.: 20)

To illustrate this using fisheries related compliance, Sutinen’s (n.d.) review of his own fishers’ compliance studies conducted during the 1980s and early 1990s found that potential gains from non-compliance were large, and the chance of being caught and sanctioned was less than 1% for any one violation, while the expected penalty was significantly less than the illegal gains and perceived as ‘a cost of doing business’.

Becker’s model of general deterrence assumed that compliance improved as both the level of sanctions and the probability of prosecution and conviction increased. The model also considered the effect of levels of enforcement and sanction on both the individual and society (which indicated that, for society, penalising offenders by the issuing of fines was more desirable than imprisoning offenders, in that fines have minimal social cost compared to the high costs of imprisonment).

Becker’s model, when applied to the commercial fishing context, would suggest that an individual choosing between several acts of non-compliance would most likely consider each option based on the relative gain against the risk and severity of sanction. The model would predict a modification of behaviour based on expected penalties. Nøstbakken (2008) argues that more severe acts of non-compliance may be deterred because the expected punishment exceeds that of a less severe offence.

Sutinen (n.d.) noted that while potential gains of illegal fishing were significant, a high proportion of fishers normally complied. This posed the question as to why fishers complied, particularly when illegal gains well exceeded the penalty, and highlighted an inherent weakness in the general economic deterrence model.

3.1.3 NORMATIVE AND SOCIAL INFLUENCES

Given the inability of the deterrence model to explain high levels of compliance, researchers looked to other influences such as normative, moral and social causes (Kuperan & Sutinen 1998, Hønneland 1999, Sutinen & Kuperan 1999, Hatcher et al. 2000, Gezelius 2006). Normative compliance theory suggests that factors such as socialisation, morality, and legitimacy influence compliance behaviour and are linked to the internal capacity of the individual and the external influences of the environment (Kuperan & Sutinen 1998, Hønneland 1999, Driscoll 2008). Morality, under the normative perspective, relates to the moral obligation a person feels to ‘do the right thing’, and compliance in terms of an individual’s morality tends to be explained using cognitive theory. A person’s behaviour may also be affected by the social influence felt from peers and others in society and, in this context, social learning theory has proven useful.

Tyler (1990) developed the concepts of legitimacy and instrumentality from the discipline of sociology, which were later adopted by fisheries compliance researchers. Compliance was thought to be affected by fishers' perceived legitimacy of the regulating authority and the regulatory system it implements, as well as the regulation itself (Kuperan & Sutinen 1998, Hønneland 1999, Hatcher et al. 2000). Legitimacy is based on the premise that when an individual accepts/respects an authority there will be greater compliance with its regulations, even where doing so conflicts with the individual's self interest. Tyler's model of legitimacy is multi-dimensional, with aspects relating to process, outcome, fairness, and effectiveness. This can be seen in Nielsen's (2003) model showing the range of factors thought to influence compliance behaviour (figure 3.2). There is not necessarily a clear separation between legitimacy, morality and self-interest. Furthermore, personal morality and legitimacy may come into conflict. Tyler also considered instrumental factors which are similar to Becker's (1968) deterrence factors (discussed in section 3.1.2) and proposed that compliance also depends on incentives, i.e., decisions about illegal gains will be affected by the severity and certainty of sanctions. Sutinen's model (figure 3.3) illustrates the sets of factors influencing a fishers' compliance decision (including normative factors).

While some theorists prefer the management approaches based on deterrence and rational decision making (e.g., public choice theorists and game theorists), those who adopt co-management theories tend to prefer the normative approaches. More recently, researchers have taken a more pluralist approach, integrating deterrence and normative approaches in models to measure compliance behaviour. Several studies developed and tested models which incorporated variables relating to social influence, norms, and perceived legitimacy of regulations, in addition to the monetary costs and benefits of violation (e.g., Kuperan & Sutinen 1998, Sutinen & Kuperan 1999, Hønneland 1999, Hatcher et al. 2000).

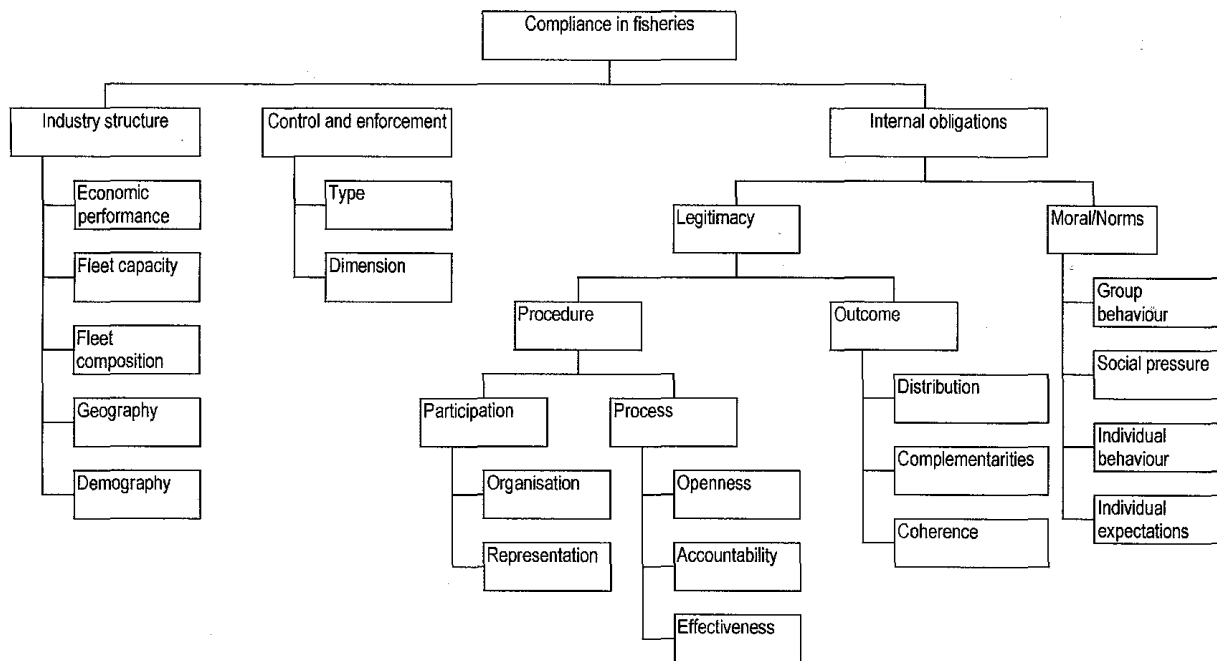


Figure 3.2: A framework for analysing compliance in fisheries (Nielsen 2003: 431)

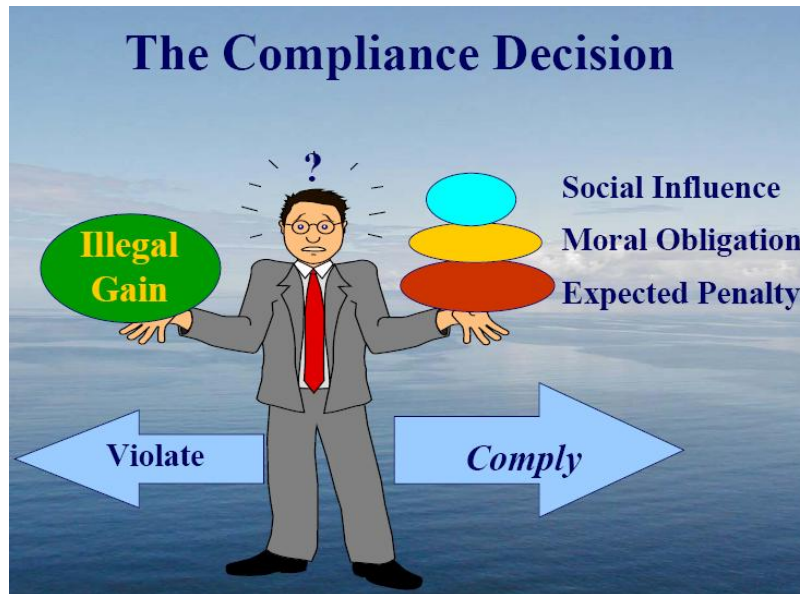


Figure 3.3: The contemporary deterrence model illustrating normative factors (Sutinen n.d.: 45)

3.2 FACTORS INFLUENCING COMPLIANCE

Researchers examining fisheries compliance have identified a range of factors that are thought to influence compliant behaviour, drawing heavily from the theories described above. A total of 16 factors were identified from the literature review, however, one factor dealt with the biological characteristics of the fishery and so was not examined in this study (table 3.1). The 15 factors were then grouped into three categories: (i) deterrence factors, (ii) normative/social factors, and (iii) 'other' factors. Deterrence factors impact compliance decision making by way of the risks and rewards that are gained by not complying. Normative and social factors have been grouped together and relate to an individual's and society's influence on compliance behaviour. 'Other' factors include a range of additional factors that appear to influence compliance behaviour, such as industry characteristics, economic factors, and individual and operational characteristics. Appendix 5 synthesises factors identified in recent empirical studies of fisheries compliance.

To provide a context for this discussion, it can be noted that different levels of non-compliant behaviour have been identified in studies of various fisheries (Kuperan & Sutinen 1998, Eggert & Lokina 2005, Hatcher et al. 2000, Viteri & Chavez 2007, Sutinen n.d.). Using self-reported assessments of a fisher's own breaches and/or of other fishers' behaviour, non-compliant behaviour can be grouped into three types of compliance: chronic/frequent violators (approximately 10-20%) who will violate at virtually any opportunity; dedicated compliers (approx. 10-20%) who rarely, if ever, violate; and conditional compliers (approx. 60-80%) whose behaviour is dependent on the control of frequent violators, otherwise they violate (Sutinen n.d.).

3.2.1 DETERRENCE

The deterrence factors influencing compliance behaviour most commonly identified in the literature are the potential gain from illegal activity, and the severity and certainty of sanctions. Commercial gain was found to be either the primary factor or a significant secondary factor for non-compliance in three of the fisheries examined by researchers (Nielsen & Matheson 2003, Eggert & Lokina 2005, Hatcher & Gordon 2005). In summary, the three key deterrence factors identified from the research literature are:

- **Certainty of sanctions** concerns the perceived risk of being caught. This includes the compliance regime, and its capability and credibility of exerting meaningful controls.
- **Severity of sanctions** relates to the level of expected penalty for the offence.
- **Commercial gain** is the expected gain from either complying or not complying.

3.2.2 SOCIAL AND NORMATIVE FACTORS

The literature identifies six key social and normative factors that have been found to influence compliance (see for e.g., Kuperan & Sutinen 1998, Hatcher et al. 2000, Hønneland 2000, Neilsen & Mathieson, 2003, Eggert & Lokina 2005, Hatcher & Gordon 2005, Gezelius 2006, Viteria & Chavez 2007):

- **Legitimacy** relates to an individual's perception of the regulatory and compliance system.
- **Morality/moral development** is an individual's obligation to do the right thing.
- **Habit/practice** refers to the practice of fishing, including traditional fishing practices.
- **Behaviour of others** is the individual's perception of others' compliance behaviour and likelihood of offending, including mutual trust among individuals to comply (norms).
- **Attitudes of others** to the regulatory system and to offending is another factor.
- **Personal reputation** includes an individual's standing in industry and the broader community, and the likely damage caused to this reputation when offenders are prosecuted or seen to be breaking the regulations.

3.2.3 OTHER FACTORS

The third grouping of 'other' factors refers to a broad range of constructs (see for e.g., Hatcher et al. 2000, Nielsen & Mathieson 2003, Eggert & Lokina 2005, Hatcher & Gordon 2005, Christensen & Raakjaer 2006, Viteria & Chavez 2007):

- **Industry characteristics** include price fluctuations, scale and type of businesses, and change to the cost of compliance with regulations.
- **Economic and biological characteristics** of the fishery are important.
- **Conviction** is the extent to which individuals may be convinced to modify their fishery practices based on other people's views.
- **Personal characteristics** include the financial state of the individual or business (especially if a small scale operation), the dependency of the individual on the fishery as a source of income, age, and experience in the industry, as well as previous compliance behaviour (past history of offending).
- **Operational characteristics** refer to aspects relating to the type of business operation, including equipment and business structure.

More recent research has tended to incorporate a range of factors across all three categories, and legitimacy has drawn the particular attention of researchers. There is evidence that researchers have adopted similar approaches (e.g., the adoption of Kohlberg's Standard Issue Moral Judgement Interview and Scoring system by Kuperan & Sutinen 1998). However, variables (and their means of measurement) often vary between studies (refer Appendix 5). This appears to have made it difficult for researchers to draw broad conclusions from the whole body of research, develop theory and measure factors such as legitimacy.

In conclusion, fishers' compliance decision making is complex and depends on the context in which the compliance behaviour occurs. A broad range of factors potentially influence compliance behaviour

(identified in table 3.1), and these should not be studied in isolation. Therefore, a methodological approach that incorporates deterrence, normative/social, and other factors is required.

3.2.4 TYPES OF INFLUENCE UPON COMPLIANCE OF EACH FACTOR

Some studies have identified management implications associated with these factors. Table 3.2 summarises these implications, as suggested by each study's researchers.

Table 3.1: Factors identified in the research literature that influence fishers' compliance decision making

Factor	Description
Deterrence factors	
Sanction certainty	Perceived risk of being caught
Sanction severity	Level of expected penalty for offence
Commercial gain	Expected gain from either non-compliance or compliance including 'inducement' (i.e., authorities attempt to raise the expected value of compliance rather than reducing the expected value of non-compliance and commonly involves a reward (Hønneland 1999))
Normative/social factors	
Legitimacy	An individual's perception of the regulatory and compliance system. The concept is based on the premise that when an individual accepts/respects an authority, there will be greater compliance with its regulations, even where doing so conflicts with the individual's self interest
Morality/moral development	Obligation on the individual (internally) to do what they consider to be the right thing
Habit/practice	How well regulations fit existing fishing practice
Behaviour of others	Perceptions of others' compliance behaviour, including likelihood of offending. Includes mutual trust amongst individuals to comply (norms)
Attitude of others	Perceptions about others' attitudes towards the regulatory system and compliance
Personal reputation	Standing amongst peers in industry and broader community. Likely damage to reputation caused when offenders are prosecuted or seen to be breaking the regulations
Other factors	
Industry characteristics	Includes price fluctuations, scale and type of businesses, changes to cost of compliance with regulations
Economic characteristics	Macro-economic environment within which fishers operate. These characteristics can affect fluctuations in prices for landed fish and costs of operating, labour and plant
Biological characteristics	These are the biological characteristics of the fishery (including species population dynamics)
Previous compliance behaviour	Past history of offending
Conviction	Extent to which individuals may be convinced to modify their fishery practices based on other peoples' views
Personal characteristics	Various characteristics such as gross revenue of the vessel, the dependency of the individual on the fishery as a source of income, age, and experience in the industry
Operational characteristics	Aspects of the fishing operation, including size of vessel and business structure

Table 3.2: Implications identified in the research literature for reducing non-compliance

Deterrence factors
Increase the risk of violators being apprehended
Reduce the likely gain from non-compliant behaviour
Increase the relative risk of violators being sanctioned
Ensure fines and sanctions are high enough to deter non-compliance
Aim for immediate sanction and actions following detection
Target strategies to raise awareness of likelihood of detection and also the likelihood and severity of sanctions
Enforcement agencies should recognise that certain circumstances may create incentives to violate regulations (e.g., for fishers in extreme financial hardship it may be relatively less risky to break regulations for short-term financial gain rather than to comply and not survive in the industry; certain types of fishing operation may have different types of risk to consider, and it could be that the incentives for non-compliance may be higher for certain types of operations depending on degrees of capitalisation and debt)
Aim to avoid setting out rules and regulations that inadvertently create incentives for non-compliance
The theorised 'multiplier effect' of deterrence suggests that any enforcement action that reduces the violation or non-compliance activity of one individual (a specific deterrence effect), will also reduce the non-compliance behaviour of other individuals, although unable to determine from empirical studies whether the theory holds (and if so, whether it acts through other normative and social influences such as observed behaviour of others, behavioural norms, perceived legitimacy, or directly through the deterrence equation by increasing perceived risk of detection and degree and certainty of sanction). The implications are two-fold: (i) ensure that any known offenders are seen publicly to be apprehended and sanctioned appropriately to deter others, and (ii) failure to do the former may lead to an erosion of the perceived likelihood of detection and sanction (and therefore create incentives for observers to themselves violate rules)
Normative/social factors
<p>Legitimacy</p> <ul style="list-style-type: none"> • Perception of the legitimacy of the regulatory system is thought to increase by encouraging greater engagement of fishers in joint forums with regulatory agencies and through participation in cooperative structures. A greater sense of confidence may result in the regulations and their enforcement (assuming a perception of fair representation amongst fishers is maintained) • Legitimacy is easily eroded when compliance and regulatory agencies are perceived to be unfair, autocratic, where the fisher does not identify with the agency setting the rules, or where regulations do not fit the practicality of fishing operations • The credibility and type of information on which regulations and fishery management policies are based (and the extent to which it is afforded some degree of legitimacy) will affect legitimacy overall • Legitimacy can be eroded if violators feel unfairly treated when apprehended and prosecuted. In order to maintain legitimacy, all violators should be treated fairly • Not all fishers would necessarily have the need to be involved and engaged in co-management opportunities, as this entails a higher order of commitment on their behalf, as well as a skills and knowledge base that may require investment to develop • Legitimacy of the regulatory system is considered to be multi-dimensional, with aspects relating to process, outcome, fairness, and effectiveness, i.e., whether the regulation is perceived to be effectively and fairly enforced. Therefore, compliance and enforcement programmes alone are not expected to lead to high levels of compliance behaviour without the pre-condition of a perceived legitimate government/policy structure
<p>Moral development/morality</p> <ul style="list-style-type: none"> • Different levels of moral development are thought to explain why certain individuals will act following their moral code, rather than their immediate self-interest, whereas others do not. The effectiveness of the types of compliance effort and enforcement tactics would vary depending on level of moral development of the individual (as would the effectiveness and messages imbedded in education and outreach strategies) • Moral development is generally considered intrinsic to the individual, hence any attempts to influence this would need to be targeted through early childhood education
<p>Habit/practices</p> <ul style="list-style-type: none"> • The fit between regulations and the actual fishing practices/habits of fishers will have an impact on compliance rates. Regulations are unlikely to be adopted by certain communities of fishers when, in their perception, the regulations are 'imposed' or considered 'foreign' to the traditional fishing practices, individuals' habits, or the norms

of a community of fishers
<p>Perceived behaviour of others</p> <ul style="list-style-type: none"> Likelihood of violation is thought to increase where individuals perceive that it is common for peers to breach regulations, and vice versa
<p>Attitudes of others to the regulatory system and offending</p> <ul style="list-style-type: none"> Social cohesion and social norms relating to offending and the regulatory system are thought to have some influence on individuals' compliance decisions
<p>Personal reputation</p> <ul style="list-style-type: none"> Personal standing in the community and an individuals' level of respect afforded by peers are thought to influence compliance decisions (by increasing the relative cost of offending). This factor may be particularly strong in small cohesive communities
Other factors
<p>Industry characteristics (e.g., price fluctuations, scale and type of businesses, changes to cost of compliance with regulations)</p> <ul style="list-style-type: none"> Industry characteristics are a major contextual factor underpinning fisheries management and compliance. Influences here can affect a full range of other factors (including deterrence factors, legitimacy, attitudes and perceptions). Costs of entry into the industry may also be a consideration in terms of the types of individuals operating in a given fishery Transactional costs of compliance are thought to have a direct effect on the relative cost for individual operators to comply versus the gain from non-compliance
<p>Economic characteristics</p> <ul style="list-style-type: none"> Macro-economic factors can affect fluctuations in prices for landed fish and costs of operating, labour and plant. These may influence other factors (such as deterrence variables, and changes to the make-up of the industry)
<p>Biological characteristics of the fishery</p> <ul style="list-style-type: none"> Under a Quota Management System the biological capacity of a fishery to sustain harvest may vary, leading to changes in Total Allowable Catch which may create stronger incentives for fishers to violate quota levels (depending on how accurately Total Allowable Catch is set and the size of surplus).
<p>Previous compliance behaviour (past history of offending)</p> <ul style="list-style-type: none"> It is generally understood that individuals' previous behaviour with respect to compliance with regulations is a strong predictor of their future behaviour. Such findings may give weight to targeting enforcement efforts at known/problem offenders rather than across the board
<p>Conviction (extent to which individuals may be convinced to modify their fishery practices based on other people's views)</p> <ul style="list-style-type: none"> Individuals who are steadfast in their views (and are not open to persuasion) are relatively poor candidates for education and outreach programmes, whereas those individuals with standing in the fishing industry who are open minded may be better targets. Even staunchly-held beliefs may be influenced if the message comes from peers or industry leaders who are perceived to be legitimate or hold respect amongst peers
<p>Personal characteristics (e.g., may include financial state of the individual or business (if small scale operation) and the dependency of the individual on the fishery as a source of income, age, experience in the industry)</p> <ul style="list-style-type: none"> There is some evidence that level of education, number of years experience in the industry, and place of residence may have some influence on compliance behaviour. Although, for education, it appears that in some cases higher levels of education lead to less likelihood of violation, the reverse has also been shown Dependency on the fishery as a source of income, and extent of financial need would have an effect on other factors (including deterrence factors) Studies have found that the extent to which fishers participate in co-management forums may be a predictor of higher levels of self-reported voluntary compliance
<p>Operational characteristics (aspects relating to the type of individual businesses operation including type/condition/age of plant, business structure)</p> <ul style="list-style-type: none"> These characteristics make up the day-to-day reality of any fishing operation. Regulatory changes that impinge on these characteristics will have knock-on effects, which may include changes in operational structures or costs, in turn influencing the strength of deterrence factors

3.3 MEASURING COMPLIANCE

As already noted, the study of fishers' compliance behaviour is relatively recent. Some researchers have tended to work predominantly within one discipline (especially economics, criminology, sociology, psychology), while more recent studies have taken a trans-disciplinary or multi-disciplinary pluralistic approach. There appears to have been parallel development of theoretical models and empirical testing by researchers across a range of disciplines (e.g., Hønneland 1999, Sutinen & Kuperan 1999, Nielsen 2003).

One research approach has been to apply mixed methods, with qualitative interviews either informing the development of a quantitative survey (e.g., Christensen & Raakjaer 2006) and vice versa (e.g., Nielsen & Mathieson 2003) or enabling a deeper exploration of survey findings with fisher and industry representatives. Data collection instruments include questionnaires (some developed to generate data for econometric models) that incorporate a broad range of factors (deterrence, socio-normative and other factors).

While the area of fisheries compliance research is maturing, there remain several methodological constraints. Measurement of the level of compliance is variable, with some studies asking about perceived compliance behaviour in the future, and others asking for self-reported past behaviour. Researchers have developed their own predictive variables for non-compliance that, while aiming to measure the same items of violation and detection, mean that it is not easy to compare between studies. While there is some adoption of standard scales, there is not yet a single standardised scale question to measure compliance behaviour by fishers. This may be influenced by the variability of regulatory contexts across the fisheries studied. The measurement of legitimacy is still a developing area, with several authors obtaining inconclusive and/or contradictory findings, indicating their measurement instruments may require further work.

In conclusion, a mixed method approach (qualitative and quantitative methods) appears most fruitful for this area of enquiry. Data collection instruments should be tailored to fit the context of the fishery being studied but, where appropriate, similar questions and variables should be used to facilitate comparability of findings.

4. SAMPLE CHARACTERISTICS

This study has used a case study approach to research the compliance decision making of commercial fishers. With this type of approach there are limitations to the generalisability of findings, hence it is important to understand clearly the characteristics of the research participants (drawn from the SE fin fishery) on which study findings are based. This section presents the sample characteristics of the 20 skippers who were interviewed and the 104 survey participants.

The similarity between the interviewees and survey respondents supports the integration of data from the two forms of data collection within this report. All interviewees were skippers, while most survey respondents were skippers (75%); the remainder were primarily managers or ACE traders.

4.1 AGE, GENDER AND FISHING EXPERIENCE

Both the set of skippers interviewed and the survey respondent group ranged in age from their 20s to over 70 years of age. The modal age category for both interviewees and survey respondents was 50-59 years (figure 4.1).

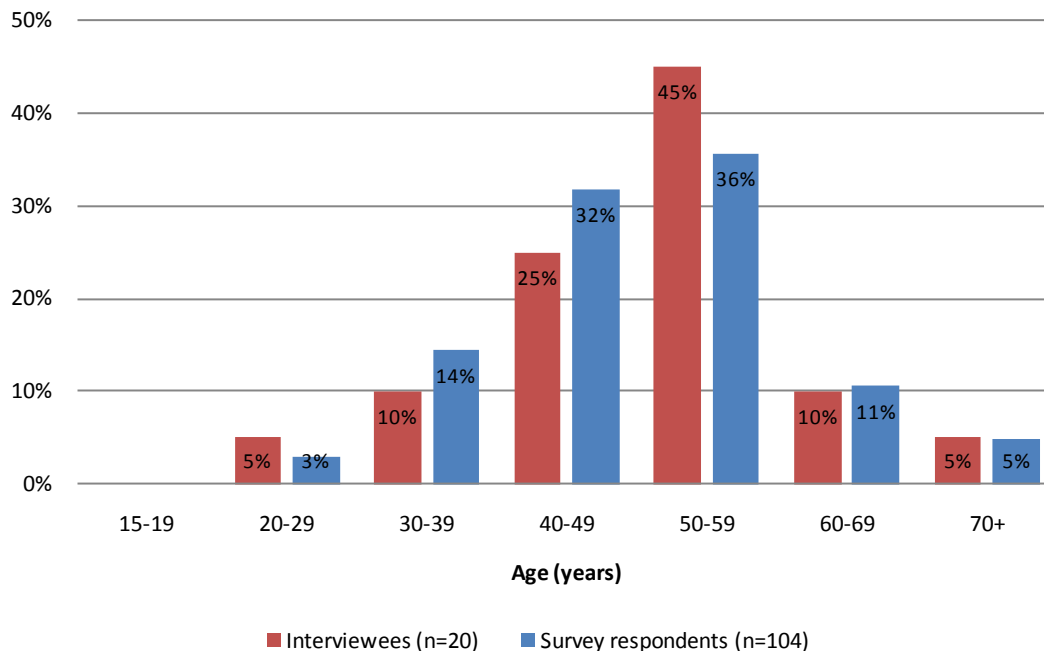


Figure 4.1: Age of study participants

All 20 skippers interviewed were male; with occasional input from skippers' spouses involved in the business. The survey did not ask about gender.

The level of fishing experience varied for both interviewees and survey respondents (figure 4.2). Most interviewees had at least 30 years experience in the commercial fishing industry. Many of them began

their careers at a young age, and many were in charge of fishing vessels from a young age (15-18 years of age in some cases). Most had been skippers all of their working lives.

Most (81%) survey respondents had 20 years or more experience in the commercial fishing industry, and most (88%) had fished commercially only in New Zealand. The international experience of the 12% who reported this, varied in duration from six months to 20 years (median = 2.5 years, $n=12$).

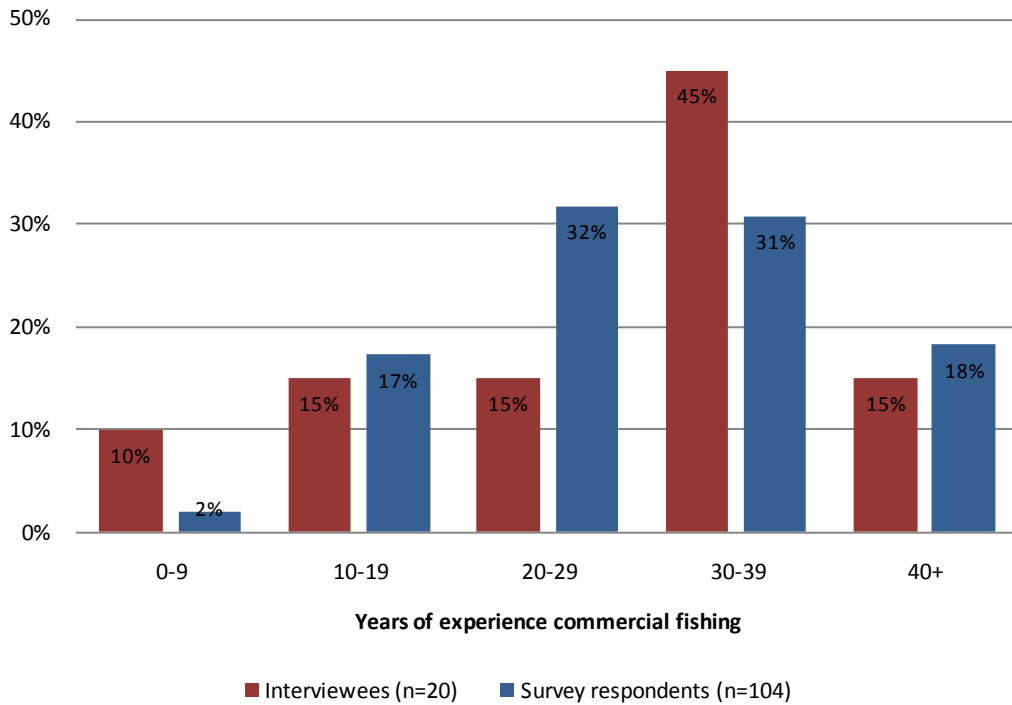


Figure 4.2: Study participants' commercial fishing experience

4.2 INDUSTRY INVOLVEMENT, TECHNIQUES USED AND CATCH

Survey respondents' main form of involvement in the industry was most commonly as a skipper of a commercial vessel (75%, figure 4.3). For those skippers, a large group were independent owners/operators (67%, figure 4.4), while those employed by others was the next largest group (25%).

Similarly, most skippers interviewed were independent owner/operators (i.e., most owned and operated their own vessel/s). A small number did contract skippering for other boat owners.

A variety of fishing techniques was used by survey respondents and interviewees, including trawling, potting, lining and set netting. Approximately one half of the interviewees and survey respondents (49%) used multiple techniques. The most common techniques used by survey respondents were trawling (65%) and potting (39%). The 'other' category comprised a range of techniques including dredging (7%), trolling (5%) and diving (4%). See figure 4.5.

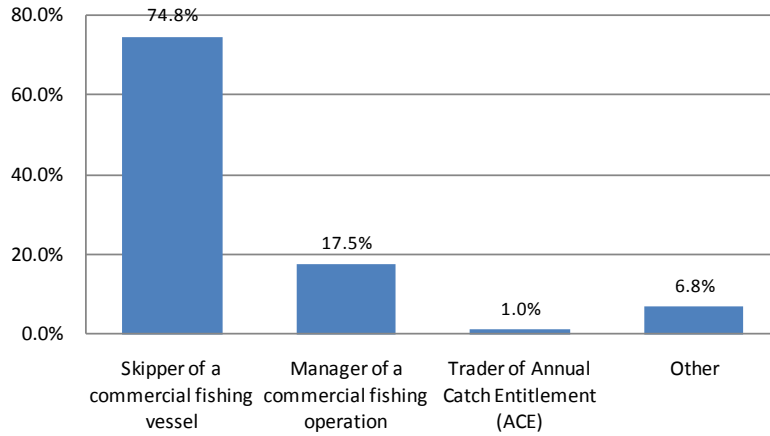


Figure 4.3: Survey respondents' main involvement with the fishing industry (n=103)

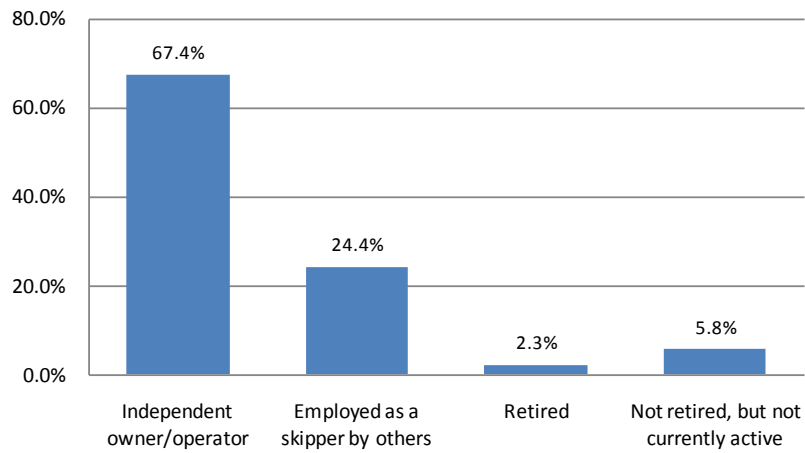


Figure 4.4: Survey respondents' (skippers) main involvement with the fishing industry (n=86)

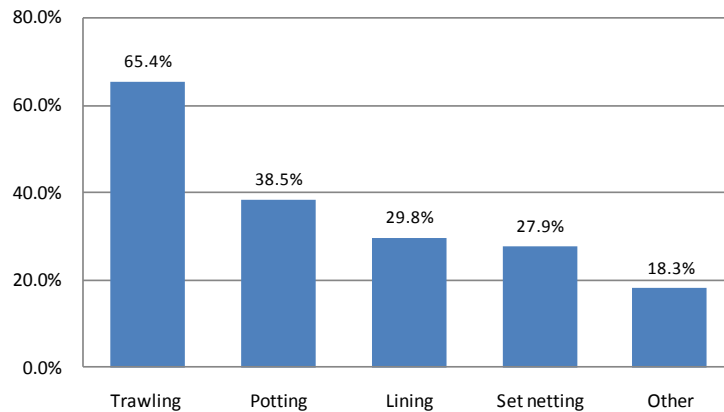


Figure 4.5: Fishing techniques used by survey respondents* (n = 104)

* Percentage totals exceed 100% as this is a multiple response question

Survey respondents were asked to record their total catch over the previous year (by weight category). The distribution (figure 4.6) displays an asymmetrical pattern, with the most common weight categories being 0-24, 100-199 and 4000+ tonnes of wet fish by green weight (weight categories were unequal).

The size of wet-fish ACE caught by interviewees in the previous year varied from approximately 15 tonne to more than 2000 tonne, with a mean of 280 tonne.

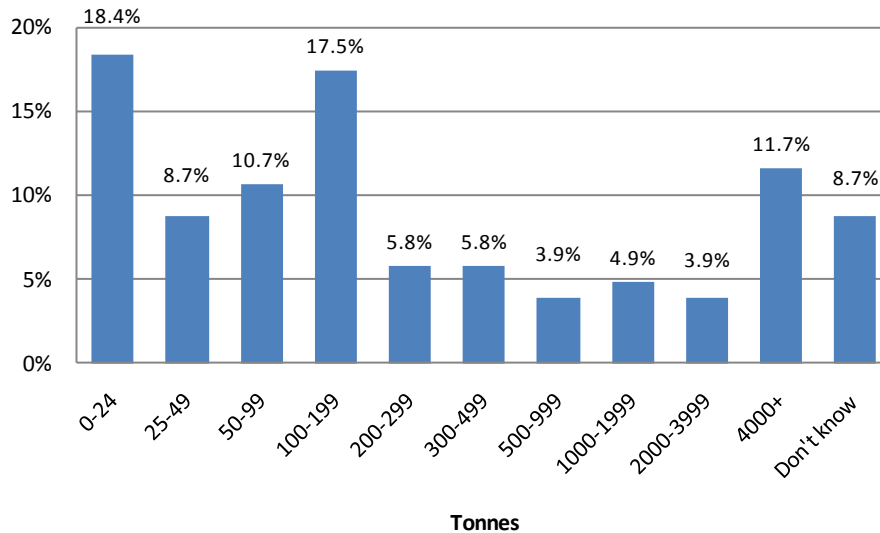


Figure 4.6: Catch tonnage from respondents' operations in the previous year (wet fish by green weight, n = 103)

4.3 OTHER OPERATIONAL CHARACTERISTICS

The set of skippers interviewed identified that their estimated total gross earnings from the previous year ranged from approximately \$120,000 to more than \$2m, with a mean around \$400,000. The wet-fish revenue figure for several skippers was actually lower because their total revenue figure also comprised revenue from non-wet-fish species. The total revenue figure was used as one gauge for the scale of fishing operation (inclusive of both wet-fish and non-wet-fish species) because it is more reflective of the total size of fishing operations.

Some interviewees owned quota, most leased quota, and many did both. There was a small group of contract skippers.

Numbers of survey respondents who owned quota (52%) slightly outweighed those who did not (48%). For those with quota, this most commonly made up less than 20% of their total catch (48%, figure 4.7). This indicates that most quota holders were fishing others' quota holdings (i.e., most respondents took on the role of ACE fishing some, if not all, of the time).

Fishing was the main source of income for 89% of survey respondents.

Interviewees were asked to identify the number of fishing trips (and their duration) as a gauge of fishing effort. The data varied greatly, from a small number of days per year to more than 300 fishing days per year. It appears that the location of the operation and prevailing weather conditions influences this figure.

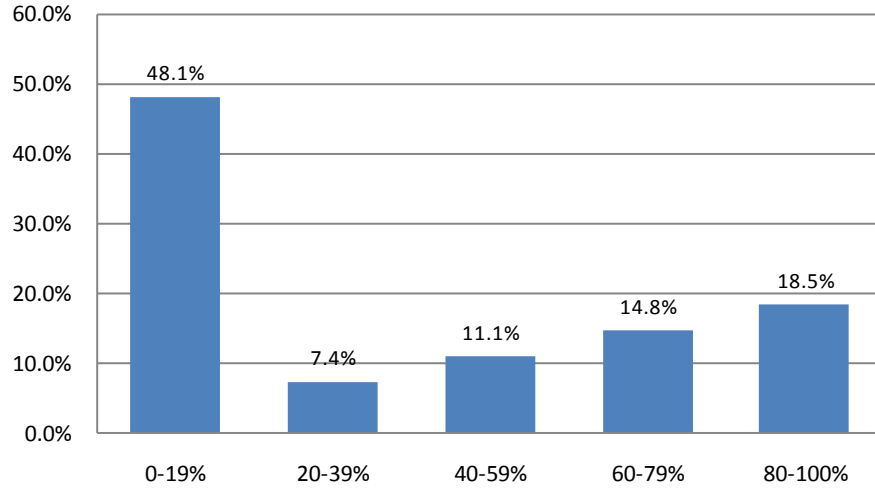


Figure 4.7: Proportions of (survey respondents) quota holders' total previous years catch derived from their own quota ($n = 54$)

4.4 VESSELS USED AND PORT LOCATION

Most commonly, interviewees and survey respondents (70%, figure 4.8) used only one registered fishing vessel, but a small number had two or more. Of the 155 vessels identified by survey respondents, 55 (36%) were in the 40-59 feet size category (figure 4.9). Similarly, the average length of interviewees' vessels was 47 feet, with their vessels ranging from approximately 12 feet to 80 feet.

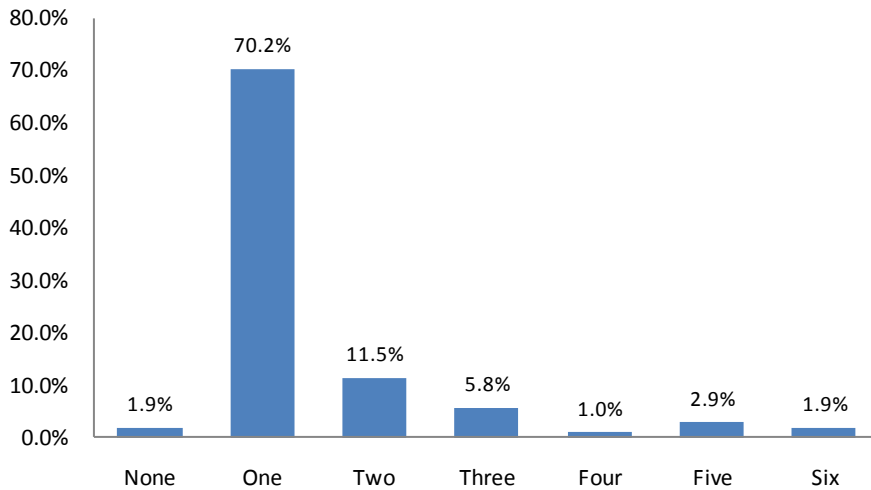


Figure 4.8: Number of registered fishing vessels in survey respondents' fishing operations ($n = 99$)

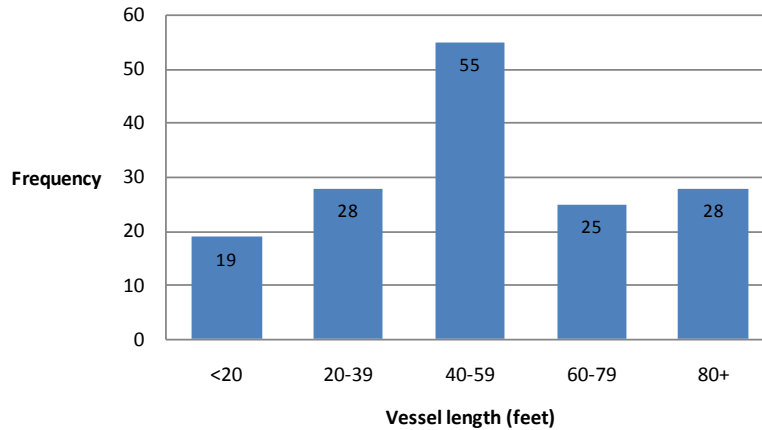


Figure 4.9: Size of survey respondents' fishing vessels (total number of vessels included = 155; total number of respondents $n = 97$)

The port locations of survey respondents' fishing operations were dispersed, with most respondents located in the southern ports of Bluff (25%) and Port Chalmers (18%, figure 4.10). A total of 24 ports were identified (not all were located in the South Island).

The geographical location of interviewees and operations is not reported here, as to do so could identify the individuals involved. However, the locations provided a broad geographical spread across the SE fin fishery.

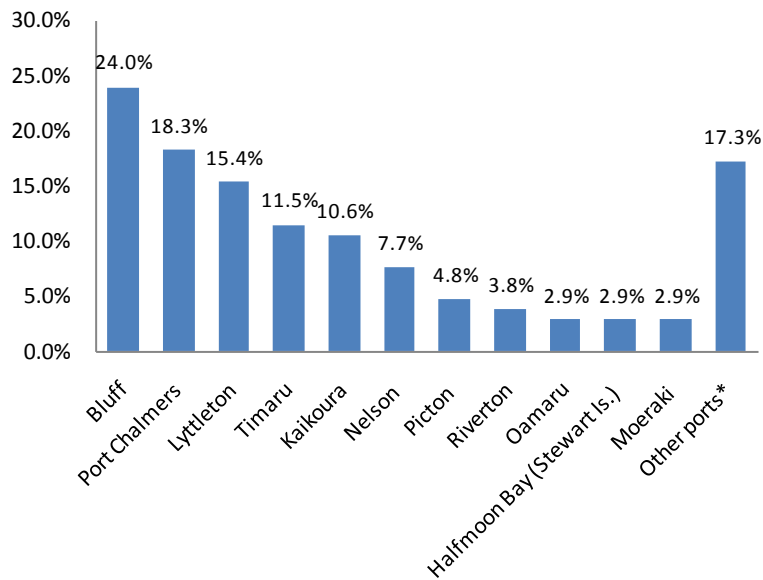


Figure 4.10: Port location of fishing operations ($n = 104$)**

* The 'Other ports' category includes only those ports (13) with small numbers of respondents.

Data are presented in summary form to protect the identity of individual respondents.

** Percentage totals exceed 100% as this is a multiple response question.

4.5 NUMBER OF FISHERIES INSPECTIONS AND INTERACTIONS WITH OTHER FISHERS

The survey enquired into self-reported rates of inspection from fisheries officers, as a surrogate measure for the risk of detection. This is linked to sanction certainty (the perceived risk of being caught), which is a key component of the conventional deterrence model.

Results indicate that inspection rates (measured as number of inspections by fisheries officers over the last year) varied considerably (range 0 – 20 times p.a., mean = 3.73, median = 3, $n = 82$) (figure 4.11). Interview findings suggested that being subject to sudden increases in the number of inspections can result in the fisher feeling unfairly targeted, and thus loss of respect for the system (legitimacy). By achieving a more equitable spread of surveillance and inspections, such reactions could be avoided.

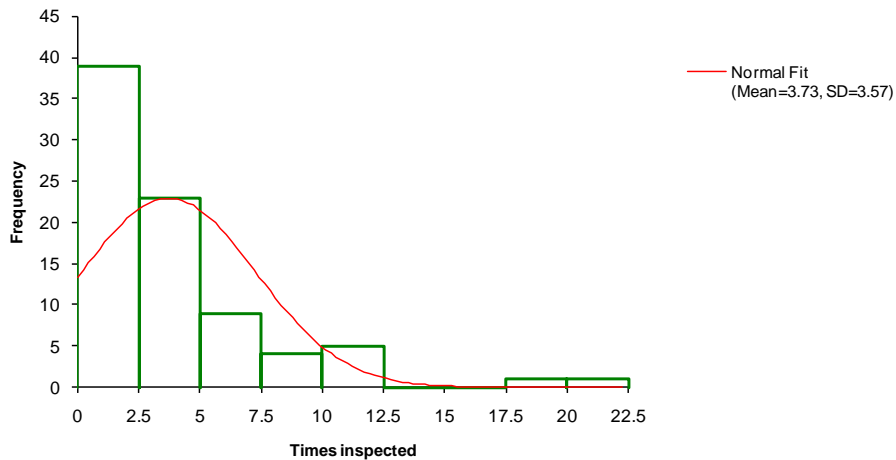


Figure 4.11: Number of times survey respondents said they were inspected over the previous year by fisheries officers ($n = 82$)

The survey also measured the number of interactions with crew or skippers of other vessels, as this provides a gauge of the level of peer interaction (a factor identified from the literature). Most (86%) respondents reported that they interacted with crew or skippers from other vessels 10+ times p.a.

5. PERCEPTIONS AND BEHAVIOUR

This section addresses study objective 1: To examine commercial fishers' experiences and perceptions of fisheries compliance.

First, commercial fishers understanding of compliance (what it means to them) is discussed (section 5.1), followed by examination of study participants' self-reported levels of offending and detection (section 5.2). Fishers' perceptions of compliance (section 5.3) and their reactions to offending (section 5.4) precede examination of their opinions of the compliance system generally (section 5.5) and penalties specifically (section 5.6).

5.1 MEANINGS OF THE TERM 'COMPLIANCE'

Section 5.1 reports on results from the interviews with respect to skippers' perceptions of the meaning of compliance. These views were used to develop an operational definition for 'compliance' that was used in the survey. They also offer insight into how commercial fishers' perceive compliance and its management.

When asked what the word 'compliance' meant to them, a common response from interviewees was '*the rules*' and '*sticking to them*'⁶. One skipper spoke of '*enforcement of the law*' and regulations, while another thought it was '*understanding the rules and abiding by them*'. Compliance was '*staying on the right side of the law*' for another.

The discussion sometimes went in a different direction – one skipper talked in more vivid images of '*black uniforms and jackboots ... paratrooper style ... PERF'ed cops*' and used a pragmatic definition of compliance: '*staying within the rules where practicable*'. A small number of others used colourful phrases such as '*Gestapo-like approach*' to describe how fisheries officers had been portrayed in compliance courses.

Once the interviewee's own definition of compliance had been elicited, a working definition for the interview was verbally provided by the interviewer:

"Behaviour that meets fisheries regulations - with a focus on major harvest regulations: misreporting, dumping, using illegal gear or techniques, or fishing within a prohibited area."

Varying responses to this definition were received. For example, a skipper who predominantly used set net and potting techniques said:

'Regulations' is probably a more appropriate term to use with fishers. Breaking the regulations ... They're not all major ... Misreporting would be major.

Dumping, illegal techniques or fishing within a prohibited area are not major breaches.

If you went over the 4 mile line with a set net it's hardly major - in comparison to, say, selling fish on black market - which is major. Misuse of quota system is major. Doesn't happen much these days, those guys have been pushed out.

A skipper who fished primarily using pot techniques thought '*dumping should be in the definition*'.

A trawlerman challenged the meaning of the term 'dumping' – he suggested instead that there are practical considerations for skippers. For example:

⁶ Quotes from interviewees are presented in italics. Words added by the researchers are indicated by square brackets.

[The] lack of minimum sizes for certain quota species is a major one that needs sorting. You often can't get away from paddle crab where we're trawling, they're returned, but technically we should record them and they would come off quota. Same for undersized fish. They call it 'fish dumping' whereas it is actually fish 'recycling'. Everyone does it ... We're not going out there to target the wrong species. It's not major.

An opposing view was offered by another trawlerman who thought that '*dumping is major wastage*' and that '*there is always another solution ... there is no justification for it*'. Similarly, the notes recorded by the interviewer from an interview with another trawlerman illustrate concerns about dumping, and in particular how some dumping may result from the deliberate behaviour and decisions of certain fishers (where dumping is more appropriately considered to be 'intentional' rather than 'unavoidable'):

Identified issues with elephant fishery. Feels the fishery has been overfished unnecessarily, and just because fish are there this should not be the reason why so much is caught and undersized fish discarded. Some fishers catch 3 tonne, and return 2 tonne to the sea. Believes that local stocks such as this should not be fished in that way. Even if minimum size limits were brought in, believes that would not solve the problem on its own. Believes there is no reason why fishers should continue to 'thrash' the fishery (i.e., discarding such large numbers of fish). This problem occurs mostly once fishers have got their quota caught for the year, and they go out looking for other fish (but keep on bring in elephants that are then all discarded). Wastage is huge and it does not at all fit with his personal and fishing ethic and morals.

Another skipper who used pot techniques suggested that:

Misreporting can be minor but depends on what you are targeting – can be minor or major. It can be quite impractical, for example, all fish in craypots must be recorded, but it is impractical and not worthwhile doing ... lots of little stuff. Therefore it is not done for such by-catch species [as is not targeted].

Most major rules are: dumping in some fisheries – particularly where deemed values are high, using illegal gear and techniques, or fishing within a prohibited area. Major ones are clear cut: how much fish you catch and have the quota for it.

A trawlerman thought that major offences should include 'trucking' (the situation where a fisher catches fish in one Fisheries Area and records the catch as being caught within another). He noted that the working definition of compliance potentially missed the use of 'meal' plants⁷ on board large factory style fishing vessels to disguise illegally caught fish.

Another skipper considered that '*all the rules are the same*', meaning he did not differentiate between minor and major rules.

It was clear that skippers held divergent views about the meaning of compliance and what should be included within a definition. Equally, there was a wide range of views as to what constitutes major or minor rules. These views appeared to vary according to the type of fishing, and attitude towards dumping. Despite this, there was sufficient common ground to derive the following definition:

'keeping within the fisheries rules and regulations'.

5.2 LEVELS OF OFFENDING AND DETECTION

Survey respondents were asked how often they breach the regulations, how often they had been caught doing so, and their opinion of others' breaches and detection rates. For the purpose of the survey, compliance was defined in terms of major and minor rule breaches:

- Major rule breaches include misreporting, dumping, trucking, using illegal gear or techniques, or fishing within a prohibited area.

⁷ Fish meal plants are used onboard some large fishing vessels to grind/process caught fish into a product. The fish species cannot be easily identified from the end product. This type of offending is not common in the inshore fishery that was the focus of this case study since these larger vessels primarily operate in deeper waters.

- Minor rule breaches are ‘all other lesser offences’ (i.e. those not relating to a major rule).

To measure the rates of occurrence, detection and prosecution of breaches to both major and minor commercial fishing rules, a 9 point scale was used (where 1 = ‘never’ and 9 = ‘always’). Figure 5.1 reports the results.

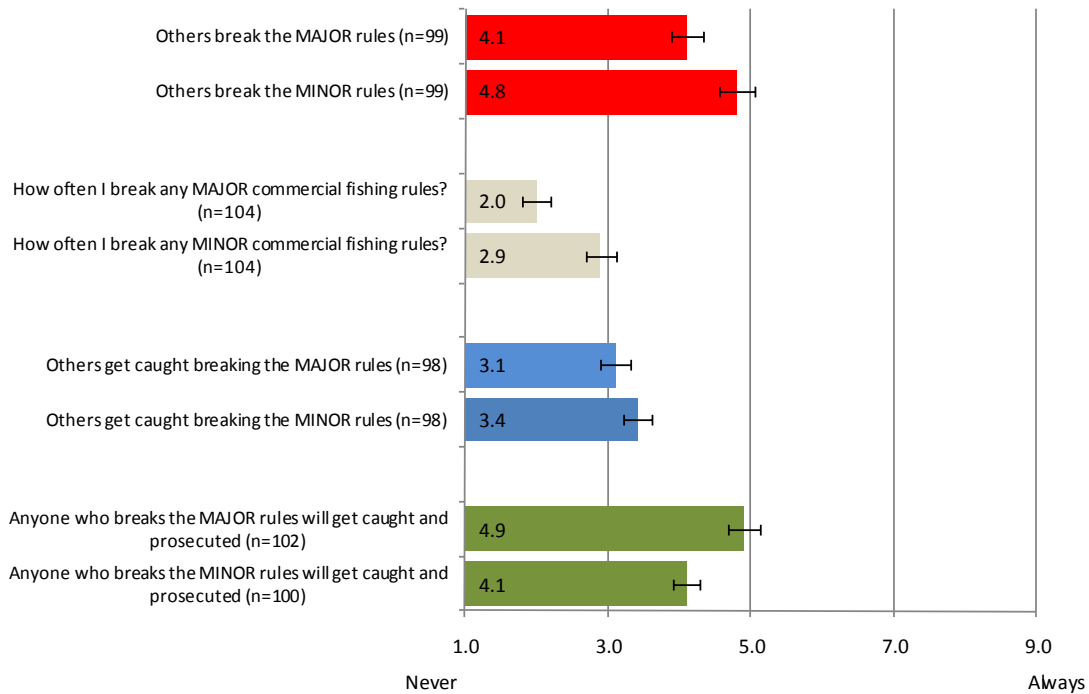


Figure 5.1: Respondents’ assessed violation and detection rates for minor and major commercial fishing rules for other commercial fishers and themselves (mean scale responses displayed ± standard error)

First, respondents were asked to rate how often others violated the rules, and how often others got caught breaking the rules. The mean rate of violation for major rules (4.1 ± 0.23) was less than that of minor rules (4.8 ± 0.24 , see the red columns in figure 5.1). In comparison with the violation figures, the rates of detection were lower for both major breaches 3.1 ± 0.2 and minor breaches 3.4 ± 0.2 (see blue columns).

Respondents were then asked to evaluate the statement ‘anyone who breaks the rules will get caught and prosecuted’ using the same 9 point scale. This was done separately for major and minor rules. Results indicate that respondents expect major rule violators to get caught and prosecuted at higher rates than for minor rule violators (see green columns in figure 5.1).

In contrast, the rates of respondents’ self-reported violation of both major (2.0 ± 0.2) and minor rules (2.9 ± 0.21 – see grey columns in figure 5.1) were considerably lower than their perceptions of others’ offending. The mean rate of self reported major rule violation (2.0) was less than half the rate for ‘others’ (4.1).

A total of 69 respondents (66%) reported that they never break the major rules (i.e., they chose ‘1’ on the nine-point violation scale). The size of the group who reported they break the major rules (i.e., choosing 2 or more on the nine-point violation scale) was 35 (34%).

Respondents were asked to identify how often they had ever been caught breaking major and minor rules during their commercial fishing career. Detection of major rule breaches was quite uncommon (less than 20% of respondents acknowledged they had ever been caught) in comparison with minor rule breaches (almost 50% of respondents had been caught breaking minor rules – figure 5.2). This result may be influenced by the higher number of self-reported breaches of the major (c.f. minor) rules (i.e., they were caught more often on minor rule breaches because they were breaching minor rules more often and/or there were more minor rules to break).

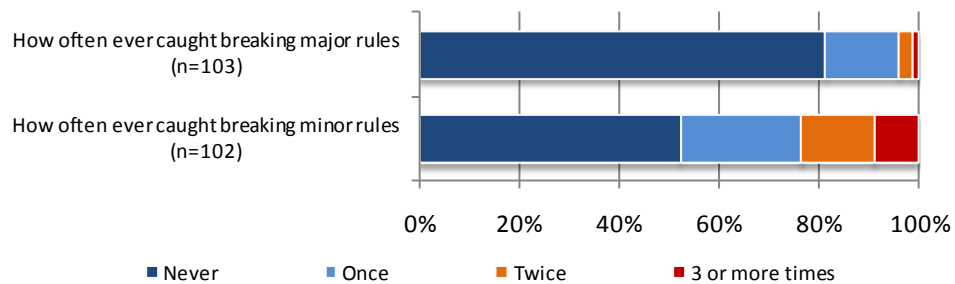


Figure 5.2: Self-reported detection rates for major and minor rule breaches over respondents’ entire careers

Data from the question on how often respondents reported having been detected breaking the major rules were analysed against major rule violation data ($n = 102$). Of the 34 respondents who reported they break the major rules (one fewer than reported earlier, as one respondent did not complete this additional question), 23 (68%) reported they had never been caught doing so. For those who said they never break the major rules ($n = 68$ – one fewer than reported earlier as one of those respondents did not complete this question), 13% ($n = 8$) reported being caught breaking major rules once or more times in the past. These results contrast with other studies identifying higher levels of non-compliance – for example, annual quota levels were exceeded by approximately 74% of commercial fishers (Hatcher et al. 2000) and self-reported violation rates have been recorded ranging from 80% of respondents (Hatcher & Gordon 2005) to 29% (Eggert & Lokina 2005).

The higher reported rates of the minor offending (c.f. major offending) may be explained simply by the greater number of minor rules. However, the implication is that fishers expect the minor rules to be broken more often than major rules (or put another way, they were more tolerant of the minor rules being broken).

Interview data provide a ‘big picture’ perspective of commercial fishers’ opinion about levels of compliance. Most interviewees thought there was very little serious offending occurring within the inshore fishery, but that minor breaches were more frequent. They thought that most offenders would eventually be caught. Some commented that current offending levels contrasted with days past: *‘All fishers who are left in the fishing industry now are very compliance aware. Any casualness of the past has gone’*.

One interviewee went so far as to say that 99% of all skippers were breaking the regulations every day, particularly in relation to ‘discards’ and or ‘high grading’ (whereby smaller sized or damaged fish are returned to the sea without being recorded, so as to allow for better quality fish to be caught and landed; this occurs because yields for larger sized or better condition fish are higher per kg than for smaller damaged fish).

Others differentiated between the levels of offending within the different fisheries, with one skipper stating that the inshore fishery rate was lower than that in the offshore fishery (where non-compliance was estimated to be *‘80 percent’*). This tendency to suggest that compliance problems rested with a different fishery (or different type of fishing method) featured commonly in the interviews (a ‘them not us’

argument). Inshore fishers tended to pin the problem of compliance on deep-water fisheries (and joint-venture vessels in particular). Set-netters and trawlermen sometimes accused one another as having inferior fishing practices. However, results from this survey show there are no statistically significant differences in rates of self-reported major rule violation by fishing technique.

5.3 PERCEPTIONS OF COMPLIANCE WITH THE COMMERCIAL FISHING REGULATIONS

Survey respondents were asked to respond to statements designed to measure their views about compliance behaviour, based predominately (but not solely) on normative factors. Many of the statements about commercial fishing compliance received high levels of agreement – especially ‘I have too much to lose to break the rules’ (58% strongly-agreed, figure 5.3), ‘I normally keep within the rules’ (51% strongly agreed) and ‘It does not pay to break the rules at all’ (45% strongly agreed). On the other hand, 51% of respondents strongly disagreed with the statement ‘It’s okay to break the rules if everyone else does’ and 39% strongly disagreed with the statement ‘Everyone breaks the rules most of the time’.

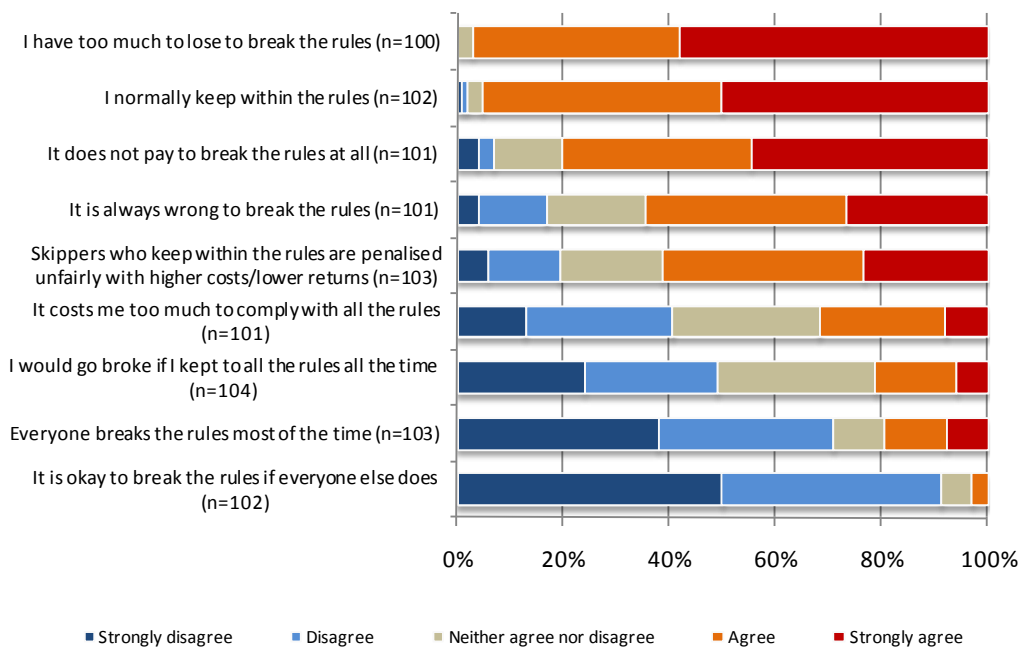


Figure 5.3: Level of agreement with normative statements about commercial fishing compliance (combined data from Q14 & Q16)

Interviewees perceived the potential financial reward from breaking the rules to have no influence on their compliance decisions (despite the fact that for some the potential rewards may have been lucrative). They indicated that most commercial fishers did not set out to break the rules deliberately but, given the high number of regulations, inadvertent breaches occurred, especially of the minor rules. Whether chronic or blatant offenders have different motives from other fishers was unable to be judged from this study.

5.4 REACTIONS TO OFFENDING

Most respondents (75%) had never reported any other commercial fishers' offending (Q27). About half said that if they saw another commercial fisher breaching a major rule, they would normally respond by raising it directly with the fisher concerned (51%). Eighteen percent said they would report it directly to a

fisheries officer and 8% would report it anonymously (figure 5.4). Those who said they would do nothing (9%) or did not know (14%) were in the minority. Considered together, these results may indicate that only a small proportion of major offending observed by other commercial fishers is reported to the authorities.

Respondents were asked to gauge how often they would normally expect other commercial fishers to report major commercial fisheries rule breaches to the relevant authorities (using the nine-point scale from 1 = 'never' to 9 = 'always'). The modal category was 5 (mean = 4.7).

Some interviewees talked about an '*unwritten code*' never to report another commercial fisherman regardless of how serious the offence. This unwritten code of behaviour appeared to have the function of avoiding any potential reciprocity or false allegation and abuse that could result from normal competitive rivalry amongst fishermen.

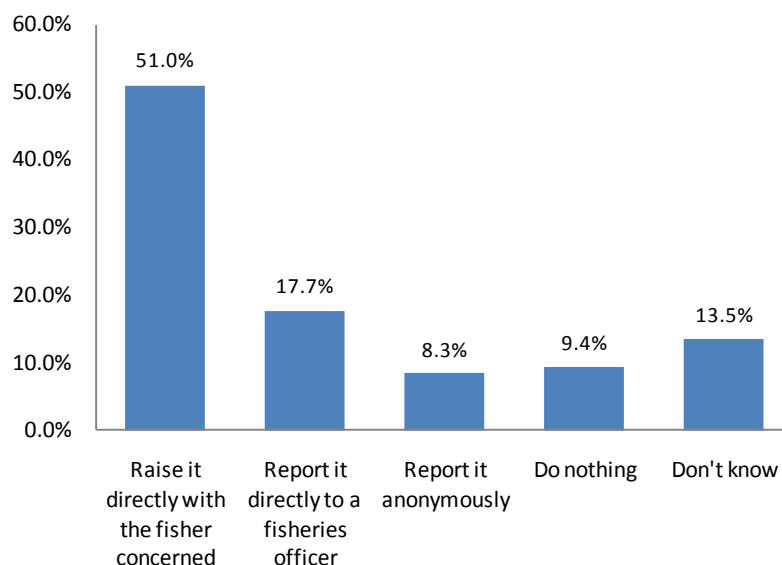


Figure 5.4: Respondents' normal response to seeing another commercial fisher breaking a major rule (n = 96, Q28)

5.5 PERCEPTIONS OF THE COMMERCIAL FISHING COMPLIANCE SYSTEM

Survey respondents' views about the penalties for breaking the commercial fishing regulations were almost evenly split between 'about right' (43%) and 'too harsh' (40%), while a considerably smaller group believed the penalties were 'too weak' (17%, figure 5.5). Many of the skippers interviewed thought the size of penalties was excessive, but most commented that penalties were a sufficient deterrent to discourage anyone from breaking the rules. Several interviewees made the distinction between the sizes of potential penalties and those actually handed out (the former being considerably larger than the latter for most offences), and some thought the penalties were too high, to the point that they may have unintended consequences - one skipper suggested that the penalties could lead to offenders caught breaching minor rules doing multiple offences (to make it worth their while).

In relation to the number of regulations, respondents' opinions were more aligned – 75% believed there to be too many regulations (figure 5.6).

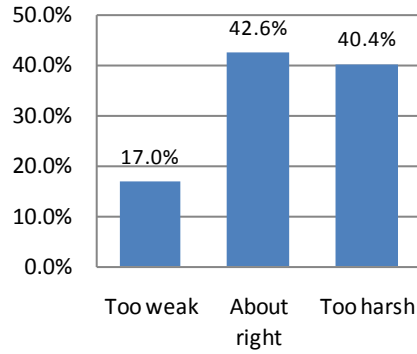


Figure 5.5: Opinions on penalties for breaking commercial fishing regulations ($n = 94$, Q12)

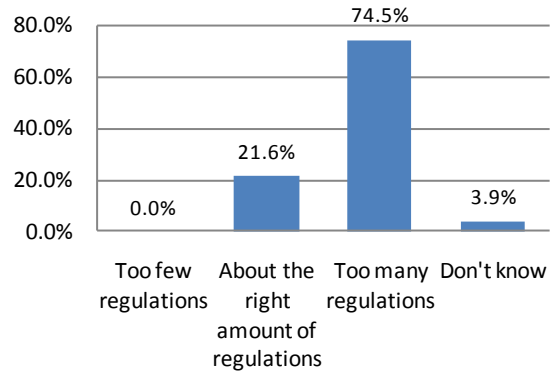


Figure 5.6: Opinions about the number of regulations ($n = 102$, Q15)

Survey respondents were asked about specific aspects of the commercial fishing compliance system, specifically, to indicate their level of agreement with various statements. The Quota Management System had a high level of agreement but other aspects of the compliance system (the size of penalties for offending, the deemed values system and setting of deemed values) generally met with disagreement from respondents (figure 5.7).

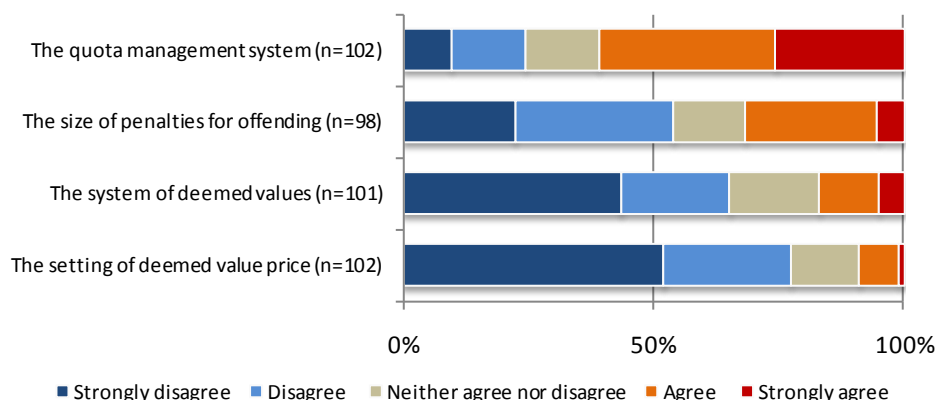


Figure 5.7: Agreement with statements about the compliance system (Q13)

Interview data support these findings. Interviewees voiced strong views on the regulations; the majority of comments were negative. Responses traversed regulatory aspects, including reporting, quota setting, deemed values, closure of areas, and the observer programme, amongst others. Those making positive comments commonly also identified regulations they did not agree with (i.e., no one gave blanket support for all of the regulations). Typically, the positive comments were very general – such as ‘some are over the top, but generally [they are] okay’ and ‘they’re adequate’.

Negative comments (the majority) were more specific and included: the introduction of set net bans to protect Hector/maui dolphins, fisheries observer programmes (linked to both dolphin and seabird protection), specific aspects of the catch recording/reporting systems, and other matters. The following selection of comments indicates their range and flavour:

Everything they [MFish] do is a threat. It scares people off. There’s no need for a \$250k fine. Taking quota off you would put you out of business. Not that they get many convictions, but the charges are always high.

Always come across as they are going to take your livelihood and your boat off you, that’s MAF! You don’t get that sort of thing on your power bill or rates do you? Fishers have enough on their plate ...Filling out the books and making errors and getting penalised - it’s always in your mind (which is on top of not getting any sleep on 3-4 day long trips).

Could be a bit looser ... there’s something lost in NZ in comparison to places in Europe where you can buy fresh fish off the boat.

Should not be allowed to go over the quota at all. Guys are over fishing it and storing up crays for the next year. This is what is keeping the lease price up. They just hold onto it until prices go up and then they dump it. It’s not right.

[Having to pay] deemed value for ACE knocks you around a little bit ... ramped up [values] was not a good solution. Should have stopped those guys who were over fishing, but instead everyone gets penalised.

Trawl Catch Effort forms – disagree with the detail. Too much really for small operators ... I [trawl the same location day-in, day-out, so it is] wasted time.

Disagree with closing [a certain area] to set netting. Closed off 95% of key fishing grounds. Should be much smaller.

The whole observer programme is a problem. Guys creating jobs for themselves.

5.6 PENALTIES RECEIVED AND THEIR PERCEIVED FAIRNESS

When asked about whether they had ever received a penalty during their commercial fishing career, slightly less than one half ($n = 49$, 47%) of survey respondents said no. Of those who had received penalties, a range of types of penalty was recorded, from the less severe (late-fees – 27%) to the more serious (e.g., loss of fishing permits (5%) and loss of quota (2%); figure 5.8). Other penalties received by respondents included loss of automobile, cancellation of permit by maritime authorities, verbal and written warnings, and receiving warnings and fines as a skipper without fault. Also mentioned was the case of one individual who spent significant sums in legal defence to prevent charges being laid for an alleged offence. This list indicates that commercial fishers perceive those threats or costs to their operations as being compliance related penalties.

This finding reinforces data from the interviews, whereby fishers showed a very broad definition of the ‘costs’ of non-compliance. Several mentioned types of cost other than fines - such as legal costs, the loss of income (from having vessels impounded), and the associated ‘fall out’ of any legal proceeding, which in one case ‘split up my marriage’, caused others to have to close down other businesses, damaged personal reputations, and in another case was thought to have led to a mental breakdown. One case that was mentioned regularly was an individual who, once caught offending, eventually committed suicide.

In the survey, those who received fines as their highest penalty ($n = 31$) were asked to indicate the amount of the fine. This ranged from \$250 to \$100,000 – skewed positively with a median of \$750 and a mean of \$5,374. Large fines are quite rare, but they have a major impact on the size of the mean fine for this group.

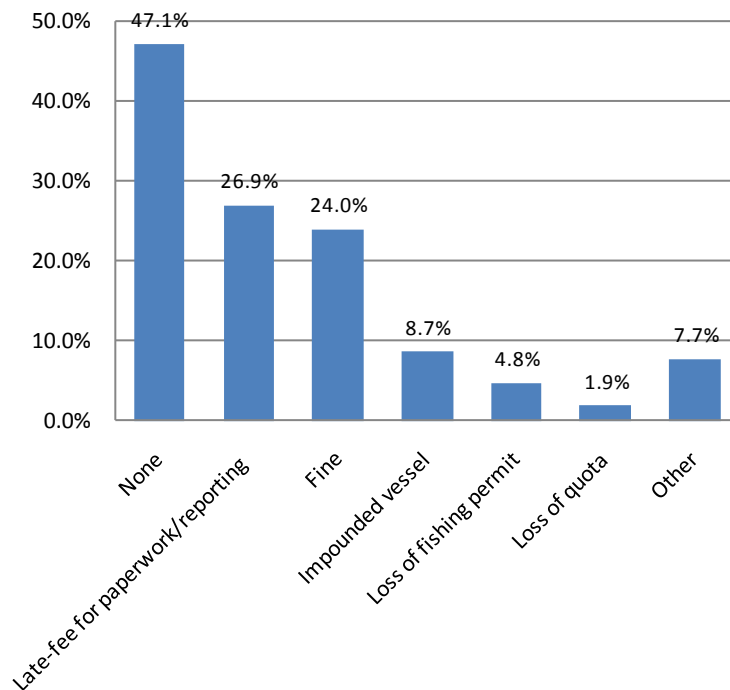


Figure 5.8: Largest commercial fishing penalties received by respondents ($n = 104$, Q22)*

* Percentage totals exceed 100% as some responses included multiple penalties (e.g., a fine as well as impounded vessel)

A smaller proportion of the respondents completed questions relating to their perception of fairness of the penalties they had received. The data comprised a total of 72 penalties received by 44 respondents.

Most respondents rated the penalty/s they had received as either 'very unfair' or 'unfair' (55%, refer 'overall view' in figure 5.9). Those penalties perceived to be the fairest, were (in order) misreporting, late returns and 'fines'; whereas, the 'late fee' category was perceived to be least fair. A fee for lateness was the most frequently reported type of penalty received. Penalties are reported as described by respondents in figure 5.9; 'late fee' is separate from 'paperwork late fee' as respondents did not specify the type of late fee. Numbers for each category are small, so results across categories must be treated with caution.

Discussion with interviewees about the fairness of penalties suggested that a key determinant of their view was how blatant and serious they considered the offence and, in some cases, their perception of the offender's character (when talking about another's offending). Those blatant offenders who committed serious offences, or were considered of dubious character, were generally shrugged off with comments like 'serves them right' or they 'do the crime [so they should] do the time'.

The response was different towards those offenders prosecuted for what were perceived to be minor offences, or where it was thought there had been no deliberate intent to offend, and/or were thought to be 'reasonable' characters. In such cases, interviewees were sympathetic because in the words of one skipper, 'anyone can make a mistake'. The type of comment was often couched together with a statement about the large number of rules.

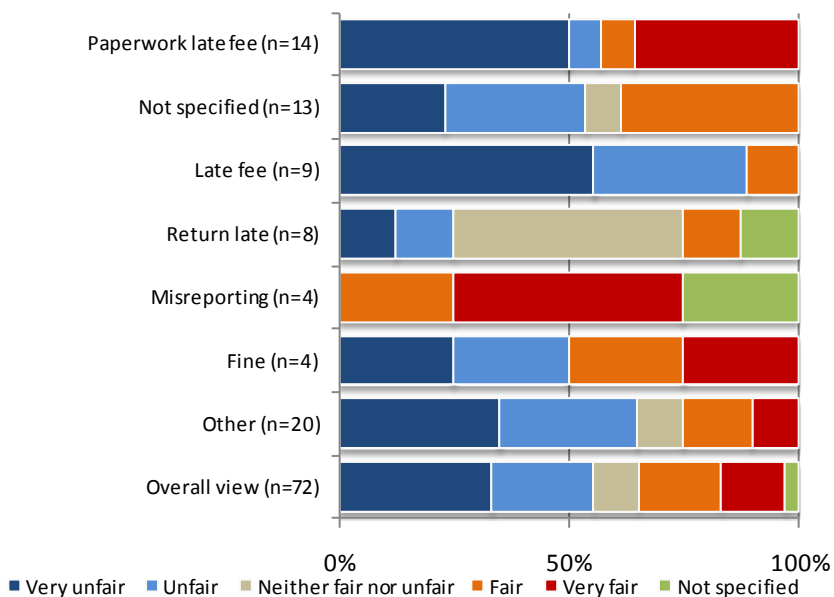


Figure 5.9: Respondents' views on the fairness of penalties they had received (Q23)*

* Data are presented ordered by sample size, and include multiple responses for certain individuals who had received more than one penalty. The 'other' category is reported in summary form in order to protect identities of individual respondents. This group contained a range of penalties including these examples: use of illegal fishing techniques, catching undersized fish, receiving a verbal and written warning, fine and loss of vehicle, fishing in a prohibited area, fishing without quota, impounded vessel, and not having the landing book filled in immediately.

5.7 SUMMARY

Survey respondents believed that minor rules were breached more frequently than major rules. They thought that other commercial fishers broke the rules more often than themselves (about twice as much).

About two-thirds of the group said they never breach the major rules. They thought that the likelihood of getting caught and prosecuted was slightly higher for major rule violations compared with minor rule violations. About half reported they had been caught breaking minor rules; far fewer had been caught breaching the major rules (this may simply reflect the higher rate of violation of minor rules).

Overall, fishers agreed with statements that said they normally operated within the rules, they have too much to lose to break them, it does not pay to break the rules, that doing so is wrong, and that skippers who keep within the rules are penalised unfairly with higher costs and/or lower returns. As a collective overall, fishers said that even if others break the rules, it was not okay to do so and they believe that most people do not break them most of the time. There were some fishers who agreed that it cost them too much to comply with all the rules, but more disagreed with this statement. Similarly, slightly more people disagreed (c.f. agreed) with the statement that they would go broke if they kept to the rules all of the time.

Most survey respondents have never reported another commercial fisher's non-compliant behaviour to the authorities. The preference expressed by about half of the fishers was to talk with the offender directly, although about one quarter said they would report a major rule breach if they saw one.

Commercial fishers participating in the study thought there were too many regulations and did not support the system of deemed values. In contrast, the Quota Management System received positive support. Fishers were split in their views that the penalties were too harsh or about right. Some study participants thought the penalties were "excessive".

Just over half of survey respondents had received a penalty at some time. The most common types of penalties received were late fees for paperwork/reporting and fines. Most fishers thought that the penalty/s they had received were unfair.

6. FACTORS INFLUENCING COMPLIANCE DECISION MAKING

This section addresses study objective 2: To identify factors influencing compliance behaviour and measure their relative importance.

First, the factors are discussed (sections 6.1-6.3), followed (section 6.4) by explanations of key themes or 'stories' that help explain the compliance responses of study participants and illustrate the inter-connectedness of factors. Section 6.5 outlines results from analysis of the relative influence of factors upon study participants' compliance decision making.

To recap (see sections 2 and 3), three types of factors are known to influence compliance: deterrence factors, social/normative factors and 'other' factors. The primary factors were identified from the literature, grouped into categories and assessed for their relevance to the SE fin fishery through the interviews. Factors that had the greatest influence on interviewees' decisions to comply were formulated into survey questions. The survey statements were developed from the terminology used by interviewees, as well as the knowledge gained from the literature review.

This section sets out the pertinent findings from the analysis of factors, concentrating upon the significant results.

6.1 DETERRENCE FACTORS

Most of those interviewed believed the likelihood of being caught breaking the rules was high (i.e., a high degree of sanction certainty), and the survey respondent group thought that the likelihood of being caught if you broke a major rule was greater than if you broke a minor rule.

Fishers were divided in their views on sanction severity (whether the penalties were too harsh or not), but only a small percentage thought they were too weak. Perceptions exist that many penalties are set at an excessive level and there is evidence of a broad range of non-compliance costs to fishers (from financial costs through to personal and social costs, such as marriage break-ups and mental illness).

With respect to commercial gain, a clear message from the study participants was that illegal rewards or gains from offending had relatively little influence on compliance decisions. While there is a possibility that this factor is influenced by social desirability (perhaps to avoid the appearance of being needy or greedy), it was a commonly held belief. Given this finding differs from other studies (e.g., Kuperan & Sutinen 1998, Nielsen & Mathieson 2003, Hatcher & Gordon 2005), some explanations provided by interviewees are now offered.

Some of the skippers interviewed cited the Quota Management System as the reason why they could see no reward in breaking the rules or catching any more fish than they were entitled. Their rationale was that anyone who wanted to catch more fish would usually be able to find additional ACE through trading arrangements.

For some skippers of smaller operations, their relative inability to obtain further quota through either purchase or lease arrangements appears to be a factor in their compliance decision making. In contrast to those who 'have' quota, those who 'have none' appeared, on the face of it, to have less-to-lose and more-to-gain from breaking the rules (due to financial need and a lack of other options). Indeed, more than one skipper thought that the newer entrants into commercial fishing, despite being few in number, were the most likely fishers to risk breaking the rules:

'Younger guys can't see a good future, they're trying to make ends meet, so they cut corners and sell for cash and try to avoid the fisheries officers. They're the main concern for compliance.'

The reason they do not comply was seen often to be because they are trying to ‘*make ends meet*’ and they have ‘*nothing to lose*’. Such individuals were thought to be more likely to make illegal private sales of fish for ‘*small cash*’ (i.e., on the black market). There was very little, if any, sympathy amongst interviewees for that sort of offending. ‘*Fishermen are not happy with them*’ was one comment, while others thought that either ‘*greed*’ or ‘*need*’ were the main reasons for that type of offending. Despite this, those interviewed who would fit loosely in the ‘have none’ group said that they chose to stick within the rules – one interpretation would be that there are other stronger factors at play for those individuals, and another could be that perhaps the full story was not being told. There was no evidence from the interviews to endorse the latter interpretation.

Other possible reasons as to why commercial gain did not appear to have much influence in participants’ compliance decision making include norms of fair play or morality, or because as a business decision, there could be more to be made from working within the rules rather than breaking them. Or, as one interviewee succinctly put it, they were there to ‘*catch fish, not break the rules*’.

Other interviewees said that detection was highly likely because of the elaborate surveillance and detection methods used by the Ministry. This could be interpreted as meaning that, under the existing compliance regime, the deterrence risk and reward decision tipped favourably towards complying because the risks of being caught are just too high.

Regardless of the rationale, it is clear that commercial gain had relatively little influence on interviewees’ decisions to comply.

6.2 NORMATIVE AND SOCIAL FACTORS

The research literature indicated that fishers’ perceptions of fairness of the system (at a number of levels for both compliance procedures and outcomes) are linked to concepts of legitimacy (e.g., Neilsen 2003). Legitimacy factors have been shown to exert a strong influence on fishers’ compliance decision making in some studies (e.g., Hønneland 2000) but less so in others (e.g., Hatcher et al. 2000). The present study found that legitimacy was not a strong influence upon compliance decision making.

Comments from the interviewees provide insight into why this study’s results differ from some other studies with respect to legitimacy (table 6.1). The table should not be read as a quantitative assessment of all comments – quotations have been selected for the purpose of illustration. Nonetheless, interviewees gave more negative than positive comments on these three statements.

Table 6.1: Selected responses to three statements on fairness/legitimacy

Statements	Agreement	Disagreement
CSO (SE Fin Fish) has a fair say in how the regulations are set	<i>They do, they have all the say. The large organisations have all the power. Agree. Yes CSO has a fair say, but not getting heard.</i>	<i>They’re trying to help, but they just don’t have enough clout. Fishermen are not united enough – because most fishermen are loners. They could, but don’t really get much in contact with us ... mind you I don’t get in contact. Set netting – they didn’t do enough and have enough say.</i>
Fishers have fair say in how the regulations are set	<i>Agree, but less so than for CSO.</i>	<i>Disagree, independent fishers have very little say. Owner operators don’t have a say. [They have] no say, unless it is through Fed or SE Fin Fish. Annoys me that Ministry won’t listen. Don’t think that they would do anything anyway. Structural problem with MFish.</i>

Statements	Agreement	Disagreement
		<i>Not at all. It's a bad thing. They're taking areas away from fishing (like with hector dolphins) despite fishers trying to have a say – ignored. They had it in their mind they were going to do it before they even had the meetings. As a result I feel discouraged from future consultation – if you are not going to be listened to, then what is the point?</i>
Fishers trust the regulatory authority to act fairly	<i>They do a pretty good job. Inspectors are fair enough. Locally [it] is good. OK with MFish guys on boats. They're good. Good relationships make things a lot easier. They will be fair to you. I'm no longer as aggressive towards fisheries officers as I used to be ... they aren't either towards me... It's like a mirror, you get treated how you treat them ... win-win, not a lose-lose. I like them.</i>	<i>They don't. Heard seminars where fishers were encouraged to treat MFish like 'the enemy', keep professional distance, but be polite, and if questioned any further then refer MFish to lawyers (who would arrange formal meeting at an appropriate time). Heard and seen some shoddy carry on from some of the compliance guys, who can be smart and nasty. Have more powers than police to investigate. MFish treats all fishermen like criminals, before they have even left the wharf. Thinks all fishers are trying to rip off the system, black marketing fish etc. Not really. A bit like the police, they note everything you say.</i>

The potential impacts of offending on personal reputation and the reputations of their industry have some bearing on the decisions of those interviewed and surveyed. Most (85%) of survey respondents agreed that their personal reputation would be damaged if they were caught breaking the rules, while 76% agreed that their industry's reputation would be damaged if they were caught offending, and in the words of one past offender it is *'hard to repair a damaged reputation ... people believe what they read [in the court notices etc]*. Interviewees' responses to the question 'What do you think your colleagues, family and friends might say if you were prosecuted for breaching fishery regulations?' included.

[They would think I was a] bloody idiot. Not much sympathy.

[My] reputation would suffer ...

[Colleagues, friends and family members would] take a dim view. [They would say that I've] been in the game long enough to know better.

The principles of being fairly treated and having opportunities to be involved in the process of setting regulations were both strongly held opinions by interviewees. However, it seems fairness was not a major operative factor in their day to day decision making about compliance (most interviewees said fairness did not affect their compliance decision making at all). Despite several skippers feeling the consultation and regulatory systems were not as fair as they'd like them to be, they still complied because, in the words of one skipper, *'there is too much to lose'*.

Interviewees and survey respondents spoke about the relationships between themselves and the Ministry and Fisheries Officers. It was notable from survey results that respondents had different perceptions towards the Ministry (as the institution) and Fisheries Officers. The results indicate that programmes aiming to establish more regular and, in the words of the fishers, less 'threatening' contact would receive fishers support.

'Doing the right thing' was a strong theme throughout the study findings. Responses to a number of moral factors (expressed as agreement scale items – refer figure 5.3) point towards the influence of moral drivers. In particular responses to 'it is always wrong to break the rules' (64% agreed), 'I normally keep within the rules' (95% agreed), and two others that are moral factors but also deterrence related: 'it does

not pay to break the rules at all' (80% agreed) and 'I have too much to lose to break the rules' (almost all respondents (97%) agreed with that statement). Interviewees' comments included:

Morality is important. [We have] got to think about the future.

The rules are there for the benefit of the fishery.

The regulations help make sure the fishery is still there for the future. When I get out of [the] fishing industry I want to leave it in as good or better state as what it was when I started. It's about future generations.

Study participants' attitude towards offending was one of low tolerance. The survey showed that the proportion of fishers agreeing with the statement 'Commercial fishers do not tolerate anyone breaking the fisheries rules' was 44%, compared to 26% who disagreed.

Interviewees had two different reactions towards offenders for major versus minor offending. The general belief was that blatant offenders (particularly those known to be of dubious character) were thought to deserve punishment. There was a different reaction to commercial fishers who were caught for minor offences, or where there was perceived to be no deliberate intent to break the rules. For this type of minor offending, the reaction was one of sympathy towards the offender, couched with disbelief that the authorities took the offender to task. In this way the fishers' attitudes towards offending and perceptions of how fairly fishers are treated appear to have direct bearing on perceptions of legitimacy.

The perception that others offend more often than themselves could be explained by a common perception of the presence of a small number of individuals in the fishing community who offend at high levels (this type of relationship has been shown elsewhere, for example, Eggert & Lokina 2005 found that the 8% of persistent violators in their sample were responsible for 30% of the violations). The link between perceived rates of others' offending and personal offending is an area that could be better understood with further study.

The influence of others in convincing fishers to modify their fishing practices (the factor called 'conviction') was also evident in interviews. Most fishers said they would seek help on a compliance issue from trusted colleagues (rather than the Ministry) in the first instance:

Yes there are mentors [amongst local commercial fishers who people go to for advice on compliance and this local system seems to function alright]. Yes all [commercial fishers] talk about [compliance]. All are watching one another. Keep an eye on it ... voluntary enforcement.

6.3 OTHER FACTORS

Previous interactions with the fisheries compliance system appeared to influence compliance decision making for about three quarters of the skippers interviewed. In particular, those skippers who had a history of serious offending in the past considered that their past experiences influenced their compliance decision making a lot. They suggested that they never offend now:

Been in the situation once or twice where I've broken a regulation. The downstream effect is huge. No-one wants to be in that situation ... the procedures were quite aggressive and scary. Personally there is far more to lose than there is to gain.

As I've got more established in the industry, I make more of an effort all the time to make sure we're compliant all the time.

Skippers with no history of personally breaking the rules were influenced by the experiences of others whom they either personally knew, or read about through media and industry reports. While various cases were mentioned, these experiences have one common aspect – that they reinforce skippers' decisions not to break the rules. Not only do cases in the media (or of associates) have a strong influence on the perceptions of skippers in terms of their own decisions, they appear to result in fishers questioning the

overall legitimacy of those regulations and their enforcement (for those cases where sympathy is felt towards the individual fisher concerned).

Some interviewees pointed to quota ownership as having a bearing on the likelihood of offending, with the perception that those who had quota had more to lose (therefore they are less likely to offend than those without). The literature also suggests that quota ownership may have some bearing on compliance decision making (e.g., Hatcher & Gordon 2005 suggest that compliance rates are lower for fishers leasing additional quota than for those fishers who fished their own quota). The survey was able to address this in part, by comparing rates of self-reported major rule violation for those with quota versus those without. Results indicated that although reported violation rates appeared slightly higher for those without quota (mean = 2.4 for those with quota versus mean = 1.7 without quota), the difference was not statistically significant.

Whether respondents had international fishing experience (identified in the literature as a potential factor influencing compliance – e.g., Nielsen & Mathieson 2003) had similar results, with slightly lower mean major rule violation rates for those with international experience (mean = 1.2) than without (mean = 2.2); although once again the differences were not statistically significant.

Some interviewees also pointed towards newer entrants as most likely to risk breaking the rules. However, when survey data for age and experience were analysed to see if that was the case, it is clear that neither of the variables (that were measures of how recently individuals had entered the industry) showed any statistical relationship with rates of major rule violation.

6.4 COMPLIANCE 'STORIES'

Another way of analysing the study data is to set aside the preconceived factors and let the data 'speak' for themselves. Four key themes were evident from this approach. They are discussed in this section because they help to explain compliance decision making. In particular, they illustrate the interconnectedness of the factors and their influence upon decision making.

6.4.1 'DOING OUR BEST TO COMPLY'

The phrase '*doing our best to comply with the rules*' was commonly used by the skippers interviewed, and this term seems to be an apt description of their mode of compliance. It could be called a 'realist' or 'pragmatic' approach towards fisheries compliance. Such skippers did what they could to comply – their view was that it was impossible to comply with all the rules all of the time.

One instance illustrates this well - reportedly, most trawlers eventually find themselves '*landing a net full of dogs*' (i.e., spiny dog fish). Some skippers indicated that most would normally release the net load of such unwanted quota fish and not record the catch. This would ensure they did not incur a high deemed value bill, or use up quota that the fisher may or may not have. Technically such behaviour violates the regulations. Some believed that those skippers who opted to comply fully with the regulations would unfairly bear a high cost of complying with the rules, in terms of deemed value bills and loss of productive fishing time with unnecessarily processing and landing unwanted fish. From these interviewees' perspective, such fishers would risk going broke; while the skippers who opted otherwise would, while attempting to comply where practicable, break what they saw to be an impractical rule.

Most interviewees identified that efforts to comply with regulations imposed costs on their businesses. Those costs of complying (other than those identified above) normally involved 'paper work' and 'certification' costs. They were generally accepted as being something you just had to bear as a commercial fisher. In the main, skippers aimed to 'do their best to comply' where they could.

This perspective would bring into question the appropriateness and perceived legitimacy of certain regulations. Depending on how much this perspective is shared with the wider population of commercial fishers, it could very well be the dominant paradigm.

6.4.2 DISCARDS, DEEMED VALUES AND FISH SIZES

Interviewees regularly identified three connected issues: the illegal discard of quota species, the role that deemed values play in allegedly driving that offending, and pleas for the introduction of minimum fish sizes for such species. An excerpt taken from notes of one interview illustrates those views and identifies potential solutions:

Discarding is common practice amongst almost all commercial fishers (and is technically breaking the rules – if not recorded against quota). The skipper believes injustice is caused by requiring fishers to record the catching of undersized fish because of the history of how quota levels were set (i.e., based on what was landed excluding discards, whereas the quota system has since changed requiring that all fish should be landed and recorded). This particular issue, he argues, is at the heart of compliance issues for many fishers. Excluding that particular rule, compliance breaches are thought to be very rare.

The skipper also pointed out an example of where deemed values appeared to be set too high: gooeey duck. This species sells for approximately \$2/kg, but attracts a deemed value of approximately \$100/kg. The deemed value is set at 50 times the market value. Occasionally this species gets uncovered accidentally. The skipper suggested that deemed values should be set as a percentage of catch value. Otherwise, he argues, the Ministry of Fisheries will never get accurate reporting (sufficient for setting and reviewing Total Allowable Catch etc.) and compliant practises from fishers.

The skippers thought that the deemed values system was the Ministry of Fisheries' response to problems with large Joint Venture vessels over fishing certain stocks. However, he argues this system is a 'sledge hammer to crack a nut'.

He argues that the biggest compliance issue is that of small 'undersized' fish and the need for minimum sizes for quota fish species. Process of deemed values then requires those vessels to pay for fish they haven't landed and suffer and use up valuable quota. The solution is either put in place minimum sizes or double the Total Allowable Catches to acknowledge the discard component (part of historically recorded catch).

Another skipper believed that the introduction of minimum sizes (and allowing fishers to return undersized fish) would not resolve the discarding problem on its own.

Skipper believed a small number of fishers would still abuse the system by overfishing certain stocks (and not fully complying with the deemed value system) and it would result in even more wastage (which he argued was morally wrong). Alternative solutions he identified instead were improvements to net mesh sizes and practices (to reduce by catch of small sized fish), or more radical change such as a shift to input-based controls on fishing (to balance the output controls of the QMS).

6.4.3 FEAR AND ANXIETY

The topic of compliance was an area that many fishers felt strongly about. A few interviewees talked about the fear and anxiety they felt in their day to day efforts to comply with fisheries regulations and reporting systems. This was probably best exemplified by this excerpt from the interviewer's notes from one interview:

People with quota won't say what they really think about the system because they want more quota, or they are in fear of what the big companies might do to them. He said that the big companies and Min Fish have too much power. During the course of the interview it became apparent that a state of fear or anxiety permeated his day-to-day life. This is illustrated by his concerns about the potential impacts of either breaking rules or accidentally catching a species with high deemed value – as the impacts of either would be having to sell his house and business and effectively lose his livelihood.

Another interviewee talked about the 'constant worry and stress' of having to comply with all of the regulations.

The interviewee felt he could not fish without breaking some of the rules (this was thought to be inevitable as there were so many rules). The responsibility for the small fishing operator to record everything made the business very hard, with the amount of time, worry, paperwork and stress involved. The interviewee talked about reluctance of bringing anything to the attention of compliance officers (such as clarification on a particular rule) out of fear this would attract unnecessary attention; however I heard also that some of the FishServe people were less threatening and more helpful.

The interviewee believed that the Ministry of Fisheries would 'throw the book at you' for even the smallest of errors in paperwork. Felt that there was an attitude problem with some compliance officers, who made fishers feel threatened ... having more powers than the police.

Solutions identified were: compliance officers treating fishers with courtesy, consulting properly with independent fishers about regulations, and a more simplified/less threatening set of regulations and reporting systems.

As many interviewees felt they had little, if any, say in the whole system (resulting in low legitimacy) these types of response suggest that parts of the compliance system trigger, for some, feelings of powerlessness, fear and anxiety.

Interview findings revealed the multifarious and far-reaching consequences to individual fishers from being investigated and prosecuted for alleged offending. To use their words, skippers spoke of the 'fall out' of legal proceedings on their personal lives, and the crippling effect of legal battles on their business and livelihoods. These findings were echoed in survey results, where some respondents equated the costs of investigation and legal defence as penalties in their own right. Past wrangling with fisheries investigations may also have a long lasting result. Feelings of anxiety, fear and powerlessness in reaction to compliance (relating even to the risk of being caught accidentally breaking a rule) were plainly evident from some interviews, culminating in what appeared to be distrust of the authorities.

6.4.4 SUSTAINABILITY

Notions of sustainability influenced the compliance decision making of many interviewees. Indeed, more than a half of those interviewed believed sustainability to have a big influence on their decisions.

I could see where it could [affect the sustainability of fish stocks] if there's rampant offending such as major trawlers dumping. If prevalent, then such offending would have an effect [on the sustainability of fish stocks]. Can't comment about current levels though. Everyone has to comply.

One interviewee spoke about the gem fishery and how, in his view, the offshore fishery is generally not being managed sustainably (in contrast to the inshore fishery that he thought was sustainably managed). He said there are 'three known rogue operators out there' who over-caught quota, which 'while that was not technically an offence so long as they paid deemed value', he believed their behaviour was 'morally wrong'. This example demonstrates how the concepts of morality and sustainability intertwine.

For some, sustainability was a rationale for their decisions to return what they considered to be undersized fish without reporting or paying deemed values (which is an offence for certain species). Their belief was that in doing so, they were taking care of future fish populations and keeping the stocks healthy. In contrast, another skipper pointed out that returning deep-dwelling fish in such a way could be of dubious value, as most would not survive the rapid ascent and descent. Another interviewee believed the stocks were sustainable, although it was not necessarily as a result of the Ministry of Fisheries management:

It's the way the fishers manage it, not the way the government manages it, that matters to me.

Some fishers displayed what could be considered to be a fair play perspective. From this viewpoint, offending was considered to be breaking the rules, and everyone had to play fairly within the rules, otherwise the offenders were 'cutting their own throats and ours too while they're at it.' In that way, offending was considered to impact those directly involved, as well as the fishing resource the industry relies on, and the public reputation of commercial fishers. Those with that perspective had little, if any, tolerance for any level of offending.

6.5 RELATIVE IMPORTANCE OF FACTORS

Two forms of analysis were used to assess the relative importance of the factors to compliance decision making. Section 6.5.1 presents the fishers own assessment of importance. Section 6.5.2 outlines results from the statistical analysis of factors with self-reported major rule violation (identified from Q20a), used to test the strength of factors' relationships with non-compliance (major rule breaches).

6.5.1 RELATIVE IMPORTANCE TO SURVEY RESPONDENTS

Respondents' assessed the importance of nine items known to influence compliance decision making (figure 6.1: Q25).

The most important items were protecting the fisheries resource for the future (a normative - moral factor), protecting their livelihood (normative) and protecting their fishing lifestyle ('other' factor - personal characteristics). The least important items were the compliance behaviour of other fishers (normative factor – behaviour of others) and lessons learned from previous rule breaches ('other' factor – personal characteristics). Deterrence type items such as the penalties (sanction severity), threat of being caught (sanction certainty) and weighing up the benefits and costs of breaking the rules (commercial gain) were in the mid range.

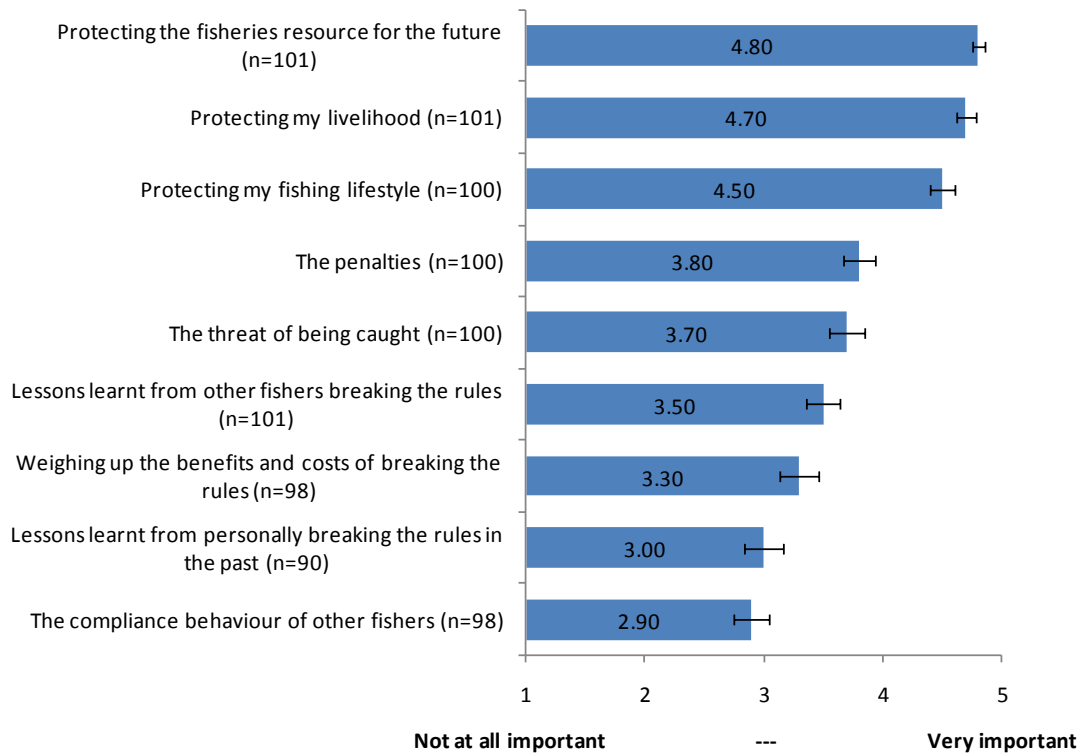


Figure 6.1: Importance of the factors influencing respondents' decisions to comply with fisheries regulations (Q 25; mean scale responses displayed \pm standard error)

Other normative factors thought to influence commercial fishing compliance were assessed (including legitimacy and other factors – see figures 6.2 & 6.3: Q26 & Q30). Figure 6.2 shows responses to questions about a range of normative factor items. Respondents agreed the most with the statements 'commercial fishers do not tolerate anyone breaking the fisheries rules' (attitude of others) and 'I often have to modify my normal fishing practices in order to keep within the rules' (habit/practices). The proportion agreeing with the statement 'Commercial fishers do not tolerate anyone breaking the fisheries rules' was 44%, compared with 26% who disagreed. Highest levels of disagreement were towards normative/legitimacy factors, including 'individual commercial fishers have a fair say in how regulations are set' (75% of respondents disagreed with this statement). Respondents had low levels of agreement with the fairness of their involvement in setting regulations (13%), and the regulations themselves (20%).

There was a contrast in agreement with the statements 'fisheries officers act professionally and without prejudice' (43% agreed), and 'fishers trust the Ministry of Fisheries to act fairly' (16%). This indicates that fishers distinguish between the actions of the Ministry from the actions of fisheries officers; the Ministry was considered by respondents to act less fairly than fisheries officers.

The levels of agreement with items shown in figure 6.3 were consistently higher than for those shown in figure 6.2 (which were largely legitimacy items). Statements depicted in figure 6.3 are all normative type items; the focus of these items was reputation, morality and legitimacy. The statements with the highest levels of agreement were 'my personal reputation would be damaged if I was caught breaking the rules' (personal reputation - 85% agreement) and 'offshore fishers breaking the rules threaten the sustainability of NZ's deepwater fisheries' (morality of others actions - 76%). There were lower levels of agreement with 'NZ's fish stocks are being managed sustainably' (legitimacy - 54%).

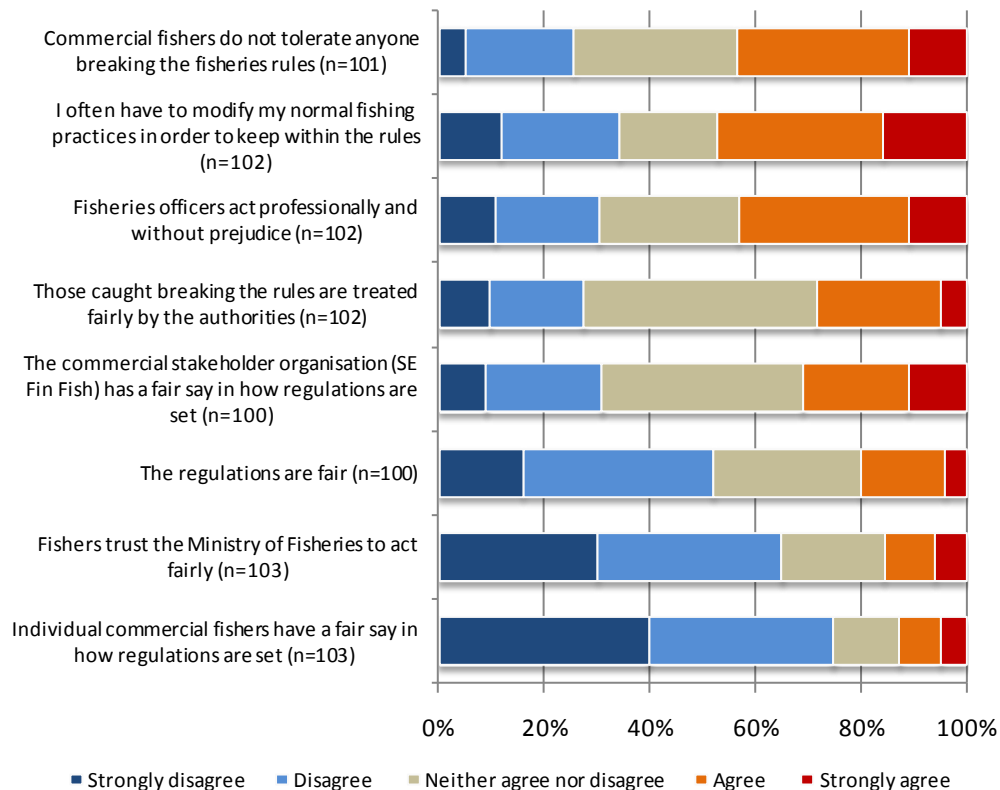


Figure 6.2: Agreement with statements about commercial fishing compliance (Q26)*

* Results for subgroups are presented in order by levels of agreement

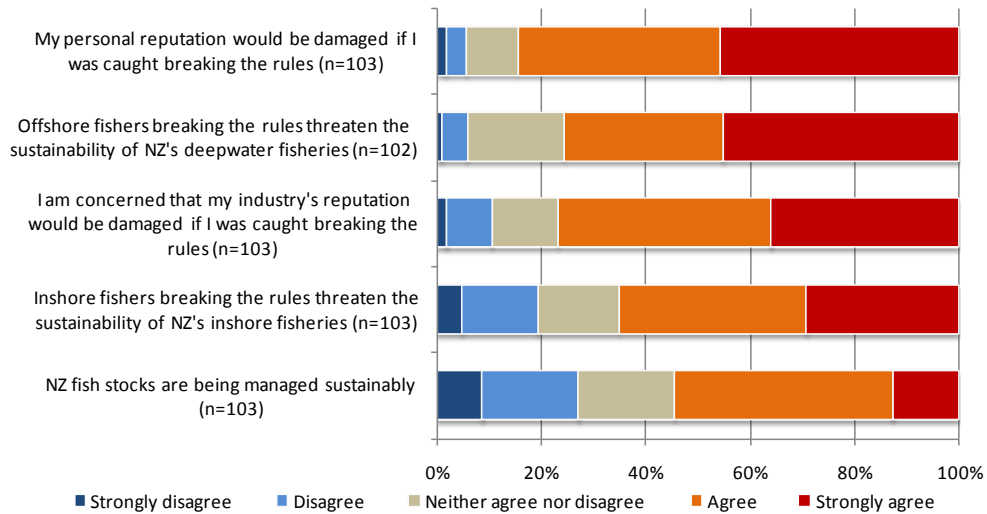


Figure 6.3: Agreement with statements about commercial fisheries management and compliance (Q30)*

* Results for subgroups are presented in order by levels of agreement

6.5.2 FACTORS INFLUENCING MAJOR RULE VIOLATION

A second means of assessing the relative importance of factors was by statistically testing the survey questions representing factors to determine the strength of each factor's relationship with self-reported major rule violation (identified from Q20a).

Significant relationships were found to exist across a broad range of factors, which fall predominantly into the normative/social and 'other' factor groups. The strongest relationship was with the item 'I would go broke if I kept to all the rules all the time' (based on normative-legitimacy and deterrence concepts – figure 6.4).

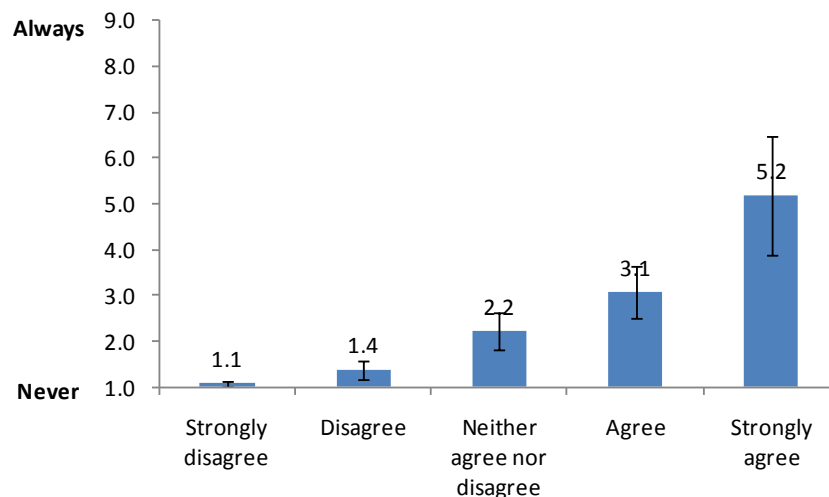


Figure 6.4: Relationship between level of agreement with the statement 'I would go broke if I kept to all the rules all the time' and rates of major rule violation (Q16a&20a; $F=8.47$, $df=4$, $p<.0001$). Mean scale responses displayed \pm standard error

The 'risks and rewards' of offending were relatively unimportant influences on fishers' compliance decision making. Financial rewards and the penalties of being caught are key aspects of the deterrence model.

Legitimacy factor items appeared to have no statistical association with major rule violation rates (with the exception of the item mentioned earlier which included a legitimacy aspect: 'I would go broke if I kept to all the rules all the time').

With respect to other normative/social factors, two that related to the behaviour/attitudes of others had a significant relationship with major rule violation rates (i.e., for the items 'everyone breaks the rules most of the time', and 'it is okay to break the rules if everyone else does'). Significant relationships with major rules violation were also displayed for two moral factor items ('it is always wrong to break the rules' and 'it does not pay to break the rules at all') and a personal reputation item ('my personal reputation would be damaged if I was caught breaking the rules'). The significance level for all these factors was $p < .01$, except for the final statement which was significant at $p = .02$.

Results suggest that 'other' factors have no statistically significant relationship with major rule violation rates, however scale of operation and quota ownership both came close (with p values of .07 and .08 respectively). Broader application of the survey instrument to achieve a larger sample size may assist in determining with greater certainty whether any statistical relationships exist for these particular variables.

The rate of minor rule violation had a positive relationship with major offending, although it was not a strong correlation ($r^2 = 0.39$). This may have two implications. First, fishers breaking the minor rules may be more likely to break major rules as well (when looked at in this way, this could alter the perceptions of fishers in terms of their tolerance of minor offenders). Second, in terms of fisheries enforcement, a proclivity for individual fishers to break the minor rules could be an indication of other major offending.

In a similar way, survey respondents' normative beliefs about the rates that others break the major rules has some degree of positive relationship with their own rates of major rule violation ($r^2 = 0.27$). For many of those surveyed, their likelihood of offending is linked in some way to their perception of how often others offend (i.e., those who break the rules are most likely to believe others do too).

6.5.3 SUMMARY OF RELATIVE IMPORTANCE

Findings from both analyses of relative importance indicate that deterrence factors are not the key drivers of study participants' compliance decisions. The risks and rewards associated with offending were less important influences on fishers' compliance decision making than normative and social factors. Within this second class of factors, the concept of legitimacy was of least utility in explaining compliance decisions. The normative/social factors which appeared to exert the greatest influence upon compliance decisions related to morality, personal reputation and the influence of others.

The sustainability of the fisheries resource, their livelihood and fishing lifestyle were all important to study participants.

7. IMPLICATIONS FOR FISHERIES COMPLIANCE MANAGEMENT

This section addresses study objective 3: To suggest implications for fisheries compliance management. It does this in four ways. Section 7.1 describes the study's relevance for the modes of compliance management outlined in the Fisheries Service Delivery Model. Section 7.2 highlights key findings judged to be the most pertinent for the Ministry's compliance work. Sections 7.3 and 7.4 draw the reader's attention to study participants' suggestions for improving compliance management and the management implications drawn from the literature, respectively.

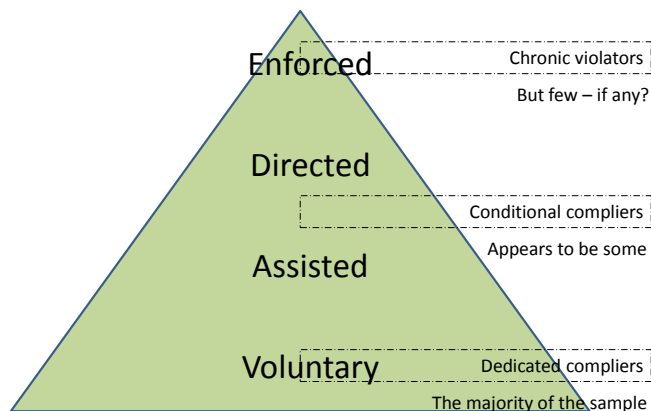
7.1 FISHERIES SERVICE DELIVERY MODEL

Study findings indicate that the norm within the SE fin fishery is to comply on a voluntary basis with the rules. A conventional deterrence styled compliance and enforcement approach (i.e., the directed and enforced modes of the Fisheries Service Delivery Model – refer table 1.1) would be expected to have limited fit with this fishery. Instead findings are more supportive of the contemporary model of deterrence (which includes social and normative factors as well as deterrence factors). This is illustrated by interviewees who made pleas for the Ministry to stop treating all fishers 'like criminals' and instead communicate with them as professionals.

Use of a flexible adaptive management response (across the range of modes within the Fisheries Compliance Service Model) may have greatest utility, with a focus on the voluntary and assisted modes of compliance having the best fit for the vast majority of commercial fishers surveyed. While this does not obviate the deterrence factors that underpin the compliance system, it does put those factors more into the background, rather than being the main message for fishers.

7.1.1 COMPLIANCE BEHAVIOUR MODEL

A model is presented here (figure 7.1) to show a suggested overlay of the modes of compliance (from the Fisheries Service Delivery Model) with the typology of compliance behaviour (Sutinen (n.d.) and Ayres & Braithwaite (1992) – refer section 3.2 for a description of the typology used).



2

Figure 7.1: Model overlaying modes of fisheries compliance (derived from the Ministry of Fisheries’ Fisheries Service Delivery Model) and fisher compliance behaviour typology (derived from Sutinen (n.d.) and Ayres & Braithwaite (1992)).

When applied to the case study fishery, it should be noted that there were few, if any, fishers who appeared to fit the ‘chronic violator’ type (as shown by the narrow width of the triangle at its top point), a small proportion of the ‘conditional complier’ type were apparent, and the vast majority fitted the ‘dedicated complier’ type (at least in terms of complying with major rules).

7.2 KEY FINDINGS RELEVANT TO COMPLIANCE MANAGEMENT

7.2.1 FACTOR INTER-RELATIONSHIPS

The factors influencing compliance form a complex web. This study has deliberately teased factors apart in order to analyse their relative importance. However, time and again, study participants’ responses showed the inter-linkages between the factors driving their compliance decisions. This is best illustrated by section 6.4 (‘compliance stories’). The implication from this connectedness is that any management responses to one factor will inevitably have flow-on effects upon others.

7.2.2 RELATIVE INFLUENCE OF NORMATIVE/SOCIAL FACTORS

Study findings show the greatest influence upon compliance decision making lies with normative and social factors. As noted in section 7.1, this does not imply that deterrence is not important. Social influence may be best achieved in combination with deterrence measures.

7.2.3 KEY MESSAGES AROUND SUSTAINABILITY

The most commonly shared norms amongst commercial fishers (other than that of complying with the rules, a finding also reported by Hatcher et al. 2000) concerned the protection of fisheries, and the fishers’ livelihoods and lifestyles. Therefore, it could be supposed that regulations connecting with those beliefs might receive high levels of compliance (indeed, Neilsen & Mathieson 2003 found that commercial fishers would not comply with regulations that were not believed to link directly to sustainable management of commercial fish stocks).

However, the lack of relationship between these factors and actual compliance behaviour suggests these norms are commonplace across all of the population and relatively inelastic with respect to compliance with major rules, rather than predictive of (or instrumentally linked with) major rule compliance.

7.2.4 ASPECTS OF THE SYSTEM THAT HAVE LEAST SUPPORT

There were three interconnecting aspects of the fisheries compliance system that were not directly researched but emerged strongly during interviews: discards, the deemed values system and minimum fish sizes. These are examples of specific regulations that have little support from fishers, or are perceived to have little fisheries protection purpose behind them.

The literature suggests that regulations that receive little support from fishers (i.e., low legitimacy) are likely to receive lower levels of compliance. This would suggest that the issue around discards, deemed values and minimum fish sizes is one that could benefit from further study to determine categorically whether associated regulations receive lower rates of compliance than others. Various management implications would stem from such research – such as addressing the regulatory system to remedy aspects inadvertently encouraging higher levels of offending (as indicated by interview findings with respect to discards/deemed values and minimum sizes).

Several other aspects of the regulatory and compliance systems received negative feedback from both interviewees and survey respondents. These include the introduction of set net bans to protect Hector/maui dolphins, fisheries observer programmes (linked to both dolphin and seabird protection) and some more specific aspects of the catch recording/reporting systems. Neither of the two former programmes connects directly to the protection of commercial fish stocks. Instead, commercial fishers suggested that they result in a reduction of fishing grounds or increased catch effort, cost or inconvenience to commercial fishers. Neilsen and Mathieson (2003) found that commercial fishers believed it was morally correct not to follow regulations that they considered lacked legitimacy – perhaps this is the case also with the resistance from some fishers to pay deemed value penalties within the SE fin fishery.

7.2.5 FISHERS' EFFORTS TO COMPLY

Many fishers spoke about how they did their best to comply with the rules (section 6.4.1). Their perspective sought to achieve full compliance where it can be practicably achieved. Given the large number of regulations, participants often expressed how even the most conscientious fisher may breach minor rules. The system therefore, in part, results in non-compliance (or resistance to pay penalties as discussed with the deemed values example). Fishers holding that perspective appear to be quite receptive of the Ministry's assist and inform modes of compliance – where the focus is to enable fishers to voluntarily achieve full compliance – perhaps by working with fishers to address the obstacles they identify as preventing full compliance.

7.2.6 LEGITIMACY AND PERCEPTIONS OF THE COMPLIANCE SYSTEM

The importance of legitimacy to compliance was relatively low (c.f. some of the other factors and its importance in other studies). However, initiatives targeting legitimacy factors would most likely have an impact on increasing levels of voluntary compliance. Using the example of discards/deemed values and fish sizes (section 6.4.2), the process of addressing legitimacy may also bolster other factors (such as more effective deterrence, reducing costs of compliance, reducing any financial incentives for non-compliance, changing perceptions about others' compliance behaviours and attitudes, and shifting any norms of non-compliance with respect to this issue).

The methods for addressing legitimacy factors could involve more direct consultation with fishers on regulatory aspects of fisheries management and compliance – and through that method some of the suggestions made by fishers may be addressed – with the joint aim of improving fisheries compliance.

7.2.7 SPECIFIC IMPLICATIONS

The results point to some specific management actions that could be pursued to achieve better compliance within the SE fin fishery. These include:

- Not increasing the size of penalties
- Addressing the deemed values system and setting of deemed value prices (interview findings suggest these aspects account for much of the non-compliance)
- Aiming for a more equitable inspection efforts/presence
- Working with fishers more to address their legitimacy concerns regarding fishers involvement in setting rules
- Acting on tip-offs about major violations. By doing this, the Ministry will strengthen its basis of credibility and trust with the group of fishers willing to report non-compliance, and also reinforce a message to potential offenders about fishers taking a stronger guardianship role
- Having slightly less emphasis on minor faults, but rather take the 'assist' style

Potential larger scale actions relate to reviewing the number of regulations, and specific areas of contention of compliance for fishers. There may be greater opportunity to work on minor offending in a different way (through education, prevention, systems improvements, etc.) as would be indicated by the voluntary and assisted modes of compliance specified in the Fisheries Service Delivery Model.

7.3 FISHERS' SUGGESTIONS TO IMPROVE FISHERIES COMPLIANCE

A large number of improvements to the compliance management regime were suggested by study participants. Interviewees were asked the following question: 'If you were in charge, what would you do to improve compliance?' It was clear to the interviewer that most skippers had already thought about this question, and they seemed eager and willing to pass on their suggestions. These comments provide valuable data and the 'voices' of the participants themselves have been left for the Ministry to digest (see appendices 6 and 7). Comments contributed by a large proportion of survey respondents ($n = 87$, 84%; appendix 7) were broadly reflective of the comments and suggestions raised by skippers during the interviews.

7.4 IMPLICATIONS DRAWN FROM THE LITERATURE

Other compliance researchers have drawn implications from their research for fisheries policy and management. As part of the literature review for this study, these implications were identified and synthesised (see table 3.2). While some caution should be exercised in their application to the New Zealand fisheries context, nonetheless many of these ideas are likely to have relevance for the Ministry.

The results from this study suggest that normative and social factors (c.f. deterrence and 'other' factors) have particular relevance – therefore the implications associated with those factors may be most pertinent (table 3.2).

8. SUMMARY AND CONCLUSIONS

This study set out to address three objectives:

1. To examine commercial fishers' experiences and perceptions of fisheries compliance.
2. To identify factors influencing compliance behaviour and measure their relative importance.
3. To suggest implications for fisheries compliance management.

A summary of the key study findings for each of these objectives is provided in sections 8.1-8.3. Conclusions are reached about prospective research avenues in section 8.4.

8.1 COMMERCIAL FISHERS' EXPERIENCES AND PERCEPTIONS OF FISHERIES COMPLIANCE

Study results, from self-reported behaviour, suggest relatively low levels of offending in the case study fishery relative to international research. The findings of the present study point to self-reported non-compliance rate of 34%, with 47% of survey respondents reporting that they had received a penalty at some time during their fishing career (mostly late fees for paperwork/reporting). In comparison, annual quota levels were exceeded by approximately 74% of commercial fishers in the study by Hatcher et al. 2000, and self-reported violation rates have been recorded ranging from 80% of respondents (Hatcher & Gordon 2005) to 29% (Eggert & Lokina 2005).

The relatively low influence of deterrence factors alongside the relatively low levels of reported offending would indicate that the operative norm amongst case study subjects was to comply on a voluntary basis with the rules.

There is little to support the existence of large scale 'opportunistic' styled offending. In the main, respondents said they complied with the major rules always. Most of the other respondents said they complied with the major rules most of the time but not quite always. Self-reported compliance with minor rules was lower.

Most of those interviewed believed the likelihood of being caught breaking the rules was high (i.e., a high degree of sanction certainty), and the survey respondent group thought that the likelihood of those breaking the major rules was greater than for those breaking minor rules.

Most commercial fishers in the study do not report the offences of other fishers to the authorities. They prefer to talk directly with the fisher concerned. Whether this code of behaviour may be open to change was not examined.

Some aspects of the fisheries management system met with comparatively low levels of support from commercial fishers, including the number of regulations and the system of deemed values. The Quota Management System was supported by study participants (about half of those surveyed held quota). Penalties were considered too harsh by some but 'about right' by others. Few thought they were too weak. The penalties received by the fishers themselves were usually considered to be unfair, although this varied by the type of penalty.

8.2 FACTORS INFLUENCING COMPLIANCE BEHAVIOUR AND THEIR RELATIVE IMPORTANCE

The literature review identified a range of factors that influence compliance decision making to some degree. These factors were categorised into three classes: deterrence, normative/social and 'other'. The interviews revealed that a cross section of factors appeared to influence compliance decision making, including factors from all three classes. Survey data supported the presence of all factors but found that

some were more influential than others. The literature identifies the importance of considering multiple factors in combination – this study supports that recommendation.

The conventional deterrence model of compliance behaviour is too simplistic to fully explain the compliance decision making of commercial fishers operating in the SE fin fishery. Hønneland 1999 highlights that regulations alone will not necessarily lead to improved compliance. Study findings indicate that deterrence factors are not the key drivers of participants' compliance decisions. The risks and rewards associated with offending were less important influences on fishers' compliance decision making than normative and social factors.

Within the class of normative/social factors, concepts of sustainability (protecting the fisheries resource for the future, protecting livelihoods and fishing lifestyles) were to the fore in terms of factors that were almost universally supported. However, these sustainability factors did not appear to influence compliance decision making directly.

Normative and social factors which appeared to be key drivers of compliance related to morality, personal reputation and the influence of others. The concept of legitimacy was of least utility in explaining compliance decisions, that is, the perceived fairness of the rules, the agencies that oversee them, and the opportunities for involvement.

8.3 IMPLICATIONS FOR FISHERIES COMPLIANCE MANAGEMENT

Study findings are supportive of the contemporary model of deterrence that includes social/normative factors as well as deterrence factors. A flexible adaptive management response using the range of modes within the Fisheries Compliance Service Model may have the greatest utility for the Ministry, with a focus on the voluntary and assisted modes of compliance having the best fit for most study participants in the SE fin fishery.

Goals of fisheries managers and fishers appear to be most aligned around the concept of sustainability and protecting the future of fish stocks. This appears a strong theme on which to base the compliance/regulatory framework, at least in terms of getting support from commercial fishers and as a rationale for compliance.

Many compliance management suggestions were received from commercial fishers who participated in this study. These comments have been provided verbatim and contain valuable suggestions. Similarly, management implications have been distilled from the research literature, which provide the Ministry with a broad set of management implications related to the study topic.

8.4 RESEARCH PROSPECTS

Areas that would prove fruitful for future research include:

- Application of this research approach to other types of fisheries compliance to examine rates of compliance and influencing factors (e.g., recreational fisheries, off-shore commercial fisheries)
- Use of action research to build on the study implications around engagement with commercial fishers, in order to study the effects of engagement actions upon legitimacy, norms of compliance, violation rates and compliance decision making

More specifically, potential avenues of research became apparent during data analysis, including:

- The literature suggests that regulations that receive little support from fishers are less likely to foster compliant behaviour. This would suggest that the issue around discards, deemed values and minimum fish sizes is one that could benefit from further study to determine categorically whether associated regulations receive lower rates of compliance than others

- Determining linkages between perceived rates of self-reported personal offending and the offending of others, in order to identify how normative beliefs about the rates that others break the major rules influence individuals' compliance rates. Outcomes would inform fisheries compliance initiatives across the full range of compliance modes
- Identifying whether there is a link between fishers' past history of offending and reported rates of current compliance. Such research could identify the existence and nature of the relationship between past and future offending. Secondly, it could test the strength of relationships for factors influencing compliance rates (such as the effect of sanctions/deterrence, other policies or educational programmes)
- Further development and wider application of the survey to a range of commercial fisheries, with a focus on addressing the significance of relationships between reported rates of major rule violation and quota ownership and scale of operation

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REFERENCES

- Ayres, I.; Braithwaite, J. 1992: *Responsive regulation: Transcending the deregulation debate*. Oxford University Press, New York.
- Baumol, W.J.; Blinder, A.S. 1997: *Economics: Principles and policy*. Dryden Press, Texas.
- Becker, G. 1968: Crime and punishment: An economic approach. *Journal of Political Economy* 72(2): 169-217.
- Bose, S.; Crees-Morris, A. 2009: Stakeholder's views on fisheries compliance: An Australian case study. *Marine Policy* 33(2): 248-253.
- Christensen, A.; Raakjær, J. 2006: Fishermen's tactical and strategic decisions: A case study of Danish demersal fisheries. *Fisheries Research* 81(2-3): 258-267.
- Cook, T. D.; Campbell, D.T. 1979: *Quasi-experimentation: Design and analysis issues*. Houghton Mifflin Company, Boston, MA.
- Driscoll, S. 2008: Compliance and enforcement services: The conundrum in New Zealand Fisheries management. Master of Strategic Studies, Research Essay STRA519, Victoria University of Wellington, Graduate School of Business & Government.
- Eggert, H.; Lokina, R. B. 2005: Regulatory compliance in Lake Victoria fisheries. Unpublished Working Paper, Department of Economics, Göteborg University, Göteborg, Sweden.
- Gezelius, S. S. 2006: Monitoring fishing mortality: Compliance in Norwegian offshore fisheries. *Marine Policy* 30(5): 462-469.
- Harte, M. 2007: Funding commercial fisheries management: Lessons from New Zealand. *Marine Policy* 31(4): 379-389.
- Hatcher, A.; Gordon, D. 2005: Further Investigations into the factors affecting compliance with U.K. fishing quotas. *Land Economics* 81(1): 71-86.
- Hatcher, A.; Jaffry, S.; Thebaud, O.; Bennett, E. 2000: Normative and social influences affecting compliance with fishery regulations. *Land Economics* 76(3): 448-461.
- Hauck, M. 2008: Rethinking small-scale fisheries compliance. *Marine Policy* 32(4): 635-642.
- Hønneland, G. 1999: A model of compliance in fisheries: theoretical foundations and practical application. *Ocean & Coastal Management* 42(8): 699-716.
- Hønneland, G. 2000: Compliance in the Barents Sea fisheries. How fishermen account for conformity with rules. *Marine Policy* 24: 11-19.
- Huizinga, D.; Elliott, D. 1986: Reassessing the reliability and validity of self-report delinquency measures. *Journal of Quantitative Criminology*, 2(4): 293-327.
- Kuperan, K.; Sutinen, G. 1998: Blue water crime: Deterrence, legitimacy, and compliance in fisheries. *Law & Society Review* 32(2): 309.
- Nielsen, J. 2003: An analytical framework for studying: compliance and legitimacy in fisheries management. *Marine Policy* 27(5): 425-432.
- Nielsen, J.; Mathiesen, C. 2003: Important factors influencing rule compliance in fisheries lessons from Denmark. *Marine Policy* 27(5): 409-416.

Nøstbakken, L. 2008: Fisheries law enforcement--A survey of the economic literature. *Marine Policy* 32(3): 293-300.

Oppenheim, A. N. 1992: *Questionnaire Design, Interviewing and Attitude Measurement* (new edition, reprinted 1997). London: Pinter.

Sutinen, J. G.; Kuperan, K. 1999: A socio-economic theory of regulatory compliance. *International Journal of Social Economics* 26(1/2/3): 174-191.

Sutinen, J. n.d. Blue water crime and conservation: controlling the pirates in marine fisheries. Retrieved from http://www.iwlearn.net/publications/misc/presentation/sutinen_pirates.pdf (1 October 2009).

Tolich, M.; Davidson, C. 1999: *Starting fieldwork: an introduction to qualitative research in New Zealand*. Oxford University Press, Auckland.

Vince, J.; Haward, M. 2009: New Zealand oceans governance: Calming turbulent waters? *Marine Policy* 33(2): 412-418.

Viteri, C.; Chávez, C. 2007: Legitimacy, local participation, and compliance in the Galápagos Marine Reserve. *Ocean & Coastal Management* 50(3-4): 253-274.

Reports submitted to the Ministry as part of this research project:

Lindis Consulting (7 October 2009). *Commercial fishers' compliance decision making: A literature review (including annotated bibliography)*. Report prepared for the Ministry of Fisheries as part of Research Project: SEC2009-01. Lindis Consulting, Christchurch.

Lindis Consulting (21 October 2009). *Commercial fishers' compliance decision making: Methodology report (including interview schedule)*. Report prepared for the Ministry of Fisheries as part of Research Project: SEC2009-01. Lindis Consulting, Christchurch.

Lindis Consulting (21 December 2009). *Commercial fishers' compliance decision making: Interviews with skippers*. Report prepared for the Ministry of Fisheries as part of Research Project: SEC2009-01. Lindis Consulting, Christchurch.

Lindis Consulting (22 April 2010). *Research on commercial fishers' compliance decision making: Briefing paper for workshop participants*. Report prepared for the Ministry of Fisheries as part of Research Project: SEC2009-01. Lindis Consulting, Christchurch.

APPENDIX 1: CONTACT LETTER FOR INTERVIEWEES

<ADDRESS>

<DATE>

Research project: Commercial fishers' compliance decision making

Dear Sir/Madam,

The Ministry of Fisheries has commissioned us to undertake research to improve their understanding of commercial fishers' decisions about compliance behaviour. The South-east Fin Fishery have been chosen as a case study for this research because of the diversity of operators, fishing techniques used and fish stocks within this fishery.

We would like to interview you as part of this study. Your contact details have been supplied to us from the Ministry of Fisheries' Annual Catch Entitlement register. You have been selected at random from that register.

Participation in the study will be entirely voluntary and all information that you provide will be treated as strictly confidential. Your name and any identifying details will remain confidential to the researchers at Lindis Consulting, an independent research company. **No information that would identify you or any other individual will be published or made available to the Ministry of Fisheries, or anyone else.**

We have been in contact with SE Finfish Management Ltd.. They support the participation of fishers in this study as it will enhance the 'inform and assist' approach that is now apparent within Ministry of Fisheries' compliance nationwide.

We expect **the interview will take approximately an hour of your time.** The interviewer will ask you a series of questions about the following topics:

- Your fishing experience and background
- Your views on and experiences with fisheries regulations
- Attitudes to compliance
- Risks and rewards related to compliance decisions
- Other drivers of compliance behaviour

Participation in this research is entirely voluntary and will have no effect, good or bad, on any aspect of your interaction with the Ministry of Fisheries.

If you do not want to take part in an interview for this study, please return the attached form in the postage paid envelope. Otherwise, we will telephone you soon to arrange a time to talk with you. At that time we can also answer any questions you have about the project.

Thank you very much. We look forward to talking with you.

Yours sincerely

Dr Kay Booth

Bronek Kazmierow



lindis consulting

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Reply slip

If you do **NOT** wish to take part in the research, please tick the box below and return the form to us using the enclosed reply paid envelope. If you are happy to be interviewed, you do not need to do anything.

I do **NOT** wish to take part

Signature: _____

Name (*please print*): _____

Thank you for your time

APPENDIX 2: INTERVIEW SCHEDULE

Interviewer:	Date:	Interview length: h m	ID No:
Location of operation:	Location of interview:	Years comm. fishing:	Independent owner/op Or contracted?
Vessel – length metres feet	Gender: M / F	Age: 15-19 20-29 30-39 40-49 50-59 60-69 70+	
NOTES (SUMMARY OF KEY POINTS, EMERGING IDEAS, FUTURE INTERVIEW QS)			

A. INTRODUCTION

- Study description
- Confidentiality — voluntary, do not have to answer any questions they do not wish to
- Sign consent letter

B. FISHING BACKGROUND

1. Tell me about your fishing operation	Type of vessel (size in metres) Main target fish species within SE fin fishery Current total annual catch entitlement size (for all stocks combined in tonnes) Gross revenue estimate for vessel(s) over the last year Number fishing trips during last 12 months Your age (using categories above)	
2. How long have you been fishing commercially?	Length of time in fishing industry Owner operator? Length of time as skipper/master Any international fishing background	

These general probes will be used for sections C to I below (where appropriate):

- How are your compliance decisions influenced by (insert factor here)?
- To what extent does this affect your compliance decision making? (a lot – somewhat – a little – not at all)

C. GENERAL PERCEPTIONS OF REGULATIONS

3. How familiar are you with the fisheries regulations?	Check what they know about the regulations	
4. What do you think about the regulations?	What agree / disagree with Ask about quota limits	(a lot – somewhat – a little – not at all)
5. Overall, do you think they are fair?	Why / why not? I'm interested in your response to these statements: The commercial stakeholder organization (SE Fin Fish Ltd) has a fair say in how regulations are set. Fishers have a fair say in how regulations are set. Fishers trust the regulatory authority to act fairly.	(a lot – somewhat – a little – not at all)

D. COMPLIANCE DEFINITION

Define compliance	"Behaviour that meets fisheries regulations" Focus on major harvest regulations:	
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	misreporting, dumping, using illegal gear or techniques, or fishing within a prohibited area.	
6. Is there anything important we'll miss by taking this definition?	Discuss definition Ask about activities that do not comply	

E. COMPLIANCE EXPERIENCE AND PERCEPTIONS

7. How normal is non-compliance with the regulations?	Best guess on the % fishers who breach regulations (regardless of whether they are caught)	
8. Why do you think fishers breach the regulations?		
9A. Do you personally know any fishers who have breached the regulations? Y/N		(a lot – somewhat – a little – not at all)
9B: If yes: <ul style="list-style-type: none"> • Why did they do that? • How fair was the penalty? • How were they treated? • Any other comments? 		
10. What is the general feeling amongst the fishing community about breaching?	Ask about level of reporting others breaches	

1.1 F. ENFORCEMENT AND PENALTIES

11. What do you believe is the likelihood of being caught when offending?	As a percentage.	(a lot – somewhat – a little – not at all)
12. How familiar are you with the penalties for non-compliance?	Check they know about the penalties	
13. What do you think about them?		

G. DETERRENCE FACTORS

14. Are penalties sufficient to deter people?		(a lot – somewhat – a little – not at all)
15. Does the threat of being caught, make a difference to		

<u>your</u> decision to comply?		(a lot – somewhat – a little – not at all)
16. What type of penalties would have the greatest effect on you?	e.g., fine, impounded vessel, loss of quota	
17. What type of penalties would have the least effect on you?		
18. If there were no regulations or limits, what additional catch could you achieve?		(a lot – somewhat – a little – not at all)

H. SOCIAL AND NORMATIVE FACTORS

<p>19. There may be certain situations that some people feel would justify breaking the rules</p> <p>e.g., speeding not a problem if driving sick passenger to hospital</p> <p>e.g., go through a red light at 3am in the morning if no other cars</p> <p>What circumstances / situations do you think would justify non-compliance?</p>	Why?	(a lot – somewhat – a little – not at all)
20. What do you think your colleagues, family and friends might say if you were prosecuted for breaching fishery regulations?		
21. How much of an impact does this have on <u>your</u> decisions to comply?		(a lot – somewhat – a little – not at all)
22. What would you think of someone else who breached fishery regulations?		
23. What are the greatest implications for your fishing operation that result from having to comply with the regulations?		(a lot – somewhat – a little – not at all)

I. OTHER FACTORS

24. Do fishers talk about compliance amongst themselves? Tell me about that		
25. Do you think the compliance behaviour of fishers influences others?	Check if influential 'leaders'	(a lot – somewhat – a little – not at all)
26. What effect does your financial situation have on your compliance decision?	Check how much of livelihood is dependent on the SE fin fishery	(a lot – somewhat – a little – not at all)
27. What affect do fish price changes have on your compliance decision?		(a lot – somewhat – a little – not at all)
28. How does offending within the fishery affect the sustainability of the stock?	Do you consider offending to be a threat to its sustainability? Do you believe the stock is currently being managed sustainably?	(a lot – somewhat – a little – not at all)

J. PERSONAL EXPERIENCES

29. Thinking about your own experiences... How often have you breached regulations (over last 10 years)? Never, on rare occasions, sometimes, frequently	If yes, what for? Did you get a fine, conviction or any other penalty? Why did it happen? If no Why?	Never, on rare occasions, sometimes, frequently (a lot – somewhat – a little – not at all)
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K. INITIATIVES TO IMPROVE COMPLIANCE

30. If you were in charge, what would you do to improve compliance?		
31. Do you have any further comments about any other factors that influence your compliance decisions (not previously covered during the interview)?	What is the main thing that normally goes through your mind when making your compliance decision?	(a lot – somewhat – a little – not at all)

L. WRAP UP

- Thank you
- Discuss postal survey – what would be the best way to get questionnaires directly to skippers?
- Copy of interview notes? If yes, confirm postal/email address.
- Koha

APPENDIX 3: INTERVIEWEE CONSENT FORM



Research project: Commercial fishers' compliance decision making

Researcher's contact details:

Bronek Kazmierow

10 The Crowsnest, PORIRUA 5024

Ph: 04 234 1540, Cell: 021 140 1841

bronek@clear.net.nz

Invitation

The Ministry of Fisheries is interested in obtaining information about what influences commercial fishers' decision making processes about compliance.

We'd like to hear your views. We would like to talk with you about your knowledge of other people's compliance behaviour. You do not have to discuss your experiences unless you want to.

Confidentiality

We will not tell the Ministry of Fisheries what you say. Only the researchers will see the interview notes. We will not record your name on the interview notes.

You do not have to answer any questions that you don't want to and you can stop the interview at any time.

Industry support

We have been in contact with SE Finfish Management Ltd.. They support the participation of fishers in this study in light of the Ministry of Fisheries' 'inform and assist' compliance nationwide.

Recording

The interview will be audio-taped if you give us your consent to do so.

We will send you a copy of the notes from your interview if you wish.

Research project: Commercial fishers' compliance decision making

Consent form

- The researcher has explained to me the purpose of the research.
- I know that I don't have to take part in the research if I don't want to.
- I know I can choose which questions I want to answer and I can leave the discussion at any time.
- I understand that all information will be kept confidential. What I say may be included in a research report, but not my name or anything that can identify me or any other individual.

I,, agree to be interviewed for this research study.

Date: _____

Thank you very much



About this survey

We would like to hear your views about the fisheries regulations and how they affect your operation. Your responses will be kept **entirely confidential**. The researchers will not release any information that could identify you. Understanding commercial fishers' views about fisheries regulations is important for the Ministry of Fisheries, who have commissioned this study. For further information, please contact Bronek Kazmierow at Lindis Consulting (ph. 021 140 1841; e: bronek@clear.net.nz).

A. About you and your fishing operation

1. How many years have you been involved in the commercial fishing industry?

(please tick one box only)

- 1 0-2 years
- 2 3-9 years
- 3 10-19 years
- 4 20-29 years
- 5 30-39 years
- 6 40 + years

2. Which option best describes your main involvement in the fishing industry?

(please tick one box only)

- 1 Skipper of a commercial fishing vessel → If you are a skipper then GO to Q2b
- 2 Manager of a commercial fishing operation
- 3 Trader of Annual Catch Entitlement (ACE)
- 4 Other (please specify): _____

2.b IF YOU ARE A SKIPPER please choose below which option best describes your involvement in the commercial fishing industry:

(please tick one box only)

- 1 Independent owner/operator
- 2 Employed as a skipper by others
- 3 Retired
- 4 Not retired, but not currently active

3. What is your age?

- 1 15-19 years
- 2 20-29 years
- 3 30-39 years
- 4 40-49 years
- 5 50-59 years
- 6 60-69 years
- 7 70+ years

4. When fishing commercially, what fishing techniques do you/your vessels use?

(please tick all that apply)

- 1 Trawling
- 2 Set netting
- 3 Potting
- 4 Lining
- 5 Other (please specify): _____

5. What was the total amount of wet fish (by greenweight) caught by your operation last year?

(please tick one box only)

- | | |
|--|--|
| 1 <input type="checkbox"/> 0 - 24 tonne | 6 <input type="checkbox"/> 300-499 tonne |
| 2 <input type="checkbox"/> 25-49 tonne | 7 <input type="checkbox"/> 500-999 tonne |
| 3 <input type="checkbox"/> 50-99 tonne | 8 <input type="checkbox"/> 1000-1999 tonne |
| 4 <input type="checkbox"/> 100-199 tonne | 9 <input type="checkbox"/> 2000-3999 tonne |
| 5 <input type="checkbox"/> 200-299 tonne | 10 <input type="checkbox"/> 4000 + tonne |
| | 11 <input type="checkbox"/> Don't know |

6. Do you own quota?

- 1 Yes
2 No

6b. IF YES, how much of your total catch last year was quota that you owned?

- 1 0-19%
2 20-39%
3 40-59%
4 60-79%
5 80-100%

7. How many registered fishing vessels do you operate?

_____ vessels IF NONE then GO to Q11

8. What length are the vessels you operate?

Number of vessels	Vessel length (feet)	Number of vessels	Vessel length (feet)
	Under 20 feet		40-59 feet
	20-39 feet		60-79 feet
			80 feet or larger

9. From which main port(s) do you operate within the SE Fin Fishery?

(please tick all that apply)

- 1 Kaikoura
2 Lyttelton
3 Timaru
4 Oamaru
5 Port Chalmers
6 Bluff
7 Riverton
8 Other (please specify): _____

10. Have you fished commercially in any countries other than New Zealand?

- 1 Yes _____ → IF YES: for how many years? _____ years
2 No (I have fished commercially only in NZ)

11. Is commercial fishing your main source of income?

- 1 Yes
2 No

B. Your views on the regulations

12. In your opinion, are penalties for breaking the commercial fishing regulations:
(please tick one box only below)

- 1 Too weak
2 About right
3 Too harsh

13.	To what extent do you agree with the following aspects of commercial fishing: (please circle the corresponding number)	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
a.	The size of penalties for offending	1	2	3	4	5
b.	The quota management system	1	2	3	4	5
c.	The system of deemed values	1	2	3	4	5
d.	The setting of deemed value price	1	2	3	4	5

14.	To what extent do you agree with the following statements about commercial fishing: (please circle the corresponding number)	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
a.	Everyone breaks the rules most of the time	1	2	3	4	5
b.	It is okay to break the rules if everyone else does	1	2	3	4	5
c.	It is always wrong to break the rules	1	2	3	4	5
d.	I normally keep within the rules	1	2	3	4	5
e.	I have too much to lose to break the rules	1	2	3	4	5
f.	It does not pay to break the rules at all	1	2	3	4	5

15. In your opinion, are there:
(please tick one box only below)

- 1 Too many regulations
2 About the right amount of regulations
3 Too few regulations
4 Don't know

16.	To what extent do you agree with the following statements: (please circle the corresponding number)	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
a.	I would go broke if I kept to all the rules all the time	1	2	3	4	5
b.	Skippers who keep within the rules are penalised unfairly with higher costs/ lower returns	1	2	3	4	5
c.	It costs me too much to comply with all the rules	1	2	3	4	5

C. Your experiences and decision making

17. Approximately how often in the past year has your vessel(s) been inspected by fisheries officers?
 _____ times in total OR tick here if you do not know:

The next questions ask about your views on the **major and minor** commercial fishing rules. For the purpose of this study, please use the following definitions of major and minor rule breaches.

- **Major** rule breaches would include the following: misreporting, dumping, trucking, using illegal gear or techniques, or fishing within a prohibited area.
- **Minor** rule breaches are defined as 'all other lesser offences' (ie. those not relating to a major rule).

18.	How often do you believe others: (please circle the corresponding number)									
a.	Break the major rules?	1	2	3	4	5	6	7	8	9
b.	Break the minor rules?	1	2	3	4	5	6	7	8	9
c.	Get caught breaking the major rules?	1	2	3	4	5	6	7	8	9
d.	Get caught breaking the minor rules?	1	2	3	4	5	6	7	8	9

19.	In your opinion... (please circle the corresponding number)									
a.	Anyone who breaks the major rules will get caught and prosecuted	1	2	3	4	5	6	7	8	9
b.	Anyone who breaks the minor rules will get caught and prosecuted	1	2	3	4	5	6	7	8	9

20.	How often do you: (Note: all responses are kept confidential - please circle the corresponding number)									
a.	Break any major commercial fishing rules?	1	2	3	4	5	6	7	8	9
b.	Break any minor commercial fishing rules?	1	2	3	4	5	6	7	8	9

21.	In your entire commercial fishing career how often have you ever: (please tick one column for each item below)	1 Never	2 Once	3 Twice	4 3 or more times
a.	Been caught breaking any major commercial fishing rules?				
b.	Been caught breaking any minor commercial fishing rules?				

22. What was the largest penalty that you have received?

(please tick all that apply)

- 1 None (I have never received a penalty) **GO to Q24**
- 2 Late-fee for paperwork/reporting
- 3 Fine - please specify largest amount: \$ _____
- 4 Impounded vessel
- 5 Loss of quota
- 6 Loss of fishing permit
- 7 Other - please specify: _____

23. How fair was the penalty(s) that you have received from breaking the commercial fisheries regulations? (if you have received penalties for more than one breach then please list the penalty for each breach below and circle the corresponding number for each)	1 Very unfair	2 Unfair	3 Neither fair nor unfair	4 Fair	5 Very fair
a.	1	2	3	4	5
b.	1	2	3	4	5
c.	1	2	3	4	5
d.	1	2	3	4	5
e.	1	2	3	4	5

24. In an average year, how often would you interact with: (please tick one column for each item below)	1 Never	2 1-2 times	3 3-4 times	4 5-9 times	5 10 + times
a. Crew or skippers from other fishing vessels?					
b. Fisheries Officers?					

25. How important are the following things in your decisions to comply with fisheries regulations? (please circle the corresponding number)	1 Not at all important	2	3	4	5 Very important
a. Lessons learnt from other fishers breaking the rules	1	2	3	4	5
b. Lessons learnt from personally breaking the rules in the past	1	2	3	4	5
c. The penalties	1	2	3	4	5
d. The threat of being caught	1	2	3	4	5
e. The compliance behaviour of other fishers	1	2	3	4	5
f. Protecting the fisheries resource for the future	1	2	3	4	5
g. Weighing up the benefits and costs of breaking the rules	1	2	3	4	5
i. Protecting my livelihood	1	2	3	4	5
j. Protecting my fishing lifestyle	1	2	3	4	5

26.	To what extent do you agree with the following statements: (please circle the corresponding number)	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
a.	The commercial stakeholder organisation (SE Fin Fish) has a fair say in how regulations are set	1	2	3	4	5
b.	Individual commercial fishers have a fair say in how regulations are set	1	2	3	4	5
c.	Fishers trust the Ministry of Fisheries to act fairly	1	2	3	4	5
d.	The regulations are fair	1	2	3	4	5
e.	Those caught breaking the rules are treated fairly by the authorities	1	2	3	4	5
f.	Fisheries officers act professionally and without prejudice	1	2	3	4	5
g.	I often have to modify my normal fishing practices in order to keep within the rules	1	2	3	4	5
h.	Commercial fishers do not tolerate anyone breaking the fisheries rules	1	2	3	4	5

27. Have you ever reported another commercial fisher breaking the rules to the authorities?

- 1 Yes
2 No

28. If you saw another commercial fisher breaking a major rule, how would you normally respond?

(please tick one box only)

- 1 Do nothing
2 Raise it directly with the fisher concerned
3 Report it anonymously
4 Report it directly to a fisheries officer
5 Don't know

29.	How often would you: (please circle the corresponding number)									
	Normally expect other commercial fishers to report major commercial fisheries rule breaches to the relevant authority?	1	2	3	4	5	6	7	8	9

30.	To what extent do you agree with the following statements: (please circle the corresponding number)	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
a.	My personal reputation would be damaged if I was caught breaking the rules	1	2	3	4	5
b.	I am concerned that my industry's reputation would be damaged if I was caught breaking the rules	1	2	3	4	5

APPENDIX 5: FACTORS INFLUENCING COMPLIANCE IDENTIFIED FROM RECENT EMPIRICAL STUDIES OF FISHERIES COMPLIANCE

KEY
Method: SR = self-reported compliance; QA = questionnaire survey; Quant = quantitative study; Qual = qualitative study
Factors: ~ = examined but not found to be a significant factor at p<.05; * = examined and was a significant factor at p<.05; ** = primary factor (where evident);
 empty cell means not examined; (+ve) and (-ve) refers to nature of relationship between variables; explanation of factors given in some cases but not all

Study	Method	DSC	DSS	DCG	NL	NM	NHP	NBO	NAO	NPR	OIC	OEC	OBC	OPB	OC	OPC	OOC
		Deterrence Factors			Normative Factors						Other Factors						
		Sanction certainty	Sanction severity	Commercial gain	Legitimacy	Morality/moral development	Habit/practice	Behaviour of others	Attitude of others	Personal reputation	Industry characteristics	Economic characteristics	Biological characteristics	Previous compliance behaviour	Conviction	Personal characteristics	Operational characteristics
Kuperan & Sutinen 1998 Blue water crime: Deterrence, legitimacy, and compliance in fisheries	SR Quant QA admin onsite when fishers landing – randomly selected; n=318; 237 violators (75%), 81 compliers (25%). Dependent variables: Violation decision (V) variable and the number of days fished in prohibited zone (I) (percentage of time overall spent in prohibited zone). Violation decision is a self-reported overall probability of detection, arrest and court conviction (adjusting for catch per unit effort assessed using value of landings/number of hours trawled).	* (V) # days fishers saw enforcement presence ~ (V) Prob of detection ~ (V) Prob of arrest but was found to be * when using estimated probabilities ~ (V) Prob of court conviction ~ (V) Prob of being found guilty ~ (V) overall prob of detection and being found guilty		* (V) relative extra gains to be made fishing in illegal zone (catch per unit effort - +ve)	* (V) with 3 variables constructed to measure legitimacy (2 of 6 outcome measures and 1 of 6 process measures) Signif outcome measures: zoning avoids conflict between fishers (-ve) and zoning improves long term wellbeing of everyone (-ve). Signif process measure: govt is doing the right thing to impose regs in certain areas (+ve)	* (V) moral development (Kohlberg's method – negative meaning more developed, less likely to violate)		* (V) % other fishers perceived to be violating reg (+ve)									

Study	Method	DSC	DSS	DCG	NL	NM	NHP	NBO	NAO	NPR	OIC	OEC	OBC	OPB	OC	OPC	OOC
		Deterrence Factors			Normative Factors						Other Factors						
	Two tests: basic deterrence model and the extended compliance model (including moral development, legitimacy, etc)	~ (V) # patrol boats operating in fishers area during study period ~ (V) Expenditure on evasion activity conviction ~ (V) power of vessel's motor			~ (V) with 9 legitimacy variables (4 of 6 outcome measures and 5 of 6 process measures)												
Hatcher et al (2000) Normative and social Influences affecting compliance with fishery regulations	SR Quant QA admin face-to-face n=68 useable of 69; N=235. Effect of variables on SR probabilities of detection (D) and violation (V) SR rate of violation: 26% = non-violators; 44% landings over quota by 10% or less; 29% landings over quota by 25% or more.	~ (D) landings inspected in last year * (V) probability of detection (negative)	~ (V) anticipated find if caught and sanctioned.	~ indirectly used size of vessel as incentive to violate	* (V) feeling of involvement in the mgmt system (negative) ~ (V) various	~ (V) quotas should be complied with even if they are not fair (negative)		~ (V) the compliance behaviour of others in peer group	* (V) attitude of peer violation (not wrong negative)					~ (D)		~ (V) number of years experience fishing	* (D) vessel length ~ Age of skipper * (V) Gross revenue ~ PO/industry association member
Nielsen & Mathieson (2003) Important factors influencing rule compliance in fisheries: lessons from Denmark	Mixed Quant Postal QA n=154, rr=25% Follow up in-depth semi-structured interviews (56 fishers, 1-1/2 hrs) NB: More detail on all factors examined reported by author elsewhere.	* efficacy of imposed regulations	*	**	* the degree of participation and involvement * extent to which fishers lacked confidence in the biological research underpinning regulations	*	*	* although variable depends on type of regulation			* fit between regs and fishing practices and patterns	*	*	*		* elderly fishers more against fisheries regs than younger ~ geog location of fisher	~ fleet composition
Eggert & Lokina (2005) Regulatory compliance in Lake Victoria	SR Quant QA admin face-to-face	*	*	*	*	~	*	*	~					*	~	~ household income, age	* owner present on vessel

Study	Method	DSC	DSS	DCG	NL	NM	NHP	NBO	NAO	NPR	OIC	OEC	OBC	OPB	OC	OPC	OOB
		Deterrence Factors			Normative Factors						Other Factors						
fisheries	n=459 60 minute interviews. Marginal effect of variables on reported non-compliance. 45% = non-violators; 47% occasional violators; 8% persistent violators.			violators systematically avoid regs and use bribes to avoid punishment												* education (-ve relationship with non-compliance) experience as skipper	* motorised vessel (-ve) * geog location
Hatcher & Gordon (2005) Further investigations into the factors affecting compliance with U.K. fishing quotas	Quant QA admin face-to-face Sample frame = vessels over 10m. Stratified random sample of PO members. n=70 useable of 72, N=214 Effect of variables on SR probabilities of detection (D) and violation (V) SR rate of violation: 20% = non-violators; ~ 50% sample landings over quota by 10% or less; 27% landings over quota by 25% or more	~ (D) vessel boardings in previous year ~ landings inspected in last year ~ (V) Subjective probability of detection		* (V) restrictions of earnings due to quotas * (V) obligation to obey PO/industry association rules ~ (V) prosecution rate of offenders	* (V) fairness of inspection patterns * (V) obligation to obey PO/industry association rules ~ (V) prosecution rate of offenders	* (V) obligation to comply for stock conservation		~ (V) the perceived compliance behaviour of peers						* (D) +ve with past recorded convictions over last 10 years		~ (D) number of years experience fishing ~ (V) skipper age	~ (V) gross revenue
Viteria & Chavez (2007) Legitimacy, local participation, and compliance in the Galapagos Marine Reserve	SR Quant QA admin face-to-face or self completed. Sample frame: artisanal fishers (boat owners) in Galapagos Marine Reserve. N=148; N=426, stratified sampling by boat type and geographic location. 3% error at 95% confidence level. Dependent variable: violation - SR infraction, rarely fulfilling regs or	* Seen surveillance (negative) ~ Boarded for inspection	~ anticipate that ships detained for infraction are punished * Considers fines for offenders are high (negative relationship with violation)	* agrees or NA/ND with shark regs ~ disagrees with shark regs ~ no catch season advantages fishers * disagrees with allowing				~ other fishers usually infringe						~ been punished at some time for offence.		~ owner age ~ owner married ~ family size * education (+ve relationship with violation) * owner lives on island	~ geog location fished ~ motor power * size of vessel (+ve) ~ daily cost of fishery trip ~ commercial value of ship ~ if owner

Study	Method	DSC	DSS	DCG	NL	NM	NHP	NBO	NAO	NPR	OIC	OEC	OBC	OPB	OC	OPC	OOC		
		Deterrence Factors			Normative Factors						Other Factors								
	<p>having made some infraction.</p> <p>Note: some of the authors categorisation of variables have been modified to fit our framework.</p>				<p>unregulated fishing for sea cucumber (negative)</p> <p>~ other fishers usually infringe</p> <p>~</p> <p>controlling agency often takes into account fishing sector views</p> <p>*</p> <p>owners/leaders represent interest of the sector appropriately/ fairly (negative)</p>													<p>(+ve)</p> <p>~ owner native to area</p> <p>~ owner would change residence to mainland</p> <p>* number of years as immigrant on island (+ve)</p> <p>~ owner exclusively devoted to the fishery activity</p> <p>~ years of experience in fishery</p> <p>~ owner a co-op ep or director</p> <p>* owner attends all co-op meetings (-ve)</p>	<p>declares having related fishing activity</p> <p>~ price index of fish caught</p>

APPENDIX 6: INTERVIEWEES' SUGGESTIONS ON IMPROVING FISHERIES COMPLIANCE

Interviewees were asked: 'If you were in charge, what would you do to improve compliance?' Each numbered comment represents a single suggestion made by one interviewee. Many people made more than one suggestion (these are separately numbered).

Theme	Suggestion
Quota system and setting of TACs, regulations etc.	<ol style="list-style-type: none"> 1. (Need) better science for setting of TAC and quota annually (e.g. proper stocks locally very healthy, fishers catch entitlement very early in season and spend rest of time avoiding it otherwise risk deemed value bills). 2. Do better science in setting quota (to avoid what happened with FLA3 quota cut). 3. Increase FLA3 quota back to where it was when QMS introduced. 4. Up ELE3, GUR3 and FLA3 quotas. 5. Simpler and more common sense regulations and reporting based more on actual fishing practices. Make some rules more workable. Remove technical jargon, we're not accountants and lawyers. 6. Condense regulations. 7. Keep it steady. Don't mess with the quota limits. Always been able to get hands on the quota, but now it is too hard to get additional quota. 8. Need better information on which to set limits. 9. Set minimum commercial fish sizes – this would avoid a lot of worry and potential strife for all involved. 10. MAF are quick to drop quota, not so quick to increase TAC (e.g., Gurnard). 11. System needs a bomb under it. Start changes from bottom up rather than top down. 12. Fix problem with undersized fish. More consistency is required with discards and size limits for all quota species. (one inconsistency is that you can discard terakihi legally, whereas you cannot for gurnard). 13. Revert ACE to recognise that undersized fish are returned and realign quota (i.e., double TAC if it is still required to record every undersized fish caught). 14. Probably too late for fundamental changes to the system. Such options could include reverting all quota back to crown with a series of crown leases. Probably would create an uproar. 90% of the quota system seems to be working though. 15. Keep quota levels steady. 16. Allow for trading off of quota (e.g., flats for elephants or vice versa) when out of quota. 17. Better attention to lower value species (both in terms of research and re: review of quota limits) 18. Supports QMS. It is working. 19. Underruns for crays would be useful. 20. Get rid of the risk management plan for filleting (EU certification covers it). 21. Review set net ban. Apply only to specific areas only. Father was a trawler-man, and he never once in his entire life caught a hectors dolphin. It just doesn't happen. Even bottlenose dolphin, when I've been out there setting a set net, they're bobbing all around you, but they never ever get in a net. Their sonar is so good. Once the net is set then you are right (after that it sinks to the bottom and only comes up 5ft off the bottom). The risky time is only when you are setting it. The concern is ridiculous. Dolphins don't go that deep. People just don't understand it. Fed the wrong information – DOC and media are good at that (e.g., staged dolphin in net for media ... misleading). 22. All laws work ok for us. 23. Rules are sustainable. 24. Cut out annual permit for recreational catch (111) – would do a lot to improve MFish's reputation for commercial fishers.

	<p>25. Get rid of 111 permit – unnecessary.</p> <p>26. Discarding of undersized fish needs to be addressed. Address question of what is landed and not what was caught. Issue of paddle crabs in trawl nets is a problem for trawlers. Needs sorting.</p> <p>27. Bring in minimum size limits.</p> <p>28. Limit size of horse power closer inshore, and get some standardization.</p>
Consultation with fishers	<p>29. Work out those regulations that pertain to us fishers, and then talk to us about them. Better consultation is required.</p> <p>30. Everyone is trying their best to keep within the rules to the best of their abilities, out of respect for the quota system and sustainability of fish stocks.</p> <p>31. We don't want something for nothing, we just want a fair go and then leave us alone.</p> <p>32. Work together for a better fishery. 'What's good for MAF must be good for fishing and the fishery.'</p> <p>33. Talk to fishers about regulation changes, so that impractical rules (such as headline height on trawl nets) do not go ahead.</p> <p>34. Fix the decision making process, and fix structural issues. Why aren't decisions (like those for hectors dolphin) made at a middle level and not go right to the top? Need better decision making and more proper consultation with fishers.</p> <p>35. Liaise with fishermen more (through Federation). Be more approachable in general.</p> <p>36. Meetings with local fishers by MFish is worthwhile. Should build up trust with fishers.</p> <p>37. Get alongside the industry rather than being a hindrance.</p> <p>38. Better consultation especially on setting of quota.</p> <p>39. Better consultation needed – talk to fishers, not just quota holders.</p> <p>40. Talk to fishers, not the companies. Talk to the smaller guys about the problems they have.</p> <p>41. Talk to the right people, the experienced ones who are actually in the business.</p>
'Input' versus 'output' fisheries management systems	<p>42. Change from QMS [output system] to [an effort limiting system] that enables fishers to have the odd boom year. This would improve compliance because there would be fewer things to check on, and it would simplify the whole system. Takes care of itself really. Prevents over fishing and indeed fishers would have far greater natural incentives to 'farm' their local fish stocks [meaning leaving stocks in a good healthy condition].</p> <p>43. Would prefer a system that was far simpler where the fisher was told they can go fishing, and then allow them to fish – rather than systems that incriminates the honest fisher. Feels honest fishers are targeted unnecessarily.</p> <p>44. Allocate quota to boats (not people). So all owners of registered fishing boats would have quota. This would create employment and keep more control in the hands of the fishers (and not in the companies). This would also put value back in fishing vessels (and not in the quota itself). That way people would be interested in getting back into the industry.</p> <p>45. Or, lease quota back to fishing boats or small operators (not large companies).</p> <p>46. When the quota system came in, the large companies sold all their fishing boats so that they wouldn't risk losing \$ if fined. Now they just own quota, have control and have the power. This needs to change.</p> <p>47. Keep small operators in the area (e.g., port licensing).</p> <p>48. Should have looked at vessel limits and licensing to keep a lid on fishing effort. More balance is needed covering effort as well as catch.</p>
Penalties	<p>49. Use of graduated scales for penalties linked to type and extent of breach, and with greater severity for repeat offences.</p> <p>50. Graduated scales of penalties linking to severity of offence.</p> <p>51. Link penalties in with those used for other types of industrial/white collar dishonesty. Make it more equitable for fishers.</p> <p>52. Improve flexibility with rules for minor offences to create better deterrence (and get more support from fishermen). Big deterrent is still needed for major offences on big boats though. Need to be a little user</p>

	<p>friendly in relation to the paper work side of it.</p> <p>53. Penalties are okay.</p> <p>54. Review penalties. Introduce series of tiers for different levels of offending.</p>
Fairness of regulations	<p>55. Want it to be a fairer system – bringing in charter guys [into the QMS]. Need to have the full information of all operations taking fish. Never going to get recreational guys, but you need more and more complete information to help more accurately set regulations.</p> <p>56. Make all rules same regardless of whether [fishers are] Maori or not.</p>
Deep shore fishery and Joint Venture vessels	<p>57. Have observers on all JVs all the time (this is where the main offending is a problem) or get rid of JVs altogether. JV's don't care about anything. Unsustainable. And it is unfair – those vessels don't have to comply with all the other laws and regulations as what local fishers do – minimum wages, OSH, safety etc. Their costs are much lower, 3rd world conditions, they don't care. Not fair. Refer Great NZ Fishing Scandal.</p>
Deemed values	<p>58. Deemed value bill received for 3 cents is XXXX. Bit of common sense required. Does not always understand why ends up with deemed value bills for small amounts. So easy to make a mistake. Is that the reason, not sure?</p> <p>59. Get rid of deemed value system for returning fish (e.g., spiny dogs).</p> <p>60. Setting of deemed values to make sure they are spot on.</p> <p>61. [Does not support deemed value system because] ... paying deemed value is a net loss.</p>
Sustainability	<p>62. Look at trawling and how to minimize impacts.</p> <p>63. In order to protect fish stocks:</p> <ol style="list-style-type: none"> Kick everybody out beyond the two mile limit. Push the horsepower out further. They don't need to be in close to get their fish. Shutting off an area in the Canterbury Bight for small tarakihi. Don't like the dark fishery (i.e., fishing at night for 24 hrs a day – why?). Should quit for the night, give the fish stock a rest. It's greed. <p>64. Want to be there for the longterm. Industry needs to be in good shape for resource and for industry.</p> <p>65. Shut down certain areas where there are no fish and allow them to recover (e.g., weedy areas, nursery areas, or even seasonal limits – fishers know where these areas are – talk to them). This would be a worthwhile approach for the Minister. But you have to give and take when doing closures of areas.</p>
Enforcement: relationships with, and the enforcement of regulations	<p>66. MFish should use own vessels and people for compliance and not use local skippers. Concerned that MFish are asking commercial fishers to do too much ... voluntarily reporting, noting sightings of certain species, measurements etc.</p> <p>67. Keep same compliance and enforcement effort. Pretty well covered. It must be a hell job to do when you see what goes on [i.e., on TV programme].</p> <p>68. Believes MFish should adopt a less confrontational approach, particularly in first approaches with fishers and particularly when investigating alleged offending/infringements. For those fishers who are aggressive though, it is appropriate to be act differently. Be personable first up and treat fishers with respect they deserve.</p> <p>69. Honorary fisheries officers are a good thing.</p> <p>70. Otherwise, believes MFish have 'got it sussed' particularly with 0800 poacher line. They have officers in the field. They have good surveillance gear and access to choppers.</p> <p>71. Deal with the issue of morally wrong over catch of quota species.</p> <p>72. Needs to be a change of attitude of MFish towards fishers (who are commonly treated as if they were 'low lives'). New CEO Wayne McNee is 'good' ... Felt that no-one has previously wanted to listen, having spoken with previous Ministers of Fisheries and CEOs. Not much listening happens though.</p> <p>73. Frowns upon 'new brooms' [i.e., new people in Min Fishery who appear and vigorously drive for radical changes and upset people in the process]. Better working relationships required with fishers. Take away the 'big stick' attitude. Work through the issues and don't try to 'crack nuts with sledgehammers'. Fishers feel threatened all the time.</p> <p>74. Regulations and compliance with them will inevitably be complex, because you're dealing with</p>

	<p>harvesting a natural resource. It is naturally complex. It is never going to be perfect. Most are okay with it and understand it.</p> <p>75. Fisheries Officers should be in field outside of normal office hours more than they are. They're too predictable, therefore could be subject to abuse. Should be all hours, 24/7 just like what the fishing industry is like. Not necessarily need to target any particular individual potential offenders.</p> <p>76. Should have more and better electronic surveillance, particularly cameras at landing facilities [as this is where offending was thought to be most evident].</p> <p>77. Should have one person contact for each fishing operation within MFish – client manager style so that you get to know the people you're dealing with (and vice versa).</p> <p>78. Get closer to the water, talk to the guys in industry before changing regulations.</p> <p>79. Stop treating fishers like they're scoundrels. Most of them are millionaires. Modern fishers are no fools. Treat us like businessmen and with respect if they want to work with them.</p> <p>80. Get rid of bad debtors list on the FishServe website. Put interest fee on any outstanding debts, but do not pull permits and make it public knowledge. Try to get fishers to get onto repayment schedule if they are struggling.</p> <p>81. Get away from this threatening business. All the problem fishers aren't there anymore. There are more problems with amateurs (e.g., paua).</p> <p>82. Good relationships between officers and fishermen are there already.</p> <p>83. Better information and more effective communication with fishers (e.g. like when bringing in marine reserves etc and changes of rules). Not after quantity communication (cause too much comes through the post already).</p> <p>84. Book like 'Reflections of Fiordland Fishers' is good. It has all the rules in it. Really good. Do stuff like that.</p> <p>85. Stop being threatening to fishers and waving big stick – it doesn't work.</p>
<p>Reports and reporting systems</p>	<p>86. There is too much bureaucracy. Fishers are not educated people, but they are expected to do reporting tasks that require accountant or lawyer types of skills. Seems to result in a skill mismatch. This is likely to continue as an issue for any future upcoming skippers.</p> <p>87. Go to electronic returns and entry of information direct in website from vessel (that way any data errors would be fixed immediately). Would remove the need for corrections to be made (and threats of penalties etc).</p> <p>88. Appreciates efforts of MFish to update fishers on rules, and FishServe to remind them about things that are due etc.</p> <p>89. Probably do a lot more on the computer on board vessels so that when you shoot the information is all entered. Makes a lot of sense. If a patrol boat sees you then they can check you straight away.</p> <p>90. Areas for adjustment needed – progress with electronic reporting is important. A lot of going back and forward would be avoided. Data is entered in real time and if it is wrong then the computer system just won't accept it. Would help rationalize some of the reporting as well.</p> <p>91. Have more user friendly and common sense approach to paper work.</p> <p>92. Don't need any new systems.</p> <p>93. Simplify paper work.</p> <p>94. Reduce amount of time spent on paper work through electronic recording/reporting systems (invest in it).</p>
<p>Marine Protected Areas, Marine Reserves and closure of fishing areas</p>	<p>95. Concerned that there may not be any independent commercial fishers left in [this port] in 10 years time. There has been a major down turn in numbers [down to 10% of what there once was]. Major impacting factor (other than regulatory impacts etc) is likely to be further reduction in fishing quota/areas due to [ecotourism operations] ... where they have exerted political pressure on the Ministry to reduce commercial fishing.</p>
<p>Increase public awareness of rules</p>	<p>96. Regulations could be put on signs so that everyone knows the rules (to address poaching and rules about sized fish, net sizes and so forth, in addition to existing signs about river mouths).</p>

Observer programmes	<p>97. Supports observer programme, but believes fishers should not have to pay to have observers on board. E.g., if DOC wants observers on board then they should pay for it.</p> <p>98. Observer programme – where is it going to stop? What is behind it?</p> <p>99. [Many of those interviewed questioned the whole observer programme, its perceived high costs and low benefits, and in particular the compulsory requirement to carry observers. Many would like to see the current programmes (for Hector dolphins and seabirds etc) end].</p> <p>100. MFish could have bought a fishing boat and done survey work and work out for themselves whether dolphins and birds are caught – for a lot less than what the observer programme has cost. [Disagrees with the high costs of the programme and its continuance].</p> <p>101. Use observer programme in a positive way.</p>
Regulating recreational and charter fishing	<p>102. Fishing charter boats should have to hold quota.</p> <p>103. Review size of recreational catch limit.</p> <p>104. Review amateur catch limits – bring them down. They're too high.</p>
Raise public and economic profile of fishing industry	<p>105. Run their own public education programmes about the fishing industry, creates overseas funds that eventually make its way into helping pay teachers.</p> <p>106. Keep fish prices up – marketing – locally and internationally to grow market. Emphasise quality.</p> <p>107. Look at what government has done for farming, and do similar things for fishing industry.</p>
Improvements to fishing techniques – research etc.	<p>108. Look at local efforts to reduce by catch (e.g. escapement for undersized flat fish).</p> <p>109. Invest in small operators in research with the industry and stop punishing us for non-compliance.</p> <p>110. Don't put in silly measures like headline height of trawl nets.</p> <p>111. Could be prosecuted for small gurnard landings. NZ Federation of Commercial Fishers is trying to address it. [I have] changed to 5 inch mesh in trawl net to limit number of small fish caught.</p>
General comments	<p>112. Generally it is a good system though.</p> <p>113. Be more flexible and adaptable.</p> <p>114. Get a game plan = more sustainability.</p>

APPENDIX 7: SURVEY RESPONDENTS' SUGGESTIONS ON IMPROVING FISHERIES COMPLIANCE AND GENERAL COMMENTS

Survey respondents were asked: 'Do you have any suggestions on how the Ministry of Fisheries can improve compliance with the fisheries regulations?' Verbatim responses are provided in the left column.

They were also given the opportunity to add any further comments at the end of the questionnaire (verbatim responses are presented in the right column). In addition, several respondents made written comments on other parts of the questionnaire, which are also presented in the 'additional comments' column but denoted by bullet points.

Each row comprises the comments from one individual respondent.

List order	Suggested improvements	Additional comments
1	Personally, I think the current compliance regime is about right, although our vessels are mainly involved in the deepwater although some of the stocks are common. I do not have much knowledge of small inshore boat operations and how widespread possible offending may be although I suspect there is some that goes on.	For our fleet of large deepwater vessels, we have strict rules on compliance and any skipper or crew who was caught knowingly breaking regulations would be fired.
2	Stop treating every fisher as a criminal. Try to help rather than hinder. Change attitude. Unbelievably I feel the MOF are anti-fishing	In my <over 30> years of involvement with MOF and their predecessor MAF, I have never received any assistance. They have always tried to put obstacles in our way.
3	Full observer coverage or camera coverage. Make foreign vessels provide a decent (Kiwi) standard of accommodation and workplace for NZ observers. An industry standard of training for all fishers to make them aware of rules etc.	Certain fisheries are not managed well. Some stocks are threatened ie. HAK 7 and no action is happening. CPU effort needs to be looked at so effort more matches returns.
4	Deemed values are a joke in a mixed fishery. The latest rules have made it so there maybe dumping of ELE5 big time. The increase was not enough to fix problem. Then to make matters worse, they put the tier system back again. Sometimes common sense and <illegible> go together.	
5	By getting the regulations set right re: small and damaged fish. Bring in a minimum commercial fish size for all species instead of just a few as is current now.	
6	Re: modifying fishing practices - do this by staying away from certain species. Offshore fishers breaking rules threaten sustainability of NZ's deepwater fisheries and inshore fisheries. Ownership of rules/regs by fishers/quota owners should help with self policing. Big stick approach just encourages rebellion 'naughty boys'. Redefine what Ministry wants to achieve and limit rules and regulations at a summary level. Micro-management through 8000 plus rules is impossible to police let alone comply with by fishers/industry. No ability to be flexible or practical without more rules being broken.	Givens: <ol style="list-style-type: none"> 1. QMS is the only system that works. 2. 'Everyone' operates out of self interest. 3. Self regulation does work, ie. CRAMACs in small fishing towns like Bluff (quota owners), Bluff Oyster management. 4. Fisheries planning may be the way forward as they give ownership of the issues back to the fishers - my experience in CRA8 and OY5 tells me this is the way forward. 5. MFish has to get ownership of problems sorted out. 6. Mixed species fisheries are difficult but can be solved. The most pressing issue is what to do about by-catch and discarding - there are too many fish! No quota! Regulation. 7. Foreign/JV enterprises fishing NZ waters need separate legislation. The rules don't appear to control their behaviour. Big companies won't budge as self interest gets in the way of 'sustainability'. MFish needs to make this decision!
7	Be more realistic in setting quotas and deemed values. Take notice of what is being caught.	

List order	Suggested improvements	Additional comments
8	<p>1. Simplify the regulations and reduce the number of regulations.</p> <p>2. Regulations need to encourage, not hinder, production.</p> <p>3. Because of the complexity of the regulations, it is impossible to fish without being in breach of something. Therefore nearly all fishermen feel a lack of self-worth. It is important that this is reversed so we can once again feel enthusiastic and confident going forward. Compliance would follow as fishers once again felt a sense of pride and security.</p>	<p>The issue of small (of no commercial value) fish and size limits is very concerning. Prior to the quota management system, fish with no commercial value was not landed or recorded. So what changed in 1986? No fisherman in his right mind would land fish which had no value, but would be weighed and deducted from his quota holding, so a way has to be found around this problem. Punitive deemed values seem to fishermen to be a money grab by the Crown, instead of adjusting TACCs (either up or down) to reflect changing states of fish stocks. It is very serious indictment on the QMS that accurate figures for what is actually being caught and discarded are not available to our scientists. Even in the case of fish with a minimum size limit, there is no provision to state the amount of undersized fish caught and discarded.</p>
9	<p>When MOF have insane rules <fishers> are compelled to break to stay in business. MOF should address the problems instead of putting in the too-hard basket. By-catch problems have existed since the Quota System was introduced, but MOF will not act because of the incompetence of the decision makers. Fishers have no representation except by large fishing companies who have a conflict of interest and have the ear of Government.</p>	<p>Most believe MOF are totally out of control, making crazy regulations that cannot be adhered to. Suggest a check on practical experience of MOF staff. The regulations are decided by MOF who by their lack of practical experience have no idea their inexperience causes so much trouble for the catching sector. MOF do not enter in consultation with the catching sector. Only fishing companies are considered to be industry. Anyone else is totally ignored when decision making. Most fishers have given up fishing, sold their boats and gone. The inshore industry is in crisis <illegible> and consultation has proven to be a total waste of fishers' time. We read of a scientist telling us that after 35 years studying hector dolphin she has little or no accurate knowledge of them (bullsh**). Another scientist telling us seals do not eat fish and another idiot telling us NZers have eaten their last Bluff oyster. How crazy are our over paid decision makers.</p> <ul style="list-style-type: none"> • Re: Q14b and 14c 'it is always wrong to break the rules if everyone else does' and 'it is always wrong to break the rules' - no option. • Re: Q19 'Anyone who breaks the rules will get caught and prosecuted' - only certain people will be prosecuted. • Re: Q28 'if you saw another commercial fisher breaking a major rule, how would you normally respond' - all fishers have to break the insane rules to stay in business. • Re: Q30e 'NZ fish stocks are being managed sustainably' - managed by idiots.
10	<p>Act faster on information from public. Keep closer tabs on JV vessels. Increase penalties for people poaching paua-crayfish and shellfish around the coastline.</p>	
11		<p>They need to address the problem of deemed values. The small fish dumped. Especially in the gurnard and elephant fishery in the Canterbury Bight. Deemed value for gurnard is higher than we get paid for it, and there is that many elephant fish out there - we can't dodge them.</p>
12	<p>Bring back quota tradeoffs, so we can balance quotas, so we don't have to dump good fish at sea and the government can see which quota has to be increased and which quota has to be decreased. If fish are not landed, how can government manage fishers?</p>	<p>Please stop Joint Ventures. Let NZ companies catch NZ quota. Fish simple.</p>
13	<p>If fisheries officers think a boat is doing something wrong, get on go and talk to the crew and skipper first.</p>	<ul style="list-style-type: none"> • Q25. - re: protecting the fisheries resource for the future - exclamation mark
14		<ul style="list-style-type: none"> • Q12. re: 'penalties for breaking the commercial

List order	Suggested improvements	Additional comments
		fishing regulation' - inconsistent.
15	They should work closer with industry - those of us that are left are not cowboys and try to run an honest business, but the law is so severe that an honest mistake can have serious consequences. As a result, as soon as we know MOF have an issue, we lawyer up - have to - so the mere threat of prosecution will cost us dearly.	I feel sometimes that MOF take cases simply to a make point. <Remainder deleted to protect identity>
16	Faults in computer accepting next month's returns, when accidentally pushed next month.	Putting observers on foreign charter vessels even if they are third world <standard>. Treaty settlements. Iwi wanted quota to put young Maori into fishing. Bulls*** using slave ships - foreign charter vessels. It's all about money not people.
17		Charter boats BCO 30 fish day <down to> 6 fish day
18		Too much time is put into trying to find kiwi fishermen breaking the rules. Most will stay within the rules if not all. We do not want to stuff our livelihood and lifestyle. More time needs to be put into looking harder at the Joint Venture vessels operating in our water, as they don't care about our fish stocks. They will move onto the next place and the fines are less than what they will make for catching the fish. Refer the DVD - The Great NZ Fishing Scandal.
19	Listen, listen, listen. Trust, trust.	<p>MAF seem only concerned for their job, not industry. A minor offence attracts huge MAF effort. A major offence attracts little, if any, effort. Until the Ministry learn to trust fishermen (most are genuine), the relationship between the two will not improve. Putting a gun to one's head and asking him to do something is not the way.</p> <ul style="list-style-type: none"> • Re: Q6. 'Do you own quota?' - how?. • Re: Q13a. 'size of penalties for offending' - too heavy for minor offences, not heavy for major offences. • Re: Q14a 'Everyone breaks the rules most of the time' - typical Ministry mistrust. • Re: Q 14 - stupid-stupid-stupid. • Re Q20. 'breaking commercial fishing rules' - you ask this yet the Ministry does not trust fishermen. • Re: Q23 'how fair was the penalty you received' - bordering on ludicrous (for late fee) and pathetic (redeemed value). • Re: Q 24b. 'interaction with fisheries officers' - try not to, no trust. • Re: Q 25 - stupid questions, not relevant. • Re: Q26a: 'CSO has a fair say' - too much. • Re: Q26b. 'individuals have a fair say' - none. • Re: Q26c. 'Fishers trust the MOF to act fairly' - this is an insult to fishermen. • Re: Q 27. 'have you ever reported another commercial fisher' - no response from MAF <many> times. • Re: Q28 'how you normally respond' - save my energy nowadays. • Re: Q 30e. 'NZ fish stocks are being managed sustainably' - some.

List order	Suggested improvements	Additional comments
20	Strong need for recreational fishers to clip their crays they are landing (on the tail). Black market crayfish is so rife in Kaikoura. Dozens of recreational fishers are out every day. Cashing in on our crayfish. The restaurant owners are just as bad.	
21	A more honest discard system that allows fishermen to operate within the regulations.	
22	Come out in the open and discuss issues, not hide behind bushes etc. and act like Gestapo.	Fisheries want to look hard at increasing quota on elephant fish and gurnard next year. Stop ducking the issue.
23	<Make> Catch Effort Landing Returns <able to be submitted> on line to get rid of this ridiculous situation of forms being sent back and forward. Penalties for things like late nil Monthly Harvest Returns way over the top. Forget about having every species in the QMS. Some fisheries should not be there – ie. by-catch ones	
24	Some of the rules are vague and if officers would speak to fishers and tell them of any concerns and give them a chance to correct it rather than secretly gather as much information and then prosecute. We feel as if we are all guilty of offences in the eyes of the officers. Start liaising with the fishermen and earn their trust and then you would get more help from them.	<p>There are too many complex rules that MOF can make suit their needs. Simplify them into plain English that all fishermen can understand. MOF Officers have a lot of work to do to regain the fishermen's trust, as it was in the old days when fishermen and officers would have wharf meetings and discussions on any issues. Not immediate prosecution as seems to be the norm today. For fishermen who have refused to take an observer onboard to be prosecuted and lose their boat and livelihood is blatantly unfair. What other industry has such a harsh penalty - none that I know of. Of huge concern to me is how much influence outsiders have in closing us down by stopping set netting, because we might catch a hectors dolphin - even though there are none in the area and I have never seen or caught one in <more than 30 years>. But my word is not trusted but others who have no accurate knowledge are listened to.</p> <ul style="list-style-type: none"> • Re: Q13d. 'setting of deemed value price' - never used - have enough quota. • Re: Q18c 'others get caught breaking the major rules' - I don't know of any fishermen who knowingly breaks any rule. • Re: Q25d. 'threat of being caught' - I obey rules regardless. • Re: Q29 'normally expect other fishers to report' - seldom done because of severe penalties rather than being contacted by Fisheries and spoken to and given chance - they would sooner prosecute.
25	Some fishers don't get a pay invoice for the previous month till after required date for paperwork to be furnished for said month, and column in fishing return requires invoice number, making said requirement impossible. All my offences are because of this. I now wait till last possible time and if invoice and pay doesn't arrive, I will furnish the landing docket number instead and send in, but have been caught out because of postal hold up and or public holidays.	<ul style="list-style-type: none"> • Re: Q12. 'penalties for breaking the commercial fishing regulation' - depends which regulations, some are stupid because of circumstances. • Re: Q13a. 'size of penalties for offending' - depends which offence. • Re: Q20b. 'how often do you break any minor rules' - not purposely though. • Re: Q21b. 'how often have you been caught breaking any minor commercial fishing rules' - stupid time rules to do with paperwork because I haven't received invoices from fisheries! • Re: Q25. I just don't purposely try to break the rules.
26	Fewer rules and less paperwork. If you threaten with big fines - you will never get fishermen to cooperate.	

List order	Suggested improvements	Additional comments
27	Improve or modify the discard regulations.	Need to sort out the discarding of non-sellable catch in relation to ACE.
28	Get rid of rules made to combat theoretical problems. Rather than a torrent of rules to micromanage minor problems that don't matter, just a few broad rules to ensure stock sustainability and reporting requirements. With the present avalanche of rules for every conceivable problem - I'm told that there are 8000 fisheries rules. It is nearly impossible to go fishing without breaking some.	<p>Although I believe anyone caught poaching or purposely breaking the law to make extra money should be put out of business, I believe a lot of the penalties <are> for what could be called accidentally breaking of the law - say one or two undersized fish in your catch when cray fishing caused by crew inexperience and or fatigue - should receive more leniency although not dismissed altogether. There should be a minimum legal size on all species set out at the minimum marketable size, below which discarding should be allowed. Having to land fish of a size or species for which there is no market is silly and unrealistic to have to count against quota, as quotas were originally set based on marketable fish, so by default discards have been allowed for as opposed to dumping of marketable fish (which must be avoided if at all possible). Having deemed values set above market prices is not helpful and only encourages dumping. The Ministry should try to get the balance of quota between species more in line with catch or as it was originally - only quota major species and forget about by-catch species that aren't targeted anyway - as these make the whole system so complicated as to be unmanageable.</p> <ul style="list-style-type: none"> • Re: Q28 'if you saw another commercial fisher breaking a major rule, how would you normally respond' - raise it directly with fisher, and if that didn't work then report it directly to a fisheries officer.
29	Review the number of regulations and their relevance. Review what is causing illegal behaviour ie. draconian deemed values. Review deemed values policy. Restructure penalty regime to make more use of instant fines. Ensure the penalty matches the crime; ie. forfeiture of vessel, catch and quota not befitting of most offences. This restructure would free up compliance resources.	Most fishers (particularly inshore fishers) discard fish because ACE is unavailable or ACE prices are too high. High ACE prices and very high deemed values create the wrong incentives. The incentives are to misreport so that ACE costs <or> deemed values costs are not incurred. These incentives result in incorrect data recording so that the information for fisheries management is wrong. MOF and industry should work together to determine the appropriate penalty structure.
30	Vessels fishing for species they don't have quota for and living on deemed values as the market prices make it worth it. Charter vessels fishing off Banks Peninsula night and day and throwing a lot of rubbish over the side (e.g., general rubbish, legging gumboots)	As <I>work for a <moderate to large> company, we take Mfish observers often, but a lot of private operators won't take them and a lot of charter vessels - which is unfair and gives a false record at Mfish data. I have been involved in <using an extensive list of commercial fishing techniques> I think Area 3 is under too much pressure, and it is getting harder to catch a lot of species (eg. red cod, squid). The damage was done ten years ago, as there is a lot more large vessels around, but it doesn't look good - where there was fish <there are none> or a lot of spiny dog fish. Areas need to be shut down as it will never recover. Red cod is on verge of collapse.
31	Encourage companies to financially penalise fishers who constantly supply small fish and break the rules.	<ul style="list-style-type: none"> • Re: Q28. (normal response to others breaking major rules) – selected 'raise it directly with the fisher concerned' with comment 'and the fishing company'
32	Learn to discuss, trust and involve experienced competent fishers, they are business and industry leaders. Compliance officers should be on shift work like NZ's Police. The rules are complex and sometimes people need assistance to understand.	
33		Stop treating commercial fishers as lying and cheating persons.
34	More field staff to interact with fishers without threat of prosecution, to work through issues such as dumping and minimum sizes. Also, fishers must be encouraged to 'peer	

List order	Suggested improvements	Additional comments
	monitor' each other.	
35	Lower deemed values to lessen discarding small and damaged fish. More consultation with fishers. Look at limits on ACE lease prices.	
36	I think the commercial sector understands, if you break the rules, you lose your boat, quota, job etc. However, too many times you hear the recreational repeat offenders getting fined bugger all. And their cars/boats are sh**ers anyway. I feel the recreational/charter sector poses the biggest threat to the inshore fishery. In some places, every year, there are more and more recreational guys out fishing and diving. They far outweigh the commercial side which is getting smaller.	Some fish limits are way too high. I think fish reporting for charter boats should be compulsory. And recreational boaties should sit a course on safety, fishing rules, who gives way to who etc. And their boat should have a licence number.
37	Enforce all foreign owned joint venture vessels to have observers on board at all times. Area 5 & Area 6 Ling - take out the reason to offend with trucking and set the available quota where it should be - more 5, less 6. Deemed values should be set at a rate that there is no possible way of making money from a fish that is deemed.	When trying to prosecute offenders, you will be pleasantly surprised as to how much help other skippers in offshore cases will assist in helping to get the result you are after - don't leave it too late to ask. Make all NZ quota caught by NZ owned and crewed ships. A lot of big quota holders have the money and will break any laws to make more money.
38	When fish returns are sent to Fishserve, not to be so picky on returning returns for correction, when it is logical what the entry would be. These returns take hours of checking, even when sent ashore before sending to Fishserve.	Fish returns are far more truthful than they were in the 1960-70's, when MOF provided A4 pages with 5mm widths for each species to complete, so untruthful. These forms were calculated by each landing added up the amount of wooden fish bins eyeballing the weight and entering for each landing. Nothing was entered re: discards, those owners were the ones that were given quota when quotas were introduced. Now, when future generations are recording everything honestly with discards and better records they do not get the rewards of quotas - a very unfair system. How do I know - seen it for my own eyes.
39	More focus on education, as is the case in recreational fishing. More information on the important major rules sent to vessel owners to educate their skippers and crew. All vessels to run a VMS on board.	In trawling the biggest major rule being broken is not trucking, or gear being run illegally, but it would be fish dumping. I am not saying this is happening in a high % but could be as high as 1-3% on some species, but it is a major breaking of the rules, and we all know that. I would strongly urge the Ministry to change the rules to allow discarding of some species that have no commercial value, ie. spiny dogs, barracoutta, jack mackerel, especially small and damaged fish as was the case before quotas were introduced. Discarding of small and damaged fish went on before quotas and after they were introduced, even with MOF observers on board, but only in the last 5 years has it been seriously enforced which does not seem right! As now, with everyone running scared to will get wrong inflated figures of fish landed - which will make fishery look like it is getting better, and this could cause the Ministry to increase quotas (wrong decision for sustainability). <ul style="list-style-type: none"> • Re: Q22. largest penalty received - one investigation which I was cleared of within one month. • Re: Q 26f. 'Fisheries officers act professionally and without prejudice' - each are different.
40	Sort out deemed value prices and the way it works is not fair to the fishermen - only works for the large companies that process fish.	I think that the quota system works but it needs to be tweaked a bit more on quota size and fish size.

List order	Suggested improvements	Additional comments
41	Interact with fishermen more. Listen to our complaints - we are in business to catch fish and if we don't protect our industry who will?	QMS is a mess - for many years deemed values have been addressed, and the fisherman has not been listened to. In 2009 the Elephant 5 TAC was increased and the Gurnard 3 was increased by minimal amounts, which are no where near the total catches for the past 5 years. This in turn with once again rising the deemed value rates on both species to where they are above the beach prices. For most <this> is another encouragement for dumping. When we arranged for the deemed value on Elephant 5 to be set at 99 cents, the Ministry received accurate information, because fish was being landed. I conclude my comments with the main thing the Ministry could start doing to help - listen to the fishermen - we know.
42	More size limits. Less compliance for smaller operators. Fisheries Officers inspecting larger operators instead of picking on the easily targeted smaller ones. Raise Flatfish 3 quota allocation back to what it was before cuts to help out smaller operators as that was who it affected the most.	I think that as long as you know that the fishing industry is alike the oil companies and have a monopoly, you just get on with it because you love it and not get stressed about it as there is nothing you can do to change it.
43	Get rid of half the rules and stop nitpicking on trivial paper mistakes on fish returns. More people on the ground instead of office bound staff.	I have had an absolute guts-full of fishing with its constant load of irrelevant paper work dreamed up by brainless over paid desk hugging bureaucrats who do not live in the real world. I look forward to the day I finish fishing and can tell all concerned to shove it. I would not recommend a career in fishing to anyone with half a brain. <name and address concealed to protect identity>
44	In general, I feel fishers' compliance is pretty good. There needs to be rules to protect the fisheries and most fishermen realise this and are there for the long-term. What is of concern is the increasing amount of foreign vessels working inshore areas - 12nm isn't far off and there's not much left after they have gone through 5 to 8 wide without observers on - mostly cause you can't pay them enough to go on some of their boats and you can't blame them.	Very few New Zealanders profit or get any advantage having their <JV> boats fishing here and the fisheries definitely suffer. Their offending is large scale when investigated, but mostly they seem to do what they want 'cause they are in the too hard basket. They cost jobs and care little for the sustainability of NZ fisheries.
45	They are doing a good job.	They have closed most of our set netting area Te Waewae Bay etc, where 95% of my net fish were caught. 'Save the dolphin' - bulls**t. <ul style="list-style-type: none"> • Re: Q12 - penalties - too weak on amateurs. • Re: Q26f. 'Fisheries officers act professionally and without prejudice' - selected 'disagree' with note 'some'. • Re: Q28. normal response to seeing commercial fisher break a major rule - would raise it directly with fisher concerned, and report it directly to a fisheries officer if he kept offending.
46	Need minimum size regulations for more (or all) quota species. Having to land a two inch monk fish doesn't help anybody. And calling it a major rule to release a two inch monk fish isn't helping anyone or anything.	No matter how hard we try, we can't guarantee exactly what is going to come up in your net. These things are not computer generated. Dumping is a grey area as with no minimum size releasing a three inch live gurnard is termed dumping which I would not call a major rule <breach>.
47	Change regs so a fisher is not a criminal before he even leaves the wharf. Example - gurnard, all small is dumped. Too small to get a fillet off, yet has to be recorded and taken off quota. Quota was originally made on fish landed not dumped when originally introduced.	I am currently not fishing due to over controlled fisheries rules. It gets to a stage when it does your head in and for some of us, life's too short. More detrimental to some fisheries is methods used like Danish Seining. If you want to clean out some fish species in your back yard, let a couple of them loose!!
48		<ul style="list-style-type: none"> • Re: Q18a. How often do you believe others break the major rules - selected 6 with comment 'joint ventures'

List order	Suggested improvements	Additional comments
49	There are too many rules and regulations for industry. Cut them back 50%. Deemed values are a rip off. Abolish all deemed values.	I think the quota management system is unfair. It gives the big companies control over the fisher and makes the quota too expensive for any new entrants into the industry. The fisher has lost any profit in fishing to quota holder, iwi, and big companies. If the decline of fishers carries on at the same rate as the last 10 years it will not take too many more years before there are none left. I think we should take a good look at the quota system and put quota back with the people who are working on the sea. I think we should not allow any foreign fishing vessel in our waters. New Zealand fishing companies should have their own vessels manned with Kiwis.
50	Get TACC's correctly set! Allow stakeholders more say in how to manage the resource. Develop better strategy to manage mixed inshore fisheries. Simplification.	
51	Discontinue fixation with stock assessment and observer coverage and develop full consultation with actual fishers who can report on the state of fisheries in real-time from the actual presence in the fishery 24/7. This would capture the fluctuations intra-season and season to season, not recognised by data reported on 2-3 years later. Draw down on the huge database of information already held, but seemingly ignored. This would bring MOF more in touch with the real world of fishing and practitioners. There is a vacuum between the bureaucrat and the actual fishers.	Re: my answer to Q13b (agreement with QMS) - the QMS is not a management system per se. It is only a regulatory and reporting system with many assumptions and flaws. However, it is valuable as an outline or a structure within which management for different species can be developed. Fisheries management requires more than a notional TACC, many of which are guesses which are far from relative to sustainability above and below fish stocks (population studies) are almost impossible to be sure of. Re: Q13c&d (agreement with system of deemed values and setting of deemed value price) - I believe that the deemed value system is flawed. Actually it should be seen as illegal when based on port prices, which arise from price fixing. A system based on 'cost to catch' where the fisher has no incentive to fish without ACE but can recover his cost, less a small discount would ensure actual catch would equal landings and provide actual real-time data about what fish are removed from the fishery. Alternative losses forced by flawed TACCs and high deemed values would be recovered in jobs, exports, multiplier effects and real time data which would otherwise be hugely expensive to recover by surveys etc.
52	30 years ago, fisheries officers would come on board, have a talk etc and cuppa, then explain to you what you were doing wrong to the extent of getting their hands dirty if needed. You parted as friends. Today's officers arrive with flak jackets, jackboots and an attitude - we will get you, we are the enforcers and you are the <criminals>. Fisheries officers need to return to the old days of educators first, if that doesn't work out with a vessel or however, then the approach of enforcer may be applied. They also should have some practical knowledge.	Re: Q14 <about breaking the rules> this is difficult to answer. Re: Q18 <how often you believe others break the rules> & Q 20 <how often you break the rules> - these answers are wish answers, with over 4500 rules and regs covering the fishing industry, it is impossible to sail without having broken a reg somewhere. Over the last 9 years, the policy makers in MOF have shown a total lack of knowledge of the industry and a lack of common sense. There has been a mass loss of fishing knowledge, from the industry by older fishermen, with 30-40 years experience over this time, and the main reason is they have had a guts full of the bulls**t and hassles from the MOF. The industry will not improve unless these policy makers go back and start to listen to those with practical knowledge and time at the coal face. There are too many policy makers in the MOF. <ul style="list-style-type: none"> • Re: Q2 'which option best describes your involvement in the fishing industry' - chose two options (skipper and manager) with comment 'some people do both'. • Re: Q25j. 'protecting my fishing lifestyle' – this went out the door 15 years ago.

List order	Suggested improvements	Additional comments
53	Work with them not against them. And most of all have some common sense.	We have had the quota system for over 20 years, and still we have Area 3 from Kaikoura to Big Bay for some species, and Area 5 in the middle for others. What a f**k up. Come on. And what about Elephant 5 and Gurnards or do they just want deemed value dollars for another 10 years. Wake up and read our fish returns. Re: Q17 (how often inspected) - heaps.
54	Maintain or increase personal contact with the commercial sector. Build strong relationships with fishermen who share the same value for the future of all fisheries.	<ul style="list-style-type: none"> Re: Q24a (interactions with crew or skippers from other vessels) - we are sole operator.
55	Because of deemed values and quota shortfalls, sometimes fishers are forced into breaking rules. Whereas more thought into by catch tradeoffs will stop accidental offending. Penalties for outright purposeful breaches should have zero tolerance.	
56		It is my opinion that commercial fishers are a fairly easy target, and fishers in my opinion generally adhere to the rules. My biggest concern is with the growing charter and recreational sector extracting more and more fish from the resource with no information being recorded, as with the commercial sector down to the last kilo is accounted for.
57	I don't think there are enough MAF officers out there. Anytime I have them on my boat they copy everything out of our MAF books. When all the information has already gone to MAF from the top copy. Compliance officers from different ports and areas all have different preferences on how books should be done (petty stuff).	Question 30d <offshore fishers breaking the rules threaten the sustainability of NZ's deepwater fisheries> is a hard question, because when you see the massive over catch amounts of some species by JVs (e.g., blue warrihou), you have to think it would affect inshore fisheries as well. Deemed values = money making venture for NZ government?
58	Be more down to earth with communications with fishers - less officious. Simplify paperwork.	After <more than 25 years> in the industry, I do feel that the inshore fishery has become over-regulated and this makes it hard for these fishers to make a living or buy their way into the industry. Fishing has become bogged down in bureaucratic paperwork.
59	If some of the fishery officers came down and talked to the crew about regulations and ways to do things better, instead of jumping on board and trying to find something they have slipped up on when they are tired from a trip. Then issuing an instant fine, too many officers act like traffic cops. Half of them are reject cops and act like it. They treat all commercial fishermen like criminals. They should be reminded that when they get rid of all commercials, half of them won't be needed.	
60	Some current rules do not relate to sustainability of the fishery. Setting of TACC often having nothing to do with sustainability of the species. They are set in accordance with political climate and green lobby votes. TACC decreases happen quickly, but increases very slowly. If industry was allowed to have more input to setting TACC limits and to recommend decreases, without knowing it will be impossible to get increases in future then system would be more robust and fair. Needs to be more recognition of mixed fishery areas such as East Coast South Island. Deemed value is a very blunt tool and does not allow variations within industry participants, to be taken into account, difference between inshore/fresh and deep-sea/frozen.	<ul style="list-style-type: none"> Re: Q 14a. Agreement with everyone breaks the rule most of the time - selected agree with comment 'small technicalities'
61	More visibility on the ground - less office administrators. More direct communication and education.	
62		With all the rules and regulations now and deemed values, there won't be an inshore fishery in 10 years time or less.
63	Keep it simple; e.g. complex or multi tiered rules are difficult to	

List order	Suggested improvements	Additional comments
	comply with. When the financial cost of complying with a rule becomes excessive, it punishes those who comply. E.g., ramped deemed values on species where ACE and fish stock are not aligned. E.g., Elephant 5, Gurnard 3, Flats 3. This can be attributed to an over cautious approach by Min Fish and their failure to use quota and ACE management system as it was designed.	
64	Allow fishers to discard, by putting a minimum size limit on all species. As the rule stands, every fisher in the inshore fisheries is breaking the law when a fish goes over the side of his vessel.	
65		The quotas have been in for 20 years now, and younger fishermen are not being able to come out and have a go for themselves - because they cannot get the quota they need to make a good lifestyle.
66		Over time, officers have become more heavy-handed. It seems their power goes to their head, and do not look at things from a practical perspective, and in some cases do not even know the law. They need to improve communication skills if they want to be respected.
67		<ul style="list-style-type: none"> Re: Q25g 'weighing up the benefits and costs of breaking the rules' - <no response to question with comment> dumb question.
68	Put observers on all JVs and make the JV owners pay for them including upgrading accommodation onboard so it is up to NZ standards.	
69	Need more full time Fisheries Officers out on the water and the coast. Poaching is going on all the time by gangs, and this needs to be stopped. For instance, M Fish recognises that 350 tonnes of illegal lobster is illegally taken each year in NZ. The TACC for the Canterbury Marlborough cray area is 350 tonnes.	
70	Most people on boards concerning fishing interests are heavily involved in fishing activities. Conflict of interest should be applied to any decisions made. Most large fishing operations have the owners involved in committees and boards, and are the boats that are doing the most damage to the grounds. Greed seems to be the driving force to change any regulations. The smaller operator has no say in anything. This year I have witnessed 40m vessels working beside 10m vessels completely wiping out fishing grounds. The owners of these vessels are involved in the federations trying to change the rules to suit themselves. Cray fishing is the same, with quota owners trying to get rid of lease fishermen. Most fishermen don't own any quota, but catch most of the fish, with the profits going to the quota owners. These fishermen don't have a say, even though they are hands on operators.	
71	Discussion groups with individual boat owners/skippers crew in each Area. Lessening of bloody paperwork.	Each Area should be treated on merit, i.e. discussion with fishers in each Area on fish stock movement quarterly to help in information needed for in season opening up of certain species if needed. To set up a better deemed value system. There is no way we can prove species growth under current deemed value system. Having some trust and respect for commercial fishers, instead of listening to a green movement.

List order	Suggested improvements	Additional comments
72	Been seen doing it.	<p>I have never seen MAF police Ruapuke Island <...>. They are a joke.</p> <ul style="list-style-type: none"> • Re: Q16c 'It costs me too much to comply with all the rules' - no option selected with comment 'we have to'. • Re: Q17 (number times inspected) - no number specified, with comment - too much, at least they are justifying their job. • Re: Q27 'have you ever reported another commercial fisher breaking the rules to the authorities?' - selected 'no', with comment - but should. • Re: Q29 'how often you would normally expect other commercial fishers to report major commercial fisheries rule breakers to the relevant authority?' - selected '1' with comment - that's not our job (MAF).
73	Better education/information. We often find we have to call a fisheries officer for clarification on regulations.	<p>When it comes to paperwork, Fish Serve and fisheries officers often disagree on how things should be done. We now go to a fisheries officer and get them to sort out problems with Fish Serve. Quota Management Areas too large. Action is not taken quickly enough if species are under threat, or if a threat is found not to exist.</p>
74	The Minister's whole way of dealing with compliance is one of heavy handed bureaucratic nonsense. Instead of treating all fishermen as potential thieves, scoundrels and liars, they need to remove the stigma that fishermen are the threat to the industry, when it is really the Ministry's lack of coal-face knowledge that is their biggest threat. One sided compliance ruling can only breed contempt.	<p>I am an advocate for a future fishing industry for New Zealanders to continue in this field. Certain measures will have to be implemented. We shouldn't have to wait until stocks area depleted. We must become pro-active. This cannot be done in the departmental way. It takes too long and in finality it is always more from the Ministry's point of view, which is always detrimental to the fishers' view. The whole deepwater, inshore fisheries, need to be reviewed immediately . This could only produce a satisfactory result by fishermen being brought in on a consultative arrangement with the Minister of Fisheries and no less. My biggest concern is the foreign or Joint Venture vessels <??> of fishing out inshore commodity. The Ministry doesn't go near these ventures. We don't have a future because of this. International fallout with foreign countries is too scary for both the Ministry and the Government, while we will always be the scapegoats. The Ministry has no testes. Fishermen can safely say nuts to you all.</p>
75	To spend more time talking with fishermen.	
76		Ban set nets.
77	Simplify rules. Less paperwork.	
78		<ul style="list-style-type: none"> • Re: Q9 (main ports operated from) - selected Timaru with comment 'only one vessel' <of 6>. • Re: Q21a. How often been caught breaking any minor commercial fishing rules - selected never with comment 'case pending'.
79		<p>I've always been one of the less than 8% of NZ primary tax payers and it sucks.</p> <ul style="list-style-type: none"> • Re: Q 25 (agreement with series of statements) - I don't understand this question.
80	Simplify bookwork. Instead of having destination 'R' 'Q' etc. simply have final destination LFR etc.	<p>The regulations are too complex. Overseas crews should not be fishing our waters as they are the worst offenders.</p>

List order	Suggested improvements	Additional comments
81	I think the industry has had a few shake ups over the last few years which had to happen. The so called fly by nighters have gone or getting pushed out and the fishers that are left comply with the rules and are professional about their jobs through the chain of commands (ie. company owners to managers to skippers to crew) which is good for the future of the industry.	I would like to see, in the future, the joint venture vessels disappear and a bit more quota available for New Zealand inshore vessels.
82	More compliance officer presence on the wharfs. Closer consultation on deemed value setting. Less punitive deemed values where by catch is clearly a consequence of normal fishing.	<ul style="list-style-type: none"> • Re: Q5 (weight) included comment 'plus shellfish 860+'. • Re: Q7 and 8 (vessel number and length) recorded 1 vessel but noted six in total (1 60-79ft, 5 under 20 foot), so assumed this was one registered vessel with five feeder vessels.
83	Drop prices on deemed values, it creates dumping. Who in their right mind is going to work all day to clean fish and cost them money by having to stop fishing operations. Bring back the old trade off system - sometimes you can't keep away from non-target species even though you try to.	<p>The Area3 Flat Fish quota needs to be increased substantially, the only reason it wasn't caught for years is lack of fishing pressure - ie. not many boats in the fisheries compared to when quota was set. Fish run in cycles, increase or decrease TACC's yearly dependent on abundance of individual species.</p> <ul style="list-style-type: none"> • Re: Q12 (penalties for breaking the commercial fisheries regulations) - selected 'too harsh' with comment 'Only on deemed value, the rest of the penalties are about right'.