IMPORTED SEAFOOD TRACEABILITY REGULATIONS: A MISHAP FOR THE WTO'S DISREGARD FOR NON-PRODUCT RELATED PROCESSES AND PRODUCTION METHODS?

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ABSTRACT

Sustainable management of capture fisheries is complicated by distant and opaque supply chain relationships between global producers and global consumers. This could be less of a problem, given the global market is increasingly protected by government-led traceability regulations to generate a comprehensive profile of the seafood we consume. Traceability regulations extended to when, where, what, who and how-produced standards inevitably increase the conflict between local market access and extraterritorial fisheries management. This paper revisits the decades-long debate on non-product related processes and production methods through a fresh investigation of two leading regulatory paradigms of seafood traceability. It proposes the adjudicative locus under the more specific Agreement on Technical Barriers to Trade to accommodate, monitor and discipline novel "technical regulations". It also maps out feasible pathways to nurture cross-regime synergies between trade and other credible co-regulators of global fishery resources.

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I. INTRODUCTION

The International Organization for Standardization (hereinafter "ISO") 14000 series creates three broad categories for labelling proxies to measure the environmental attributes of a product's life cycle.[1] Type I, commonly known as ecolabelling, refers to a multi-factorial third-party programme to award businesses the licence to use environmental labels on their products. Certification gives a written assurance that "a product or process" conforms to specified conservation and management standards.[2] Since the introduction of the standard, ecolabelling has become a common environmental governance tool available to public and private users, as long as they are independent parties (i.e., not a supplier or purchaser).[3] Producers are often found to be more compliant with public regulations than voluntary environmental standards.[4] Governmental requirements have been imposed on both positive aspects of products (e.g., turtle-safe labelling) and negative descriptors (e.g., prohibited use of illegal harvest methods). Failure to fulfil relevant criteria may pose an insurmountable obstacle for entering the consumer market.

The World Trade Organization's (hereinafter "WTO") history of administering and streamlining public regulations to drive environmental and social sustainability is far from a success story. By both design and operation, the problem originates from the dubious applicability of the General Agreement on Tariffs and Trade (hereinafter "GATT")[5] and later the Agreement on Technical Barriers to Trade (hereinafter "TBT")[6] to non-product related processes and production methods (hereinafter "NPR PPMs"). NPR PPMs have no established legal definition and therefore spark immense uncertainties which have given rise to ongoing debates.[7] The Organisation for Economic Co-operation and Development (hereinafter

[1] Int'l Org. for Standardization [hereinafter ISO], ISO 14020: Environmental Labels and Declarations – General Principles (Sept. 2000).
[2] ISO, ISO 14020: Environmental Labels and Declarations – Type I Environmental Labelling – Principles and Procedures (Feb. 2018).
[3] *Id*. art. 3.7.
[4] Ralph E. Horne, Limits to Labels: The Role of Eco-labels in the Assessment of Product Sustainability and Routes to Sustainable Consumption, 33 INT'L J. CONSUMER STUD. 175, 175 (2009).
[5] Agreement on Technical Barriers to Trade, Apr. 15, 1994, 1868 U.N.T.S. 120 [hereinafter TBT].
[6] General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A11, 55 U.N.T.S. 194 [hereinafter GATT].
[7] For a historical recount of the debate, see CHRISTIANE R. CONRAD, PROCESSES AND PRODUCTION METHODS (PPMS) IN WTO LAW: INTERFACING TRADE AND SOCIAL GOALS 20-25 (2011). For an illustration of specific claims for and against the PPM distinction, see Garcia M. Durán, *NTBs and the WTO Agreement on Technical Barriers to Trade: The Case of PPM-Based Measures Following US — Tuna II and EC — Seal Products*, 6 EUR. Y.B. INT'L ECON. L. 87, 90 (2015); Steve Charnovitz, *The Law of Environmental PPMs in the WTO: Debunking the Myth of Illegality*, 27 YALE J. INT'L L. 59, 76 (2002).

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"OECD") Report (1997) is one of the few to advocate a definition of "a way in which products are manufactured or processed and natural resources extracted or harvested".[8]

In practice, ecolabelling and certification procedures contain various elements of NPR PPMs (e.g., gear, catching methods and avoidance of bycatch) which pressure upstream producers and processors to conform to advanced sustainability standards. A central purpose of the WTO agreements above is to maintain an equilibrium between a state's right to regulate and the right to market access for others. For decades, however, the legitimacy of import regulations premised on NPR PPMs has remained vulnerable, whereas that of product-related PPMs (hereinafter "PR PPMs") is examined on a case-by-case basis. This prejudiced view against the credibility of NPR PPMs is reflected by the ambivalent approach taken by panels' and the Appellate Body in addressing NPR PPMs-related disputes, planting a deep-rooted crux in the overall legal system.

The presumed illegality of NPR PPMs calls for a fundamental change in light of their transformative impact on the governance of capture fisheries. Over the last decade or so, a new tide of government-mandated seafood labelling and certification has rolled out in developed states. These measures, in addition to other traceability programs, are intended to enhance the monitoring and regulation of global trade in wild-caught fish. One of their shared objectives is to discharge port and market states' responsibilities under the 2001 International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (hereinafter "IPOA-IUU") adopted under the auspices of the Food and Agricultural Organization of the United Nations (UN) (hereinafter "FAO").[9]

Effective since 2008, the European Union (hereinafter "EU") has implemented an import regulation to specifically close any commercial routes of IUU-caught fish to the EU market. The regulation, known as the EU IUU Regulation, launched a cooperative interstate system to verify the legal provenance of imported wild-caught fish, irrespective of their harvest location or the nationality of vessels.[10] In order to continue exports to the EU, all origin and transit states involved must provide valid certificates to endorse the legal provenance of their fish exports. National certificates will then be provided to importing EU member states for them to verify the

[8] Org. for Econ. Co-operation & Dev., Processes and Production Methods (PPMs): Conceptual Framework and Considerations on the Use of PPM-Based Trade Measures, at 7, OECD/GD(97)137 (Jan. 1997) .

[9] Food & Agric. Org. of the U.N. [hereinafter FAO], International Plan of Action to Deter, Prevent and Eliminate IUU Fishing (June 23, 2001), http://www.fao.org/3/a-y1224e.pdf [hereinafter IPOA-IUU].

[10] Council Regulation 1005/2008 of Sept. 29, 2008, Establishing a Community System to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing, 2008 O.J. (L 286) (EC) [hereinafter EU IUU Regulation].

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accuracy and authenticity of information before border entry is permitted. An EU-wide carding system (Red, Yellow and Green) functions to discard unqualified catches from noncompliant vessels or even all catches from a single foreign country when identified as a non-cooperating third state in support of IUU fishing.

The United States (hereinafter "US") followed suit but in a much different way. In 2016, a federal regulation known as the Seafood Import Monitoring Program (hereinafter "SIMP") was passed by Congress to deter illegal and fraudulently represented fish products from entering the US market.[11] Unlike the EU national certification, under the US law it is incumbent upon private seafood importers to keep seamless records of fisheries data from harvest to port, and to make electronic reports to US customs. A critical feature of both systems is the demand for comprehensive and transparent chain-of-custody information, which extend well beyond physical descriptions of products (e.g., species names, weight or volume) to IUU fishing activities.

In the meantime, other world leaders have embarked on different national plans of action to mandate or at least encourage the fulfilment of specified NPR PPMs. These include 1) fishery ecolabelling schemes launched under government direction with assistance from the private sector (e.g., France 2014 and Ireland 2017);[12] 2) minimum governmental criteria established to support the clarity and credibility of private fisheries ecolabelling schemes (e.g., the EU 2015);[13] and 3) public financial support for assessment and certification under the Marine Stewardship Council (MSC) (e.g., the Netherlands 2009, New Zealand 2009 and Western Australia 2012).[14] The IUU concerns are a necessary element of a proactive policy package. New regulations also arise to diversify the assessment basis from environmental to all-round economic and social parameters of fisheries,

[11] Seafood Import Monitoring Program, 81 Fed. Reg. 88,975 (Dec. 9, 2016) (to be codified at 15 CFR pt. 902) [hereinafter SIMP].

[12] Chris Haris, *French Fisheries Eco Label Approved*, FISH SITE (Mar. 23, 2015), https://thefishsite.com/articles/french-fisheries-eco-label-approved; Ireland's Seafood Dev. Agency, *An Overview to the RSS Scheme*, BIM, http://www.bim.ie/media/bim/content/our-services/grow-your-business/wild-capture-fish/BIM,RSS_Overview,of,Your,Involvement.pdf.

[13] On 18 May 2016 the European Commission adopted a report on the feasibility of an EU ecolabel scheme for fishery and aquaculture products. It was decided by the European Parliament on 15 June 2016 that the Commission would not take any action on this report. However, as early as 2008, an overall framework of rules and principles to ensure public control on certification bodies EU-wide was established under the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93, adopted on 9 July 2008, effective from 1 January 2010.

[14] Sally Washington & Lahsen Ababouch, Private Standards and Certification in Fisheries and Aquaculture 47 (2011); Western Australia's MSC Plan for Fisheries, http://www..com.au/ (last visited Feb. 28, 2020).

臺灣大學學術期刊資料庫

such as the energy efficiency of fishing vessels and the safety and working conditions of a crew.[15]

Not every emerging seafood traceability pattern is foreseeable in the global trading system which was born with an underdeveloped mandate on the trade-environment nexus. Clear-cut jurisprudence is also lacking to clarify the characterization and legal qualifications of each type of NPR PPMs embedded. A shift towards stronger government leadership to tackle the most radical challenges to global fish stocks should prompt a new look at the old NPR PPMs debate. This study submits that it is an opportune time for the WTO to evolve and tighten its legal approach to NPR PPMs as they remain the benchmark of traceability and proof of product provenance.

To that end, Section 2 will examine previous jurisprudence to discern how the adjudicative locus of NPR PPMs can be more closely tied to the TBT rather than the GATT. Section 3 moves on to a specific estimate of the legal characterization of traceability regulations represented by the EU IUU Regulation and the SIMP under the TBT notion of technical regulation. It is followed by an investigation in Section 4 of viable pathways to reshape the systematic relationship between trade and fishery management goals under the TBT, which does not operate as a closed and self-contained regime. The article concludes in Section 5 by discussing whether imminent transnational environmental challenges such as IUU fishing necessitate proactive trade responses from the government in addition to market functions. If governmental action is readily susceptible to abuse or discrimination, it advises a tiered structure to rearrange current WTO norms, and to inform dispute resolution more accurately. The fundamental purpose of the research is to uncover more room for dialogue between the global trading system and valid environmental and social sustainability demands.

II. WHERE IS THE ADJUDICATIVE LOCUS OF NPR PPMS UNDER THE WTO?

A. A Steady Shift from the GATT Towards the TBT

Greater policing of fishery ecolabelling and certification by the government warrants an unbiased and responsive legal approach to the underlying NPR PPMs. The global trading system has been fraught with legal controversies over fishery-related NPR PPMs since the late 1970s.[16] The illegal status of NRP PPMs under the GATT 1947 was once the prevailing presumption in both academia and jurisprudence.[17] In the

[15] Haris, *supra* note 12.
[16] CONRAD, *supra* note 7, at 21.
[17] *Id.* at 25; Erich Vranes, Trade and the Environment: Fundamental Issues in International Law, WTO Law, and Legal Theory 321 (2009).

臺灣大學學術期刊資料庫

aftermath of two (un-adopted) GATT *Tuna* rulings, fishery disputes continuingly unfolded in the WTO dispute settlement system. Dispuites such as *Shrimp*, *Sardines* and *Tuna II* evidenced an entrenched international fear of the link between market access and process-based regulations. The fear of developing countries is not entirely unfounded, given that all disputed measures, except for the non-adjudicated Swordfish (see Table 1), were found to violate either the GATT or the TBT. The adjudication of NPR PPMs under the TBT has begun to gain momentum in more recent years, as a result of the broad and ambiguous concept of "technical regulation" defined under TBT Annex 1.1: "Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method."

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TABLE 1. The Evolving Adjudicative Locus of Fishery NPR PPMs Under the GATT/WTO

Type of measures	Dispute	NPR PPMs at issue	Adjudicative locus	Decision
Command and direct controls	*Chile–Swordfish (DS193)*	Prohibition on port unloading to prevent overexploitation of swordfish stocks	GATT (cited)	With-drawn
Environmental labelling and certification	*US–Tuna (Mexico) (DS21/R)*	Turtle- or dolphin-friendly labelling and certification to avoid bycatch of endangered species and consumer confusion	GATT	Incompliant
	US–Tuna (EEC) (DS29/R)		GATT	
	US–Shrimp (DS58)		GATT	
	US–Tuna II (Mexico) (DS381)		TBT	
Species description	*EC–Sardines (DS231)*	Use of the species appellations "sardines" to avoid consumer confusion	TBT	

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As illustrated by Table 1, NPR PMMs-based command and control measures such as quotas and import bans at the border were most common in early history. They had been used to complement local environmental regulation, which was understood as a bottom-up prerogative of sovereign states with limited repercussions from international law.[18] When the instruments employed constituted a facial violation of GATT Article XI "General Elimination of Quantitative Restrictions", the only viable countermeasure to tilt the balance towards the campaign of environmentalist groups was "General Exceptions" couched in Article XX. The old GATT approach employed in *Shrimp* had simply dismissed the technical nature of turtle-safe labelling and certification underpinning the US import restrictions.

The rise of technical and less trade-restrictive fishery instruments became evident from the 1990s when, for instance, the US coined the notion of dolphin-safe labelling under its nationwide tuna tracking and verification system. The tuna trilogy fought between the US and Mexico ended as late as December 2018 in a compliance report issued by the Appellate Body in support of the 2016 revised US Tuna Standard.[19] Throughout a nearly thirty-year trajectory, a significant breakthrough which has been made was the steady shift of legal scrutiny from under the broad GATT apparatus to the more specific TBT. The transition was manifested by an exclusive application of the TBT to examine technical regulations in *Tuna II* (and other non-fishery disputes such as *COOL*).[20] The rulings testify to the central position gradually acquired by the TBT to evaluate technical regulations underpinned by various NPR PPMs.

The 2014 Appellate Body's decision on *Seal Products* presents a somehow mixed picture of the applicability of the TBT to NPR PPMs. On the whole, the EU Seal Regime consisted of a general prohibition of the importation and marketing of seal and seal-containing products (with certain exemptions). The lack of technical content and operations by the general prohibition considerably limited its relation to final product characteristics. Although there were "applicable administrative procedures" in the meaning of TBT Annex 1.1 on exempted seal products, they were considered only

[18] Charnovitz, *supra* note 7, at 70.

[19] Appellate Body Report, United States — Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products: Second Recourse to Article 21.5 of the DSU, WTO Doc. WT/DS381/AB/RW2 (adopted Jan. 11, 2019) [hereinafter *US — Tuna II (Mexico): Second Recourse to Article 21.5 of the DSU* Appellate Body Report].

[20] Country-of-origin labelling [hereinafter COOL] is a mandatory form of food labelling that may be more useful to predict product safety or quality associated with a given source country rather than sustainability attributes. The US COOL measure was applied to all meat products including seafood. The subjects at issue were pork and bovine meat only. *See* H. Christopher Peterson & Karl Fronc, *Fishing for Consumers: Market-Driven Factors Affecting the Sustainability of the Fish and Seafood Supply Chain*, *in* GLOBALIZATION: EFFECTS ON FISHERIES RESOURCES 446 (Willaim W. Taylor et al. eds., 2007).

臺灣大學學術期刊資料庫

"ancillary" to the broad prohibition and could not render the measure as a whole a "technical regulation".[21] While viewing the main feature of the measure as a generic import restriction, the Appellate Body acknowledged its self-restraint by focusing on the text and the immediate context found in Annex 1.1, as well as prior jurisprudence. It explicitly encouraged future panels to seek further contextual guidance from other TBT provisions, relevant supplementary means of interpretation such as the negotiating history, and the types and nature of claims, to delimit the contours of technical regulations.[22] In an unelaborated opinion, in order to determine whether a measure lays down "related" PPMs in the future, a panel needs to examine whether the PPMs prescribed by the measure has a "sufficient nexus" to the characteristics of a product.[23]

An incremental departure from the GATT jurisdiction has the potential to override the presumed illegality of NPR PPMs, given that the TBT is expressly recognized as "different from, and additional to" the GATT.[24] Panels and the Appellate Body have dedicated valuable efforts to justify their preference of the TBT "straightjacket" to more precisely analyse regulatory complexities and, ultimately, curtail the rise of disguised paradigms of technical barriers. Within a more elaborate TBT regime, specific and judiciable boundaries have been delineated within which the chances of abusive or discriminatory uses of NPR PPMs-based regulations are substantially minimized. The noncompliance findings listed in Table 1 offer clear testimony to the WTO's increasing vigilance against the abuse of NPR PPMs. In the future, whether the legal examination of traceability regulations against IUU fishing will revert to the GATT, as under *Shrimp*, remains highly questionable. An accumulative record of TBT jurisprudence stands to favour consolidated expertise to tailor the new set of tools to examining NPR PPMs-based technical rather than general import regulations.

Significantly, in capture fisheries, there has been a robust trend away from command and control measures to a blend of public, private and self-regulation (e.g., corporate social responsibility and due diligence) governance complex.[25] Nowadays, very few nations apply outright import bans against illegal fish and fish products originating from dubious international supply chains. What takes the place of an outright ban is an

[21] Appellate Body Report, *European Communities — Measures Prohibiting the Importation and Marketing of Seal Products*, ¶ 5.57, WTO Doc. WT/DS401/AB/R (adopted June 16, 2014) [hereinafter *EC — Seal Products* Appellate Body Report].
[22] *Id*. ¶ 5.60.
[23] *Id*. ¶ 5.12.
[24] Appellate Body Report, *European Communities — Measures Affecting Asbestos and Products Containing Asbestos*, ¶ 80, WTO Doc. WT/DS135/AB/R (adopted Apr. 5, 2001) [hereinafter *EC — Asbestos* Appellate Body Report].
[25] Horne, *supra* note 4; Lars H. Gulbrandsen, *Creating Markets for Eco-Labelling: Are Consumers Insignificant?*, 30 INT'L J. CONSUMER STUD. 477, 478 (2006).

臺灣大學學術期刊資料庫

intricate combination of country-of-origin, ecolabelling and certification, terminology and data recordkeeping requirements suited to different markets of destination. The heterogeneity of these measures has inevitably increased both interstate and intrastate. Therefore, the emphasis on inclusive participation of foreign governments and fisheries in unilateral domestic rulemaking has begun to attract attention.[26] NPR PPMs-based regulations are often found to be technically complex, costly and opaque.[27] Irrespective of their diverse regulatory objectives (e.g., public health, stock sustainability and animal welfare), full traceability is not an achievable near-term goal. This is mainly because inadequate information is disclosed to the retail sector and consumers.[28] All these mounting factors call for the WTO to retain rather than retreat from its primary role in scrutinizing and differentiating the trade effects of a myriad of sustainability-oriented NPR PPMs.

B. Teleological and Contextual Construction

The idea of founding the TBT in addition to the GATT is to craft "a specialised legal regime that applies solely to a limited class of measures".[29] The text of TBT Annex 1.1, however, fails to provide a useful guide with optimal clarity. It is only evident that the agreement covers PR PPMs. The connection between NPR PPMs and the GATT is even looser, though such measures were often assumed to violate GATT obligations. A united scholarly expression of support insists that the TBT should tighten the control of NPR PPMs as a sensitive legal subject rather than set them aside. Advocated is the "teleological-contextual" or "systematic-teleological" way of construction to guarantee the applicability of the TBT to any new types of NPR PPMs.[30] Relevant doctrinal and practical considerations are summarized below.

Firstly, the existing WTO case law suggests that all labelling requirements would fall squarely under the TBT in accordance with the second sentence of Annex 1.1.[31] This finding is implicitly confirmed by the panels and the Appellate Body deciding on *Tuna II* and *COOL*, where the labelling criteria in question were fishing methods and places of production respectively. Neither criterion demonstrates a visible impact on the physical

[26] Manoj Joshi, *Are Eco-Labels Consistent with World Trade Organization Agreements*, 38 J. WORLD TRADE 69, 72 (2004); Christian Tietje, *Voluntary Eco-Labelling Programmes and Questions of State Responsibility in the WTO/GATT Legal System*, 29 J. WORLD TRADE 123, 129 (1995).
[27] *Id.*
[28] Juan He, *From Country-of-Origin Labelling (COOL) to Seafood Import Monitoring Program (SIMP): How Far Can Seafood Traceability Rules Go?*, 96 MARINE POL'Y 163, 167 (2018); Frieder Rubik et al., *Eco-labelling and Consumers: Towards a Re-focus and Integrated Approaches*, 2 INT'L J. INNOVATION & SUSTAINABLE DEV. 175, 182 (2007).
[29] *EC — Asbestos* Appellate Body Report, *supra* note 24, ¶ 80.
[30] Durán, *supra* note 7, at 104; VRANES, *supra* note 17, at 342; CONRAD, *supra* note 7, at 381.
[31] Durán, *supra* note 7, at 102.

臺灣大學學術期刊資料庫

properties of final products. Hence, the artificial segregation of PR PPMs and NPR PPMs is, to some extent, judicially outdated under the second sentence. Indeed, the Appellate Body in *Seal Products* reasoned that the "second sentence includes elements that are additional to, and may be distinct from, those covered by the first sentence of Annex 1.1".[32]

Other NPR PPMs that do not "include or deal exclusively with terminology . . . requirements" can be categorized to two subsets: 1) command and direct controls; and 2) other mandatory product characterization measures. For the former, pure product bans such as those applied in *Asbestos* and *Seal Products* have been treated squarely as quantitative restrictions under GATT Article XI and justifiable only under Article XX. For the latter, the Appellate Body in *Seal Products* reversed the panel's intermediate finding that "the identity of the hunter, the type of hunt, or the purpose of the hunt" could be viewed as product-related characteristics,[33] and declared obscurely that the line of applicability of the TBT to NPR PPMs raised "important systemic issues".[34] In doing so, it left the door open for "more argumentation by the participants and exploration in questioning"[35] in order to establish "a sufficient nexus" between NRP PPMs and the characteristics of a given product.[36] This relatively open approach can serve to reinvigorate the TBT's regulatory role in the face of a rising tide of seafood traceability requirements imposed within domestic environmental regimes.

Secondly, the status quo does not imply that the WTO will readily tolerate a new stream of NPR PPMs measures such as those targeting IUU fishing. A blanket presumption against NPR PPMs is fading quickly into history as the WTO judiciary moves progressively to examine how—but not whether—such measures can enhance environmental protective goals. During this transition, there have been more unsuccessful than successful policy intiatives to address the issue. The disputed measures have largely served to leverage eco-driven NPR PPMs for disguised protectionist intents. By way of sophisticated TBT adjudication, the WTO should be more ready than ever to circumscribe such distortive use of NPR PPMs.

At the time of writing, the US continues to characterize its SIMP measure as a mere import procedure, in order to circumvent the more rigorous substantive rules of the TBT. This has not prevented other members from lodging a specific trade concern (STC) through the WTO's TBT/SPS Information Management System.[37] Concerns were aired around

[32] *EC — Seal Products* Appellate Body Report, *supra* note 21, ¶ 5.14.
[33] *Id*. ¶ 5.45.
[34] *Id*. ¶ 5.69.
[35] *Id*.
[36] *Id*. ¶ 5.12.
[37] WTO, Specific Trade Concern (no. 415), raised on 27 October 2016, see SANITARY AND PHYTOSANITARY INFORMATION MANAGEMENT SYSTEM, WTO, http://spsims.wto.org/. Although

臺灣大學學術期刊資料庫

membership as to the restrictive effects of the SIMP, as it appears to apply to imports only. A skewed reading of the technical nature of NPR PPMs could leave their operation unchecked or even abusive. The nature and extent of this technicality is an issue of "legal characterization" on which national classification under municipal law is not "determinative" at all.[38] Instead, the set of rules and technical expertise around the TBT retain supreme authority to probe the nature of government-mandated traceability regulations "in the light of the characteristics of the measure at issue and the circumstances of the case".[39] Despite all textual ambiguities, the emerging consensus is that the imperfect TBT text should no longer stand in the way of positive jurisprudential development.

Thirdly and finally, it merits special attention that consumers today seek to exert greater influence on a product's life cycle than they had done during the old GATT era. It is understood in their "sovereign" interest to decide which products should sell the best when consumers join with businesses and the government to form a marketplace enriched with conservation facts.[40] Younger generations' gradual awakening to various sustainability imperatives will fundamentally drive the market demand for clear NPR PPMs information from origin to plate. The more intensely that IUU fishing impacts people's lives and livelihoods, the more likely it becomes that NPR PPMs will be included and transmitted through a whole supply chain. Accordingly, it will be more transparent and efficient for the TBT to look straight into the content of PPMs, rather than their regulatory pattern. This will better respond to the global concerns over the detriments of IUU fishing to the public, be they physical, environmental or ethical.

For the foreseeable future, it will not be easy for consumer preferences to radically alter the likeness criteria of products simply based on the different NPR PPMs at work.[41] Nonetheless, their stronger voices and participation in environmental and food governance systems can be

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the countries lodged their concerns under the Agreement on Sanitary and Phytosanitary Measures, the more appropriate locus should be the TBT as the regulatory objectives of SIMP are explicitly stated as the protection of consumers against seafood fraud and the marine environment against IUU fishing. *See* Juan He, *Unilateral Trade Measures Against Illegal, Unreported and Unregulated Fishing: Unlocking a Paradigm Change in Trade-Environmental Partnerships?*, 53 J. WORLD TRADE 759, 765 (2019).

[38] Appellate Body Report, *United States — Measures Affecting Trade in Large Civil Aircraft — Second Complaint*, ¶ 586, WTO Doc. WT/DS353/AB/R (adopted Mar. 23, 2012).

[39] Appellate Body Report, *United States — Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products*, ¶ 188, WTO Doc. WT/DS381/AB/R (adopted June 13, 2012) [hereinafter *US — Tuna II (Mexico)* Appellate Body Report].

[40] Douglas A. Kysar, *Preferences for Processes: The Process/Product Distinction and the Regulation of Consumer Choice*, 118 HARV. L. REV. 525, 584 (2004); Gill Seyfang, *Shopping for Sustainability: Can Sustainable Consumption Promote Ecological Citizenship?*, 14 ENVT. POL. 290, 296-97 (2005).

[41] Emily Barrett Lydgate, *Consumer Preferences and the National Treatment Principle: Emerging Environmental Regulations Prompt a New Look at an Old Problem*, 10 WORLD TRADE REV. 165, 181 (2011); VRANES, supra note 17, at 324.

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motivated to diminish the overall presumption against the rationality of NPR PPMs. Progress may further strengthen the argument that governments should always advance regulations to reflect the preferences of existing eco-aware consumers in advanced markets like the EU and the US,[42] or particular market segments distinguishable by demographical factors (e.g., age, gender, income and educational level).[43] The dissemination of key NPR PPMs messages will consolidate the preferences of environmental citizens. More importantly, it will enhance awareness among broader social classes about the environmental and social consequences of their purchasing behaviours. The level of sustainability information available in the marketplace and consumers' acquired knowledge should ideally flow along a mutually reinforcing route.

III. CHARACTERIZING IMPORTED SEAFOOD TRACEABILITY REGULATIONS AS "TECHNICAL REGULATIONS" UNDER THE TBT

A. Distinguishing Features of Recent Imported Seafood Traceability Regulations

Like other policy interventions, NPR PPMs-based statutes aim to address a ubiquitous situation of market failures, i.e., an information deficit about where and how a given wild fish was caught overseas. Along the broad spectrum of solutions, there have been harder or softer approaches applied historically by different states. In comparison to similar initiatives, the EU IUU Regulation is more reliant on governmental-level cooperation and inter-agency information exchanges. This is because foreign states which harvest and process seafood should certify their fishery products first and foremost. The EU members' customs bodies are the next key players in verifying the authenticity and integrity of information submitted. This necessitates an investigation of the law-making and law-enforcement abilities of foreign fishery authorities.[44] Escalation from *ad hoc* import prohibitions to the non-cooperative IUU country listing signifies an EU-wide trade embargo and long-term reputation loss for a third country.[45] Accordingly, the attempt to remove itself from the blacklist necessitates state-level efforts to achieve a lasting improvement of local fisheries management and convincing evidence that no more flagged vessels engages in the accused IUU fishing activities.[46]

[42] WASHINGTON & ABABOUCH, *supra* note 14, at 35.
[43] Klaus G. Grunert et al., *Sustainability Labels on Food Products: Consumer Motivation, Understanding and Use*, 44 FOOD POL'Y 177, 187 (2014).
[44] EU IUU Regulation, art. 20.1.
[45] *Id.* art. 31.
[46] *Id.* art. 34.1.

臺灣大學學術期刊資料庫

The US SIMP, in a different fashion, administers a predominantly market-driven and inter-private party information system. Data reporting and recordkeeping requirements are incumbent on US-based seafood importers through their spontaneous communication and cost-sharing arrangements with upstream foreign suppliers. The US rule ostensibly aims to provide "maximum flexibility in both the source and format of supporting documentation".[47] Business actors are considered to be in the best position to collect and report fisheries data through different information systems that they have used widely such as the Bill of Lading.[48] This government-to-business framework is inclined to create more heterogeneous submissions in comparison to the uniform EU certification template.

In each scenario, like the measure disputed in *Seal Products*, the legal criteria implemented are a broad category of NPR PPMs—IUU fishing activities—other than the simple negative and intrinsic characteristic that products do not contain illegal fish materials. In the conceptual background, the IPOA-IUU definition of "IUU fishing" is endorsed by national regulations worldwide, including the EU and the US. The functionality of the international guideline is hinged on a group of NPR PPMs parameters, including: 1) the identity of fishing vessels (e.g. stateless or reflagged); 2) their compliance record under national fisheries laws and regional fisheries management organizations (hereinafter "RFMOs") (e.g., fishing manners and reporting obligations);[49] and 3) the location of harvest (e.g., on unregulated high seas).[50] In this context, what would be considered to constitute the "integral and essential aspects" of both IUU regulations is the link of market access to the various NPR PPMs listed above.[51] As they form the basis for both the prohibitive and permissive elements, the NPR PPMs features should be accorded the "most weight" for the purpose of legally characterizing the measures.[52]

In the *Seal Products* decision, the lack of technical content on the part of the general prohibition disqualified the technical character of the measure. When examined as a whole, the EU regime did not withstand the Appelate Body's suspicion that the panel's technical characterization of the measure upon a mere fact of the prohibition of seal-containing products was insufficient and legally untenable.[53] As the prohibitive aspect of the measure

[47] SIMP, *supra* note 11, at 88,982.
[48] He, *supra* note 28, at 169.
[49] RFMOs are intergovernmental organizations made of countries sharing historical or emerging fishing interests in a specific ocean area. Some of them manage all the fish stocks found in that area, while others focus on certain highly migratory species such as tuna. According to the FAO, there are currently more than twenty existing and newly established RFMOs.
[50] IPOA-IUU, art. 3, ¶¶ 1-3.
[51] *EC — Seal Products* Appellate Body Report, *supra* note 21, ¶ 5.19.
[52] *Id.*
[53] *Id.* ¶ 5.28.

臺灣大學學術期刊資料庫

was considered "in the light of" its permissive aspect, "it becomes apparent that the measure was not concerned with banning the placing on the EU market of seal products as such".[54] The real purpose was cautioned as being weighted towards its permissive element, namely, to accord unrestricted and more favourable conditions of access to designated groups of seal hunters and carriers, and hence away from its prohibitive part on the concerns for animal welfare. This finding explains why the conditions and administrative procedures constituting the exemptions carried more technical details than the general ban. It also explains why, eventually, the regulation was decided as disguised protectionism under GATT Article XX.

A notable deficiency in the EU Seal Regime is that it did not contain either positive or negative "technical" descriptions such as humane or inhumane hunting methods, except for a general prohibition of seal-containing products. The EU could be advised to do more to protect seals by either eliminating all inconsistent exemptions, or setting out specific catching rules for products provided for in the exemptions.[55] By contrast, both IUU regulations discussed here prescribe and impose characteristics technically in the NPR PPMs form.[56] As stated above, they have borrowed from the IPOA-IUU formulation of IUU fishing activities to define the scope and variety of NPR PPMs upon which import restrictions could apply. Both have also created and expanded upon enforceable administrative procedures applicable directly to the prohibition of IUU-caught fish and fish products.[57] The national certification pillar underpinning the EU IUU Regulation dedicates itself to screening out unqualified products through rigorous documentary requirements and prescribed steps of evaluation and verification. The regulation also tightens enforcement and punishment mechanisms, including blacklisting of IUU vessels and supportive states, sanctions on serious infringements and monetary penalties.[58] These measures enhance compliance rather than simply cast exotic products out of commerce.

Likewise, the data traceability requirement in itself is technically rigorous and sufficient to sustain the SIMP implementation. The statute imposes nuanced data reporting and recordkeeping obligations on US-based importers to make eligible disclosure of chain-of-custody data from harvest to port entry. Specifically, the information collected covers a broad spectrum of fisheries details, including the entity, location, and temporal profiles of a

[54] *Id.* ¶ 5.58.
[55] Tamara Perišin, *Is the EU Seal Products Regulation a Sealed Deal? EU and WTO Challenges*, 62 INT'L & COMP. L. Q. 373, 405 (2013).
[56] *EC — Seal Products* Appellate Body Report, *supra* note 21, ¶ 5.58.
[57] Perišin, *supra* note 55, at 405.
[58] Juan He, *The EU Illegal, Unreported, and Unregulated Fishing Regulation Based on Trade and Market-Related Measures: Unilateralism or a Model Law?*, 20 J. INT'L WILDLIFE L. & POL'Y 168, 177 (2017).

臺灣大學學術期刊資料庫

given fish supply chain (five "w"s—who, what, when, where and by whom).[59] Digitized data with scanned commercial documents should be filed through electronic submissions to the government-wide International Trade Data System for customs verification.[60]

With those critical features in mind, the "integral and essential" aspects of each IUU regulation are more than a superficial prohibition of fish and products in their natural or mixed state. Their technical content and administrative operations are not merely "derivative" of the market access conditions of permissible components.[61] The exemptions enclosed are only exceptional and temporary, which is the opposite of the situation under the EU Seal Regime.[62] The EU IUU Regulation targets a full range of fresh, prepared and preserved fish and fish products, as long as they are wild-caught, except for farm-raised and ornamental fish.[63] The SIMP start-up phase from 2018 covers thirteen at-risk fish species prone to IUU fishing and seafood fraud, with the moratorium on abalone and shrimp lifted from the end of the same year and the declaration to extend to all species in the future.[64] Besides, neither measure differentiates legal treatment according to the nationality of vessels or the location of hunting. This considered, the SIMP does apply exclusively to imports, but comparable data collection obligations on domestic fisheries already exist under municipal law.[65]

It is therefore safe to predict that there is no need to derive technical descriptions of product characteristics from a narrowly defined set of criteria and procedures in their respective part of exemptions. Further, the full technical content assigned to the import restrictions bears witness to their predominant purpose, which is to limit the entry of IUU-caught fish across the board, rather than to tilt market power towards specified producer groups. The salient features of IUU regulations being technically self-sufficient and procedurally enforceable would enable the TBT judiciary to abstain from leaping to the conclusion that the NPR PPMs-based measures are not technically enough and, hence, not subject to tailor-made TBT disciplines.

B. The Emerging Parameter of "Sufficient Nexus"

It is an undisputed fact that in *Seal Products* the WTO judiciary's non-express recognition of the NPR PPMs' impact on product characteristic raised further questions. Accordingly, it could be argued that the reason why the EU Seal Regime did not constitute a technical regulation was primarily

[59] He, *supra* note 28, at 166.
[60] *Id.* at 168.
[61] *EC — Seal Products* Appellate Body Report, *supra* note 21, ¶ 5.41.
[62] *Id.* ¶ 5.42.
[63] EU IUU Regulation, art. 2.8.
[64] He, *supra* note 28, at 172.
[65] *Id.* at 167.

臺灣大學學術期刊資料庫

that its exceptions laid down, at most, NPR PPMs rather than physical characteristics.[66] As mentioned above, the *Seal Products* decision was reached because the Appellate Body confined its reasoning to the legal text of Annex 1.1 and prior rulings. In doing so, firstly, it did *not* rule on whether the EU Seal Regime laid down PR PPMs, so there was no clear distinction made between PR PPMs and NPR PPMs regarding their relative connection to product characteristics. The disqualification of the regime as a technical regulation was due to the finding that the prohibition itself did not contain adequate technical details either in PR PPMs or NPR PPMs form.

Secondly, the Appellate Body's textualist approach forbade itself from clarifying whether the NPR PPMs-based conditions under the exemptions exhibited features setting out product characteristics.[67] Having avoided deliberating on a systematically sensitive issue, the Appellate Body did not set a clear precedent, but left it for future jurisprudential refinements upon sound contextual or teleological justifications.

And thirdly, the Appellate Body refrained from completing the legal analysis because of an inadequate factual basis to probe the novel character of an issue which the panel "had not examined at all".[68] Should "more argumentation by the participants and exploration in questioning" be required by the panel, it would shed more light on the scope of the first sentence of Annex 1.1, and whether the PPMs prescribed by a measure have "a sufficient nexus" to product characteristics.[69] When opening a pathway towards an evolving and revolutionary approach of interpretation, it warrants attention that the Appellate Body, in all, made no differentiation between PR and NPR PPMs to the extent of their "sufficiency" in relation to product characteristics.

The same parameter of "sufficient nexus" was applied by the Appellate Body in *Shrimp* to acknowledge a jurisdictional connection "between the migratory and endangered marine populations involved and the United States for purposes of Article XX(g)".[70] Likewise, it did not elaborate on what would constitute a "sufficient nexus" in that context which, as a result, "opened up" but "limited" the justifiability of extraterritorial environmental measures.[71] The adjudicative criterion premised on "sufficient nexus" is emerging in international jurisprudence, but it is not necessarily abstract. It should not be narrowed down to the notion of "physical nexus" or

[66] Ming Du, *What Is a "Technical Regulation" in the TBT Agreement?*, 6(3) EUR. J. RISK REG. 396, 400 (2015).
[67] *EC — Seal Products* Appellate Body Report, *supra* note 21, ¶ 5.45.
[68] *Id.* ¶ 5.69.
[69] *Id.* ¶ 5.12.
[70] Appellate Body Report, *United States — Import Prohibition of Certain Shrimp and Shrimp Products*, ¶ 133, WTO Doc. WT/DS58/AB/R (adopted Nov. 6, 1998).
[71] Asif H Qureshi, *Extraterritorial Shrimps, NGOs and the WTO Appellate Body*, 48 INT'L & COMP. L. Q. 199, 204 (1999).

臺灣大學學術期刊資料庫

"objectively identifiable relationship" which can be best described as a subcategory, since physical characteristics are only part of a production cycle.

The more pivotal yardstick is, arguably, the benchmark of "sufficiency" which boils down to an analysis of whether there is a close and genuine relationship between PPMs and product characteristics. If it was "sufficient" in technical terms, the WTO should accept that sufficiency and make no further distinction between NPR and PR PPMs. To this end, more specific and speculative suggestions have been made. For example, "policy considerations that are general and that are not concerned specifically with the production or the process of any specified products" should be questionable in their ability to connect to and impact product characteristics.[72] General labour standards or human rights conditions should not be regarded as being "sufficiently related to" the final product so as to further qualify as technical regulations.[73] In a different vein, prescriptions of harvesting methods for specific fish such as tuna which do not leave physical traces may have a better chance of establishing the link of sufficiency in the language of the Appellate Body.[74]

When understanding the nature or extent of connection, it cannot be forgotten that non-discrimination purports to rectify measures capable of altering competitive conditions to the detriment of all or certain foreign products. Therefore, the quality of connection should be adequate and discernible to depress the competitive edge of one group of products relative to all other like products. If there is no formidable downward pressure on product competitiveness, there is no need for the WTO to launch a full-scale examination under more complex TBT norms. It is difficult to believe that the connection between NPR PPMs and product characteristics would be decided based on any fixed standard, or quantitatively. The obscurity of sufficiency may be reasonably reduced by a discretional but qualitative measurement of NPR PPMs' impact on the competitive relationship between like products. To this end, we should be convinced that WTO panels and the Appellate Body, in particular, are capable of deciding on qualitative questions through a holistic process of weighing and balancing such as under the necessity test in TBT Article 2.2.

In the world of capture fisheries, the nexus between NPR PPMs and product characteristics is increasingly gaining strength in a means-and-end regulatory manner. In the early era, the US labelling standards in *Shrimp* and *Tuna* attempted to minimize the incidence of by-catch of protected marine

[72] Gabrielle Marceau & Joel P. Trachtman, *Technical Barriers to Trade Agreement, the Sanitary and Phytosanitary Measures Agreement, and the General Agreement on Tariffs and Trade*, 36(5) J. WORLD TRADE 811, 862 (2002).
[73] VRANES, *supra* note 17, at 342; Du, *supra* note 66, at 401.
[74] *Id.*

臺灣大學學術期刊資料庫

species (i.e., turtle and dolphin) which were not in themselves tradable products. The technical nature of the regulations was ensured by the second sentence of Annex 1.1 which omits the word "related". It could be argued that the preference for PR PPMs is still mainly at work under the second sentence, as labelling in itself is a kind of "distinguishing mark" which is both tangible and physical.[75] Labelling features can therefore be understood to lay down identifiable product characteristics to differentiate between labelled and unlabelled products as a method of reaching and influencing consumers preferences.

Later in *Seal Products* and *Swordfish*, the connection between NPR PPMs and product characteristics became somehow closer, though it remained less physically demonstrable. On the one hand, the general ban on seal products and the prohibition of uploading swordfish at port targeted the tradable objects directly, rather than their biologically associated species. It was the unrestricted and abused right of exploiting and selling these products that was deemed as running counter to the ethical or environmental values of a market state. On the other hand, as identified in the *Seal Products* ruling, the restrictions *per se* lacked concrete technical details and applicable administrative procedures to bear out their legitimate purpose and technical functions.

The new instruments of seafood traceability take a critical step forward by forming the closest-ever relationship between NPR PPMs and product characteristics. Both EU and US regulations impose technical controls on the information flow through globalized seafood supply networks, in order to identify and preclude illegal fish products from the point of market entry. Their broad product coverage, limited exemptions and consolidated implementation mechanisms all display sufficient capacity to narrow down the characteristics of products at issue—fish and fish products deriving from IUU fishing activities by identity, method or location—and, further, to significantly stem their admission to the local market. The nexus is not only appreciably strong, but also visible in information capture and transmission mechanisms throughout a supply chain.

In the case of EU IUU Regulation, although there is no public labelling affixed to imported products, the state-to-state certification and verification procedures require the formalistic attesting documents to accompany products upon entry. The SIMP has even advanced from basic paperwork to a centralized governmental database where the carriers of fisheries data are digitized and more readily traceable through every step of the process. Seafood exported to the US accounted for approximately 90% of local consumption in 2011. About half of this was wild-caught, of which 20-32% by weight with a value of USD 1.3-2.1 billion was identified from illegal and

[75] *EC — Asbestos* Appellate Body Report, *supra* note 24, ¶ 67.

臺灣大學學術期刊資料庫

unreported sources.[76] The requirement of a comprehensive fisheries profile can therefore be said to lay down essential not just "related" characteristics to feasibly distinguish legal fish from illegal fish supplies in the world's major market.

Global information networks are already in place to connect commercial actors with arm's-length transactions. In the face of common conservation risks, the links are increasingly harnessed by formalized governmental agencies. Seafood traceability regulations are technical in nature in the sense that they measure various indicators of a products' environmental and social performance from origin to market entry. They have also steadily moved to centralised digital systems that carry product information as demonstrated by labels and other written documents. For the foreseeable future, it would be absurd for the TBT to only examine conventional means of product identification at the border such as labelling and packaging, while inadvertently leaving a growing variety of digital carriers, e.g., e-catch certification schemes (hereinafter "CDS") and BlockChain, out of its regulatory restraint. Process information and signals through these intelligent channels and platforms are more efficiently communicated between the private and public sectors, with the real-time potential to reach retailers and consumers on their concerns about sustainability. Having gained valuable momentum in jurisprudential progress, the special TBT regime should no longer be reduced to nullity or redundant law in the shadow of the GATT. Instead, it is high time to confront and scrutinize a rising tide of even more technical information tools, and their far-reaching and transformative impacts on fisheries governance worldwide.

IV. LEVERAGING THE TBT TO RESHAPE THE SYSTEMATIC RELATIONSHIP BETWEEN TRADE AND FISHERIES MANAGEMENT

A. Discarding Misconceived Legitimization of NPR PPMs

Despite increasing recoginition of the role of the TBT to address NPR PPMs, the WTO overall is limited to the trade aspect of fisheries. This means they require constant aid from scientific expertise and resonace with social progress. In addition to the environmental aspects of capture fisheries, a profusion of social and ethical implications arise to test the WTO's capacity to bolster the "blue economy" vision under the UN 2030 Sustainable Development Goals (hereinafter "SDG"). Of particular relevance are the SDG 14 "Life below water" and SDG 12 "Sustainable production and

[76] Ganapathiraju Pramod et al., *Estimates of Illegal and Unreported Fish in Seafood Imports to the USA*, 48 MARINE POL'Y 102, 103, 105 (2014).

臺灣大學學術期刊資料庫

consumption".[77] At the centre of prior jurisprudence, it was often questioned how national technical measures could by themselves fit in with GATT/WTO norms. In this respect, the *Seal Products* decision fails to eradicate once-for-all a "systematic" crux inhibiting the relevance of the WTO system to NPR PPMs. Nevertheless, as pointed out above, distinctions are inherent between the design, operation and purpose of the Seal Regime, which is peculiar to the EU, and those of the two IUU regulations anchoring on the IPOA-IUU consensus. The technical self-deficiency of the EU Seal Regime, together with a relative dearth of factual evidence, is mostly accountable for the missed opportunity.

NPR PPMs used for mandating a comprehensive seafood profile are not merely for better products and lifestyle. They are a key driving force behind improved practices and technologies employed in every link of the supply chain (i.e., harvester, transshipper, producer, processor, re-exporter, importer and retailer). From the standpoint of the WTO, more and accurate information is not in itself harmful. Public regulations requiring the inclusion of additional origin and process information should not be treated differently from other means of consumer empowerment. The right direction is to lend legitimacy and credibility to such regulations through making their procedures and practices more transparent, less costly and founded upon sound risk analyses. When there is no universal definition of traceability for fisheries management,[78] it remains a challenging task for the WTO to look beyond physical characteristics, and to thoroughly investigate whether new information governance structures unreasonably impede trade. Some of the systems are based on science, while others are becoming socially and ethically oriented. Varied regulatory fashions, e.g., government-to-government *vis-à-vis* government-to-business, will also incur disparate costs and benefits distribution among trade partners.[79] It is therefore necessary for the TBT to expand a solid jurisprudential foundation to illuminate the boundaries of policy innovation and, furthermore, to strike a proper balance between trade liberalization and valid ecological and social claims.

The purpose of leveraging fully-fledged TBT disciplines to examine new types of environmental instruments is not to let the WTO go soft on NPR PPMs, which was a major issue dividing the membership in the negotiation process of the TBT.[80] The *a priori* exclusion of consideration of NPR PPMs does not automatically result in the legitimization of NPR PPMs-based regulations. A regulatory measure that would be deemed as being inconsistent with GATT does not mean it is more likely to be considered

[77] G.A. Res. 70/1, Transforming Our World: The 2030 Agenda for Sustainable Development (Sept. 25, 2015).
[78] WASHINGTON & ABABOUCH, *supra* note 14, at 64.
[79] Horne, *supra* note 4, at 175.
[80] Durán, *supra* note 7, at 109; CONRAD, *supra* note 7, at 379.

臺灣大學學術期刊資料庫

TBT-consistent, and vice versa. The *COOL* and *Tuna II* decisions have provided by far the most persuasive testimony against such legal assumption. Neither has it been a problem-free journey for NPR PPMs to seek legitimization under GATT Article XX where both *Shrimp* and *Seal Products* offer two typical cases. In principle, the preference of the TBT evaluation of NPR PPMs should no longer begin from a point of negation, simply because their unilateral nature and extraterritorial impact seem to be more harmful than PR PPMs.[81]

It cannot be forgotten that the GATT system was born several decades before the global community started to explore the reconciliation of economic growth and ecological sustainability as late as 1972.[82] During its almost fifty-year service, the GATT 1947 had generally functioned as a broad and primitive net to capture direct import bans and other quantitative restrictions impeding trade to the severest extent. The norm-and-exception dichotomy was fossilized to the extent that the pro-trade bias characterized the ethos of GATT Article XX. Although there was no black and white divide regarding NPR PPMs such as under Article I (Most-Favoured-Nation Treatment) and III (National Treatment), the measures were more likely to be considered illegitimate due to the rigid "likeness" accordion that takes into account process matters "only insofar as they influence consumer behaviour".[83] The last resort to the GATT XX provided narrow leeway for sound precautionary measures to pass muster, owing to an enclosed list of legitimate objectives compounded by the fulfilment of restrictive prerequisites in specific paragraphs and the chapeau. The rising trend of all-encompassing fisheries instruments to protect both endangered and non-endangered fish species merits special legal treatment under the TBT. Apart from any futile effort to add a broad environmental or social justice exception to GATT XX, there is more realistic scope for novel NPR PPMs to both justify their use, and have their abuse effectively corrected under the TBT framework.

When NPR PPMs proliferate to mitigate information gaps or even fraud along a supply chain, even relatively lenient approaches like labelling can result in additional trade distortions. The rapid development of heterogeneous traceability tools is inclined to distort trade flows if not properly circumscribed.[84] For example, the closing of the EU market to seal products has rendered the exploration of new and less-regulated markets in

[81] Joshi, *supra* note 26, at 83; Robert Howse & Donald Regan, *The Product/Process Distinction – An Illusory Basis for Disciplining 'Unilateralism' in Trade Policy*, 11 EUR. J. INT'L L. 249, 274 (2000).
[82] KLAUS BOSSELMANN, THE PRINCIPLE OF SUSTAINABILITY: TRANSFORMING LAW AND GOVERNANCE 23 (2d ed. 2016).
[83] Adrian Emich, *Same Same but Different-Fiscal Discrimination in WTO Law and EU Law: What Are Like Products*, 32 LEGAL ISSUES ECON. INTEGRATION 369, 409 (2005)
[84] Horne, *supra* note 4, at 180.

臺灣大學學術期刊資料庫

the developing world by Canadian hunters and producers.[85] The tightening of entry standards in developed countries have not exerted expeditious pulling effects on fisheries management in upstream developing countries. However, it has nurtured a black market in transit places like Hong Kong or fishery "laundering" middlemen states like China.[86] The "negative integration" character of the GATT is inadequate as a means of tackling these numerous legal loopholes. By contrast, the "positive integration" rules under the TBT, including harmonization, equivalence, mutual recognition, and advanced administrative obligations on transparency and reason-giving, have a better potential to curb an expanding web of distortive NPR PPMs.

Compared to voluntary schemes, mandatory traceability regulations are undoubtedly more costly to both the regulator and the regulated. This increased expense may further trigger bureaucracy and rent-seeking behaviours. In that vein, governments should be prompted by TBT rules not to suppress process information, but to expose it to transparent scrutiny and valid counterarguments amongst the membership.[87] Transitional tracking systems need to be rationalized to help integrate the cluster of information and to share them across all relevant government agencies. A state's pragmatic integration in international best practices will generate producer-friendly benefits when commonly agreed international standards and guidelines help to eliminate administrative redundancy. It is also prone to be customer-friendly when governments are motivated to simplify the content and streamline the formalities of information exchange. These trade-off devices can function to "moderate" domestic regulations and, perhaps in the face of global environmental challenges, "bridge through time from *laissez-regler* to international regulation".[88] More stringent substantive obligations under the TBT, notably, the necessity test and the probe into *de facto* discrimination,[89] have steadily developed to interrogate technical measures which do not discriminate facially.

In past jurisprudence, the compliance reports issued after the main TBT disputes have recognized, to differing degrees, the revised measures in their conformity to applicable norms. This level of flexibility attests to the accelerated phase-out of the presumed illegality of NPR PPMs-based regulations. For example, in the second compliance ruling on *Tuna II*, the Appellate Body agreed with the US that its 2016 revised standard had

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[85] Juan He, *China-Canada Seal Import Deal After the WTO EU-Seal Products Case: At the Crossroads*, 10(1) ASIAN J. WTO & INT'L HEALTH L. & POL'Y 223, 227 (2015).
[86] Juan He, *Enhancing Chinese Law and Practice to Combat Illegal, Unreported and Unregulated Fishing and Trade*, 19 ASIA PAC. J. ENVTL. L. 4, 14 (2016).
[87] Kysar, *supra* note 40, at 592.
[88] Joel P. *Trachtman, Trade and . . . Problems, Cost-Benefit Analysis and Subsidiarity*, 9 EUR. J. INT'L L. 32, 39 (1998).
[89] Ming Du, *Domestic Regulatory Autonomy Under the TBT Agreement: From Non-Discrimination to Harmonization*, 6 CHINESE J. INT'L L. 269, 281 (2007)

臺灣大學學術期刊資料庫

considerably narrowed the distance between certification and verification criteria applicable to tuna fisheries in and outside the East Tropical Pacific region. It was decided that the the remaining differences "appropriately calibrated to the risks to dolphins arising from the use of different fishing methods in different areas of the ocean".[90] Compliant NPR PPMs might be hailed one day as non-rigid and adaptable measures as any other governmental tools, placing a valid benchmark of the appropriate level of environmental, ethical or consumer protection in a given market. In this respect, the TBT preamble explicitly acknowledges the legitimate objectives of preventing deceptive practices in the marketplace and protecting the environment through technical regulations.[91] By contract, both objectives have been less certain in the GATT text. The particular weight assigned to consumer protection also corresponds to the evolving trend of fishery governance to emphasize ethical considerations in addition to the role of science so as to be consistent with an ecosystem approach.[92] Recent policy innovations intend to be socially and human rights embedded. It is therefore necessary that the TBT manifests its due respect to different food cultures and domestic ethics,[93] with a view to preserving the "long-term health of the interaction between nature, the economy, and the legal system".[94]

B. Building Interconnections Between Free Trade and Fisheries Management

In order to combat IUU fishing as a global issue, several international fishery instruments have been introduced since the turn of the century. By way of specific guidelines and recommendations (illustrated below), the FAO and other international co-regulators have regained some control of the making of rules for fisheries ecolabelling and certification. They are yet to offer direct empirical support to the WTO, as a non-standardization organization, to understand the complexities and trade effects of NPR PPMs involved:

- 2001 FAO IPOA-IUU laying down the foundation for augmented international efforts to fight against IUU fishing by empowering flag, coastal, port, market and all State measures;

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[90] *US — Tuna II (Mexico): Second Recourse to Article 21.5 of the DSU* Appellate Body Report, *supra* note 19, ¶¶ 7.7, 7.9.
[91] TBT, *supra* note 5, art. 2.2.
[92] Tracy Dobson & Henry Regier, *Contributing to Fisheries Sustainability Through the Adoption of a Broader Ethical Approach, in* GLOBALIZATION: EFFECTS ON FISHERIES RESOURCES 499, 503 (William W. Taylor et al. eds., 2007).
[93] Berit Nygård & Oddveig Storstad, De-globalization of Food Markets? Consumer Perceptions of Safe Food: The Case of Norway, 38(1) SOCIOLOGIA RURALIS 35, 39 (1998).
[94] Dobson & Regier, *supra* note 92, at 510.

臺灣大學學術期刊資料庫

- 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing (PSMA) as the first binding international agreement to specifically target IUU fishing by preventing IUU vessels from using ports and port facilities to land or warehouse their catches;[95]
- 2005 FAO Guidelines for the Ecolabelling of Fish and Fishery Products (GEFFP) and its 2009 Revision providing first-ever international principles, minimum requirements and criteria applicable to ecolabelling schemes designed to certify and promote well-managed marine capture fisheries;[96]
- 2017 FAO Voluntary Guidelines for Catch Documentation Schemes (hereinafter "VGCDS") as the first international policy document to provide comprehensive assistance to states, RFMOs and other intergovernmental organisations on the development, implementation and review of catch documentation schemes;[97]
- 2005 FAO Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record) as an ongoing global initiative wherein states and RFMOs compile an online repository of vessels involved in fishing operations;[98]
- 1998 ISO 14000 environmental series and the ongoing standard developed under the technical committee ISO/TC 234 set up in February 2007 to create minimum requirements for the certification of products from sustainable marine fisheries;
- RFMOs as regional, co-management bodies to explore and conserve fisheries resources among member blocs, using increasingly trade and market-based measures such as regional labelling, certification and regional IUU vessel blacklists.[99]

None of the instruments listed above excludes, *a priori*, NPR PPMs as a valuable and justifiable basis of capture fisheries management. A healthy level of commonality shared by international fishery and technical

[95] Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, Nov. 22, 2009. [hereinafter PSMA].
[96] FAO, Guidelines for the Ecolabelling of Fish and Fishery Products (Mar. 7, 2005), http://www.fao.org/3/i1119t/i1119t.pdf. [hereinafter GEFFP].
[97] FAO, Voluntary Guidelines for Catch Documentation Schemes (July, 2017), http://www.fao.org/3/a-i8076e.pdf. [hereinafter VGCDS].
[98] *Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels*, FAO, http://www.fao.org/global-record/background/history/en/ (last visited Feb. 23, 2020), with a feasibility study held by the FAO Fisheries Department in 2006, the public version launched in 2018.
[99] *Illegal, Unreported and Unregulated (IUU) Fishing*, FAO, http://www.fao.org/iuu-fishing/regional-mechanisms/rfb-iuu-vessels-lists/en/ (last visited Jan. 14, 2020). The "Combined IUU Fishing Vessel List" is another open-access platform maintained by Trygg Mat Tracking, a Norwegian not-for-profit organisation, COMBINED IUU VESSEL LIST, https://iuu-vessels.org/ (last visited Jan. 14, 2020).

臺灣大學學術期刊資料庫

standardization bodies symbolizes appropriate compromises to avoid conflict between trade rules and NPR PPMs-based regulations. In principle, there is nothing prohibiting the establishment of "a sufficient nexus" between NPR PPMs and product competitiveness when the measures come closer to the requisite expectations on their substance and format. For instance, the Annex of VGCDS recommends the inclusion of a full list of "core elements" in catch certificates that extend to non-physical descriptions of products such as information on every landing and transshipment.[100] The origin of trade distortion is understood beyond end products to reach paper-based or digital traceability information requirements.[101]

Meanwhile, non-trade international guidelines cast light on potential common ground to be explored between disparate paradigms of traceability regulations. For example, the best mode of CDS should "be reliable, simple, clear and transparent".[102] In line with the TBT's positive integration thinking, "[d]ifferent CDS could be recognised as equivalent for the purpose of achieving the objectives of the guidelines if they result in equivalent outcomes". A a result, when creating and revising CDS, "existing schemes should be taken into account".[103] Furthermore, CDS are considered "most effective when all states involved cooperate in the schemes",[104] where they "should make every effort to cooperate in the design, implementation and administration of CDS" through extensive RFMOs or multilateral engagements.[105] In this sense, government programs compliant with the FAO guidelines will be better placed to be considered equivalent by each other.

International standards and guidelines do not necessarily reduce national vigilance towards perceived risks to sustainable fish stocks such as IUU fishing. Their uses pursue "minimum protection in the standardization field" to create "minimum distortion (least trade-restrictiveness) in the WTO area".[106] Currently, the best-practice character of the VGCDS is manifested in its gradual alignment with core TBT principles on this matter (e.g., necessity, proportionality, even-handedness and risk analysis).[107] The data elements and verification processes recommended are inspired by the successfully applied EU certification program. Almost identical criteria exist for the acceptance of catch certificates upon the quality of fisheries

[100] VGCDS, Annex, art. 1.
[101] *Id.* art. 2.1.
[102] *Id.* art. 3.5.
[103] *Id.* art. 4.3.
[104] *Id.* art. 5.1.
[105] *Id.* art. 5.2.
[106] Filippo Fontanelli, *ISO and Codex Standards and International Trade Law: What Gets Said Is Not What's Heard*, 60 INT'L & COMP. L. Q. 895, 932 (2011).
[107] VGCDS, arts. 4.2, 4.4, 4.5(b).

臺灣大學學術期刊資料庫

management of a validating foreign state.[108] At the same time, departures are made where it follows the SIMP style to be more user-friendly. Trade facilitation is enhanced when the guideline mandates the use of electronic CDS as widely as possible,[109] with a full package of assistance arrangements for developing country participants.[110] Electronic reporting systems should thereby "provide for greater flexibility in the information requirements".[111]

The positive integration rules give the TBT a better edge to resonate with other international regulators and regimes that arise to support and discipline NPR PPMs. Unlike the pro-trade stance of the GATT, the TBT specifies the protection of consumers and the environment as two legitimate objectives of technical regulations. In an ideal situation, external expertise can provide TBT adjudicators with an additional legal weapon to decide whether technical regulations use the relevant parts of international standards "as a basis".[112] International standardization bodies are thereby accorded with a quasi-judicial status under TBT Article 2.5, for example, as long as their membership is open to the relevant bodies of at least all WTO Members.[113]

The TBT text does not explicitly set out a list of recognized international standardization bodies. This is only done under the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (hereinafter "SPS").[114] However, the open-textured TBT provisions do not prevent the enrichment of the list through concrete dispute resolution. So far, two Codex standards for the purposes of species description and avoidance of consumer confusion, respectively, have been accepted as relevant international standards in *Sardines* and *COOL*.[115] Moreover, the TBT Committee explicitly entrusts the ISO/IEC Guide 2 referred to by Annex 1.2 to identify recognized standardization bodies.[116] Given its long-established links with TBT activities, the ISO in its own right may enjoy a relatively strong authority to prove the effectiveness and relevance of its fishery standards such as the upcoming ISO/TC 234.[117]

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[108] *Id.* art. 5.3. Similar language can be found in the EU IUU Regulation, art. 20.1.
[109] *Id.* art. 3.6.
[110] *Id.* art. 7.
[111] *Id.* art. 4.6 (h).
[112] TBT, *supra* note 5, art. 2.4.
[113] *US — Tuna II (Mexico)* Appellate Body Report, *supra* note 39, ¶ 374.
[114] Agreement on the Application of Sanitary and Phytosanitary Measures, Annex A, art. 3, Apr. 15, 1994, 1867 U.N.T.S. 493.
[115] The two standards were Codex Alimentarius Commission, Standard for Sardines and Sardine-Type Products (CODEX STAN 94-1981) (July 16, 2013), http://www.fao.org/input/download/standards/108/CXS_094e.pdf in *Sardines*, and Codex Alimentarius Commission, Codex General Standard For The Labelling Of Prepackaged Foods (CODEX-STAN 1-1985) (1985), http://www.fao.org/input/download/standards/32/CXS_001e.pdf in *COOL*.
[116] An informational gateway has been established to update on such bodies at *WTO ISO Standards Information Gateway*, ISO, https://tbtcode.iso.org/sites/wto-tbt/home.html (last visited Jan. 14, 2020).
[117] Fontanelli, *supra* note 106, at 909.

臺灣大學學術期刊資料庫

In its 2018 ruling on *Tobacco Plain Packaging*, the panel explicitly refrained from diminishing the relevance and probative value of non-trade international instruments such as those developed under the Framework Convention on Tobacco Control of the World Health Organization.[118] Although these are guidelines only and do not constitute "international standards" in the strict sense of TBT Article 2.5, they are part of the broader factual context to support the panel's specific findings under the necessity test of TBT Article 2.2, for example, on the nature and gravity of "the risks of non-fulfilment".[119] The same attitude could apply to an expanding array of anti-IUU international codes of conduct promulgated by the FAO. Should relevant disputes arise, it would be under concrete circumstances for a TBT panel to decide whether the FAO guidelines, if cited from above, show any reference value, either as international standards or at least factual evidence on important international consensus.

In the broader political scenario, institutional platforms already exist for TBT legislators and adjudicators to accord greater respect to the development of international guidelines and standards. The 2017 revised WTO Guidelines for Observer Status for International Intergovernmental Organizations pave the way for standardization and conservation organizations to request observer status as long as they "have competence and a direct interest in trade policy matters".[120] A request will be assessed by "taking into account" the nature of work of an organization, its membership and number of WTO Members, reciprocity in observership and a historical relation with the GATT 1947.[121] If accepted, representatives of observer organizations can attend and receive copies of main WTO instruments relevant to their work. They may also be invited to speak at meetings, circulate papers and even make environmental proposals. A notable aspect of openness is that non-observer organizations may also be invited to follow particular discussions of a subsidiary WTO body "in an observer capacity".[122]

So far, both the ISO and the FAO have been granted permanent observer status to liaise and coordinate with the TBT Committee. The status of the ISO as a non-intergovernmental body shows the prospect for other hybrid standardization bodies with widespread membership and technical

[118] Panel Report, *Australia — Certain Measures Concerning Trademarks, Geographical Indications and Other Plain Packaging Requirements Applicable to Tobacco Products and Packaging*, ¶ 7.416, WTO Doc. WT/DS435/R, WT/DS441/R, WT/DS458/R, WT/DS467/R (adopted Aug. 28, 2018).
[119] *Id.* ¶ 7.1309.
[120] Committee on Technical Barriers to Trade, Decisions and Recommendations Adopted by the WTO Committee on Technical Barriers to Trade Since 1 January 1995, at 81, G/TBT/1/Rev.13 (Mar. 8, 2017).
[121] *Id.*
[122] *Id.*

臺灣大學學術期刊資料庫

competency to be likely candidates for observers or observers in capacity.[123] RFMOs are relatively disadvantaged, as the WTO prefers to work with selected international organizations rather than numerous regional or national bodies.[124] The 2017 Guidelines provide a window of opportunity for localized conservation bodies to create communicative and consultative channels with the WTO when relevant NPR PPMs are of interest to their work. Stronger institutional coordination will largely reduce frictions between different shades of international law in reality.

In the legislative sphere, the issue of IUU fishing has been raised for several rounds of political discussion among WTO Members under the auspices of the Committee on Trade and Environment where supply-chain traceability and transparency became gradually emphasized. [125] The negotiation of *ad hoc* fisheries subsidy rules through the Doha Round highlights the WTO's intensified effort to contribute to better management of oceans and marine resources. It responds directly to the SDG Target 14.6 which calls for the prohibition and elimination of fisheries subsidies that would lead to IUU fishing, overcapacity or overfishing by 2020. The 2017 updated draft text is structured around the overall prohibition of subsidies to be granted to any vessels engaged in IUU fishing. It is notable that the NPR PPMs at work, other than the physical characteristics of products, form the very basis of the prohibition of IUU-supportive fishery subsidies. An IUU fishing vessel is only identifiable from its listing by responsible states, relevant RFMOs or the FAO.[126]

To summarize, for one thing, the WTO draft text reaffirms the gravity IUU fishing as an issue for both global trade and global environment, for which stronger public leadership of the campaign is warranted. For another, it also implicitly acknowledges the reliance of the WTO upon cooperation and coordination mechanisms with the FAO and even RFMOs as the way forward to name and shame each IUU fishing vessel and state. In developing their partnerships, responsible institutional actors should find an agreed opportunity to discard the PR/NPR PPMs distinction as an outmoded conceptual device. When it is, the proliferation of government-led seafood traceability systems, including their possibility of data interoperability,[127]

[123] Fontanelli, *supra* note 106, at 908.

[124] The Southeast Asian Fisheries Development Center is by far the only RFMO granted with *ad hoc* observer status to participate in the meetings of Committee on Trade and Environment only, see *International Intergovernmental Organizations Granted Observer Status to WTO Bodies*, WTO, https://www.wto.org/english/thewto_e/igo_obs_e.htm (last visited Jan. 14, 2020).

[125] *WTO Members Weigh in on Measures to Tackle Illegal Fishing*, WTO (Oct. 6, 2015), https://www.wto.org/english/news_e/news15_e/envir_06oct15_e.htm.

[126] Negotiating Grp. on Rules, *Fisheries Subsidies, Revision*, art. 3.1, WTO Doc. TN/RL/W/274/Rev.5 (July 26, 2018).

[127] As the EU and the US converge on many seafood suppliers, very few countries affected by the SIMP do not concurrently comply with the EU IUU Regulation. Thus, the types of information and

臺灣大學學術期刊資料庫

can be treated by a more integrated regulatory approach. This will effectively minimize any unnecessary trade distortions and transformative costs.

V. CONCLUSION

The global market has presented both opportunities and challenges for governments and international institutions to manage and sustain global fish supplies.[128] There are "not too many" ecolabels in capture fisheries, since price and quality rather than legal provenance still matter the most.[129] It is therefore unsurprising to observe the re-emergence of the public trust doctrine to complement or even lead against neoliberal conservatism that has been wholly premised on privatisation.[130] The GEFFP explicitly recognizes that "the involvement of States in ecolabelling schemes is desirable and should be encouraged".[131] The augmented role of the government also corresponds to a new wave of ecological citizenship taking shape in relatively affluent populations.[132] It is the distant and complex relationships between global producers and global buyers that make it imperative to have more advanced information governance frameworks established and coordinated across national borders. Trustworthy informational tools and their systematic integration along a broad spectrum of players will make it possible for the global market to determine lawful goods or even credence goods sell. Public regulators worldwide are therefore investing in learning where and how any information gap can be filled on the knowledge basis of international guidelines, counterpart experiences and market feedback.

Against this backdrop, this study offers a holistic conceptual explanation to account for the steady progress made by the WTO to fundamentally align itself with the objective of sustainability. Initial distrust is partly attributable to its decades-long disregard for the functionality of eco-driven NPR PPMs. The trend that NPR PPMs-based trade regulations move progressively from the peripheral to the centre of fisheries governance at national, regional and international levels warrants a radical departure from the GATT style. Interventions through novel trade-related IUU regulations may be appropriate to bridge the information divide between the producer and the consumer.[133]

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data elements captured by the two traceability systems are similar or highly comparable. *See* He, *supra* note 28, at 169.

[128] Tracy Kolb & William Taylor, *Globalization and Fisheries: Recommendations for Policy and Management*, *in* GLOBALIZATION: EFFECTS ON FISHERIES RESOURCES 527, 529-33 (William W. Taylor et al. eds., 2007).

[129] WASHINGTON & ABABOUCH, *supra* note 14, at 22.

[130] Dobson & Regier, *supra* note 92, at 512.

[131] GEFFP, *supra* note 96, art. 5.

[132] Seyfang, *supra* note 40, at 291.

[133] Kysar, *supra* note 40, at 627.

臺灣大學學術期刊資料庫

As a typical multidimensional challenge, IUU fishing urgently calls for a cohesive blend of PR PPMs, NPR PPMs and human rights-based laws and regulations (e.g., labour abuse, piracy and human trafficking) to form an integrated and participatory governance approach.[134] The obvious synergies between fisheries subsidies negotiations and 2030 SDG, and between the WTO and the FAO, signify an intensified global resolve to reinstitute sustainability as an objective which overrides unrestricted trade. To acquire legitimacy and broader recognition, it is crucial that innovative traceability tools still provide a level playing field for global competitors. In that mode, this study concludes by proposing a tiered structure to induce more specific and adapted legal responses from the WTO to the current regulatory race to traceability.

Firstly, command and direct control measures such as quotas and import bans should still be subject to crude and sweeping GATT rules against quantitative restrictions. This is because they are not technical, *ex post* and most trade-restrictive. The application of GATT Article XX does not necessarily have to align with the emerging TBT jurisprudence on such prohibitive measures. Because the measures are prone to be arbitrary or unnecessary, policy redesign should be rapidly prompted to seek alternative options such as how-caught standards in *Seal Products* or other informative and less-restrictive measures such as catch certification. Otherwise, the measures will be justifiable only under specific paragraphs and the chapeau of GATT Article XX, the weight of which can crush the most intrusive interventions. No additional TBT scrutiny should be brought in to re-examine the legal nuances if the restrictions lack sufficient technical content in themselves.

Secondly, less intimidating but more complex traceability systems operated by the government ought to be subject to more sophisticated TBT disciplines, regardless of their style or carrier of information (e.g., paperwork, digital, visualized or interactive). PR/NPR PPMs as a whole suite of technical measures ought to be origin-neutral, necessary and proportional to their goals. They should be treated in an equitable manner, so long as their nexus with product characteristics and, more fundamentally, market competition proves to be "sufficient" in each case. TBT emphases on both procedural and substantive compliance of NPR PPMs cannot automatically legitimize or outlaw them. Instead, the aim is to restore adequate legal surveillance of their uses indiscriminately. To this end, the locus of scrutiny needs to be firmly premised on the substance rather than the form of mandatory traceability requirements.

[134] John N. Kittinger et al., *Committing to Socially Responsible Seafood*, 356 SCIENCE 912, 913 (2017).

臺灣大學學術期刊資料庫

Thirdly, as a relatively open regime with positive integration arrangements, the TBT can be enhanced to become a model player in consolidating institutional, technical and legislative ties between the WTO and other international bodies. The TBT Committee together with the Committee of Trade and Environment should keep a close eye on the development of international fishery instruments and guidelines, in order to draw on external expertise to comprehensively anatomize the pros and cons of NPR PPMs. Administrative organs of the WTO may also seek external assistance to inform future adjudicators of the meanings of underdeveloped interpretative criteria such as "sufficient nexus". If harmonization is not feasible in the short term, mutual recognition between the EU IUU Regulation and the US SIMP can be prompted to reduce compliance burdens and consumer confusions about a multiplicity of seafood traceability programs. Transnational institutional alliances between their conformity assessment agencies could be a potential starting point to usher in broader national attempts of benchmarking against relevant FAO and ISO guidelines.

Lastly, non-trade input sourced on the matter of NPR PPMs should not be limited to globalized and intergovernmental standardization bodies. The success of negotiating fisheries subsidies cannot be guaranteed if the WTO does not fully recognize the role of RFMOs with their expanding IUU vessel blacklists. Governments are entitled to retain their role of principal custodian of global environment and common-pool resources. Meanwhile, there are important shifts in power between the market and public governance frameworks. Nongovernmental or hybrid standardization bodies can provide a vital source of technical information and social feedback to complement the rhetoric of free trade. Accordingly, correct interpretation and application of the TBT cannot be undertaken in clinical isolation from the reality of traceability information tools being concurrently driven by the government and market forces. At the next stage, relevant international trade, environmental, food and social organizations could band together to rewrite the definition of NPR PPMs from a most complete and multidisciplinary perspective, making coherent allowances for such measures to be embedded in a path towards sustainable fisheries management.

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