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UNITED STATES – MEASURES CONCERNING THE IMPORTATION, MARKETING AND SALE OF TUNA AND TUNA PRODUCTS

RECOURSE TO ARTICLE 22.6 OF THE DSU BY THE UNITED STATES

DECISION BY THE ARBITRATOR

TABLE OF CONTENTS

LIST OF APPENDIXES

LIST OF ANNEXES

ANNEX A

WORKING PROCEDURES OF THE ARBITRATOR

ANNEX B

ARGUMENTS OF THE PARTIES

CASES CITED IN THIS REPORT

Short Title	Full Case Title and Citation
Brazil – Aircraft (Article 22.6 – Brazil)	Decision by the Arbitrators, *Brazil – Export Financing Programme for Aircraft – Recourse to Arbitration by Brazil under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement*, WT/DS46/ARB, 28 August 2000, DSR 2002:I, p. 19
Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)	Decision by the Arbitrator, *Canada – Export Credits and Loan Guarantees for Regional Aircraft – Recourse to Arbitration by Canada under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement*, WT/DS222/ARB, 17 February 2003, DSR 2003:III, p. 1187
Canada – Patent Term	Appellate Body Report, *Canada – Term of Patent Protection*, WT/DS170/AB/R, adopted 12 October 2000, DSR 2000:X, p. 5093
Canada – Renewable Energy / Canada – Feed-in Tariff Program	Panel Reports, *Canada – Certain Measures Affecting the Renewable Energy Generation Sector / Canada – Measures Relating to the Feed-in Tariff Program*, WT/DS412/R and Add.1 / WT/DS426/R and Add.1, adopted 24 May 2013, as modified by Appellate Body Reports WT/DS412/AB/R / WT/DS426/AB/R, DSR 2013:I, p. 237
EC – Bananas III (US) (Article 22.6 – EC)	Decision by the Arbitrators, *European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU*, WT/DS27/ARB, 9 April 1999, DSR 1999:II, p. 725
EU – Biodiesel (Argentina)	Appellate Body Report, *European Union – Anti-Dumping Measures on Biodiesel from Argentina*, WT/DS473/AB/R and Add.1, adopted 26 October 2016
EC – Hormones	Appellate Body Report, *EC Measures Concerning Meat and Meat Products (Hormones)*, WT/DS26/AB/R, WT/DS48/AB/R, adopted 13 February 1998, DSR 1998:I, p. 135
EC – Hormones (Canada) (Article 22.6 – EC)	Decision by the Arbitrators, *European Communities – Measures Concerning Meat and Meat Products (Hormones), Original Complaint by Canada – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU*, WT/DS48/ARB, 12 July 1999, DSR 1999:III, p. 1135
EC – Hormones (US) (Article 22.6 – EC)	Decision by the Arbitrators, *European Communities – Measures Concerning Meat and Meat Products (Hormones), Original Complaint by the United States – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU*, WT/DS26/ARB, 12 July 1999, DSR 1999:III, p. 1105
EC and certain member States – Large Civil Aircraft	Appellate Body Report, *European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft*, WT/DS316/AB/R, adopted 1 June 2011, DSR 2011:I, p. 7
Japan – DRAMs (Korea)	Appellate Body Report, *Japan – Countervailing Duties on Dynamic Random Access Memories from Korea*, WT/DS336/AB/R and Corr.1, adopted 17 December 2007, DSR 2007:VII, p. 2703
US – 1916 Act (EC) (Article 22.6 – US)	Decision by the Arbitrators, *United States – Anti-Dumping Act of 1916, Original Complaint by the European Communities – Recourse to Arbitration by the United States under Article 22.6 of the DSU*, WT/DS136/ARB, 24 February 2004, DSR 2004:IX, p. 4269
US – Continued Suspension	Panel Report, *United States – Continued Suspension of Obligations in the EC – Hormones Dispute*, WT/DS320/R and Add.1 to Add.7, adopted 14 November 2008, as modified by Appellate Body Report WT/DS320/AB/R, DSR 2008:XI, p. 3891
US – Continued Suspension	Appellate Body Report, *United States – Continued Suspension of Obligations in the EC – Hormones Dispute*, WT/DS320/AB/R, adopted 14 November 2008, DSR 2008:X, p. 3507
US – Continued Zeroing	Panel Report, *United States – Continued Existence and Application of Zeroing Methodology*, WT/DS350/R, adopted 19 February 2009, as modified as Appellate Body Report WT/DS350/AB/R, DSR 2009:III, p. 1481
US – COOL (Article 21.5 – Canada and Mexico)	Panel Reports, *United States – Certain Country of Origin Labelling (COOL) Requirements – Recourse to Article 21.5 of the DSU by Canada and Mexico*, WT/DS384/RW and Add.1 / WT/DS386/RW and Add.1, adopted 29 May 2015, as modified by Appellate Body Reports WT/DS384/AB/RW / WT/DS386/AB/RW
US – COOL (Article 22.6 – United States)	Decisions by the Arbitrator, *United States – Certain Country of Origin Labelling (COOL) Requirements – Recourse to Article 22.6 of the DSU the United States*, WT/DS384/ARB and Add.1 / WT/DS386/ARB and Add.1, circulated to WTO Members 7 December 2015
US – FSC (Article 22.6 – US)	Decision by the Arbitrator, *United States – Tax Treatment for "Foreign Sales Corporations" – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement*, WT/DS108/ARB, 30 August 2002, DSR 2002:VI, p. 2517

Short Title	Full Case Title and Citation
US – Gambling (Article 22.6 – US)	Decision by the Arbitrator, *United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services – Recourse to Arbitration by the United States under Article 22.6 of the DSU*, WT/DS285/ARB, 21 December 2007, DSR 2007:X, p. 4163
US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)	Decision by the Arbitrator, *United States – Continued Dumping and Subsidy Offset Act of 2000, Original Complaint by Brazil – Recourse to Arbitration by the United States under Article 22.6 of the DSU*, WT/DS217/ARB/BRA, 31 August 2004, DSR 2004:IX, p. 4341
US – Oil Country Tubular Goods Sunset Reviews (Article 21.5 – Argentina)	Appellate Body Report, *United States – Sunset Reviews of Anti-Dumping Measures on Oil Country Tubular Goods from Argentina – Recourse to Article 21.5 of the DSU by Argentina*, WT/DS268/AB/RW, adopted 11 May 2007, DSR 2007:IX, p. 3523
US – Tax Incentives	Panel Report, *United States – Conditional Tax Incentives for Large Civil Aircraft*, WT/DS487/R and Add.1, circulated to WTO Members 28 November 2016 (appealed by the United States 16 December 2016)
US – Tuna II (Mexico)	Panel Report, *United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products*, WT/DS381/R, adopted 13 June 2012, as modified by Appellate Body Report WT/DS381/AB/R, DSR 2012:IV, p. 2013
US – Tuna II (Mexico)	Appellate Body Report, *United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products*, WT/DS381/AB/R, adopted 13 June 2012, DSR 2012:IV, p. 1837
US – Tuna II (Mexico) (Article 21.5 – Mexico)	Panel Report, *United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products – Recourse to Article 21.5 of the DSU by Mexico*, WT/DS381/RW, Add.1 and Corr.1, adopted 3 December 2015, as modified by Appellate Body Report WT/DS381/AB/RW
US – Tuna II (Mexico) (Article 21.5 – Mexico)	Appellate Body Report, *United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products – Recourse to Article 21.5 of the DSU by Mexico*, WT/DS381/AB/RW and Add.1, adopted 3 December 2015
US – Upland Cotton (Article 21.5 – Brazil)	Panel Report, *United States – Subsidies on Upland Cotton – Recourse to Article 21.5 of the DSU by Brazil*, WT/DS267/RW and Corr.1, adopted 20 June 2008, as modified by Appellate Body Report WT/DS267/AB/RW, DSR 2008:III, p. 997
US – Upland Cotton (Article 22.6 – US I)	Decision by the Arbitrator, *United States – Subsidies on Upland Cotton – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement*, WT/DS267/ARB/1, 31 August 2009, DSR 2009:IX, p. 3871
US – Upland Cotton (Article 22.6 – US II)	Decision by the Arbitrator, *United States – Subsidies on Upland Cotton – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 7.10 of the SCM Agreement*, WT/DS267/ARB/2 and Corr.1, 31 August 2009, DSR 2009:IX, p. 4083

EXHIBITS REFERRED TO IN THIS REPORT

Panel Exhibit	Title
MEX-02	Sebastien Pouliot, "Methodology and Measurement of Losses to the Mexican Tuna Industry from the U.S. Dolphin-Safe Labelling Measure" (06 July 2016)
MEX-04	U.S. ITC, "Tuna: Customs Value by HTS Number and Customs Value for All Countries - U.S. Imports for Consumption", Monthly data for 2002-2015, available online at: https://dataweb.usitc.gov/
MEX-06	Atuna, "Tuna Species Guide" (2016), available online at: http://www.atuna.com/index.php/en/tuna-info/tuna-species-guide
MEX-15	Nielsen, "Item Rank Report – Seafood- Tuna – Shelf stable" (12-week and 52-week reports ending 24 October 2015)
MEX-21	USDA, FAS, "Ecuador: Ecuador's Tuna Fish Industry Update" (26 August 2015), available online at: http://www.fas.usda.gov/data/ecuador-ecuadors-tuna-fish-industry-update.
MEX-24	Ley de los Impuestos Generales de Importacion y de Exportacion (*Tarifa*), Capitulo 16 (excerpt) Mexican Official Gazette (18 June 2007)
MEX-36	Business Confidential Information **(BCI)**
MEX-45	**(BCI)**
MEX-63	Public Opinion Strategies, National Survey Methodology (Oct. 16, 2010)
MEX-68	Harmonized Tariff Schedule of the United States, Supplement 1, Ch. 16 (July 1989), available online at: http://www.usitc.gov/tata/hts/archive/8910/1989_supplement_index.htm
MEX-71	Public Opinion Strategies, Dolphin Safe National Survey
MEX-72	NOAA Fisheries, Tuna/Dolphin Embargo Status Update, available online at: http://www.nmfs.noaa.gov/pr/dolphinsafe/embargo2.htm
MEX-80	NMFS data supporting Figure 1 in the first written submission (pg. 43)
MEX-100-f	R code to calculate own-price elasticities of demand for canned yellowfin tuna and canned generic tuna
MEX-106	**BCI**
MEX-119	International Trade Commission, Tuna: Competitive Conditions Affecting the U.S. and European Tuna Industries in Domestic and Foreign Markets, USITC Publication 2339, December 1990
USA-01	The Dolphin Protection Consumer Information Act (DPCIA) 16 U.S.C. §1385 (2011)
USA-02	Dolphin Safe Tuna Labelling Regulations, 50 C.F.R. § 216, Subpart H (2016)
USA-07	Amanda Hamilton *et al*., Forum Fishery Agency (FFA), *Market and Industry Dynamics in the Global Tuna Supply Chain* (2011)
USA-08	Fu-Sung Chiang *et al.*, "Will American Consumers Pay More for Eco-Friendly Canned Tuna? Estimating US Consumer Demand for Canned Tuna Varieties using Scanner Data", Elsevier Editorial system™ for Ecological Economics (publication pending 2016)
USA-10	**BCI**
USA-17	"52-week Canned Tuna Sales, Summed by Type" (based on Exhibit MEX-15)
USA-18	Sam Roe & Michael Hawthorne, "How Safe is Tuna?" *Chicago Tribune,* Dec. 13, 2005
USA-22	"U.S. Tuna Cannery Receipts" (data collected from NMFS TTVP database)
USA-36	"Imports of Canned Tuna from All Countries Individually – 2010 – 2015" (data drawn from NOAA U.S. Foreign Trade, http://st.nmfs.noaa.gov /commercial-fisheries/foreign-trade/)
USA-38	**BCI**
USA-40	"Dolphin Statements from Retailers" (2016)
USA-41	**BCI**
USA-43	IATTC, Doc. IAATTC-90-04a: Tunas, Billfishes and Other Pelagic Species in the Eastern Pacific Ocean in 2015 (June 2016)
USA-52	IATTC, Resolution C-16-02: Harvest Control Rules for Tropical Tunas (July 2016)
USA-55	Simon Board, University of California, Los Angeles, "Partial Equilibrium: Positive Analysis" (2009)
USA-62	"U.S. Imports of Tuna Product from the World and Mexico" (data collected from U.S. Census Bureau, Economic Indicators Division, https://dataweb.usitc.gov/)
USA-77	IATTC, Resolution C-13-01: Multiannual Program for the Conservation of Tuna in the Eastern Pacific Ocean During 2014-2016 (June 2013)
USA-81	U.S. Model
USA-87	James Joseph, FAO, Managing Fishing Capacity of the World Tuna Fleet (2003)

USA-90	Crown Prince, Yellowfin Tuna, http://www.crownprince.com/cpn-yellowfin-tuna.htm (Sept. 18,2016)
USA-93	Sustainable Seas, "Products and Online Shopping", http://online-store.sustainableseas.com/online-products.html (accessed Sept. 18, 2016)
USA-96	"U.S. Cannery Purchases of YF, Total and Share" (data drawn from NMFS database)
USA-111	Roger L. Core et al., ITC, *Competitive Conditions in the U.S. Tuna Industry* (1986)
USA-114	Liam Campling et al., Pacific Island Countries, The Global Tuna Industry and the International Trade Regime – A Guidebook (2007)
USA-142	Wesley W. Parks et al., "U.S. Trade in Tuna for Canning, 1987," 52 Marine Science 14 (1990)
USA-144	Prices of EU Imports of Tuna Product in 2015
USA-148	Remington Research Group, National Public Opinion Survey (2016)
USA-150	"U.S. Calculation of Average Willingness to Pay"
USA-175	"Share of Grocery Sales by the Top 20 Retailers" (data provided by USDA Economic Research Services)
USA-199	"European Union Prices of Yellowfin Imports, by Type" (data drawn from EuroStat)

ABBREVIATIONS USED IN THIS REPORT

Abbreviation	Description
2013 Final Rule	Enhanced Document Requirements to Support Use of the Dolphin Safe Label on Tuna Products; Final Rule 78 Fed. Reg. 40997 (July 9, 2013)
AIDCP	Agreement on the International Dolphin Conservation Program
AIDS	Almost ideal demand system
BCI	Business confidential information
CFR	Code of Federal Regulations
DMLs	Dolphin Mortality Limits
DPCIA	Dolphin Protection Consumer Information Act
DSB	Dispute Settlement Body
DSU	Understanding on Rules and Procedures Governing the Settlement of Disputes
GATT 1994	General Agreement on Tariffs and Trade 1994
EII	Earth Island Institute
ETP	Eastern Tropical Pacific
FAO	United Nations Food and Agriculture Organization
IATTC	Inter-American Tropical Tuna Commission
NAFTA	North American Free Trade Agreement
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NTB	Non-tariff barrier
OLS	Ordinary least squares
RPT	Reasonable Period of Time
St	Short tons
TBT Agreement	Agreement on Technical Barriers to Trade
UPC	Universal Product Code
USFDA	United States Food and Drug Administration
USITC	United States International Trade Commission
Vienna Convention	Vienna Convention on the Law of Treaties, Done at Vienna, 23 May 1969, 1155 UNTS 331; 8 International Legal Materials 679
WCPO	Western and Central Pacific Ocean
WLS	Weighted least squares
WTO	World Trade Organization

1 INTRODUCTION

1.1 Prior proceedings

1.1. The present arbitration proceedings arise in the dispute initiated by Mexico concerning the United States' labelling regime for tuna products[1] (referred to in this Decision as the Tuna Measure).

1.2. On 13 June 2012, the Dispute Settlement Body (DSB) adopted the original Appellate Body report in this dispute, together with the report of the original panel as modified by the Appellate Body. In so doing, the DSB adopted the Appellate Body's finding that the Tuna Measure at issue in the original proceedings (the original Tuna Measure)[2] was inconsistent with Article 2.1 of the Agreement on Technical Barriers to Trade (TBT Agreement).[3]

1.3. On 2 August 2012, Mexico and the United States informed the DSB that additional time was required to discuss a mutually agreed reasonable period of time for the United States to implement the recommendations and rulings of the DSB.[4] On 17 September 2012, Mexico and the United States informed the DSB that they had agreed on a reasonable period of time of 13 months from 13 June 2012. The reasonable period of time expired on 13 July 2013.[5] On 9 July 2013, the United States published in its *Federal Register* a legal instrument entitled "Enhanced Document Requirements to Support Use of the Dolphin Safe Label on Tuna Products" (the 2013 Final Rule). According to the United States, the 2013 Final Rule constituted the measure taken to comply with the DSB recommendations and rulings pursuant to Article 21.5 of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU). The United States referred to the Tuna Measure as amended by the 2013 Final Rule as the "amended dolphin safe labelling measure", the "amended tuna measure", or the "amended measure".[6] In this Decision, we refer to this measure as the 2013 Tuna Measure.

1.4. Mexico considered that the 2013 Final Rule failed to bring the United States into compliance with the DSB recommendations and rulings. On 2 August 2013, Mexico and the United States informed the DSB of their Agreed Procedures under Articles 21 and 22 of the DSU.[7] Subsequently, on 14 November 2013, the DSB, at Mexico's request, established a panel under Articles 6 and 21.5 of the DSU, Article 14 of the TBT Agreement, and Article XXIII of the General Agreement on Tariffs and Trade 1994 (GATT 1994). On 14 April 2015 , that panel found that the United States had not brought its measure into compliance, and that the "amended tuna measure" was inconsistent with Article 2.1 of the TBT Agreement and Articles I:1 and III:4 of the GATT 1994.[8] The Appellate Body upheld those findings, albeit largely on the basis of different reasoning.[9] The Appellate Body report

[1] The Dolphin Protection Consumer Information Act of 1990, Section 1385(c)(5), defines the term "tuna product" as a "food item which contains tuna and which has been processed for retail sale, except perishable sandwiches, salads, or other products with a shelf life of less than 3 days" (Exhibit USA-01). Additionally, for purposes of the *United States Code of Federal Regulations*, Title 50, Section 216, "tuna product" means "any food product processed for retail sale and intended for human or animal consumption" containing one of the species of tuna listed in Section 216.24(f)(2)(i) and (ii) of the *United States Code of Federal Regulations*, Title 50, but excluding "perishable items with a shelf life of less than 3 days" (Exhibit USA-02).

[2] The "original Tuna Measure" consisted of: the Dolphin Protection Consumer Information Act of 1990, codified in *United States Code*, Title 16, Section 1385 (DPCIA); *United States Code of Federal Regulations* (CFR) Title 50, Sections 216.91 and 216.92 (the original implementing regulations); and a ruling by a US Federal Appeals Court in *Earth Island Institute v Hogarth*, 494 F.3d 757 (9th Cir. 2007) (*Hogarth* Ruling).

[3] Appellate Body Report, *US – Tuna II (Mexico)*, para. 407(b).

[4] Communication from Mexico and the United States concerning Article 21.3(c) of the DSU, WT/DS381/16).

[5] Agreement under Article 21.3(b) of the DSU, WT/DS381/17).

[6] Panel Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 1.13; Appellate Body Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 6.8.

[7] WT/DS381/19. The parties agreed, *inter alia*, that, in the event that the DSB, following a proceeding under Article 21.5 of the DSU, ruled that a measure taken to comply either did not exist or was inconsistent with a WTO covered agreement, Mexico could request authorization to suspend the application of concessions or other obligations under the covered agreements to the United States pursuant to Article 22 of the DSU, and the United States would not assert that Mexico was precluded from obtaining such authorization on the ground that the request was made outside the 30-day time-period specified in Article 22.6 of the DSU.

[8] Panel Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, paras. 8.2-8.5.

[9] Appellate Body Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 8.1.

and the panel report as modified by the Appellate Body were adopted by the DSB on 3 December 2015.

1.2 Request for arbitration and arbitration proceedings

1.5. On 10 March 2016, Mexico requested authorization from the DSB to suspend concessions to the United States in the amount of USD 472.3 million annually. On 22 March 2016, the United States objected to Mexico's proposed level of suspension. At the DSB meeting of 23 March 2016, the DSB took note that, the United States having objected to Mexico's proposed level of suspension on 22 March 2016, the matter had been referred to arbitration as required by Article 22.6 of the DSU.[10] At the same meeting, the United States informed the DSB that, on 22 March 2016, the US National Oceanic and Atmospheric Administration (NOAA) had issued a new rule modifying the dolphin safe labelling measure (the 2016 Rule). According to the United States, this Rule "directly addressed issues raised by both the Appellate Body and the compliance [p]anel".[11] In this Decision, the Arbitrator refers to the Tuna Measure as modified by the 2016 Rule as the 2016 Tuna Measure.

1.6. The chairperson of the original panel was not available for the arbitration proceedings. On 22 April 2016, Mexico requested the Director-General to appoint a replacement. The Arbitrator was thus composed as follows:

Chairperson:	Mr Stefán Haukur Jóhannesson
Members:	Ms Mary Elizabeth Chelliah Mr Franz Perrez

1.7. An organizational meeting was held on 25 May 2016 to discuss procedural aspects of the arbitration proceedings. After consulting with the parties, on 7 June 2016, the Arbitrator adopted its Working Procedures together with Additional Working Procedures concerning Business Confidential Information (BCI). For the reasons explained below[12], after consulting with the parties, the Arbitrator modified its Working Procedures on 3 August 2016. The Arbitrator adopted a timetable for the proceedings on 14 June 2016. In response to a request by the United States for a preliminary ruling, the Arbitrator, after consulting with the parties, modified the timetable for the proceedings on 18 August 2016.

1.8. In accordance with the timetable and Working Procedures adopted by the Arbitrator, on 6 July 2016, Mexico submitted a communication explaining its methodology for calculating the proposed level of suspension (Mexico's Methodology Paper). The United States filed its written submission, including a request for a preliminary ruling, on 3 August 2016. Mexico filed its written submission, including a response to the United States' request for a preliminary ruling, to the Arbitrator on 31 August 2016. On 7 September 2016, the Arbitrator sent to the parties written questions concerning the United States' request for a preliminary ruling. The Arbitrator also sent written questions concerning the merits of the case to the parties on 14 September 2016. The parties responded to these questions in writing on 30 September 2016.

1.9. The Arbitrator issued its conclusion in respect of the United States' request for a preliminary ruling on 11 October 2016. That conclusion and the reasons underpinning it are set out in Section 3 below.

1.10. The Arbitrator held its substantive meeting with the parties on 25 and 26 October 2016. Prior to the meeting, on 28 September 2016, the Arbitrator had sent additional written questions to the parties. The parties responded to these questions in writing on 9 November 2016. The parties submitted comments on each other's responses on 16 November 2016.

1.11. This Decision is structured as follows. In Section 2, we address two procedural issues, namely the treatment of BCI and the partially open meeting of the Arbitrator with the parties. Section 3 deals with the United States' request for a preliminary ruling concerning the relevant measure, also outlining the Arbitrator's mandate in these proceedings. In Section 4, we examine

[10] WT/DSB/M/376, p. 10.
[11] WT/DSB/M/376, p. 9.
[12] See below, Section 2.

the appropriate counterfactual and time-period for our analysis. Then, in Section 5, we move to the assessment of the proposed level of suspension, examining: (a) Mexico's proposed model for determining the level of nullification or impairment; and (b) the United States' proposed model for determining the level of nullification or impairment. Based on this examination, we proceed to conduct our own assessment of the level of nullification or impairment in Section 6. Our conclusion and decision on the level of suspension of concessions or other obligations is contained in Section 7.

2 PROCEDURAL MATTERS

2.1. In this Section of its Decision, the Arbitrator deals with two procedural matters arising in these proceedings. First, we briefly explain our treatment of BCI. Second, we discuss the United States' request to partially open the Arbitrator's meeting with the parties.

2.1 Treatment of BCI

2.2. At the Arbitrator's organizational meeting held on 25 May 2016, both parties requested that the Arbitrator adopt additional working procedures to protect the confidentiality of BCI submitted in the course of the proceedings. As indicated in the preceding Section, the Arbitrator adopted such additional working procedures on 7 June 2016.

2.3. The Additional Working Procedures of the Arbitrator Concerning Business Confidential Information (Additional Working Procedures) are annexed to this Decision.[13] They (a) define BCI for the purposes of these proceedings[14]; (b) provide that each party shall clearly indicate the presence of BCI in its submissions[15]; and (c) limit access to, and permissible use of, BCI submitted in the course of the proceedings.[16]

2.4. Additionally, paragraph 7 of the Additional Working Procedures provides that "[t]he Arbitrator shall not disclose BCI, in its Decision or in any other way, to persons not authorized under these procedures to have access to BCI". Importantly, the paragraph goes on to state that although the Arbitrator may "make statements of conclusion drawn from such information", the parties shall be provided with an opportunity to ensure that all BCI has been redacted from the Decision prior to its circulation to the WTO membership. This paragraph forms the "legal basis"[17] on which the Arbitrator has redacted statements of BCI from the public version of its Decision. In drafting and redacting this Decision, we have strived to "ensure that an appropriate balance is struck between the need to guard against the risk of harm that could result from the disclosure of particularly sensitive information, on the one hand, and the integrity of the adjudication process … and the rights of and systemic interests of the WTO membership at large, on the other hand".[18] We have also tried to "ensure that the public version of [our Decision] circulated to all Members of the WTO is understandable".[19] Having said that, it is also important to note that the technical nature of these arbitration proceedings has meant that the Arbitrator has had to have reference to evidence classified as BCI more frequently than may be usual in panel proceedings.

2.5. Accordingly, the text of the version circulated to Members is identical to the text of the confidential version issued to the parties, with the exception of passages that disclose BCI. Such passages were replaced by "[[xxx]]".

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[13] Annex A-2.

[14] Paragraph 2 of the Additional Working Procedures defines BCI as "any information that has been designated as such by the party submitting the information and that is not available in the public domain and the release of which could reasonably be considered to cause or threaten to cause harm to an interest of the person or entity that supplied the business information to the party".

[15] Additional Working Procedures Concerning Business Confidential Information, Annex A-2, paras. 3 and 4.

[16] Additional Working Procedures Concerning Business Confidential Information, Annex A-2, para. 5.

[17] Appellate Body Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 5.4.

[18] Appellate Body Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 5.3; Appellate Body Report, *EC and certain member States – Large Civil Aircraft*, Annex III, Procedural Ruling of 10 August 2010, para. 15.

[19] Appellate Body Report, *Japan – DRAMS (Korea)*, para. 279.

2.2 Partially open meeting of the Arbitrator with the parties

2.2.1 Procedural background

2.6. At the Arbitrator's organizational meeting, the United States proposed a change to the working procedures to allow the Arbitrator's substantive meeting to be publicly observed. The United States noted that two prior Article 22.6 arbitrators had already held such meetings, including in a dispute involving Mexico as a party. In the United States' view, meetings opened for public observation enhance understanding of the system and promote confidence in its objectivity and professionalism.

2.7. Mexico indicated that it was not in a position to accept open meetings in this dispute. Mexico recalled that even in those disputes where it did not object to open meetings, it had indicated that this was without prejudice to its systemic position on public observation of meetings in dispute settlement proceedings. Mexico also noted that the meetings in the original and first round of compliance proceedings in this dispute were not open for public observation.

2.8. The United States then indicated that it was not asking the Arbitrator to mandate the opening of the meeting over Mexico's objection. The United States asked instead that the Arbitrator make arrangements to allow the United States to make its statements in public. The United States argued that it was possible for it to disclose its own statements and at the same time to maintain the confidentiality of Mexico's statements.

2.9. Mexico responded that it could not accept that the United States would be allowed to lift the confidentiality of its own statements to the Arbitrator, as the DSU was clear that meetings are confidential, except if all parties agree otherwise. In Mexico's view, the Arbitrator should therefore reject the United States' request.

2.10. Through a joint communication with the parallel compliance panels in this dispute, we informed the parties that we considered ourselves to have the authority to authorize the United States to lift the confidentiality of its statements at the meeting with the parties. We further indicated that any public observation of the meeting would be through delayed viewing (delayed closed-circuit television broadcasting), to ensure that the confidentiality of Mexico's statements would not be breached. The parties were informed that the reasons supporting this determination would be elaborated later by the Arbitrator in its Decision and by the Panels in their Reports.[20]

2.11. After consulting the parties, on 3 August 2016 we made appropriate adjustments to paragraph 3 of our Working Procedures.[21] Invoking that paragraph, the United States requested us to adopt additional working procedures to facilitate the lifting of the confidentiality of the United States' statements at the Arbitrator's meeting. On 18 October 2016, after consulting the parties we adopted additional working procedures on partially open meetings.[22]

2.12. We held our substantive meeting with the parties on 25 and 26 October 2016. After completing the process of redacting the video-recording of the Arbitrator's meeting in accordance with the additional working procedures, at Mexico's request we held a preview screening of the redacted video-recording for the parties on 12 December 2016, which both parties attended. The public broadcast of the redacted video-recording of the Arbitrator's meeting took place on 16 December 2016.

2.2.2 Merits of the United States' request for a partially open meeting

2.13. The Arbitrator notes that this is the first dispute in which a party has requested that a WTO adjudicator organize a partially open meeting with the parties. An identical request was made by the United States in the parallel compliance panel proceedings in this dispute. Much of the exchange between the parties on the merits of the United States' request took place in the context of the compliance panel proceedings. Although the parties did not specifically request that their relevant communications to the compliance panels be incorporated into the arbitration record, it

[20] Panels' and Arbitrator's letter of 29 July 2016.
[21] See Annex A-1.
[22] See Annex A-3.

was clear to the Arbitrator and was understood by the parties that their arguments to the compliance panels would and should be taken into account also by the Arbitrator.[23] For the better understanding of our decision on the United States' request, we therefore provide below a general summary of the parties' respective positions as developed for the most part in the compliance panel proceedings.

2.14. The United States observes that it seeks to exercise its right to disclose to the public its own statements at the Arbitrator's meeting, and that it requests the Arbitrator to facilitate this disclosure by adopting appropriate procedures. The United States submits that its request is supported by the Appellate Body report in *US – Continued Suspension*. According to the United States, the Appellate Body in that dispute agreed that each party has the right to maintain the confidentiality of its own statements and therefore provided each party and third party a possibility to lift the confidentiality of their statements at the Appellate Body's hearing. The United States notes that it is possible to protect Mexico's right to maintain the confidentiality of its statements while also protecting the United States' right to disclose its own statements to the public.

2.15. Mexico considers that Appendix 3 of the DSU applies *mutatis mutandis* to arbitration proceedings and indicates that deliberations must be kept confidential. Mexico recalls in this connection that it was a third party in *US – Continued Suspension*, and that it was among the Members that criticized the approach taken in that dispute at the DSB meeting at which the panel and Appellate Body reports were adopted. Mexico notes that unlike in that dispute, in this dispute there has been no agreement by the parties on holding a public meeting. In Mexico's view, there is in the present dispute a relationship of confidentiality between the parties and the Arbitrator, not between each party and the Arbitrator. Mexico is aware that the United States' request leaves it to each party to decide for itself whether to lift the confidentiality of its statements. Nevertheless, in Mexico's view, proceeding as the United States requests would affect the rights of Mexico and those of other Members that have systemic concerns about open meetings. Mexico submits in this regard that acceding to the United States' request could force other Members to accept open meetings because otherwise only one party's views are ventilated. Mexico suggests that the DSU already gives the United States the possibility to make its statements available on the USTR's website, as is its practice. Mexico considers that the United States' right to disclose its own positions and statements to the public does not have to be exercised through an open meeting. Mexico submits, finally, that the Appellate Body in *EU – Biodiesel (Argentina)* declined the European Union's request to allow public observation of the oral hearing, noting that the other party expressed a preference against doing so.

2.16. Mexico is therefore of the view that the Arbitrator should deny the United States' request for a partially open meeting. Mexico also clarifies that it is not prepared to waive its right to confidentiality and therefore designates all information submitted by it in this dispute as confidential. Mexico considers that all statements and documents are confidential until the Arbitrator's Decision is circulated.

2.17. The Arbitrator begins by noting that numerous WTO adjudicators, including the Appellate Body, panels and Article 22.6 arbitrators, have on request opened meetings with parties for public observation in their entirety, except for any parts of meetings during which BCI was addressed.[24] If a WTO adjudicator has the power to accede to a request to fully open a hearing or meeting with the parties, then *a fortiori* it must in principle also have the power to go less far, including by opening only parts of a meeting with the parties.

2.18. The meetings with parties in previous WTO dispute settlement proceedings that have been opened for public observation in their entirety have been opened with the agreement of all parties. At those fully open meetings, the parties were authorized to disclose not only statements of their own positions, but also statements of the positions of the other party or parties. The situation in the present proceedings is different, however. The United States is seeking authorization to disclose statements of its own positions only.

[23] As indicated, the Arbitrator and compliance panels informed the parties at the same time of their view that they had the power to authorize one party to lift the confidentiality of its statements.

[24] The United States in this dispute is not seeking authorization to disclose BCI to the public. Indeed, the United States has requested the Arbitrator to adopt additional working procedures for the protection of BCI.

2.19. We observe in this regard that, according to Article 18.2 of the DSU, nothing in the DSU precludes a party "from disclosing statements of its own positions to the public".[25] According to the Appellate Body, this provision allows a party to forego confidentiality protection in respect of statements of its own positions.[26] The Appellate Body has further confirmed that Article 18.2 of the DSU covers not just statements in written form, but also oral statements and responses to questions at Appellate Body hearings.[27] The same holds true, in our view, for oral statements and responses given at meetings of panels and Article 22.6 arbitrators. We further observe that Article 18.2 of the DSU does not stipulate that a party may disclose its statements only once, or only after any meetings of a WTO adjudicator with the parties.[28]

2.20. Mexico nevertheless considers that we cannot authorize the United States to forego confidentiality protection in respect of its statements of its own positions, except with Mexico's agreement. Mexico bases this contention on the Appellate Body's procedural ruling in *EU – Biodiesel (Argentina)*.[29] In our view, Mexico's reliance on this procedural ruling is misplaced. In *EU – Biodiesel (Argentina)*, the Appellate Body rejected a unilateral request by the European Union that the Appellate Body conduct a fully open hearing even though Argentina was not supportive of that request.[30] As we have said, this is not the situation we are facing, since the United States in this dispute requests authorization to disclose statements of its own positions, not those of Mexico.[31]

2.21. Mexico further seems to consider that in respect of meetings or hearings, the DSU protects the confidentiality of the relationship between the parties taken as a group and a WTO adjudicator, rather than between each of the parties and a WTO adjudicator. We note, however, that Article 18.2 of the DSU gives each party individually the right to disclose statements of its own positions. Where a fully open meeting is to be held, it is clear that all parties need to request authorization to disclose the statements of their own positions that they wish to make at the meeting. This does not imply, however, that one party can simply veto another party's request that it be authorized to disclose statements of its own positions. Indeed, this is also the approach taken by the Appellate Body in respect of third parties participating in its hearings. Although the Appellate Body has referred to a relationship of confidentiality between "the third participants"[32] and itself, it has authorized those third parties that so wished to lift the confidentiality of their statements at the hearing, despite objections by other third parties.[33] Thus, the Appellate Body did not impose an inflexible "all-or-none" rule for the lifting of confidentiality. In our view, this approach is equally appropriate in respect of the relationship between the parties and a WTO adjudicator. Indeed, it would be incongruous to permit third parties to forego confidentiality protection in respect of their statements (in those disputes where the parties have requested the same) even as other third parties wish to hold on to that protection, but to withhold that same opportunity from a party merely because another party objects to the granting of such an opportunity.

2.22. Mexico has also referred to Article 14.1 of the DSU and Paragraph 3 of Appendix 3 of the DSU, which provide that panel "deliberations" are to be confidential. Although we have no difficulty accepting that these provisions are relevant, at least by analogy, to Article 22.6 of the DSU

[25] We note that the immediate context of Article 18.2 of the DSU suggests that it relates to statements of positions made to panels or the Appellate Body. However, we consider that the provisions of Article 18.2 of the DSU are also applicable, at least by analogy, to the present proceedings under Article 22.6 of the DSU.

[26] Appellate Body Report, *US – Continued Suspension*, Annex IV, paras. 4 and 11.

[27] Appellate Body Report, *US – Continued Suspension*, Annex IV, para. 4.

[28] As we address below, Article 18.2 of the DSU does not mean that we must automatically authorize the United States to disclose to the public an oral statement of its own positions made during our meeting. Indeed, we recall in this respect that even if we were to deny the United States' request, the United States could still exercise its right to disclose statements of its own positions in a different form or on a different occasion.

[29] Mexico refers to Appellate Body Report, *EU – Biodiesel (Argentina)*, Annex D-2 (procedural ruling of 11 July 2016).

[30] Appellate Body Report, *EU – Biodiesel (Argentina)*, Annex D-2, paras. 2 and 3.

[31] We emphasize that we are not suggesting that a fully open meeting could be conducted in the absence of an agreement between the parties. Nor is this the position of the United States in this dispute. Indeed, the United States initially sought Mexico's agreement to conduct a fully open Arbitrator's meeting. When Mexico expressed its opposition, the United States did not pursue its proposal. The United States proceeded instead to request that we allow the United States to disclose statements of its own positions at our meeting.

[32] Appellate Body Report, *US – Continued Suspension*, Annex IV, para. 6.

[33] Appellate Body Report, *US – Continued Suspension*, Annex IV, paras. 1 and 11.

proceedings, we do not agree that they imply that the United States cannot be authorized to lift the confidentiality of its statements. These provisions relate to a panel's internal work, not the meetings with the parties and third parties.[34] Moreover, just like the Appellate Body, panels have authorized third parties that so wished to lift the confidentiality of their statements even as some third parties objected.[35] This approach necessarily assumes that Article 14.1 of the DSU does not prescribe closed panel meetings with parties or third parties.

2.23. In our view, the confidentiality of panel meetings is covered by Paragraph 2 of Appendix 3 of the DSU, which says that panels shall meet in closed session. However, this paragraph forms part of those provisions from which panels may depart pursuant to Article 12.1 of the DSU, after consulting the parties and provided that such departure is not contrary to another provision of the DSU.[36] In any event, Paragraph 2 in our view does not preclude a party or third party from foregoing confidentiality protection for its statements at a meeting, provided that another party or other third parties can maintain confidentiality protection for their statements. Indeed, as already explained, this is the approach followed by those panels that held partially open third party sessions. We consider that Paragraph 2, when applied by analogy, permits the same approach in the present proceedings with regard to the parties.

2.24. In the light of the foregoing, we consider that in principle we have the power to authorize the United States to disclose statements of its own positions (but not those of Mexico) to the public through a partially open Arbitrator's meeting, even if Mexico opposes the United States' request. However, it does not follow that we must automatically grant the United States' request. We thus turn to set out below the main considerations that underpin our decision to grant the United States' request in these proceedings.

2.25. Although the United States has an autonomous right to disclose statements of its own positions to the public, that right is not absolute. In the context of this dispute, it notably finds its limitation in Mexico's right *not* to have statements of its own positions disclosed by the United States during any public parts of the Arbitrator's meeting.[37] Mexico indicated in this regard that it wished to maintain the confidentiality of its own positions and information submitted to the Arbitrator. It is therefore necessary to provide for a review process prior to any public viewing of a partially open meeting, to allow the Arbitrator and the parties to ensure that any statements disclosed by the United States do not inadvertently disclose, directly or indirectly, statements of Mexico's positions. It follows from these considerations that we can authorize the United States to disclose in a partially open meeting only those parts of its statements that do not disclose statements of Mexico's positions, and that we must therefore reserve the right to appropriately redact the statements that the United States wishes to be open for public observation.[38]

2.26. A further limitation arises from the requirements of due process. These requirements mean that all parties must be given the opportunity to lift the confidentiality of statements of their own positions at partially open meetings. In these proceedings, Mexico chose not to avail itself of that opportunity. Further, the implementation of any additional working procedures for partially open meetings, including the associated redaction process, must not impair the ability of any party that opposes partially open meetings to present its case or defence effectively.

2.27. We note, in addition, Mexico's argument that if a partially open meeting is conducted, viewers will by definition be exposed to only one party's statements. In our view, however, this does not compromise due process. First, a party that does not wish its statements at a WTO adjudicator's meeting to be open for public observation is not thereby deprived of the possibility to otherwise disclose statements of its positions to the public. More importantly, Article 18.2 of the

[34] We note that in *US – Continued Suspension*, the Appellate Body used the term "deliberations" in the same sense, in relation to the internal work of the Appellate Body. Appellate Body Report, *US – Continued Suspension*, Annex IV, para. 8. See also Panel Report, *US – Continued Suspension*, para. 7.49.

[35] See, for instance, *US – Tax Incentives*, para. 1.20; *Canada — Feed-In Tariff Program/Canada – Renewable Energy*, para. 1.9; *US – COOL (Article 21.5 – Canada and Mexico)*, para. 1.10; and *US – Continued Zeroing*, para. 1.9.

[36] Panel Report, *US – Continued Suspension*, paras. 7.46-7.47.

[37] Consistent with paragraph 1.1(c) of our Additional Working Procedures on Partially Open Meetings, we use the term "positions" in this Section of our Decision to encompass also the exhibits submitted and the arguments put forward by a party.

[38] We note that this type of redaction is already routinely undertaken in open meetings whenever the statements made by the parties or third parties address BCI.

DSU already allows each party to disclose statements of its own positions to the public independently of whether another party does the same. A partially open meeting thus does not create a new situation. The media, for instance, can (and does) already report to the public based on statements of only one party's positions where only that party has made available its statements on its government's website. Finally, we recall that in disputes where the meetings with the parties were opened for public observation, both the Appellate Body and panels have authorized third parties that so wished to lift the confidentiality of their statements at the relevant hearing or third-party session. Under this practice, it is accepted that viewers of those meetings are exposed to the views of only some third parties, even though the Appellate Body and panels are required to take all third parties' views into account.[39]

2.28. Another factor that in our view should be taken into account when assessing a request for a partially open meeting is the importance, articulated in Article 3.3 of the DSU, of the prompt settlement of disputes. This suggests to us that the conduct of a partially open meeting should not significantly delay a WTO adjudicator's proceedings. In our view, one way to fulfil this objective is to devise additional working procedures governing partially open meetings that put appropriate emphasis on workability and efficiency.

2.29. In addition, we must bear in mind our primary duty, which is to carefully assess the matter before us and resolve the dispute between the parties. Partially open meetings impose a greater burden on a WTO adjudicator than fully open meetings, owing to the need to make sure that there is no disclosure of statements of any party that wishes to maintain the confidentiality of its statements. In deciding whether to authorize a request for a partially open meeting, it therefore appears appropriate that a WTO adjudicator assess at the outset whether it has access to the requisite resources, in technical, logistical and human terms, to conduct a partially open meeting and any associated redaction process. Otherwise, the conduct of a partially open meeting could potentially have an adverse impact on the proper discharge of the adjudicative function and could thus also be detrimental to due process or the prompt settlement of disputes.

2.30. We note, finally, the Appellate Body's view that any authorization to forego the confidentiality protection for statements of a party's or third party's positions must not undermine the integrity of the adjudicative function. The Appellate Body has already clarified in this regard that the mere fact of permitting public observation of a meeting does not have an adverse impact on the integrity of the adjudicative function.[40]

2.31. In sum, it is in our view permissible for a WTO adjudicator to authorize a request for a partially open meeting if the conduct of such a meeting does not impair or interfere with (a) a non-disclosing party's right to confidentiality protection of statements of its own position, (b) due process, (c) the prompt settlement of disputes, or (d) the careful and efficient discharge, or the integrity, of the adjudicative function. Beyond that, we consider that it falls within the sound discretion of each WTO adjudicator considering a request for a partially open meeting to decide whether it is appropriate in the particular circumstances of its case to accede to that request.[41] We observe in this respect that the rejection of such a request by a WTO adjudicator would not in and of itself deprive the requesting party of its right to disclose statements of its own positions to the public, since it would still have available to it other ways of exercising that right.

2.32. Guided by the foregoing considerations, in the present proceedings we devised additional working procedures in consultation with the parties that we think fully protect Mexico's right to confidentiality protection, satisfy the requirements of due process, and are sufficiently workable and efficient to safeguard the promptness of dispute settlement and the proper discharge and integrity of our adjudicative function.[42]

2.33. In granting the United States' request we notably also took into account the following three circumstances. First, the present dispute concerns the protection of dolphins and thus a conservation-related measure. In this kind of dispute, even a partially open meeting is apt to

[39] See, for instance, Article 10.1 of the DSU.
[40] Appellate Body Report, *US – Continued Suspension*, Annex IV, paras. 7 and 10.
[41] See Appellate Body Report, *EC – Hormones*, para. 154.
[42] See Annex A-3, in particular paras 3.4, 4.1-4.9.

enhance understanding of, and confidence in, the WTO dispute settlement process.[43] Second, there was in these proceedings only one relatively short substantive meeting with the Arbitrator that was requested to be partially opened for public observation. Third, the parallel conduct of a second round of compliance panel proceedings in this dispute required the assembly of a substantial Secretariat support team. We were thus in a position where we could conduct a partially open meeting and carry out the associated redaction process without this compromising our substantive work.

2.34. On the basis of these considerations, we therefore concluded that in the particular circumstances of this case it was, on balance, appropriate for us to accept the United States' request that it be permitted to disclose through public viewing the statements of its own positions made during the Arbitrator's meeting. Our authorization was subject to the dual condition that the public viewing take the form of delayed (rather than simultaneous) viewing, and that any parts of the meeting opened for public observation not disclose statements of Mexico's positions and hence be subject to redaction prior to the public viewing as necessary.

3 UNITED STATES' REQUEST FOR A PRELIMINARY RULING CONCERNING THE RELEVANT MEASURE

3.1 Procedural background

3.1. On 3 August 2016, the United States submitted, in its written submission to the Arbitrator, a request for a preliminary ruling. The request concerned Mexico's identification of the 2013 Tuna Measure as the proper basis for the Arbitrator's assessment of the level of nullification or impairment.

3.2. Mexico responded to the United States' request for a preliminary ruling in its own written submission to the Arbitrator, which it filed on 31 August 2016. Additionally, after consulting with the parties, the Arbitrator modified its timetable on 18 August 2016 to provide for additional submissions from the parties on the issues raised by the United States' request. Pursuant to this modification, the Arbitrator sent questions to the parties concerning the United States' request on 7 September 2016. The parties responded to these questions in writing on 14 September 2016. The parties submitted comments on each other's responses on 21 September 2016. Additionally, the United States and Mexico each provided additional comments on the request for a preliminary ruling on 21 and 28 September 2016 respectively.

3.3. On 11 October 2016, the Arbitrator issued its conclusion on the United States' request for a preliminary ruling. The Arbitrator indicated that it would provide the reasons supporting its conclusion at the end of the proceedings, in the Arbitrator's Decision. The Arbitrator also indicated that both the conclusion and the reasons supporting it would form an integral part of the Arbitrator's Decision in this matter.[44]

3.2 Issue

3.4. In its first written submission, the United States requested the Arbitrator to make a preliminary ruling that the relevant measure for the purposes of these arbitration proceedings is the Tuna Measure as amended by the 2016 final rule (i.e. the 2016 Tuna Measure), rather than the 2013 Tuna Measure. According to the United States, Mexico has effectively asked the Arbitrator to determine some past level of nullification or impairment, and therefore seeks authorization to suspend concessions regardless of whether there is currently (i.e. under the 2016 Tuna Measure) any nullification or impairment. In the view of the United States, this approach has no legal basis, and indeed is contrary to the relevant provisions of the DSU.[45]

[43] The United States indicated that it was pursuing these objectives in requesting the opening of our meeting. We also note in this connection that in our additional working procedures, at paragraph 4.2, we have sought to avoid unnecessary discontinuity in the delayed viewing by inviting the United States to structure its statements in such a way as to separate those statements that disclose statements of positions of Mexico. See Annex A-3.

[44] Communication from the Arbitrator, para. 1.1.

[45] United States' written submission, paras. 42 and 50.

3.5. Mexico requests the Arbitrator to reject the United States' request for a preliminary ruling. According to Mexico, the Arbitrator should use the 2013 Tuna Measure to calculate the level of nullification or impairment. In Mexico's view, it would be neither legally permissible nor systematically desirable to use the 2016 Tuna Measure.[46] Additionally, Mexico argues that the United States' request represents an effort to "improperly conflate the Arbitrator's mandate in this Article 22.6 arbitration with the claims at issue in the second round of Article 21.5 proceedings" that are being held in parallel.[47]

3.6. The Arbitrator notes that the question raised by the United States' request is whether, in these proceedings, the Arbitrator should assess the level of nullification or impairment caused by the 2013 or the 2016 Tuna Measure. As this issue bears directly on our mandate, and as it raises certain issues about Article 22.6 of the DSU that has not been directly ruled on by any previous arbitrator, a detailed examination is in order.

3.3 Text and context of Article 22.6 of the DSU

3.7. The Arbitrator begins its analysis by looking at the text and context of Article 22.6 of the DSU, which is the provision under which the United States has brought these arbitration proceedings.[48]

3.8. Article 22.6 of the DSU relevantly provides as follows:

> When the situation described in paragraph 2 occurs, the DSB, upon request, shall grant authorization to suspend concessions or other obligations within 30 days of the expiry of the reasonable period of time unless the DSB decides by consensus to reject the request. However, if the Member concerned objects to the level of suspension proposed, or claims that the principles and procedures set forth in paragraph 3 have not been followed where a complaining party has requested authorization to suspend concessions or other obligations pursuant to paragraph 3(b) or (c), the matter shall be referred to arbitration.

3.9. Other paragraphs of Article 22 of the DSU form part of the immediate context of Article 22.6 and are therefore also relevant to our analysis. Article 22.1 of the DSU relevantly provides that:

> Compensation and the suspension of concessions or other obligations are temporary measures available in the event that the recommendations and rulings are not implemented within a reasonable period of time.

3.10. Article 22.2 of the DSU, to which explicit reference is made in the first sentence of Article 22.6, provides as follows:

> If the Member concerned fails to bring the measure found to be inconsistent with a covered agreement into compliance therewith or otherwise comply with the recommendations and rulings within the reasonable period of time determined pursuant to paragraph 3 of Article 21 [of the DSU], such Member shall, if so requested, and no later than the expiry of the reasonable period of time, enter into negotiations with any party having invoked the dispute settlement procedures, with a view to developing mutually acceptable compensation. If no satisfactory compensation has been agreed within 20 days after the date of expiry of the reasonable period of time, any party having invoked the dispute settlement procedures may request authorization from the DSB to suspend the application to the Member concerned of concessions or other obligations under the covered agreements.

3.11. Article 22.4 of the DSU provides that:

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[46] Mexico's written submission, para. 4.

[47] Mexico's written submission, para. 19.

[48] Pursuant to Article 3.2 of the DSU, we are required to apply the customary rules of interpretation of public international law. We must therefore interpret DSU provisions in accordance with the ordinary meaning to be given to their terms in their context and in the light of the object and purpose of the relevant treaty. See e.g. Appellate Body Report, *Canada – Patent Term*, para. 54.

> The level of the suspension of concessions or other obligations authorized by the DSB shall be equivalent to the level of the nullification or impairment.

3.12. Article 22.7 of the DSU relevantly provides that:

> The arbitrator acting pursuant to paragraph 6 shall not examine the nature of the concessions or other obligations to be suspended but shall determine whether the level of such suspension is equivalent to the level of nullification or impairment.

3.13. Finally, Article 22.8 of the DSU relevantly provides that:

> The suspension of concessions or other obligations shall be temporary and shall only be applied until such time as the measure found to be inconsistent with a covered agreement has been removed, or the Member that must implement recommendations or rulings provides a solution to the nullification or impairment of benefits, or a mutually satisfactory solution is reached.

3.14. According to the United States, Articles 22.4 and 22.7 of the DSU make clear that an arbitrator is to determine whether there is equivalence between the proposed level of suspension and the level of nullification or impairment at the time the DSB authorizes the suspension of concessions, rather than whether the proposed level of suspension is equivalent to the level of nullification or impairment caused by a past measure or at some point in the past. In support of this view, the United States refers to the phrasing of Article 22.4 of the DSU, noting in particular the use of an imperative command ("shall be") in relation to "the" level of nullification. The United States also emphasizes that neither Article 22.4 nor Article 22.7 of the DSU refers to a past period of time. In the view of the United States, if the Members of the WTO had intended the level of nullification or impairment to be fixed at a specific point in the past, such as the expiry of the reasonable period of time (RPT), the text would have specified the relevant point in time.[49]

3.15. The United States further submits that Article 22.8 of the DSU provides contextual support for its view that the relevant measure in an arbitration proceeding is that version of the measure that exists at the time of the arbitration and the suspension of concessions, rather than the version that existed at some earlier point in time. According to the United States, the issue under Article 22.8 is the measure as it currently exists, if indeed a measure does still exist, and not some measure that existed in the past.[50]

3.16. Mexico disagrees with the United States' text-based arguments. According to Mexico, the United States interprets Articles 22.4 and 22.7 of the DSU in isolation from the other provisions of Article 22. In Mexico's view, a proper, holistic reading of Article 22 of the DSU makes clear that the procedures provided for in that Article all flow from the same triggering event, that is, the failure of a Member to come into compliance with adverse DSB recommendations and rulings within the applicable deadline. In Mexico's view, this fact leads to the conclusion that the measure at issue in arbitration proceedings is the measure that existed at the expiry of the applicable deadline, in this case, the expiry of the RPT on 13 June 2013.[51]

3.17. Additionally, in response to the United States' argument that Article 22.7 of the DSU contains no reference to a past period of time, Mexico notes that Article 22.7 refers to the principles and procedures set forth in Article 22.3 that a complaining Member must apply in considering what concessions or other obligations to suspend in case of the responding Member's non-compliance with adverse DSB recommendations and rulings. Mexico observes that Article 22.3(a) sets forth the general principle that the complaining party should first seek to suspend concessions or other obligations with respect to the same sector(s) as that in which the panel or Appellate Body has found a violation or other nullification or impairment. According to Mexico, this wording explicitly addresses a past situation, rather than a present one, and clearly links the suspension of concessions to the nullification or impairment found by a panel or the Appellate Body sometime in the past, i.e. prior to the suspension.[52]

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[49] United States' written submission, paras. 43-45; response to Arbitrator question No. 2.
[50] United States' written submission, para. 45.
[51] Mexico's comments on the United States' response to Arbitrator question No. 6.
[52] Mexico's comments on the United States' response to Arbitrator question No. 6.

3.18. The Arbitrator notes the text of Article 22.6 of the DSU, which states that "[w]here the situation in paragraph 2 [of Article 22] occurs", the DSB shall, within 30 days of the expiry of the reasonable period of time, grant authorization to suspend concessions. Article 22.6 of the DSU further stipulates that if the Member against whom suspension of concessions is sought objects to the proposed level of suspension, the matter "shall be referred to arbitration". The text of Article 22.6 does not specify which measure should form the basis of the request for, or authorization of, suspension of concessions. The text of Article 22.6, therefore, at least when read in isolation, does not clearly support either the United States' or Mexico's position.

3.19. Given that Article 22.6 of the DSU explicitly refers to "the situation" described in Article 22.2, that latter provision clearly provides relevant context for the interpretation of Article 22.6. To recall, the text of Article 22.2 provides in relevant part that in a situation where a Member fails to bring a measure previously found by to be inconsistent with the covered agreements into compliance therewith, and where no satisfactory compensation is agreed within 20 days of the expiry of the applicable RPT, the complaining Member may request authorization from the DSB to suspend concessions or other obligations. The "situation" referred to in Article 22.6 thus occurs where (a) a Member has failed to bring a measure into compliance with the covered agreements before the expiry of the applicable RPT; and (b) the parties have failed to agree on satisfactory compensation.

3.20. Read together, Articles 22.2 and 22.6 of the DSU thus establish that a complaining Member may seek authorization to suspend concessions in situations where the responding Member has failed, within the RPT, to bring into conformity a measure that has previously been found to be inconsistent with the covered agreements. It is therefore the continued WTO-inconsistency of the original or a compliance measure (where a compliance measure was taken within the RPT) at the time the RPT expires that forms the basis for any request for authorization to suspend concessions.[53] In turn, a request for authorization to suspend concessions typically triggers a request for arbitration under Article 22.6. There is thus a close connection between an Article 22.6 arbitration and the WTO-inconsistent original measure, or a WTO-inconsistent compliance measure, which existed at the time of expiry of the RPT. Or to put it another way, the origin of, and impetus for, arbitration proceedings under Article 22.6 can be traced back to a WTO-inconsistent measure that existed when the RPT expired, which is either the same original measure that has previously been found to be WTO-inconsistent or a WTO-inconsistent compliance measure taken subsequently (but prior to the expiry of the RPT).

3.21. As noted above, Article 22.4 of the DSU provides that "[t]he level of the suspension of concessions or other obligations authorized by the DSB shall be equivalent to the level of the nullification or impairment". We do not read either the reference to "the" level of the suspension of concessions or the use of the phrase "shall be" as indicating that an arbitrator's assessment must be based on the most recent version of the measure in question. Indeed, the unqualified reference to "the level of the nullification or impairment" must be interpreted taking into account the surrounding paragraphs of Article 22 of the DSU, and in particular Article 22.2, which by implication refers to the original or a compliance measure that existed at the time of expiry of the RPT. Consequently, and bearing in mind the principle in Article 3.8 of the DSU that "[i]n cases where there is an infringement of the obligations assumed under a covered agreement, the action is considered *prima facie* to constitute a case of nullification or impairment", the reference in Article 22.4 to "the level of the nullification or impairment" must in our view be construed to mean the level of nullification or impairment caused by the WTO-inconsistent original or compliance measure[54] that existed at the time of expiry of the RPT.[55]

3.22. Additionally, Article 22.3 of the DSU, and in particular Article 22.3(a), supports our interpretation of Article 22.6. As Mexico notes, Article 22.3(a), which concerns what concessions or other obligations may be suspended, provides that "the complaining party should first seek to

[53] This is also confirmed by Article 22.1, whose first sentence provides that "[c]ompensation and suspension of concessions or other obligations are temporary measures available in the event that the recommendations and rulings [in respect of the relevant original or compliance measure] are not implemented within a reasonable period time".

[54] By "WTO-inconsistent original or compliance measure", we mean a measure that is the subject to adverse DSB recommendations and rulings.

[55] In our view, the same interpretation must be given to Article 22.7. Thus, we consider that the "level of nullification or impairment" referred to in Article 22.7 is the level of nullification or impairment caused by the WTO-inconsistent original or compliance measure that existed at the time of expiry of the RPT.

suspend concessions or other obligations with respect to the same sector(s) as that in which the panel or Appellate Body has found a violation or other nullification or impairment". This provision closely links past findings concerning the inconsistency of a measure and a Member's right to suspend specific concessions or other obligations. It requires, as a default rule, identity between the sector(s) affected by the nullification or impairment caused by a WTO-inconsistent measure and the sector(s) in which a Member requests to suspend concessions or other obligations. It is therefore clear to us that the measure that forms the basis of a Member's request to suspend concessions is the WTO-inconsistent original or compliance measure that existed at the time of expiry of the RPT.

3.23. The United States contends that Article 22.8 of the DSU provides support for its interpretation of Article 22.6. We note, however, that Article 22.8 refers to a stage in the WTO dispute settlement process that is reached, if at all, after an Article 22.6 arbitrator has completed its task (if an arbitration has been requested). It is true that Article 22.8 sets out an ongoing obligation on a Member that has suspended concessions to terminate the suspension as soon as the measure found to be inconsistent has been removed or an alternative solution has been reached. In that sense, Article 22.8 is concerned with the "present"[56] situation and hence with the most recent compliance measure that may be in place. But Article 22.8 does not suggest or imply that, in determining the permissible level of suspension of concessions, an arbitrator should look to the most recent version of the measure in question that exists at the time that an Article 22.6 arbitration is initiated. Moreover, our interpretation of Article 22.6 sits comfortably with Article 22.8 of the DSU. As we see it, Article 22.8 serves to ensure that if and when the WTO-inconsistent original or compliance measure that existed at the time of expiry of the RPT is removed – and the responding Member may do this, for instance, by adopting a new compliance measure – any suspension of concessions applied by the complaining Member will be terminated.

3.24. In sum, our view is that, when read in the light of its context, the text of Article 22.6 of the DSU mandates an arbitrator to assess the level of nullification or impairment caused by the WTO-inconsistent original measure (where no compliance measure was subsequently taken), or a subsequent WTO-inconsistent compliance measure, that was in existence at the time of expiry of the RPT. This measure may or may not be the most recent version of the relevant measure.

3.25. In the present proceedings, the measure to which this interpretation directs us is the 2013 Tuna Measure, and not the 2016 Tuna Measure. The 2016 Tuna Measure is not yet subject to any panel or Appellate Body findings, and so it is not a measure that has been found to be WTO-inconsistent. Moreover, the 2013 Tuna Measure, not the 2016 Tuna Measure, was the version of the Tuna Measure in force at the time the RPT expired. Accordingly, the 2016 Tuna Measure could not and did not bring the Tuna Measure into compliance by the time the RPT expired, and it therefore should not form the basis of the Arbitrator's assessment of the level of nullification or impairment in these proceedings.

3.4 Previous arbitration decisions

3.26. The United States argues that its request for a preliminary ruling is supported also by the findings of previous arbitrators.

3.27. Mexico argues that the decisions cited by the United States are "inapposite".[57]

3.28. The Arbitrator notes that the United States cited to three arbitration decisions in support of its position: *EC – Bananas III*, *US – Upland Cotton*, and *Brazil – Aircraft*. We will consider each of these cases to determine whether they support an interpretation of Article 22.6 that is different to the one we have outlined above.

3.29. We begin with the arbitrator's decision in *EC – Bananas III*. According to the United States, this decision confirms that the task of an arbitrator acting under Article 22.6 is to look at the measure in question as it currently exists, and not the measure in some earlier form. In particular, the United States refers to the following passage from the arbitrator's decision:

[56] United States' written submission, para. 45.
[57] Mexico's written submission, Section II.C.

> [W]e could resort to the option of measuring the level of nullification or impairment on the basis of our findings in the original dispute, as modified by the Appellate Body and adopted by the DSB. To do that would mean to ignore altogether the undisputed fact that the European Communities has taken measures to revise its banana import regime. That is certainly not the mandate that the DSB has entrusted to us.[58]

3.30. In the United States' view, this statement indicates that the arbitrator assessed the level of nullification or impairment caused by the most recent version of the measure at issue, even though an earlier version of the measure had been ruled on by the panel and Appellate Body.[59]

3.31. Mexico rejects the United States' interpretation of the arbitration decision in *EC – Bananas III*. It argues that the particular dilemma faced by the arbitrator in that case does not arise in the present proceedings, and accordingly the Arbitrator in the present proceedings should not follow the approach in that case. In particular, Mexico notes that unlike in the present proceedings, in *EC – Bananas III* the compliance panel proceedings on the amended version of the measure at issue[60] had not yet been resolved when the matter was referred to arbitration.[61] This, in the view of the arbitrator in that case, raised a serious concern, because "authorization by the DSB of the suspension of concessions or other obligations presupposes the existence of a failure to comply with the recommendations or rulings contained in panel and/or Appellate Body reports as adopted by the DSB".[62] In the absence of such adverse DSB recommendations and rulings, the arbitrator decided to take upon itself the task of determining preliminarily the WTO-consistency of the amended measure before calculating the level of nullification or impairment that it caused.[63] In Mexico's view, such an approach is inappropriate where, as in the present dispute, adverse DSB recommendations and rulings concerning the United States' failure to comply already exist. According to Mexico, the Arbitrator should base its calculations on the measure that is the subject of those existing adverse DSB recommendations and rulings.[64]

3.32. We agree with Mexico that the circumstances in *EC – Bananas III* were different to those we face in these proceedings. Most importantly, in *EC – Bananas III* the arbitrator faced a situation where it might have had to determine the level of nullification or impairment in the absence of DSB recommendations and rulings that the European Communities had failed to bring its measure into compliance within the applicable RPT. This, according to the arbitrator, would have put the arbitrator in a difficult position because "we cannot fulfil our task to assess the *equivalence* between the two levels before we have reached a view on whether the revised EC regime is, in light of our and the Appellate Body's findings in the original dispute, fully WTO-consistent".[65] In other words, the arbitrator considered that an analysis of the WTO-consistency of the measure taken to comply was a prerequisite to the assessment of the level of nullification or impairment, because if the measure taken to comply had in fact brought the European Communities into compliance within the RPT, there would, legally speaking, have been no nullification or impairment to assess. Accordingly, the arbitrator decided that it would analyse the WTO-consistency of the measure taken to comply, and only then, if it found that measure to be WTO-inconsistent, proceed to assess the level of nullification or impairment caused by that measure.

3.33. In adopting this approach, the arbitrator emphasized that the DSB, when referring the matter to arbitration, noted that there "remains the problem of how the Panel and the Arbitrators would coordinate their work", and charged the arbitrator with finding "a logical way forward".[66]

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[58] Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.7.

[59] United States' written submission, para. 46.

[60] In *EC – Bananas*, two compliance panels, one requested by the European Communities and one requested by Ecuador – were established on 12 January 1999. On 14 January 1999, the United States requested the DSB to authorize it to suspend concessions against the European Communities under Article 22 of the DSU. At the DSB meeting held on 25 January-1 February 1999, the European Communities objected to the level of suspension proposed by the United States on the ground that it was not equivalent to the level of nullification or impairment of benefits suffered by the United States and claimed that the principles and procedures set out in Article 22.3 of the DSU had not been followed. In response, the DSB decided on 29 January 1999, prior to the conclusion of the compliance panel proceedings, to submit the matter to arbitration of the original panel in accordance with Article 22.6 of the DSU.

[61] Mexico's written submission, para. 31.

[62] Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.4.

[63] Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.8.

[64] Mexico's written submission, para. 31.

[65] Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.8.

[66] Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.9.

The arbitrator stated that its decision to analyse the WTO-consistency of the measure taken to comply was, in its view, the most logical way forward.[67]

3.34. We are not faced with the "problem" identified by the DSB in *EC – Bananas III*, and accordingly do not consider it necessary or appropriate to follow the approach devised by the arbitrator in that case as a "logical" solution. Unlike in *EC – Bananas III*, the present arbitration takes place in response to DSB recommendations and rulings that the 2013 Tuna Measure failed to bring the United States into compliance within the RPT. There is therefore no uncertainty in this case regarding whether the measure taken by the United States within the RPT to comply with its WTO obligations – the 2013 Tuna Measure – is WTO-inconsistent. Consequently, we do not find ourselves in a situation where we must either analyse ourselves the WTO-consistency of the 2013 Tuna Measure or else "ignore altogether"[68] the fact that the United States revised its Tuna Measure in 2013.

3.35. The fact that the United States has since made further changes to the Tuna Measure (so that it now constitutes the 2016 Tuna Measure) does not place us in a situation comparable to that in *EC – Bananas III*. The mere fact that the United States has made additional changes to the Tuna Measure is not sufficient grounds for concluding that the United States has come into compliance.[69] Rather, we agree with Mexico that the existing adverse DSB recommendations and rulings remain in effect until such time as there are new, overriding panel and/or Appellate Body findings that have been adopted by the DSB or a mutually agreed solution has been notified to the DSB.[70] Moreover, the decision in *EC – Bananas III* in our view does not stand for the proposition that every time a responding Member adopts a new compliance measure and asserts compliance while arbitration proceedings under Article 22.6 are underway, the arbitrator must analyse the WTO-consistency of the new measure. A careful review of the facts and circumstances surrounding that arbitration decision reveals that at most it can support the proposition that such an analysis may be warranted if there have been no prior DSB recommendations and rulings that the responding Member has failed to bring itself into compliance within the RPT. As explained, in this case, there have been such adverse DSB recommendations and rulings.

3.36. In sum, unlike in *EC – Bananas III*, the DSB in this case has already determined that the measure taken by the United States to comply (the 2013 Tuna Measure) is WTO-inconsistent. Because of these existing adverse DSB recommendations and rulings, the issue does not arise in this case whether as arbitrators acting under Article 22.6 we could and should undertake our own evaluation of the WTO-consistency of the 2013 Tuna Measure. Further, there are (as yet) no overriding panel and/or Appellate Body findings that have been adopted by the DSB, or a notified mutually agreed solution, concerning the 2016 Tuna Measure that could have affected the continued validity of the adverse DSB recommendations and rulings concerning the 2013 Tuna Measure. We therefore conclude that the arbitrator's decision in *EC – Bananas III* does not support the United States' view that we should base our assessment on the 2016 Tuna Measure.

3.37. We now turn to the arbitrator's decision in *US – Upland Cotton*. According to the United States, the arbitrator in that case rejected a request by Brazil as the complaining party for authorization to take countermeasures in relation to a measure that had been withdrawn before the arbitration proceedings (but after the expiry of the RPT), reasoning that such an authorization would necessarily exceed the current level of nullification or impairment. In the United States' view, Mexico's position that the proper basis for the Arbitrator's assessment is the 2013 Tuna

[67] Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.9.
[68] Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.7.
[69] Appellate Body Report, *US – Continued Suspension*, para. 317.
[70] In support of this position, Mexico relies on the Appellate Body's statement in *US – Continued Suspension* that "until the removal of the European Communities' inconsistent measure was determined through WTO dispute settlement, the United States' and Canada's authorization to suspend concessions did not lapse" (Appellate Body Report, *US – Continued Suspension*, para. 403). The United States argues that this statement is irrelevant, because the Appellate Body in that case was addressing the situation where the DSB had already authorized the suspension of concessions and the issue was at what point that DSB authorization would terminate. Although the United States is correct that the Appellate Body in *US – Continued Suspension* did not address the specific issue before us, in our view similar considerations apply with respect to DSB recommendations and rulings concerning the WTO-inconsistency of a measure taken to comply. Thus, just as a statement by a Member that it has come into compliance does not cause the expiry of an existing DSB authorization to suspend concessions (see Appellate Body Report, *US – Continued Suspension*, para. 317), so also such a statement would not affect the continued validity of DSB recommendations and rulings concerning the WTO-inconsistency of a measure taken to comply.

Measure "directly contravenes" the approach taken by the arbitrator in that case because the 2013 Tuna Measure was withdrawn and replaced by the 2016 Tuna Measure.[71]

3.38. Mexico argues that the decision in *US – Upland Cotton* is not relevant to these arbitration proceedings. In particular, Mexico notes that, in that case, the United States withdrew the WTO-inconsistent "Step 2 subsidy" after the expiry of the RPT but prior to the compliance panel proceedings and subsequent arbitration under Article 22.6 of the DSU. Mexico observes that the compliance panel declined to make a finding in respect of this withdrawn subsidy, and that accordingly there were never any DSB recommendations or rulings pursuant to Article 21.5 that the United States had failed to bring the Step 2 subsidy into compliance. In Mexico's view, the situation in the present proceedings is completely different: here, there exist clear DSB recommendations and rulings pursuant to Article 21.5 that the United States failed to bring its Tuna Measure into compliance prior to the expiry of the RPT.

3.39. In our view, the situation facing the arbitrator in *US – Upland Cotton* was markedly different to the one we face. In *US – Upland Cotton*, Brazil agreed that the Step 2 subsidy had been withdrawn by the United States, albeit after the expiry of the RPT.[72] Accordingly, it was undisputed that, by the time of the compliance proceedings, which preceded the arbitration proceedings, the subsidy had been withdrawn. Brazil sought a finding from the compliance panel that the United States had acted inconsistently with the covered agreements by failing to withdraw the subsidy prior to the expiry of the RPT, but it did not argue that the subsidy continued to exist.[73]

3.40. In the present dispute, the United States argues that the 2013 Tuna Measure is no longer in existence.[74] Mexico, however, has never conceded that the Tuna Measure has ceased to exist. To the contrary, it argues that the Tuna Measure continues to exist and, in its 2016 version, remains inconsistent with the covered agreements. It is pursuing its claims in respect of the 2016 Tuna Measure in compliance panel proceedings. Accordingly, a central circumstance that was present in *US – Upland Cotton* – the agreement by the parties that the Step 2 subsidy had ceased to exist prior to the compliance panel proceedings, albeit after the expiry of the RPT – is not present in the dispute before us.

3.41. Further, as Mexico notes, the compliance panel in *US – Upland Cotton* decided not to make any findings concerning the period between the expiry of the RPT and the withdrawal of the Step 2 subsidy.[75] Brazil did not appeal that decision.[76] Accordingly, there were no adverse DSB recommendations and rulings pursuant to Article 21.5 of the DSU with respect to the Step 2 subsidy.[77] In the absence of such recommendations and rulings, the arbitrator in *US – Upland Cotton* found that there was no "legitimate basis" for the imposition of countermeasures in respect of that measure. Additionally, the arbitrator found that, because it was undisputed that the Step 2 subsidy had been withdrawn, it would be inappropriate to authorize the suspension of concessions given that the purpose of such suspension is precisely to induce compliance.[78]

3.42. In the present dispute, we are not faced with the same situation. There are adverse DSB recommendations and rulings in respect of the measure taken by the United States to comply, i.e. the 2013 Tuna Measure. Additionally, there is no agreement between the parties that the Tuna Measure has subsequently been brought into compliance, nor are there any more recent panel and/or Appellate Body findings that have been adopted by the DSB. The adverse DSB recommendations and rulings covering the 2013 Tuna Measure therefore continue to provide a valid basis for the suspension of concessions. Consequently, we do not find it appropriate to follow the approach taken by the arbitrator in *US – Upland Cotton* in respect of the Step 2 Subsidy.

3.43. Finally, we turn to the arbitrator's decision in *Brazil – Aircraft*. The United States observes that in that case, the arbitrator found that it needed to take into account the results of the separate, ongoing compliance proceedings under Article 21.5 of the DSU before it could reach a

[71] United States' written submission, para. 46.
[72] Panel Report, *US – Upland Cotton (Article 21.5 – Brazil)*, paras. 9.57 and 9.65.
[73] Panel Report, *US – Upland Cotton (Article 21.5 – Brazil)*, para. 9.57.
[74] United States' written submission, para. 42; United States' response to Arbitrator question No. 1; United States' comments on Mexico's responses to Arbitrator questions.
[75] Panel Report, *US – Upland Cotton (Article 21.5 – US I)*, para. 9.71.
[76] Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US I)*, para. 3.20.
[77] Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US I)*, para. 3.20.
[78] Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US I)*, para. 4.62.

conclusion under Article 22.6. According to the United States, the same approach should be adopted by the Arbitrator in the present proceedings.[79]

3.44. Mexico rejects the United States' reliance on *Brazil – Aircraft*. According to Mexico, in that case, as in *EC – Bananas III*, there were no prior adverse DSB recommendations and rulings pursuant to Article 21.5 in respect of the measure taken to comply. Rather, Mexico observes, the arbitration and the first round of compliance proceedings ran in parallel. It is in that context that the arbitrator decided to take the outcome of the compliance panel proceedings into account in its assessment of the level of nullification or impairment.[80]

3.45. We agree with Mexico that the facts in *Brazil – Aircraft* were similar to those in *EC – Bananas III*, inasmuch as there were no existing adverse DSB recommendations and rulings pursuant to Article 21.5 at the time the arbitrator began its work. There were therefore no existing recommendations and rulings on whether the responding party had failed to bring its measure into compliance before the expiry of the RPT, which failure, as we have explained above, is the event that allows the complaining party to have recourse to the procedures in Article 22 of the DSU.

3.46. To recall, in the present dispute there are existing DSB recommendations and rulings that the United States failed to bring its measure into compliance prior to the end of the RPT. Moreover, as we mentioned above, given that Mexico contests the United States' claim that the 2016 Tuna Measure brought the United States into compliance, the DSB recommendations and rulings that the 2013 Tuna Measure failed to bring the United States into compliance within the RPT continue to provide a valid basis for the suspension of concessions and hence remain relevant for purposes of these arbitration proceedings.

3.47. For the reasons given above, we consider that the arbitration decisions cited by the United States do not support the United States' position. Those decisions dealt with circumstances that were different from those in this dispute. Notably, they dealt with circumstances in which there were no DSB recommendations and rulings that the responding party had failed to bring its measure into compliance within the reasonable period of time. Consequently, we conclude that the decisions cited by the United States do not contradict our text-based interpretation of Article 22.6.

3.5 Additional considerations

3.48. Both parties raise a number of additional issues concerning the proper interpretation of Article 22.6 of the DSU and its application in this dispute. These issues are: (a) the possible systemic consequences of granting the United States' request for a preliminary ruling; (b) whether denying the United States' request for a preliminary ruling would result in the authorization of a punitive or retroactive suspension of concessions; (c) the relevance of the bilateral sequencing agreement agreed between Mexico and the United States; and (d) the date on which the 2016 Tuna Measure entered into force, and the legal relevance of that fact. The Arbitrator will consider these issues in turn.

3.5.1 Possible systemic consequences of granting the United States' request

3.49. Mexico argues that granting the United States' request for a preliminary ruling would render Article 22 of the DSU ineffective.[81] According to Mexico, an Article 22.6 arbitration that is based on the DSB recommendations and rulings on a preceding round of Article 21.5 proceedings must not be influenced or delayed by the claims and issues before a new Article 21.5 compliance panel established to determine the WTO-consistency of a new compliance measure. Otherwise, the result would be an endless loop that could indefinitely preclude the right to suspend concessions or other obligations pursuant to Article 22. In Mexico's view, a Member maintaining a WTO-inconsistent measure could then delay the resolution of a meritorious complaint by introducing amendments each time the complaining Member sought to enforce its rights under Article 22 following a round of Article 21.5 proceedings. This, in Mexico's view, would render Article 22 meaningless.[82]

[79] United States' written submission, paras. 52-53.
[80] Mexico's written submission, para. 33.
[81] Mexico's written submission, para. 19.
[82] Mexico's written submission, para. 27; letter to the Arbitrator of 3 June 2016.

3.50. The United States submits that, in a situation like the one envisaged by Mexico where there is an Article 22.6 arbitration and a new compliance measure, one option would be to allow the threshold issue of compliance to be resolved through compliance panel proceedings before any assessment of the level of nullification or impairment. The United States points out, however, that the issue of compliance could also be resolved by an arbitrator acting under Article 22.6 of the DSU. Thus, modifications made to a measure could be taken into account by the arbitrator, and would not necessarily require that the arbitration be delayed until the end of additional compliance proceedings under Article 21.5 of the DSU.[83]

3.51. Mexico responds that nothing in the DSU authorizes an arbitrator to deal with compliance issues, and that to allow an arbitrator to address such questions could affect the rights and obligations of WTO Members, because, for example, arbitrations are not subject to appeal.[84]

3.52. The Arbitrator notes that the existence of Article 21.5 as a separate provision suggests that generally, compliance issues should be dealt with separately from the assessment of the level of nullification or impairment, by a compliance panel. Nevertheless, in at least one previous dispute, an arbitrator acting under Article 22.6 has considered issues of compliance in the course of assessing the level of nullification or impairment.[85] As we have explained, however, the circumstances facing that arbitrator were unusual, and the arbitrator itself stated that it would consider issues of compliance in view of the DSB's specific request that it find a "logical way forward".[86] We have already pointed out above that our circumstances are different. Notably, we are not in a situation where we either have to analyse the WTO-consistency of the 2016 Tuna Measure, or else be prepared to make an assessment of the level of nullification or impairment in the absence of DSB recommendations and rulings that the United States had failed to bring its Tuna Measure into compliance within the applicable RPT. We therefore do not consider it appropriate in this dispute to follow the approach taken by that other arbitrator.

3.53. With respect to the systemic concern expressed by Mexico, we think it is valid. As Mexico notes, the interpretation of Article 22.6 of the DSU advocated by the United States seems to imply that whenever a compliance measure subject to adverse DSB recommendations and rulings is further modified and the responding party claims to have come into compliance, and an Article 22.6 arbitration is subsequently conducted, a new assessment of compliance becomes necessary before the DSB can authorize any suspension of concessions. If, in a situation such as ours where an Article 22.6 arbitration is conducted, new compliance panel proceedings under Article 21.5 needed to be undertaken every time a measure already found to be inconsistent at the expiry of the RPT were modified and compliance was claimed, this could very substantially delay, and in theory effectively thwart, a complaining party's efforts towards obtaining DSB authorization to suspend concessions. This is because it would then presumably be necessary to delay or suspend an Article 22.6 arbitration until after completion of compliance proceedings. If, following such proceedings, there were new adverse panel and/or Appellate Body findings that were adopted by the DSB, the arbitration would resume, subject to possible further delay if yet another modification of the measure occurred in the meantime and compliance were claimed. Such an outcome would not, in our view, be consistent with the DSU's objectives of preserving the rights of Members[87], including complaining Members, and promoting the prompt settlement of disputes.[88]

3.54. Besides the general systemic concern about the United States' interpretation of Article 22.6, we note that Mexico has in any event firmly opposed any delay to the arbitration proceedings or their suspension until the completion of the parallel compliance panel proceedings.

3.55. In the light of the foregoing, it is in our view appropriate in the circumstances of this dispute to undertake a prompt assessment of the level of nullification or impairment on the basis of the 2013 Tuna Measure and leave the analysis of the WTO-consistency of the 2016 Tuna Measure to the two compliance panels established to undertake that precise task.

[83] United States' response to Arbitrator question No. 3; letter to the Arbitrator of 3 June 2016, paras. 10 and 19.
[84] Mexico's comments on the United States' response to Arbitrator question No. 3.
[85] Decision of the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*.
[86] See above, para. 3.33.
[87] Article 3.2 of the DSU.
[88] Article 3.3 of the DSU.

3.5.2 Whether denying the United States' request for a preliminary ruling would result in the authorization of a retroactive or punitive suspension of concessions

3.56. The United States argues that denying its request for a preliminary ruling could result in the Arbitrator's Decision leading to the DSB authorizing a suspension of concessions that is retroactive and/or punitive. The United States argues that this is so because, if the Arbitrator based its assessment on the 2013 Tuna Measure, it would be ignoring the fact that the 2016 Tuna Measure is, in the United States' view, WTO-consistent and therefore does not cause any nullification or impairment. According to the United States, nothing in the DSU allows such retroactive or punitive remedies.[89]

3.57. As the Arbitrator has noted, the WTO-consistency of the 2016 Tuna Measure is not an issue that will be analysed in these proceedings, and accordingly the Arbitrator takes no position on the United States' argument that the 2016 Tuna Measure causes no nullification or impairment. We would note, though, that even if the United States were correct on that point, this would not mean that, in assessing the nullification or impairment caused by the 2013 Tuna Measure, we would be inviting the DSB to authorize retroactive or punitive remedies.

3.58. What Mexico seeks in these arbitration proceedings is a prospective remedy, in response to the United States' failure to implement the adverse DSB recommendations and rulings regarding the 2013 Tuna Measure, that extends from the date of the expiry of the RPT. Mexico does not seek a retroactive remedy that extends from a date prior to the expiry of the RPT. The fact that Mexico is only now requesting authorization to suspend concessions, some three years after the expiry of the RPT, is due to the interference in the timeline of the first compliance proceedings and Mexico's agreement, pursuant to the United States-Mexico Sequencing Agreement, not to request authorization to suspend concessions until after those compliance proceedings. That delay, however, does not turn Mexico's request into a request for retroactive remedies properly-so-called, since Mexico is still only seeking to retaliate as from the date when the United States should have come into compliance.

3.59. Nor do we agree that Mexico is seeking authorization to suspend concessions in a punitive manner. As we understand the United States' argument, a punitive remedy would be one where, contrary to Article 22.4 of the DSU, a Member suspends concessions at a level higher than the level of nullification or impairment caused by the relevant measure. However, consistent with Article 22.4 of the DSU, Mexico in these proceedings is seeking to impose a level of suspension that it considers is "equivalent" to the level of nullification or impairment caused by the 2013 Tuna Measure. We have already explained the reasons why we believe that this Measure is the appropriate basis for our assessment of the level of nullification or impairment.

3.60. In this connection, we observe that, because of the existence of parallel compliance panel proceedings concerning the 2016 Tuna Measure, it is conceivable that, after Mexico has received DSB authorization to suspend concessions on the basis of this Decision, the compliance panels may find that the 2016 Tuna Measure brings the United States into compliance. If (following any appeal) the DSB were to adopt that finding, Mexico pursuant to Article 22.8 of the DSU would need to promptly terminate any suspension of concessions that it might have applied after receiving the DSB's authorization in these proceedings. Mexico itself acknowledges this.[90] A DSB finding that the 2016 Tuna Measure brought the United States into compliance would not, however, render any preceding suspension of concessions retroactive, since the relevant point of reference is, as noted, the date of expiry of the RPT, and not the date on which the 2016 Tuna Measure was put in place. Nor would such a DSB finding render any preceding suspension of concessions punitive, because that DSB finding of WTO-consistency would itself have effect only from the date of its own adoption.

3.61. Finally, we note the United States' observation that once the DSB has granted authorization for a particular level of suspension, there is no mechanism to modify that level to take account of the results of subsequent compliance proceedings.[91] In making this point, the United States seems to envisage a situation where the outcome of the compliance proceedings is that the 2016 Tuna

[89] United States' comments on Mexico's responses to Arbitrator questions.
[90] Mexico's written submission, para. 42; response to Arbitrator question No. 11.
[91] United States' comments on Mexico's responses to Arbitrator questions.

Measure is WTO-inconsistent, but causes less nullification or impairment than the 2013 Tuna Measure.[92]

3.62. We note that we do not face the situation envisaged by the United States. As we see it, our task in these proceedings is limited to assessing the level of nullification or impairment caused by the 2013 Tuna Measure, and we cannot speculate about the outcome of the second round of compliance panel proceedings in this dispute. We therefore do not find it either necessary or appropriate to further address the issue identified by the United States.[93]

3.5.3 Relevance of the sequencing agreement between Mexico and the United States

3.63. Both parties have made reference in their arguments to the bilateral sequencing agreement between Mexico and the United States.[94] Neither party, however, has alleged a violation of that agreement. In particular, the United States has not suggested that proceeding with these arbitration proceedings on the basis of the 2013 Tuna Measure would somehow breach the sequencing agreement.[95] Accordingly, in the Arbitrator's view, it is not necessary in these proceedings either to interpret that agreement or to consider whether we would have jurisdiction over any claim thereunder.

3.5.4 The date on which the 2016 Tuna Measure entered into force, and the legal relevance of that fact

3.64. Finally, we note that both parties have made arguments and responded to questions concerning the date of entry into force of the 2016 Tuna Measure. The parties disagree about whether that Measure was in force at the time this dispute was referred to arbitration.[96]

3.65. In the Arbitrator's view, it is not necessary in these proceedings to determine whether the 2016 Tuna Measure was in force when this dispute was referred to arbitration. Even if, as the United States contends, the 2016 Tuna Measure was in force when this dispute was referred to arbitration, that would not modify our conclusion that the measure on which we should base our assessment of the level of nullification or impairment is the 2013 Tuna Measure. As we have explained above, it was through the 2013 Tuna Measure that the United States failed to come into compliance with its WTO obligations before the expiry of the RPT. That first compliance measure is the subject of still valid adverse DSB recommendations and rulings. Moreover, there is no agreement between the parties that the 2016 Tuna Measure has brought the United States into compliance.[97] In these circumstances, the date of entry into force of the 2016 Tuna Measure does not affect the outcome of our assessment of the level of nullification or impairment.

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[92] We observe that, at least in principle, the situation envisaged by the United States could also be inverted: Article 21.5 proceedings could result in a finding that a new compliance measure causes more nullification or impairment than a previous one. In such circumstances, the issue raised by the United States – whether and how it would be possible to adjust the authorized level of suspension – could also arise.

[93] We note our agreement with the United States that the DSU does not explicitly address whether and how it would be possible to adjust the authorized level of suspension or the applied level of suspension. A detailed interpretative analysis would therefore be warranted. Any such analysis should in our view begin by examining whether it is correct to assume, as the United States appears to do, that a downward adjustment of the level of suspension would be required if a second compliance panel proceeding confirmed that a new compliance measure taken by the responding Member presents fewer WTO-inconsistent aspects than a previous compliance measure and thus achieves partial (but still only partial) compliance, and therefore presumably causes a lower level of nullification or impairment. We take no position on this issue.

[94] WT/DS381/19.

[95] The United States has noted that the sequencing agreement does not bind the Arbitrator. United States' letter to the Arbitrator of 3 June 2016, fn. 6.

[96] United States' written submission, para. 48; response to Arbitrator question Nos. 14 and 15; Mexico's written submission, para. 26; response to Arbitrator question Nos. 14 and 15.

[97] In our view, if for instance a compliance measure subject to adverse DSB recommendations and rulings were subsequently withdrawn, and if such withdrawal were recognized by the complaining party as having brought the responding party into compliance and removed the nullification or impairment caused, then the date of that withdrawal, and particularly whether it was effected before or after an Article 22.6 arbitration, may be a factor for an Article 22.6 arbitrator to consider.

3.6 Conclusion

3.66. For all of the reasons given above, the Arbitrator concludes that the relevant measure for the purposes of these arbitration proceedings is the 2013 Tuna Measure, which is the subject of specific adverse DSB recommendations and rulings. We therefore reject the United States' request for a preliminary ruling that we find the relevant measure to be the 2016 Tuna Measure.

3.67. What we must and therefore will assess in the present Article 22.6 arbitration is the level of nullification or impairment caused by the 2013 Tuna Measure. As already noted, we will not determine the WTO-consistency of the 2016 Tuna Measure (even if we could do so), nor will we assess the level of nullification or impairment (if any) caused by the 2016 Tuna Measure.

4 THE APPROPRIATE COUNTERFACTUAL AND TIME-FRAME

4.1. Having dealt with a number of preliminary issues, the Arbitrator now turns to the merits of these arbitration proceedings. We recall that our task is to determine whether the level of suspension of concessions requested by Mexico is equivalent to the level of nullification or impairment caused by the 2013 Tuna Measure. We begin our analysis by assessing the appropriate counterfactual on the basis of which we should base our calculation of the nullification or impairment.

4.1 The appropriate counterfactual

4.2. As mentioned in Section 3 above, our mandate under Article 22.7 of the DSU is to determine whether the proposed level of suspension of concessions is equivalent to the level of nullification or impairment sustained by Mexico as a result of the United States' failure to bring the Tuna Measure into compliance.[98] To discharge this mandate, we will first have to determine the level of nullification or impairment caused by the 2013 Tuna Measure, which was the measure existing at the time of the expiry of the RPT, and then compare that to the level of suspension of concessions proposed by Mexico.

4.3. Neither Article 22.6 nor any other provision of the DSU prescribes a particular methodology for the determination of the level of nullification or impairment. Conceptually, the level of nullification or impairment caused by the United States' failure to comply with the DSB recommendations and rulings represents the difference between the value of trade (if any) in Mexican tuna products that occurred despite the WTO-inconsistent US measure, typically calculated for one year, and the value of trade that would have occurred, over the course of one year, had the United States complied with the DSB recommendations and rulings. The key issue, therefore, is how to determine what the value of Mexico's exports of tuna products to the United States would have been, over the course of one year, had the United States complied with the DSB recommendations and rulings by the expiry of the RPT.

4.4. It is well established that it is for the responding party to choose how to implement DSB recommendations and rulings.[99] Consequently, there is no prescribed manner of complying; the responding party may choose to withdraw the measure at issue in its totality or appropriately modify its WTO-inconsistent aspects. The implication of this principle for Article 22.6 arbitration proceedings is that the arbitrator does not always know what form implementation would have taken had the responding party implemented the DSB recommendations and rulings. As a result, in past arbitration proceedings, arbitrators have found it necessary to base their decisions on a so-called "counterfactual". In this context, a counterfactual refers to a hypothetical scenario that describes what would have happened in terms of trade flows had the responding party implemented the DSB recommendations and rulings.[100]

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[98] Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 4.5*;* Decision by the Arbitrator, *US – Gambling (Article 22.6 – US),* para. 2.6.

[99] Appellate Body Report, *US – Oil Country Tubular Goods Sunset Reviews (Article 21.5 – Argentina)*, para. 184.

[100] A counterfactual approach was used in several past arbitration proceedings. In *EC – Bananas III*, the arbitrator compared the value of relevant EC imports from the United States under the actual banana import regime with their value under a hypothetical WTO-consistent regime (a "counterfactual" situation). (Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 7.1). In *Canada – Aircraft (Article 22.6 –*

4.5. Prior dispute settlement practice establishes that the legal standard that a scenario must meet for it to constitute an appropriate counterfactual for purposes of Article 22.6 proceedings is that of *plausibility* and *reasonability*. In *US – Gambling*, for instance, the arbitrator emphasized that it was important for the counterfactual to reflect accurately the nature and scope of the benefits that were being nullified or impaired by the measure at issue.[101] The arbitrator observed that a counterfactual does not necessarily need to reflect the most likely compliance scenario, as counterfactuals always involve an inherent degree of uncertainty because they represent a hypothetical scenario.[102] The counterfactual should, however, reflect at least a plausible or "reasonable" compliance scenario.[103]

4.6. In the present arbitration proceedings, Mexico initially proposed a counterfactual under which the WTO-inconsistent discrimination caused by the 2013 Tuna Measure would be eliminated.[104] In Mexico's view, this counterfactual could manifest itself in two ways (hereafter Mexico's "two scenarios").

a. In one scenario, the United States would eliminate the disqualification of tuna caught by setting on dolphins from the dolphin-safe label such that Mexican tuna products would not be treated differently from tuna products of any other country.[105] Under this scenario, Mexican tuna products would qualify for the US dolphin-safe label.

b. In the other scenario, the United States would apply the same eligibility criteria, certification requirements, and tracking and verification requirements to all tuna, regardless of where it is harvested. Mexico contends that, under this scenario, the majority of tuna products from all countries, including Mexico and the United States, would not be eligible for the dolphin-safe label.[106]

4.7. The United States proposed a different counterfactual. Its counterfactual assumes that the Tuna Measure would be withdrawn. The United States underlined in this regard that it is up to the responding party to decide how to implement DSB recommendations and rulings. The United States further pointed out that past arbitrators have indicated that the normal counterfactual for calculating the level of nullification or impairment is withdrawal of the measure.[107]

4.8. Although the parties initially proposed counterfactuals that were not the same, later in the proceedings, Mexico stated that "[t]he counterfactual proposed by the United States – withdrawal of the measure entirely – is consistent with removing the discrimination", and explained that "provided that reasonable assumptions and projections are used, Mexico would accept the U.S. counterfactual under which the [T]una [M]easure is withdrawn."[108]

4.9. We note that both parties agree that the withdrawal of the Tuna Measure would constitute an appropriate counterfactual. For our part, we also consider that withdrawal of the measure is an appropriate counterfactual in these proceedings, for two reasons. First, as mentioned, in most past Article 22.6 arbitrations, the counterfactual used was the withdrawal of the WTO-inconsistent measure.[109] Second, the withdrawal of the Tuna Measure would indisputably be WTO-consistent.

Canada), the arbitrator noted how past arbitrators had used a "counterfactual approach", comparing the existing situation with that which would have occurred "had implementation taken place as of the expiration of the reasonable period of time". (Decision by the Arbitrator, *Canada — Aircraft Credits and Guarantees (Article 22.6 – Canada)*, para. 3.21). In *EC – Hormones*, the arbitrator based its analysis on what the complaining party's exports of the relevant product to the responding party would have been had the latter withdrawn the measure at the end of the RPT. (Decision by the Arbitrator, *EC – Hormones (Canada) (Article 22.6 – EC)*, para. 38). In the recent *US – COOL* arbitration, the arbitrator also decided to use a counterfactual that assumed that the COOL measure was withdrawn at the end of the RPT. (Decision by the Arbitrator, *US – COOL (Article 22.6 – US),* para. 6.32).

[101] Decision by the Arbitrator, *US – Gambling* (Article 22.6 – US), para. 3.25.

[102] Decision by the Arbitrator, *US – Gambling* (Article 22.6 – US), paras. 3.26.

[103] Decision by the Arbitrator, *US – Gambling* (Article 22.6 – US), paras. 3.27.

[104] Mexico's methodology paper, para. 19.

[105] Mexico's written submission, para. 47.

[106] Mexico's written submission, para. 50.

[107] United States' written submission, para. 69.

[108] Mexico's opening statement at the substantive meeting with the parties, para. 8.

[109] In *US – COOL*, the arbitrator's counterfactual assumed that the COOL measure was withdrawn at the end of the RPT. (Decision by the Arbitrator, *US – COOL (Article 22.6 – US),* para. 6.32). In *US – Gambling*, the

4.10. On the basis of these considerations, we decide to base our calculation of the level of nullification or impairment caused by the 2013 Tuna Measure on a counterfactual under which the 2013 Tuna Measure has been withdrawn by the time of the expiry of the RPT. In other words, as part of our assessment of the level of nullification or impairment, we will determine what the value of Mexico's exports of canned yellowfin to the United States would have been, over the course of one year, had the United States withdrawn the 2013 Tuna Measure at the expiry of the RPT.

4.2 The appropriate time-frame

4.11. Having identified the appropriate counterfactual for the calculation of the level of the nullification or impairment, we now proceed to examine the time-frame that will form the basis of that calculation.

4.12. Mexico argues that the Arbitrator should look at the short-term impact of the counterfactual.[110] The United States also finds the short-term assessment to be appropriate[111], although it argues that Mexico's model reflects a hybrid time-frame that is somewhere between short-term and long-term.[112]

4.13. We note that it is undisputed between the parties that it is appropriate to assess the counterfactual on a short-term basis. We also note that there seems to be no disagreement between the parties on what a short-term assessment entails. It is understood to be an assessment covering a time-period within which the process of adjustment by producers, consumers and owners of factors of production to the withdrawal of the 2013 Tuna Measure has not been fully completed. Accordingly, any investments that canneries could be assumed to make in the long-term in response to the withdrawal of the 2013 Tuna Measure are not taken into account in a short-term assessment.[113]

4.14. There is no rule in the DSU prescribing the time-frame for the determination of the level of nullification or impairment. Past Article 22.6 arbitration decisions indicate that the period of time for the arbitrator's determination of the level of nullification or impairment is usually the period that follows the end of the RPT.[114] In this regard, we also share the parties' view that a short-term assessment of the withdrawal of the 2013 Tuna Measure would be appropriate in these proceedings. In our view, the impact of the withdrawal of the Measure would be best captured in the period immediately following the withdrawal. Developments in the long-run would be less likely to be linked to withdrawal.

4.15. However, the parties disagree on specific one-year period for which we should calculate the level of nullification or impairment. Mexico contends that the appropriate period would be the first

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arbitrator did not find it unreasonable to assume that compliance might have been achieved through the removal of the specific source of discrimination identified by the Appellate Body. (Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.58). In *US – Offset Act (Byrd Amendment)*, the arbitrator's core rationale was that the trade effect of the measure could be estimated to be the nullification or impairment that the requesting parties have suffered as a result of the measure not having been withdrawn. (For instance, Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*, para. 3.147). In *Canada – Aircraft Credits and Guarantees*, the arbitrator stated that the key issue was whether the withdrawal of subsidies by Canada by 20 May 2002, i.e. the date of the expiry of the reasonable period of time, would have resulted in a change in Air Wisconsin's future purchases. (Decision by the Arbitrator, *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, para. 3.22). In *US – FSC*, the arbitrator decided to assess the proposed suspension of concessions at the time the United States should have withdrawn the prohibited subsidy at issue, in 2000. (Decision by the Arbitrator, *US – FSC (Article 22.6 – US)*, para. 2.15). In *EC – Hormones (US)*, the arbitrator estimated what the annual prospective US exports of hormone-treated beef products to the European Communities would have been if the latter had withdrawn the ban. (Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 38).

[110] Mexico's written submission, para. 111.

[111] United States' response to Arbitrator question No. 60.

[112] United States' response to Arbitrator question No. 60.

[113] Mexico's written submission, para. 111; United States' response to Arbitrator question No. 60..

[114] In *US – COOL*, the arbitrator decided to follow a counterfactual under which the COOL measure was withdrawn at the end of the RPT. (Decision by the Arbitrator, *US – COOL (Article 22.6 – US),* para. 6.32). Also, the arbitrator in *US – Upland Cotton* found that the choice of marketing year 2005, which represented the first moment at which the United States should have removed the adverse effects of the subsidies or withdrawn the subsidies, was in principle appropriate. (Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II),* para. 4.118).

full calendar year following the expiry of the RPT, i.e. 2014.[115] The United States contends that it would be more appropriate to use the most recent data available, which is from calendar year 2015.[116] The United States argues that since there has been a consistent trend of declining tuna consumption in the United States over the past 15 years, any calculation based on 2014 data would overstate the level of nullification or impairment.[117] In the United States' view, in determining the appropriate one-year period, the Arbitrator should also take into account for which period the available data would provide the most accurate determination of the level of nullification or impairment, and would best capture the state of the canned tuna market.[118] According to the United States, the Arbitrator should therefore base its determination on calendar year 2015, because there is better data available for that year.[119]

4.16. Mexico responds that the trends described by the United States in consumption and production have no immediate relevance to the calculation of the level of nullification or impairment.[120] Mexico also argues that the United States has not established that 2014 is an inappropriate period for assessing the level of nullification or impairment.[121]

4.17. In our view, given that 2014 is the calendar year that immediately follows the expiry of the RPT, it is the most appropriate one-year period to assess the short-term impact of the withdrawal of the 2013 Tuna Measure. With regard to the United States' argument that data is lacking for 2014, we note that the parties have submitted a significant amount of data for both 2014 and 2015. In particular, for 2014, there are many exhibits providing information on retail sales of tuna products in the US market.[122] Moreover, overall, we have received more data for 2014 than for 2015.

4.18. As for the United States' argument that the year 2014 is "unrepresentative" because of the decline in the consumption of tuna products, we agree with Mexico that whether or not 2014 is representative against the background of a long-term trend is not necessarily relevant to our task in these proceedings. Our task is to assess the level of nullification or impairment caused by the United States' failure to bring the 2013 Tuna Measure into compliance by the expiry of the RPT. Consistent with the views of the parties, we do this by assessing, *inter alia*, the impact in the short-term that the withdrawal of that Measure by the end of the RPT would have had. Seen in this light, 2014 is plainly the first full year that follows the expiry of the RPT and for which data is available. We also note that the United States should have been in compliance during all of 2014. We do not therefore agree that assessing the level of nullification or impairment caused over the course of that year could properly be said to overstate the level of nullification or impairment caused by the United States' failure to come into compliance by the expiry of the RPT.

4.19. The United States claims that no event occurred that made the year 2015 unrepresentative of the level of nullification or impairment caused by the 2013 Tuna Measure.[123] However, we consider that the evidence on the record does not point to any particular event that makes the year 2014 inappropriate for assessing the level of nullification or impairment.

4.20. In the light of the foregoing, we conclude that it is appropriate in these proceedings to assess the level of nullification or impairment caused by the 2013 Tuna Measure for the year 2014, which is the year immediately following the expiry of the RPT given to the United States to comply with the DSB recommendations and rulings.

[115] Mexico's methodology paper, para. 16; Mexico's written submission, para. 136.
[116] United States' response to Arbitrator question No. 59; written submission, para. 5.
[117] Ibid.
[118] United States' response to Arbitrator question No. 135.
[119] According to the United States, the most detailed data on prices on the record – Exhibit MEX-15, the US exhibits based on Exhibit MEX-15, Exhibit USA-144 (on import prices of canned yellowfin and other canned tuna in the EU), and Exhibit USA-10 (BCI) cover 2015 (as well as 2014). See United States' response to Arbitrator question No. 135.
[120] Mexico's written submission, para. 138.
[121] Mexico's comments on United States' response to Arbitrator question No. 135.
[122] See, for example, Exhibits USA-175, USA-38 (BCI) and USA-41 (BCI).
[123] United States' response to Arbitrator question No. 135.

5 PROPOSED MODELS FOR ASSESSING THE LEVEL OF NULLIFICATION OR IMPAIRMENT

5.1. In the preceding Section, we determined that the counterfactual on which we should base our calculation of the level of nullification or impairment is the withdrawal of the Tuna Measure. We have also explained that the time-frame for our analysis should be the 2014 calendar year. We now turn to the economic model that we should use to calculate the export value Mexico would have enjoyed in the counterfactual situation, that is, had the Tuna Measure been withdrawn prior to the expiry of the RPT. Precisely because the model will influence our calculation of how much tuna Mexico *would* have exported had the Tuna Measure been brought into compliance by the expiry of the RPT, our choice of economic model is crucial.

5.2. In this Section, we will review the economic model proposed by Mexico. We will then consider the model proposed by the United States. In doing so, we will first describe the models proposed by each party. We will then critically consider the reasonableness of the assumptions underlying those models, based on the evidence before us. Once we have discussed and analysed both models, we will determine whether we are able to use either of these models as the basis for our calculations, or whether we need to develop an alternative model of our own to calculate the nullification or impairment caused by the 2013 Tuna Measure.

5.1 Mexico's proposed model for determining the level of nullification or impairment

5.1.1 Description of Mexico's model

5.3. Mexico maintains that the annual level of nullification or impairment caused by the 2013 Tuna Measure, measured by the estimated amount of export losses to Mexico, is USD 472.3 million.[124] This amount results from calculations based on a calibrated partial equilibrium model of the US and Mexican canned tuna markets.[125] In short, Mexico's model consists of a set of equations purporting to describe the market for canned tuna in the United States and Mexico by defining (a) the demand for canned tuna in the United States and Mexico, respectively, (b) the supply of canned tuna in the United States and Mexico, respectively, and (c) the market equilibrium conditions in the US and Mexican markets for canned tuna.[126]

5.4. Mexico's model separates the canned tuna products into two groups, namely, "generic tuna" and "yellowfin". "Generic tuna" is considered to be a composite category that covers all canned tuna currently offered for sale in the US market. This includes mainly skipjack, with albacore and tongol also being commonly offered for sale. The model assumes that generic tuna is of lower quality than yellowfin.[127] The model therefore also assumes that if canned generic tuna and canned yellowfin were offered at the same price, a large majority of consumers would purchase canned yellowfin rather than canned generic tuna.[128]

5.5. In Mexico's model, the demand for canned tuna in the US market is derived by aggregating individual consumer demand for yellowfin and generic tuna. In the model, consumer preferences are modelled using a choice model, which, in Mexico's view, is standard in economics.[129] When parameterizing the demand for yellowfin and generic tuna, Mexico assumes that (a) half of all US consumers are willing to pay more than a USD 2/kg premium for yellowfin over generic tuna and half are willing to pay less; (b) Mexican and US consumers have the same preferences; and (c) the intensity of demand is the same for yellowfin and generic tuna (that is, at a given price, consumers buy the same total amount of canned tuna independently of whether they prefer yellowfin or generic tuna). Mexico contends that the demand for canned tuna is calibrated using a "conservative approach"[130] under which it is assumed that the mean willingness to pay for yellowfin is lower than the premium currently observed.[131]

[124] Mexico's methodology paper, para. 17.
[125] Mexico's methodology paper, para. 27.
[126] Mexico's methodology paper, paras. 20-40; Exhibit MEX-02, pp. 4-27.
[127] Mexico's methodology paper, para. 32.
[128] Mexico's methodology paper, para. 35.
[129] Mexico's methodology paper, para. 35.
[130] Mexico's methodology paper, para. 36.
[131] Mexico's methodology paper, para. 36.

5.6. With regard to the supply of generic tuna, in its baseline model, Mexico assumes that world supply of generic tuna is infinitely elastic.[132] As for Mexico's supply of canned yellowfin, it is perfectly elastic up to a certain quantity and then becomes perfectly inelastic, reflecting that Mexico's capacity to can yellowfin tuna is fixed in the short-run. In this regard, Mexico notes that in 2014 Mexican canneries operated with a single day shift, and that Mexico's production could therefore be easily expanded using imported yellowfin tuna. In the model, the maximum supply of exports of canned yellowfin is determined by the total production in Mexico, that is, production from Mexican as well as imported yellowfin tuna.[133] The model is solved assuming that Mexico would import yellowfin to produce canned tuna for domestic consumption in order to replace some of the canned yellowfin that would be exported to the United States.[134]

5.7. Mexico's model assumes that because transportation costs between Mexico and the United States are small, and because of preferences under the North American Free Trade Agreement (NAFTA), the withdrawal of the Tuna Measure would give Mexico a significant advantage in its exports of canned yellowfin to the United States.[135] Therefore, Mexico assumes that it would be the only exporter of yellowfin tuna to the United States.

5.8. Mexico's model yields a calculated total of USD 495 million worth of canned yellowfin exports from Mexico to the United States in 2014. The value of actual exports of Mexican canned tuna to the United States in 2014 was USD 22.65 million. The model deducts the value of actual exports from the value of total exports, and finds nullification or impairment in the amount of USD 472.3 million per year.[136]

5.9. Table 12 of Exhibit MEX-02 contains a summary of the most salient results of Mexico's model. They are reproduced below:

Solutions of Mexico's model

	United States	Mexico
Consumption of yellowfin tuna (metric tonnes)	63,568	21,932
Consumption of generic tuna (metric tonnes)	230,746	51,199
Price of yellowfin tuna ($/kg)	7.84	7.79
Price of generic tuna including tariff and charge ($/kg)	5	5.32
Exports of yellowfin tuna (metric tonnes)	0	63,568
Imports of yellowfin tuna (metric tonnes)	63,568	20,000
Exports of generic tuna to the U.S. (metric tonnes)	0	0
Imports of generic tuna from other countries (metric tonnes)	53,340	28,199

Note: Mexico assumes that the United States produces 177,350 metric tonnes of canned tuna as observed in 2014.
Source: Exhibit MEX-02

5.1.2 United States' arguments regarding Mexico's model

5.10. The United States presents two sets of arguments regarding Mexico's model, one concerning the choice of the model, the other concerning the assumptions made under the model. Specifically, the United States contends that Mexico's election to use a partial equilibrium model is inappropriate because sufficient data do not exist to construct a correctly specified model. Further, the United States contends that Mexico's model is based on certain incorrect assumptions concerning US consumer demand and the potential supply of canned yellowfin from Mexico, the United States, and other WTO Members.[137] In this Section, we describe the United States'

[132] Mexico's methodology paper, para. 33.
[133] Mexico's methodology paper, para. 39.
[134] Mexico's methodology paper, para. 42.
[135] Mexico's methodology paper, para. 41.
[136] Mexico's methodology paper, para. 43.
[137] United States' written submission, para. 80.

arguments on Mexico's choice of the model. We discuss the United States' arguments regarding the assumptions under Mexico's model, in the following Section.

5.11. With regard to the choice of the model, the United States contends that partial equilibrium models are often used to calculate the impact of a policy change by generating a picture of a defined market through a series of simplifying assumptions. The United States submits that where a partial equilibrium analysis is used to model the removal of a particular non-tariff barrier (NTB), the generally-accepted method is to calculate a tariff equivalent, or "price wedge", of the NTB and then model its removal.[138] For the United States, these types of models produce meaningful results when they are set up to solve for the issue at hand, using relevant variables that are based on actual data or reasonable assumptions, something that the United States says Mexico's model does not do.[139]

5.12. The United States argues that the generally accepted way to use a partial equilibrium analysis would be to determine the value of the US dolphin-safe label and model the effect of its removal on the equilibrium price and quantity of Mexican tuna products sold to the United States. The United States submits, however, that determining the value of the dolphin-safe label would require detailed data on US purchases of tuna products with and without the dolphin-safe label, including store-by-store sales of tuna by type, i.e. albacore, yellowfin, and light tuna, accounting for product characteristics such as pouched versus canned, water versus oil, and flavoured, and including information on the timing of sales and whether sales were made at promotional values.[140]

5.13. For the United States, it appears to be undisputed that this level of data concerning the US tuna product market is not available.[141] The United States argues that Mexico's dataset does not include retail level data that would allow a comparison between particular types of labelled and unlabelled tuna products, necessary to estimate the value of the dolphin-safe label, and that Mexico's dataset does not have data on sales and purchases of the same type of tuna products (by species, form, and pack, at least) sold with and without the dolphin-safe label or on whether tuna was sold at a promotional value. Mexico's dataset, in the United States' view, does not allow for any comparison of labelled and unlabelled tuna product, or even store-by-store analysis of the price difference between comparable yellowfin and non-yellowfin tuna products. The United States contends that all of these issues result in Mexico being unable to calculate the price wedge necessary for an accurate partial equilibrium model.[142]

5.1.3 Arbitrator's analysis of Mexico's model

5.14. Mexico's model is based on many assumptions regarding the state of the market for tuna products in the world, in the United States, and in Mexico. For purposes of our assessment, we find it useful to group them into three main assumptions, namely, first, that the Tuna Measure has restricted the supply of canned yellowfin from Mexico to the US market; second, that US consumers have a preference for canned yellowfin and US retailers would sell Mexican canned yellowfin after the withdrawal of the Tuna Measure; and third, that Mexican producers would supply all of the increased consumption of canned yellowfin in the US[143] market following the withdrawal of the Tuna Measure.

5.15. In this Section, we address these assumptions in turn. In our assessment of a given assumption, we first describe the assumption, then highlight the United States' arguments with respect to that assumption, and present our assessment of the assumption. The assumptions underlying Mexico's model can be found in Exhibit MEX-02.

5.16. With respect to the legal standard governing our assessment of the assumptions underlying Mexico's model, we note, and agree with, the statement of the arbitrator in *US – Gambling* that if the estimation of the level of nullification or impairment requires certain assumptions to be made,

[138] United States' written submission, para. 83.
[139] United States' written submission, para. 81.
[140] United States' written submission, para. 84.
[141] United States' written submission, para. 85.
[142] United States' written submission, para. 85.
[143] The first and second assumptions, taken together, imply that when the Tuna Measure is withdrawn, there will be increased consumption of canned yellowfin in the US market.

"such assumptions should be reasonable, taking into account the circumstances of the dispute".[144] We also find relevant the finding made in several arbitration proceedings that assumptions should be based on "credible, factual, and verifiable information".[145] We will therefore be guided by these principles in our assessment of the assumptions on which Mexico's model is based.

5.1.3.1 The Tuna Measure has restricted the supply of canned yellowfin from Mexico into the US market

5.17. The first assumption underlying Mexico's model is that the Tuna Measure has restricted the supply of canned yellowfin from Mexico to the United States. Mexico acknowledges that there is currently some consumption of canned yellowfin in the US market.[146] It contends, however, that such consumption is insignificant, and that Mexican exports of yellowfin to the US market may be considered as *de minimis*.[147] In Mexico's view, the Tuna Measure has caused a decline in the supply of canned yellowfin to the United States because the Measure excludes supply from an important region located close to the United States.[148]

5.18. The United States disagrees with Mexico, and contends that the Tuna Measure does not stop Mexican canned tuna from entering the US market. For the United States, the Tuna Measure "is neither a *de facto* nor a *de jure* prohibition on the sale of canned yellowfin in the United States".[149] In support of this assertion, the United States notes that dolphin-safe canned yellowfin is sold in the US market, but in relatively small quantities, because demand for yellowfin is weak.[150] Consequently, the United States argues that withdrawing the measure would not alter the supply of canned yellowfin. The United States also contends that the evidence on the record points to a lack of demand, not of supply, as the reason for the currently low levels of canned yellowfin consumption in the United States.[151]

5.19. The Arbitrator notes that the record shows, and both parties agree, that the current level of canned yellowfin consumption in the US market is low.[152] The evidence on the record shows that "yellowfin products… make up only [[xxx]]% of volume sales"[153], and canned yellowfin made up 1.2% of all reported sales by weight and 1.5% by value, during the period from October 2014 to October 2015.[154] The parties disagree, however, as to the reasons for this low level of consumption. In particular, they disagree on whether the Tuna Measure might have resulted in a decline in consumption.

5.20. In support of its argument that the Tuna Measure restricted the supply of canned yellowfin from Mexico to the United States, Mexico refers to the decline in the volume of Mexican exports of canned yellowfin into the United States, and the increase in the price of that product in the US market, following the adoption of the Tuna Measure in 1990. With regard to import volumes, the parties agree that import volumes have declined since the adoption of the Tuna Measure. However, they, disagree on the reasons for this decrease. With regard to the evolution of prices in the US market, the parties disagree significantly on how prices behaved after the introduction of the Tuna Measure, and in particular as to whether they increased.

5.21. In reviewing the assumption that the Tuna Measure has restricted the supply of canned yellowfin from Mexico into the US market, we will evaluate these two aspects in turn. In our view, a decline in the volume of US yellowfin imports, and an increase in their price, would tend to support the proposition that the Tuna Measure has had a restrictive effect on US imports of canned yellowfin from Mexico. With this in mind, we now turn to our assessment of the evolution of the

[144] Decision by the Arbitrator, *US – Gambling (Article 22.6 – US),* para. 3.30.
[145] Decision by the Arbitrators, *US – COOL (Article 22.6 – US)*, para. 4.5; *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.54; see also Decision by the Arbitrators, *EC – Hormones (US) (Article 22.6 – EC)*, para. 41.
[146] Mexico's written submission, para. 173 (referring to Exhibit USA-17).
[147] Mexico's response to Arbitrator question No. 87.
[148] Mexico's response to Arbitrator question No. 72.
[149] United States' opening statement at the meeting of the Arbitrator, para. 10.
[150] United States' response to Arbitrator question No. 65.
[151] United States' opening statement at the meeting of the Arbitrator, para. 12.
[152] Mexico's written submission, para. 173 (referring to Exhibit USA-17); United States' written submission, para. 23 (referring to referring to Exhibits USA-10 (BCI) USA-17).
[153] Exhibit USA-10 (BCI).
[154] Exhibits MEX-15 and USA-17.

volume of exports from Mexico to the United States and the price of canned yellowfin in the US market following the adoption of the original Tuna Measure.

5.1.3.1.1 Evolution of the volume of canned yellowfin exports from Mexico to the United States

5.22. At the outset, we note that both parties agree that there has been a pronounced decrease in the volume of canned yellowfin into the United States from the late 1980s. The parties disagree, however, as to the reasons that caused that decrease.[155]

5.23. We note that, according to the data presented in Exhibit USA-79, the average volume of tuna product exports from Mexico to the United States for the period 1975-1980 was 9,664,954 kg; and in the period 1986-1989, the volume was 9,646,266 kg. There were no imports in the period 1981-1985, presumably because of a US embargo on tuna products from Mexico. Following the adoption of the original Tuna Measure, the volume of exports from Mexico fell from 13,060,153 kg in 1989 to 2,781,159 kg in 1990. The volume of exports has never again reached pre-1990 levels. The average volume of Mexico's exports in the period 1990-2014 was 3,469,210 kg.

5.24. We are aware that these data pertain to tuna products in general[156], and not only to canned yellowfin. We note, however, that, as indicated in a United States International Trade Commission (USITC) report presented as Exhibit MEX-119, Mexico's tuna harvest prior to the adoption of the Tuna Measure was predominantly composed of yellowfin.[157] We therefore find the data presented in Exhibit USA-79 to be relevant to our assessment.

5.25. Additionally, we note that (a) in the late 1980s, Mexico's exports to the United States were mainly fresh yellowfin, whereas the Mexican industry subsequently underwent an important transformation such that it is now vertically integrated and able to export canned tuna products; (b) the Mexican industry has essentially abandoned the fresh tuna market[158]; and (c) the Mexican tuna production industry cans most of the yellowfin harvested by Mexican fishing vessels. As a result of these factors, the nature of the product exported from Mexico to the United States has changed significantly since the adoption of the Tuna Measure, from fresh to canned tuna. In other words, prior to the adoption of the Tuna Measure, Mexico primarily exported fresh rather than canned tuna. We recall that the question before us at this stage of our analysis is whether the Tuna Measure had the effect of restricting exports of canned tuna to the United States. However, in our assessment, we focus on the evolution of the volume of fresh and frozen yellowfin exports from Mexico to the United States following the adoption of the Tuna Measure, and not on the volume of canned yellowfin exports. This is so because we do not have data on the volume of canned yellowfin exports from Mexico to the United States in this period. Accordingly, and to the extent possible, we use the evolution of the volume of exported fresh and frozen Mexican tuna as a proxy for the evolution of the volume of exported canned Mexican tuna.

5.26. We also note that, in parallel with the decreasing trend observed in the volume of tuna exports from Mexico to the United States following the introduction of the original Tuna Measure, the volume of yellowfin purchases by US canneries also declined. We note that the United States recognizes that US canneries' receipts for yellowfin tuna have declined "dramatically" since the late 1980s.[159] The United States provides the following graphs (where "YF" indicates yellowfin), which illustrate this decline:

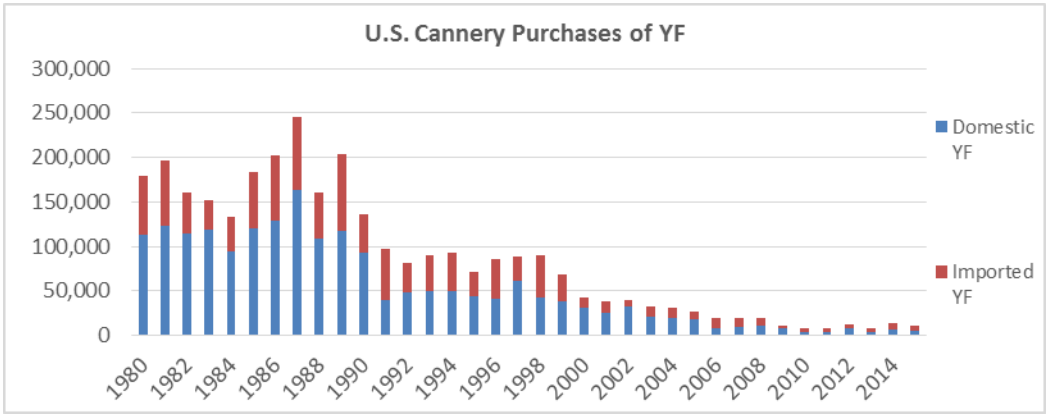
[155] Mexico's response to Arbitrator question No. 158; Mexico's comments on United States' response to Arbitrator question No. 158; United States' response to Arbitrator question No. 158; United States' comments on Mexico's response to Arbitrator question No. 158.

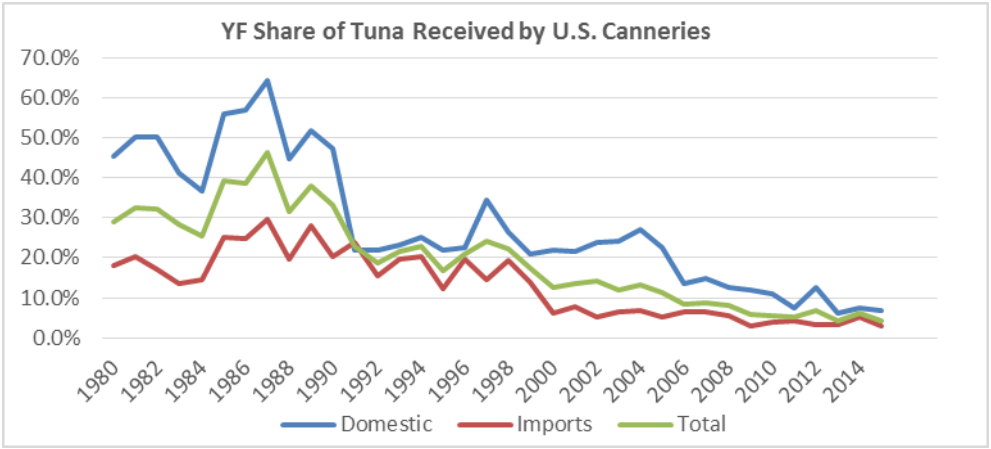
[156] Fresh, frozen, prepared and canned. Exhibit USA-79.

[157] The USITC report states that "[y]ellowfin was the leading species of tuna caught by the Mexican tuna fleet in 1989, accounting for about 79 per cent of the catch that year." Exhibit MEX-119, p. 5-20. We also note that the NMFS import data presented by Mexico, in Exhibit MEX-80, shows that the share of yellowfin in Mexico's overall exports of fresh tuna to the United States in the period 1986-1989 was 81% in volume (31,341,390 kg out of a total of 38,585,064 kg).

[158] Mexico's written submission, para. 148.

[159] United States' response to Arbitrator question No. 51.





Source: Exhibit USA-96.

5.27. These graphs, together with Exhibit USA-96[160], show that US canneries' purchases of imported yellowfin declined from an average of 71,595 short tons (st) in the period 1985-1989 to 43,723 st in the period 1990-1994, representing a decrease of 38.9%. Similarly, US canneries' purchases of domestic yellowfin declined from an average of 127,729 st in the period 1985-1989 to 55,981 st in the period 1990-1994, representing a decrease of 56.17%. We note that this decline in US canneries' receipts started in 1990, coinciding with the adoption of the original Tuna Measure, and continued to decline throughout the period 1990-2014.

5.28. There is thus an important correlation between the adoption of the original Tuna Measure, on the one hand, and the decline in volume of yellowfin purchases by US canneries and exports of tuna from Mexico, on the other hand. Having identified a decline in the volume of exports of tuna from Mexico to the United States and a parallel decline in the US canneries' receipts of yellowfin, we now turn to the parties' diverging arguments regarding the reasons for this decline.

5.29. The United States maintains that, in addition to the above-mentioned trends, consumption of canned yellowfin was also declining in the same period. According to the United States, this decline in consumption of canned yellowfin in the US market shows that the decline in exports from Mexico and US cannery purchases of yellowfin was due to limited demand rather than limited supply. Additionally, the United States notes that the decline in Mexican exports and US cannery purchases of yellowfin did not occur suddenly, as it would have had there been a severe supply restriction, but over a period of decades.[161] The United States submits that rather than stemming from limitations in supply, the decreased exports and cannery purchases can be attributed to declining consumer demand as well as the decision by the "big three" US tuna companies not to process tuna caught by setting on dolphins.[162] Additionally, the United States claims that the

[160] This exhibit contains data on US cannery purchases of yellowfin, in short tons, for the period 1980 to 2015.

[161] United States' response to Arbitrator question No. 51.

[162] United States' response to Arbitrator question No. 158.

decline in US cannery purchases of yellowfin in the early 1990s was due not to consumers substituting consumption of canned yellowfin for fresh yellowfin, but rather to developments in US consumer preferences and other factors, including (a) growing consumer preference in the late 1980s and early 1990s (and continuing today) for tuna not caught by setting on dolphins; (b) growing consumer preference for albacore as a premium product; (c) consumer preference for the cheapest canned tuna; and, (d) health considerations.[163]

5.30. Mexico, for its part, argues that it is well established that the US tuna fishing fleet moved away from the ETP to the Western and Central Pacific in the late 1980s and early 1990s, and that this led to the creation and growth of cannery operations in American Samoa. Mexico also contends that the price of yellowfin rose following the imposition of the tuna measure, and that this price increase made yellowfin uneconomical for use by US canneries for canning.[164] Thus, in Mexico's view, the decline in cannery purchases of yellowfin does not reflect a shift in US consumer preference away from yellowfin towards albacore or skipjack. Rather, it reflects a shift in readily available supplies from ETP-caught yellowfin to WCPO-caught skipjack and the increasing cost of canned yellowfin.[165]

5.31. In the Arbitrator's view, the reasons for the decline in the volume of the United States' imports from Mexico and canneries' purchases of yellowfin are not fully clear. While the data and graphs discussed above clearly show that there was a decline in the volume of United States' imports from Mexico and US canneries' purchases of yellowfin following the adoption of the original Tuna Measure, there is also evidence suggesting that part of that decline may have been due to the dolphin-safe policies adopted by US tuna canning companies, rather than to the Tuna Measure itself. For example, a 1992 USICT report states that "the US canners, led by StarKist, announced in April 1990 that they would no longer buy tuna from domestic or foreign suppliers who refused to certify that the tuna was 'dolphin-safe'".[166] Nevertheless, in our view, the sharpness of the decline in both imports of tuna from Mexico and purchases of yellowfin by US canneries following the adoption of the Tuna Measure in 1990 suggests that the adoption of the Tuna Measure was the main reason for the declining trend. This sharpness is very clear with respect to the United States' imports of tuna from Mexico. With regard to the US cannery purchases of yellowfin, we note that there was a decline from 1987 to 1988, prior to the adoption of the Tuna Measure, that this was followed by an increase from 1988 to 1989, and that the decline that started in 1990 has not changed course in any significant way.

5.32. Further, we are not persuaded by the United States' interpretation of this declining trend as being the result of a sharp change in consumer preferences, particularly given that the most substantial part of the decline came on the heels of the adoption of the Tuna Measure. We do not find plausible the argument that such a sudden and sharp decline in imports can be explained by an equally sudden and sharp change in consumer preferences. In our view, it is unusual to observe consumer preferences undergoing an important discrete change, as suggested by the United States. Although we do not rule out that this might be possible, in our view the United States has not submitted evidence sufficient to establish the existence of such a change in this case.

5.33. We therefore conclude that, following the adoption of the original Tuna Measure, there was an important decline in the volume of US imports of yellowfin tuna from Mexico and purchases of yellowfin by US canneries. The Arbitrator now turns to consider the evidence relating to the price of yellowfin on the US market following the adoption of the Tuna Measure.

5.1.3.1.2 Evolution of yellowfin prices in the US market

5.34. The Arbitrator begins by noting the parties' agreement that if the Tuna Measure reduced the supply of canned yellowfin in the United States, the price in the US retail market for such products would be expected to increase.[167] Unfortunately, there is no evidence on the record on historical prices of canned yellowfin in the US market and, consequently, we have to rely on the evidence presented by the parties on import prices for fresh or frozen yellowfin to assess the possible

[163] United States' response to Arbitrator question No. 158.
[164] Mexico's response to Arbitrator question No. 158.
[165] Mexico's comment on the United States response to Arbitrator question No. 158.
[166] Exhibit MEX-73, p. 3-10.
[167] Mexico's response to Arbitrator questions No. 17 and 72; United States' opening statement at the meeting of the Arbitrator, para. 17.

effects that the Tuna Measure might have had on retail prices of canned yellowfin. In this regard, Mexico asserts that it is "nearly impossible to find a time series data for yellowfin tuna"[168], and notes that it did not find price data for "canned yellowfin tuna at retail or wholesale"[169]. Mexico argues that the only source for price data regarding the United States concerns frozen tuna.[170]

5.35. Before proceeding to our analysis of the price data on the record, we note Mexico's reference to Exhibit USA-10 (BCI) in support of its argument that the Tuna Measure restricted the supply of canned yellowfin from Mexico to the United States. Mexico contends that this Exhibit shows that the price of canned yellowfin in the US market is high because raw yellowfin is expensive, and that it is due to these high prices that consumption is low.[171] The United States disagrees with Mexico's interpretation of Exhibit USA-10 (BCI) and argues that the excerpt cited by Mexico explains that yellowfin generally sells at [[xxx]].[172] For the United States, Exhibit USA-10 (BCI) confirms that the main driver for the limited consumption of yellowfin in the United States is [[xxx]].[173]

5.36. We note that Exhibit USA-10 (BCI) contains a market review for yellowfin products prepared by a US tuna canning company. It mentions that growth of yellowfin products in the US shelf stable seafood segment has been [[xxx[174],]] and states that these types of products are [[xxx]].[175] Additionally, we note that the Exhibit states that [[xxx]].[176] In our view, when the relevant parts of the Exhibit are taken as a whole, it is reasonable to conclude that the market review suggests that the cost associated with the production of yellowfin products is [[xxx]] and that this can in turn be explained by [[xxx]].

5.37. Therefore, in our view, although Exhibit USA-10 (BCI) seems to lend some support to Mexico's argument, we do not interpret it to show that the Tuna Measure restricted the supply of canned yellowfin from Mexico to the United States. This is mainly because Exhibit USA-10 (BCI) is not concerned with the impact of the Tuna Measure on the supply of canned yellowfin from Mexico, but rather with providing a description of the trends in the US canned tuna market. Further, we note that this market review does not cover the period when the original Tuna Measure was adopted, and therefore provides no information as to how the market for tuna products reacted to the adoption of that Measure. We therefore turn to the rest of the evidence on the record regarding prices in order to assess the impact that the Tuna Measure may have had on the evolution of yellowfin prices in the US market.

5.38. At the outset, we observe that the parties have presented arguments on how the impact of the Tuna Measure, in particular on prices, might be different depending on the level of the market that is analysed, e.g. harvesting, canning, or wholesaling of tuna products, and depending on the type of the particular tuna product under review, e.g. frozen, fresh, or canned tuna. In this connection, we note that Mexico maintains that when assessing prices for yellowfin tuna and the effect of the Tuna Measure, it is important to understand at what stage of the supply chain the prices are measured. According to Mexico, the immediate effect of the Tuna Measure can be described as a shift to the left of the supply curve for canned yellowfin to the United States, because the Tuna Measure "effectively banned"[177] tuna harvested from an important source of inexpensive yellowfin. For Mexico, the loss of an inexpensive source of yellowfin resulted in an increase in the cost of supply of canned yellowfin to the US market. A second effect of the Tuna Measure, according to Mexico, is a decrease in the demand for frozen yellowfin from the ETP because that tuna is "no longer welcome on the US market, the largest market in the world for canned tuna".[178] This is so because, as a consequence of the Tuna Measure, the US tuna fishing

[168] Mexico's response to Arbitrator question No. 72.
[169] Mexico's response to Arbitrator question No. 72.
[170] Mexico's response to Arbitrator question No. 72.
[171] Mexico contends that Exhibit USA-10 (BCI) explains that consumption of yellowfin is limited by the higher cost of yellowfin and that US tuna producer [[xxx]] stated that: [[xxx]]. Mexico submits that [[xxx]] also stated that [[xxx]]. Mexico's written submission, paras. 125-126.
[172] United States' response to Arbitrator question No. 130.
[173] United States' response to Arbitrator question No. 130.
[174] Exhibit USA-10 (BCI) p. 3.
[175] Exhibit USA-10 (BCI) p. 4. [[xxx]].
[176] Exhibit USA-10 (BCI) p. 10.
[177] Mexico's response to Arbitrator question No. 72.
[178] Mexico's response to Arbitrator question No. 72.

fleet moved out of the ETP region and US canneries stopped accepting tuna of ETP origin.[179] To show how the impact of the adoption of the Tuna Measure might differ depending on the production stage, Mexico refers to a 1992 Report of the USITC that shows that prices of frozen tuna in the US market fell between 1990 and 1992[180] although, in Mexico's view, the prices of canned yellowfin went up in the same period.[181]

5.39. We note that Exhibits MEX-79 and MEX-104 contain price data relevant to our analysis. Exhibit MEX-79 contains a graph showing the price of US imported tuna from 1980 to 2014. Mexico explains that this Exhibit illustrates US import prices for fresh and frozen tuna, and argues that it shows that the price of frozen yellowfin significantly differed from the price of skipjack and albacore as of the beginning of the 1990s.[182] Exhibit MEX-104 contains data on the price of tuna landings[183] for several species, including yellowfin, from 1980 to 2014. In Mexico's view, like Exhibit MEX-79, Exhibit MEX-104 provides price information on fresh and frozen yellowfin landings in the United States between 1980 and 2014. In Mexico's view, the data in Exhibit MEX-104 shows that the price of yellowfin was higher than that of other tuna species, including albacore and skipjack, in the years immediately before and after the introduction of the Tuna Measure, and that the price of yellowfin started deviating from the prices of albacore and skipjack after the introduction of the Tuna Measure.[184] In Mexico's view, this indicates that, following the introduction of the Tuna Measure, yellowfin became relatively more expensive than skipjack or albacore.

5.40. The United States does not consider that Exhibits MEX-79 and MEX-104 support Mexico's position. Importantly, the United States draws a distinction between the price for fresh and frozen yellowfin, on the one hand, and the price of cannery-grade yellowfin[185], on the other hand, and contends that the price of the former is not a good proxy for the latter.[186] With respect to Exhibit MEX-79, the United States notes that the last major cannery that bought yellowfin to can in the United States was closed in 2001.[187] The United States argues that, as from 2001, US canneries only processed tuna loins, as opposed to whole fish, to produce canned tuna. Therefore, in the view of the United States, after this period there is no relationship between the price of fresh and frozen yellowfin and the price of cannery-grade yellowfin.

5.41. The United States also disagrees with Mexico about the relevance to our inquiry of the price data presented in Exhibit MEX-79. With regard to the data for the period prior to 2001, the United States contends that the price data presented in this Exhibit do not pertain exclusively to cannery-grade yellowfin, and therefore overstates the prices of cannery grade yellowfin.[188] As for the price data after 2001, the United States underlines the fact that such data bears no relationship to the raw material (loins, not the entire yellowfin tuna) that US canneries use to produce canned yellowfin. Consequently, the United States argues that the prices reported in Figure 1 of Exhibit MEX-79 reflect the changing composition of US yellowfin imports, and not an increase in the price of cannery-grade yellowfin.[189] The United States submits that the data in Exhibit MEX-104 is similarly unhelpful to the Arbitrator's analysis.[190]

5.42. As noted above, Exhibit MEX-79 presents a graph illustrating fresh and frozen yellowfin prices, presented in Exhibit MEX-80. The same graph has been presented by Mexico in a way that shows the annual trends in prices, as follows:[191]

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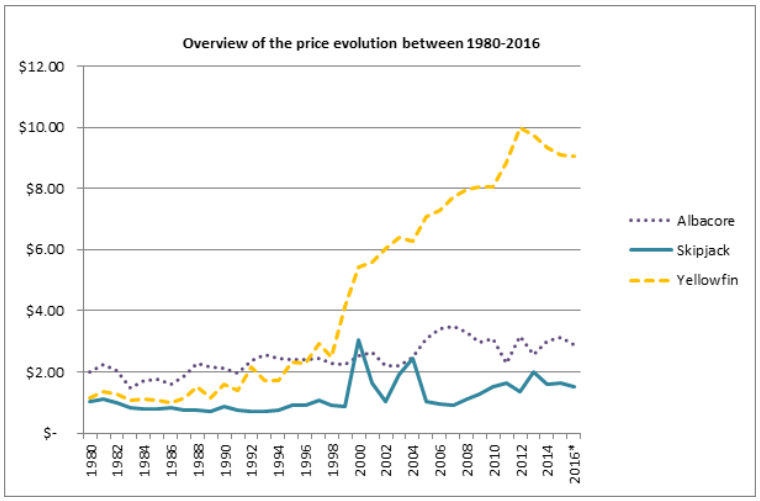
[179] Mexico's response to Arbitrator question No. 72.
[180] Mexico's response to Arbitrator question No. 72 (referring to Exhibit MEX-73).
[181] Mexico's response to Arbitrator question No. 72 (referring to Exhibit MEX-74).
[182] Mexico's response to Arbitrator question No. 153.
[183] We understand "fish landings" to indicate the volume and value of fish landed and sold at the dock, usually in pounds (or other weight measurement) and ex-vessel dollar value of fish caught and sold. See http://www.st.nmfs.noaa.gov/commercial-fisheries/commercial-landings/landings-background/index (last accessed on 13 February 2017).
[184] Mexico's response to Arbitrator question No. 153.
[185] We understand "cannery-grade yellowfin" to be the particular yellowfin tuna or tuna product that is used to produce canned yellowfin.
[186] United States' response to Arbitrator question No. 153.
[187] United States' response to Arbitrator question No. 153 (referring to Exhibit USA-192).
[188] United States' comments on Mexico's response to Arbitrator question No. 158.
[189] United States' response to Arbitrator question No. 153.
[190] United States' comments on Mexico's response to Arbitrator question No. 153.
[191] Mexico's response to Arbitrator question No. 153.



* Data for 2016 covers period until August.
Source: Exhibits MEX-79 and 80.

5.43. In our view, the relevant period to assess the effects that the Tuna Measure might have had on the prices of yellowfin is the years following its introduction in 1990. The graph shows that prices for fresh and frozen yellowfin remained more or less stable from 1980 to 1990 and increased in the early 1990s, especially when compared with the stable trends in the prices of albacore and skipjack. We note, however, that after the adoption of the Tuna Measure, the prices did not increase particularly quickly, and that the above graph does not show a significant spike in prices immediately after the introduction of the Tuna Measure.

5.44. We further note that, as Mexico also acknowledges[192], from 1990 to 1992 prices of fresh and frozen yellowfin decreased before starting to increase again. The United States argues that this trend contradicts Mexico's assertion that cannery-grade yellowfin prices increased in the US market after the adoption of the Tuna Measure.[193] Mexico, however, argues that the Tuna Measure decreased demand for frozen yellowfin from the ETP, thereby causing a decrease in its price.[194]

5.45. In our view, the decline in the prices of fresh and frozen yellowfin from 1990 to 1992 does not necessarily undermine Mexico's argument that the Tuna Measure had a restrictive effect.[195] Simply put, this observed decline might reflect short-term price adjustments following the adoption of the Tuna Measure. This is explained by the fact that, since US canneries were no longer buying frozen yellowfin of ETP origin, the demand for frozen yellowfin went down, so did its price. Indeed, the 1992 USITC report also indicates that, around the time of the adoption of the Tuna Measure, US canneries substituted large yellowfin of ETP origin with small yellowfin and skipjack, and that "[t]he supply of [large] yellowfin declined, but demand declined even more; thus, the price dropped by 18 percent immediately after the dolphin-safe announcement in April 1990".[196] Such decline in the demand for and price of large yellowfin of ETP origin may thus well have disrupted the link between the evolution of the price of frozen yellowfin from the ETP and the price of canned yellowfin in the US market, at least temporarily. Furthermore, we note that the decline from 1990 to 1992 was followed by a steady increase in the following decade. In our view, it is reasonable to assume that it took some time for large yellowfin (that could no longer be sold to the United States) to find other buyers. This may account for the price decline observed between 1990-1992.

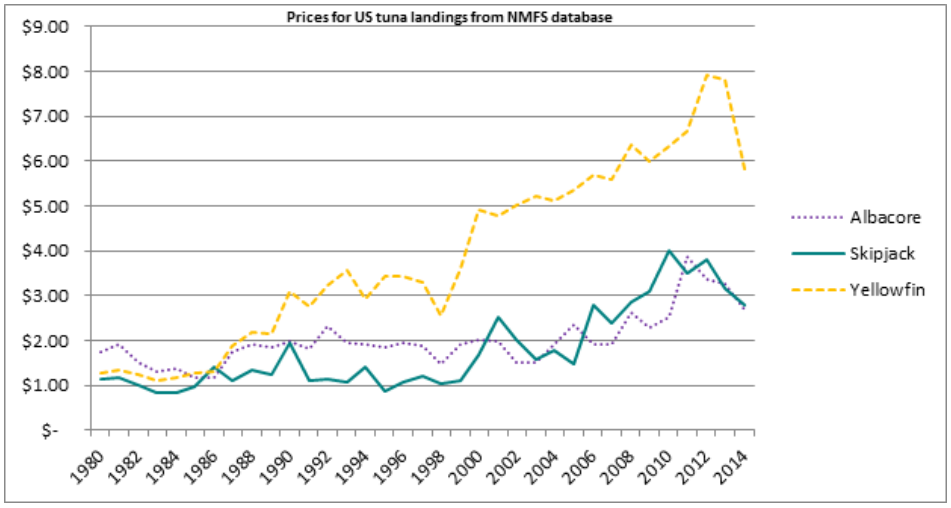
5.46. Turning now to the United States' argument that the price data contained in Exhibit MEX-79 relates to fresh and frozen tuna rather than cannery-grade tuna, we note that this argument differentiates between two periods, i.e. before and after 2001. As far as the period before 2001 is concerned, we understand the United States to contend that the prices presented in this Exhibit do

[192] Mexico's response to Arbitrator question No. 72 (referring to Exhibit MEX-73).
[193] United States' comment on Mexico's response to Arbitrator question No. 153.
[194] Mexico's response to Arbitrator question No. 72.
[195] Mexico's response to Arbitrator question No. 72 (referring to Exhibit MEX-74).
[196] Exhibit MEX-73, p. 2-10.

not pertain exclusively to cannery-grade yellowfin. However, we understand that the raw material for producing canned tuna is typically frozen tuna, and thus there is a relationship between frozen and cannery-grade yellowfin.[197] Indeed, the United States seems to agree with the proposition that that there is a connection between frozen and cannery grade tuna[198], and has acknowledged that "[p]rior to 2000, there is some relationship"[199] between the prices of cannery-grade yellowfin and frozen yellowfin. Moreover, our understanding is that the prices presented in Exhibit MEX-79 cover all yellowfin, including cannery-grade. The United States has not argued that the product scope of this Exhibit for the years before 2001 *excludes* cannery-grade yellowfin. Therefore, we find the prices presented in this Exhibit for the period prior to 2001 to be relevant to our inquiry.

5.47. As for the period from 2001, the United States argues that in this period US canneries exclusively used loins, as opposed to whole fish, to produce canned tuna products, and that therefore the prices in Exhibit MEX-79, which pertain to whole fish, bear no relationship to the prices of the tuna used by canneries. In our view, the evolution of prices in the 2000s is not relevant for our inquiry, as it is too far away from the date of adoption of the Tuna Measure. Accordingly, we need not determine whether the price data from this period related to whole fish rather than loins.

5.48. Turning to the other Exhibit presented by Mexico containing price data relevant to our analysis, Exhibit MEX-104, we note that it presents data on the prices of fresh and frozen yellowfin landings on an annual basis. Mexico presented this data in a graph, which we reproduce below:[200]



5.49. This graph shows that, similar to the trends observed in Exhibit MEX-79, yellowfin tuna landing prices increased in the years after the adoption of the Tuna Measure, continuing a trend that began a few years earlier. Furthermore, and importantly, this graph shows that the prices of yellowfin landings started deviating from those for albacore and skipjack at around the time of the adoption of the Tuna Measure. Specifically, the price of yellowfin increased while the price of albacore and especially skipjack decreased. Thus, after the introduction of the Tuna Measure, there was an increase in the relative price of yellowfin tuna as compared to the prices of albacore and skipjack. This suggests to us that the relative competitiveness of yellowfin was negatively affected by the Tuna Measure, as it became relatively more expensive than skipjack or albacore. As a result, canneries would have faced increased costs in the canning of yellowfin and this might, in turn, have created the incentives for canneries to substitute yellowfin for less-expensive skipjack or albacore tuna.

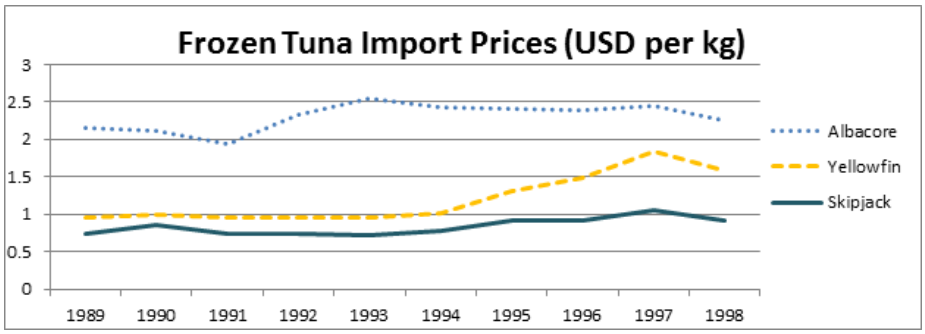
[197] Mexico's response to Arbitrator question No. 153.

[198] The United States argues that "…the fatal flaw in the exhibit is that, from 2000 onwards, it depicts exclusively imports of fresh and frozen yellowfin for direct consumption" and that "[c]onsequently, since 2000, the data in the exhibit refer entirely to imports of sashimi grade fresh and frozen yellowfin for the direct consumption market". United States' comments on Mexico's response to Arbitrator question No. 153.

[199] United States' comments on Mexico's response to Arbitrator question No. 158.

[200] Mexico's response to Arbitrator question No. 153.

5.50. The United States contends that the prices of frozen yellowfin remained stable between the early- and mid-1990s following the adoption of the Tuna Measure. In this connection, it has presented evidence, in Exhibit USA-205, which, in its view, contradicts the price evidence submitted by Mexico. Exhibit USA-205 contains the following graph:



Source: Exhibit USA-205, reporting data from US Census Bureau.

5.51. At the outset, we note that this graph shows only the prices of frozen yellowfin, whereas the evidence presented by Mexico covers the prices of both fresh and frozen yellowfin. We also note that although, as the United States argues, this graph shows that the prices of frozen yellowfin remained stable until the mid-1990s, it also shows that such prices increased significantly thereafter. In this connection, we recall Mexico's argument that, to the extent that no increase was observed in yellowfin prices in the US market following the adoption of the Tuna Measure, this could be explained by the fact that the US canneries started importing lower quality yellowfin.[201] Support for this argument is found in the USITC report cited in paragraphs 5.24 and 5.31 above, which states:

> [T]he shift by some foreign and most U.S. fishermen from the large-yellowfin fishery to the fisheries for skipjack and small yellowfin entails an effective decline in average unit value received by the fishermen, even if canner-contracted prices by fish category do not change. That is, small tuna of any one species receive a lower price from the canner than do large tuna of the same species because the processing costs for the former exceed those for the latter.[202]

5.52. As pointed out above, we are of the view that the decline from 1990 to 1992 does not change the fact that prices followed a generally increasing trend as from 1990. The fact that frozen yellowfin prices did not go up following the adoption of the Tuna Measure may in our view be explained by short-term price adjustments. The excerpt from the USITC report shows that, in that period, US canneries started substituting large yellowfin with skipjack and small yellowfin. In our view, the price increase that could have been expected for frozen yellowfin was counterbalanced by this fact. We also find it reasonable to consider that, as the demand for cheaper small yellowfin increased, eventually the price of frozen yellowfin also started increasing, as shown by the graph provided by the United States.

5.53. To sum up, we note that both the data presented by Mexico on the price of fresh and frozen yellowfin and the data presented by the United States on the price of frozen yellowfin show a generally increasing trend in the price of fresh and frozen yellowfin in the years after the introduction of the Tuna Measure. Such trend is apparent in Mexico's data since 1992, after a price decrease between 1990 and 1992, and in the United States' data since 1994, after a stable pattern between 1990 and 1994. Considering the data submitted by Mexico and the United States together, we note that they are consistent in showing a trend of non-decreasing yellowfin prices from 1994 onwards. The fact that the price of frozen yellowfin may not have increased immediately after the adoption of the Tuna Measure in 1990 can be explained by short-term price adjustments, as mentioned above. The trend of non-decreasing yellowfin prices from 1994 onwards is in our view consistent with the notion that the Tuna Measure restricted the supply of Mexican yellowfin in the US market.

[201] Mexico's comment on the United States' response to Arbitrator question No. 153.
[202] Exhibit MEX-73, p. 3-18.

5.1.3.1.3 Conclusion

5.54. We have found that, following the adoption of the Tuna Measure, the volume of tuna exports from Mexico to the United States and US cannery purchases of yellowfin declined. This is consistent with the view that the Tuna Measure had a restrictive effect on the supply of Mexican yellowfin into the United States. Moreover, prices in the US market for fresh or frozen yellowfin increased, or at the very least remained stable, in the years immediately after the introduction of the Tuna Measure. This too is consistent with the view that the Tuna Measure had a restrictive effect. We therefore conclude that the assumption that the Tuna Measure restricted the supply of canned yellowfin from Mexico to the United States is reasonable. However, we do not consider that the Tuna Measure is tantamount to an import ban, as Mexico has suggested.[203]

5.1.3.2 US Consumers have a preference for canned yellowfin and US retailers would sell Mexican canned yellowfin after the withdrawal of the Tuna Measure

5.55. The second assumption underlying Mexico's model is that US consumers have a preference for canned yellowfin, and that US retailers would sell Mexican canned yellowfin after the withdrawal of the Tuna Measure. Mexico maintains that, following the withdrawal of the Tuna Measure, Mexican producers would be able to inform US consumers about the real nature of their fishing methods. As a result of this, the misconception about setting on dolphins would be corrected and the US consumers' real preferences for yellowfin would be revealed to the market. In this situation, canned yellowfin produced from tuna caught by setting on dolphins would be supplied in the market as a product like canned yellowfin caught by other methods. Given this additional supply, the price of canned yellowfin would fall and its consumption in the US market would increase.

5.56. The second assumption is based on two main arguments, one concerning consumer preferences, the other concerning US retailers' willingness to sell Mexican canned yellowfin. The Arbitrator examines each of these in turn.

5.1.3.2.1 US consumers' preferences

5.57. With regard to the first argument concerning consumer preferences, we begin by noting that the parties disagree on certain issues. One point of disagreement pertains to the fishing method by which tuna is caught. In this regard, we note that Mexico argues, and the United States agrees, that if the Tuna Measure were withdrawn, Mexican producers would be able to use a label containing the words "dolphin-safe". Indeed, the United States submits that Mexican tuna products produced consistently with the rules of the Agreement on the International Dolphin Conservation Program (AIDCP) would likely be able to be marketed as "AIDCP-certified dolphin-safe" or similar.[204] However, the United States also notes that if the Tuna Measure were withdrawn, it would be reasonable to expect that producers and retailers of tuna products not produced from setting on dolphins would seek to differentiate their products from tuna products produced from setting on dolphins, including by marketing their products in ways that Mexican producers could not.[205]

5.58. Mexico claims that US consumers would distinguish between tuna products made from unregulated and regulated setting on dolphins.[206] In this connection, Mexico argues that the Tuna Measure does not correctly inform US consumers about the impact on dolphins of fishing techniques used in the production of tuna products that are currently allowed to carry the dolphin-safe label. Following the withdrawal of the Tuna Measure, Mexican producers would be able to use an "AIDCP-certified dolphin-safe" or "AIDCP-compliant setting on dolphins" label on their products, and "market misconceptions regarding unregulated fishing methods and AIDCP-compliant fishing methods [would] be immediately corrected".[207] This, in Mexico's view, would educate US consumers about dolphin-safe fishing methods and have an effect on the consumption of canned yellowfin in the United States.

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[203] Mexico's written submission, para. 172.
[204] United States' response to Arbitrator question No. 57.
[205] United States' written submission, para. 123.
[206] We understand Mexico to use the term "regulated setting on dolphins" to refer to setting on dolphins in compliance with AIDCP rules.
[207] Mexico's written submission, para. 76.

5.59. According to the United States, US consumers distinguish between tuna caught by setting on dolphins on the one hand, and by other fishing methods on the other hand. According to the United States, consumers do not, as Mexico argues, distinguish between regulated and unregulated setting on dolphins.[208] In other words, while Mexico contends that the AIDCP-compliant setting on dolphins label would inform US consumers that this method is harmless to dolphins and that, as a result, consumers would buy Mexican canned yellowfin, the United States maintains that US consumers would not buy tuna products made from tuna caught by setting on dolphins regardless of whether the affected dolphins were set on in compliance with AIDCP rules. The United States argues that there is no evidence to support Mexico's contention in this regard.[209]

5.60. Both parties have submitted survey results to support their positions in this connection. Mexico submitted two surveys, in Exhibit MEX-63 and MEX-71. The survey presented in Exhibit MEX-63 was conducted in 2010 by Public Opinion Strategies. It shows that when asked what "dolphin-safe" means, 59% of interviewees said that it means that no dolphins were injured or killed in the course of capturing tuna, whereas 10% said it means that dolphins were not encircled and then released in the capture of the tuna.[210] The survey also asked the interviewees whether, if they learned that under a series of international dolphin conservation agreements in place since 1993 dolphin mortalities in the ETP had declined from more than 150,000 per year throughout the 1980s to less than 200 each year since 1993, they would consider those agreements to be working towards the conservation of dolphins. In response, 71% of the interviewees said yes, and 14% said no.

5.61. The survey presented in Exhibit MEX-71 was also conducted by Public Opinion Strategies, but dates from 2016. It shows that while one third of Americans interviewed "look for" the dolphin-safe label when buying canned tuna, another one third do not.[211] It also shows that one quarter of Americans interviewed specifically "inspect" tuna cans to find a dolphin-safe label before adding it to their shopping cart, while 6% do not.[212] Finally, it shows that 52% of Americans interviewed think that "dolphin-safe" means that no dolphins were injured or killed in the capture of the tuna, while 14% think that it means that dolphins were not encircled and then released in the capture of the tuna.[213]

5.62. In Exhibit USA-148, the United States submitted a survey conducted by Remington Research Group in 2016. The survey results show that 50% of interviewees considered that tuna caught by intentionally chasing and capturing dolphins should not be labelled as "dolphin-safe" even if that method does not kill or seriously injure dolphins. 74% of the interviewees also said that they would not buy canned tuna produced from tuna caught by such a method. In response to a question as to what should be the definition of dolphin-safe for tuna, 39% of the interviewees said it should mean that no dolphins were intentionally killed or seriously injured or intentionally chased and captured in catching tuna, 27% said it should mean that no dolphins were intentionally chased and captured in catching the tuna, and 17% said it should mean that no dolphins were killed or seriously injured in catching the tuna.[214]

5.63. We note that the three surveys show a mixed picture of the extent to which US consumers perceive the dolphin-safe label as referring to catching tuna by setting on dolphins rather than to a fishing method that does not kill or seriously injure dolphins. We also note that due to the difference in the questions asked in these surveys, they are not fully comparable. Moreover, in the absence of general US census data against which we could compare the survey sample sizes, it is not clear to us whether the survey samples accurately represent US census demographics in terms of population age, ethnicity, or educational attainment. Accordingly, we are not persuaded that it would be appropriate to attach weight to these surveys.

5.64. We accept the United States' position that it adopted the Tuna Measure in response to growing public awareness about the well-being of dolphins and the preservation of marine mammals in general. However, we do not necessarily interpret this to mean that US consumers

[208] United States' response to Arbitrator question No. 133.
[209] United States' response to Arbitrator question No. 133.
[210] Exhibit MEX-63, p. 2.
[211] Exhibit MEX-71, p. 3.
[212] Exhibit MEX-71, p. 4.
[213] Exhibit MEX-71, p. 6.
[214] Exhibit USA-148, p.2.

predominantly interpret the dolphin-safe label as indicating that a labelled product was not produced using tuna caught by setting on dolphins. It is therefore not apparent to us that US consumers would not buy Mexican canned yellowfin after the withdrawal of the Tuna Measure, if Mexican producers were then able to use a label showing that their methods are AIDCP-certified dolphin-safe. We find both parties' arguments on this issue, and their reliance on the mentioned survey results, to be unpersuasive and decline to adopt them as presented.

5.65. The second disagreement between the parties with regard to consumer preferences pertains to the characteristics of yellowfin as opposed to other species of tuna. Mexico argues in this respect that canned yellowfin, like canned albacore, is a premium tuna product. Mexico submits that US consumers would therefore pay a premium for canned yellowfin, and that canned yellowfin, if priced competitively, would sell in significant quantities in the US market. In support of this argument, Mexico provides empirical evidence that consumers prefer yellowfin over generic tuna, including albacore. This evidence shows that consumers are willing to pay a premium to buy yellowfin.[215]

5.66. The United States disagrees with Mexico. It considers that the demand for canned yellowfin is limited because US consumers dislike its taste, texture, and colour, compared with albacore.[216] In addition, the United States submits that while yellowfin is indeed sold partly as a gourmet product, it is often sold as "light" tuna, which is a term used to refer to yellowfin canned with skipjack.

5.67. Based on the evidence on the record, we consider reasonable Mexico's assumption that yellowfin, sold on its own (rather than as "light" tuna), is a premium product. In this regard, we note that the United States recognizes the existence of a premium segment in the canned tuna market. That segment is currently being served with albacore tuna and, to a significantly lesser extent, yellowfin tuna.[217] We also note the United States' recognition that canned yellowfin can be considered a premium or gourmet product in some circumstances.[218]

5.68. Regarding consumer preferences, the United States further asserts that one reason why producers combine yellowfin and skipjack together and sell it as "light tuna", rather than selling cans of 100% yellowfin, is to lower the mercury level per can of yellowfin and thus produce a safer product that is consistent with US Food and Drug Administration (USFDA) food safety regulations. The United States contends that US consumers are concerned about mercury levels in light tuna products composed of large tuna, namely yellowfin, as compared to the mercury levels of light tuna products composed of skipjack.[219]

5.69. In response to the United States' argument, Mexico submits that although US consumers are sensitive to the mercury content of tuna, the mercury level in yellowfin is not higher than that in other large tuna species, such as albacore. Therefore, in Mexico's view, consumers would buy Mexican canned yellowfin.

5.70. We note that the evidence presented in Exhibit MEX-64 shows that mercury levels in yellowfin and albacore are almost identical. Even accepting that US consumers may be sensitive to the mercury content of tuna products and may not be willing to buy products with high mercury levels, we also note that canned albacore, which contains the almost the same levels of mercury as yellowfin, is widely consumed in the United States. This, in our view, undermines the United States' argument that US consumers would refrain specifically from buying canned yellowfin because of its mercury level.

5.71. Based on the foregoing, we agree with Mexico's argument that US consumers have a preference for canned yellowfin.

[215] Exhibit MEX-02, table 7 on p. 20.
[216] United States' written submission, para. 23.
[217] United States' written submission, paras. 20-23.
[218] United States' written submission, paras. 22 and 102; response to Arbitrator question No. 143.
[219] United States' response to Arbitrator question No. 54.

5.1.3.2.2 US retailers' willingness to sell Mexican canned yellowfin

5.72. Mexico's second argument is that US retailers would carry Mexican canned yellowfin following the withdrawal of the Tuna Measure. The United States disagrees, and argues that US retailers are sensitive to consumer demand and that they therefore would only sell tuna products not produced from tuna caught by setting on dolphins.[220]

5.73. At the outset, we note that there is evidence on the record suggesting that at least some US retailers would be willing to sell canned yellowfin from Mexico if it were eligible to receive a dolphin-safe label. Exhibit MEX-36 (BCI) contains an affidavit dated 2010 from [[xxx]], attesting to several facts relevant to our analysis. In particular, the affidavit mentions that [[xxx]]. Notably, the exhibit also contains an e-mail from [[xxx]]. The e-mail closes by stating that [[xxx]].

5.74. Further, we note that in a three-week period in 2003 when, because of modifications made to the US law, Mexican producers had an opportunity to export canned yellowfin to the United States carrying a dolphin-safe label, some US retailers accepted to sell that product. In this regard, Exhibit MEX-45 (BCI) contains an affidavit supplementing the affidavit contained in MEX-36 (BCI). It states that in January 2003, following a change by the US government on the definition of dolphin safe, [[xxx]]. In February of the same year, [[xxx]]. In our view, Exhibits MEX-36 (BCI) and MEX-45 (BCI) lend support to Mexico's argument, in that they demonstrate that there are US retailers who have indicated that they would sell Mexican canned yellowfin after the withdrawal of the Tuna Measure, when such products would be eligible to carry a dolphin-safe label.

5.75. We note, however, that the United States argues that many of the companies engaged in the sale of tuna products in the US market have agreements with the Earth Island Institute (EII) and adhere to EII's dolphin-safe standard, which excludes tuna caught by setting on dolphins.[221] In particular, the United States argues that the dolphin safe policies of the companies that have the largest market share in the United States[222] confirm that US retailers are sensitive to the demands of their consumers and are committed not to sell tuna products containing tuna caught by setting on dolphins.[223] The United States contends that it is aware of written statements to that effect from retailers accounting for [[xxx]]% of the retail market and [[xxx]]% of all canned tuna consumption.[224] In addition, the United States notes a statement by Walmart indicating that none of the tuna major brands it sells produce products from tuna caught by setting on dolphins, and that purchasing decisions are governed by Walmart's new sustainability policy, rather than by whether the tuna product qualifies for the dolphin safe label under the US measure. The United States concludes, that including Walmart, the retailers covered by statements account for [[xxx]]% of the US retail market share, and [[xxx]]% of total US consumption.[225]

5.76. Mexico responds that these statements were "manufactured"[226] by the United States solely for the purposes of these arbitration proceedings, and alleges that the retailers were pressured into stating that they would not sell Mexican tuna products. In Mexico's view, therefore, these statements do not have important evidentiary value.[227] With respect to the statement by Walmart in particular, Mexico notes that this statement does not mention setting on dolphins, but refers rather to the sustainability of different fishing methods. Mexico therefore considers that Walmart's statement does not support the United States' argument.[228]

5.77. The statements presented by the United States pertain to 15 companies and are found in Exhibit USA-40. Of these 15 statements, 14 indicate, either explicitly or by reference to the EII standards, that the relevant company commits not to sell tuna products obtained from setting on dolphins. The statement by Walmart, however, contains no reference to setting on dolphins, and states instead that Walmart's policy is to sell tuna products obtained from sustainable fisheries.

[220] United States' written submission, para. 33.
[221] United States' written submission, paras. 31-32.
[222] United States written' submission, para. 33 (referring to Exhibit USA-38 (BCI)).
[223] United States written' submission, para. 33 (referring to Exhibit USA-40).
[224] United States written' submission, para. 33 (referring to Exhibit USA-38 (BCI) and USA-41 (BCI)).
[225] United States written' submission, para. 35.
[226] Mexico's written submission, para. 15 and Section III.B.2.a.(2)(b).
[227] Mexico's written submission, para. 77.
[228] Mexico's written submission, para. 79.

5.78. Mexico questions the relevance of some of these statements, many of which were prepared years ago.[229] Indeed, some of these statements were made in 1999, 2007, or 2011, which was prior to the expiry of the RPT granted to the United States to comply with the DSB recommendations or rulings, while others were made in 2015 or 2016. The United States acknowledges that some of the statements are older than others, but contends that the five retailers that signed statements predating the expiry of the RPT continue to be in EII's list of approved dolphin-safe retailers, which was last updated in December 2015.[230] Mexico does not dispute this contention.

5.79. Based on the evidence on the record, we find reasonable the United States' contention that certain US retailers would not change their dolphin-safe policies and would continue to refrain from offering for sale Mexican canned yellowfin made from tuna caught by setting on dolphins, even if the Tuna Measure were withdrawn. In particular, we accept that companies that have made commitments to EII would not begin purchasing tuna products made from tuna caught by setting on dolphins if the Tuna Measure were withdrawn. Certainly, we are not persuaded that they would abandon their dolphin-safe policies in the short-term. We would add that, in our view, Mexico has not substantiated its allegation that the statements were manufactured solely for the purposes of these proceedings.

5.80. The situation in respect of Walmart is less clear. The Walmart statement refers to Walmart's Canned Tuna Policy and indicates that this policy was released in May 2015, that is to say, on a date well after the end of 2014, which is the year for which we are assessing the level of nullification or impairment.[231] As we have no information on Walmart's purchasing policy in 2014, it would not be appropriate in our view to make assumptions on the basis of that new policy regarding Walmart's purchasing policy in 2014.

5.81. Even disregarding this, we note that the focus of Walmart's statement is the sustainability of the relevant fishery, as evidenced in particular through participation in a recognized sustainability programme.[232] Walmart's 2015 canned tuna purchasing policy as reflected in the statement submitted to us does not explicitly commit Walmart not to purchase Mexican tuna products without a dolphin-safe label. Similarly, the purchasing policy does not explicitly commit Walmart not to purchase tuna products produced from tuna caught by setting on dolphins. Moreover, the excerpt from Walmart's purchasing policy provided to us is ambiguous as to the precise requirements or circumstances in which tuna products would be considered sustainable. In particular, it is not clear to us what the different sustainability programmes listed by Walmart require or entail, and whether any of those programmes requires canned tuna to be "dolphin-safe", and if so, whether this would necessarily exclude tuna products produced from setting on dolphins.[233] Therefore, even considering this statement, we are unable to determine on the basis of this statement alone whether the United States is correct in suggesting that Walmart would not offer for sale Mexican canned yellowfin made from tuna caught by setting on dolphins, even if the Tuna Measure were withdrawn.

[229] Mexico's written submission, para. 85.
[230] United States' response to Arbitrator question No. 146(c).
[231] Exhibit USA-40, p. 16.
[232] Walmart's canned tuna policy requires all canned tuna suppliers to source from fisheries that: (a) comply with International Sustainable Seafood Foundation (ISSF) sustainability conservation measures, including those adopted in collaboration with relevant tuna RFMO and from vessels that are registered on the Pro-active Vessel Register (PVR); (b) Manage a program in accordance with the Principles of Credible Sustainability Programs developed by The Sustainability Consortium (third party review must be commissioned and provided upon request) or certified as sustainable using Marine Stewardship Council (MSC); (c) use better management fishing practices as validated through chain of custody (e.g. pole and line, free-school sets); or (d) actively work toward certification or involved in a Fisheries Improvement Project (FIP) that has definitive and ambitious goals, measurable metrics and time bound milestones.
[233] While we have some evidence concerning the requirements for sustainability certification under the Marine Stewardship Council, no evidence has been submitted concerning the contents of the International Sustainable Seafood Foundation programme, or concerning whether eligibility for the dolphin-safe label may be of relevance under a Fisheries Improvement Project or in the context of "better management fisheries practices".

5.82. Mexico has submitted an affidavit from July 2016 [[xxx]]. The statement provides no information regarding when this exchange took place, and so we cannot assume that it concerns 2014 and draw inferences concerning that year.[234] [[xxx]].

5.83. Moreover, the fact that Walmart may not have been purchasing Mexican canned yellowfin is not, in our view, a reason to think that it would not purchase such products if the Tuna Measure were withdrawn and Mexican canned yellowfin were eligible to be labelled as "dolphin-safe" in the US market.

5.84. For the reasons given above, we conclude that the information before us does not allow us to conclude that Walmart would not offer for sale canned yellowfin if the Tuna Measure were withdrawn and Mexican producers therefore had the ability to use a "dolphin-safe" label. Consequently, we do not consider it appropriate to include Walmart's [[xxx]]% market share in the total market share of retailers who, following the withdrawal of the Tuna Measure, would not offer Mexican canned yellowfin for sale. Based on the evidence before us, we therefore accept that US retailers accounting for 26.9% of total US consumption of tuna products would not commercialize Mexican canned yellowfin even after the withdrawal of the Tuna Measure. The remainder of US retailers, which account for 73.1%[235] of total US consumption of tuna products, are retailers in respect of which we have no evidence suggesting that they would not offer for sale Mexican canned yellowfin after the withdrawal of the Tuna Measure.[236]

5.85. Based on the foregoing, we consider that there is no reason to assume that US retailers would not sell Mexican canned yellowfin after the withdrawal of the Tuna Measure, except those retailers accounting for 26.9% of total consumption of tuna products with respect to whom evidence on the record suggests that they would not sell tuna caught by setting on dolphins regardless of whether it carried a dolphin-safe label.

5.1.3.2.3 Conclusion

5.86. Based on the above considerations, we consider reasonable the second assumption underlying Mexico's model, namely, that US consumers have a preference for canned yellowfin, and that there is no reason to assume that US retailers would not sell Mexican canned yellowfin after the withdrawal of the Tuna Measure, except those that made statements to the contrary, as explained above. We also note that the evidence on the record shows that the share of yellowfin in US cannery receipts was 34% in the period 1980-1989[237], prior to the adoption of the Tuna Measure. This, in our view, lends support to our finding that the second assumption is reasonable.

5.1.3.3 Mexican producers would supply all of the increased consumption of canned yellowfin in the US market following the withdrawal of the Tuna Measure

5.87. The third assumption underlying Mexico's model is that, following the withdrawal of the Tuna Measure, Mexico will be the sole supplier of canned yellowfin in the US market.[238] In Mexico's view, this assumption is "strongly supported by market realities".[239] The United States disagrees with this assumption, and submits that both US and foreign canneries that currently supply the US market with canned yellowfin would compete with Mexican producers to satisfy any increased demand for canned yellowfin in the US market.[240]

5.88. Before proceeding to an assessment of the specific arguments underlying this aspect of Mexico's model, we find it useful to clarify the exact nature of Mexico's contention. Specifically, we

[234] Reading Exhibit MEX-106 (BCI) together with Exhibit MEX-36 (BCI), which contains an earlier affidavit by the same person, it appears that the relevant exchange may have taken place in 2008.
[235] 73.1% is equal to the sum of Walmart's [[xxx]]% market share and the [[xxx]]% market share of other US retailers that have not, *ex ante*, ruled out the possibility of selling Mexican canned yellowfin after the withdrawal of the Tuna Measure.
[236] We note that while the United States argued that [[xxx]]% of the retailers are committed to selling only "dolphin safe" tuna product and will not carry tuna product produced from setting on dolphins, this figure refers to 2015. According to USA-41 (BCI), for the year 2014, the corresponding number is [[xxx]]% and Walmart's market share is [[xxx]]%.
[237] Exhibit USA-22 revised.
[238] Exhibit MEX-02, p. 30.
[239] Mexico's written submission, para. 175.
[240] United States' written submission, para. 112.

need to assess whether Mexico's argument is (a) that in the counterfactual situation, i.e. where the United States withdraws the Tuna Measure, suppliers from countries other than Mexico (US canneries and canneries from third countries) would not supply canned yellowfin to the US market), or (b) whether Mexico recognizes that there *would or may* be such supply, but chooses to disregard it for the purposes of modelling the counterfactual (for instance, because in Mexico's view the volume of supply from countries other than Mexico would be very small).

5.89. At the outset, we note that in Mexico's model, the United States does not import canned yellowfin from third countries (i.e. countries other than Mexico). Indeed, equation 20 in Exhibit MEX-02 says that yellowfin tuna consumed in the United States comes from Mexico.[241] This suggests that Mexico might be arguing that, after the withdrawal of the Tuna Measure, Mexico would be the only supplier of canned yellowfin in the US market. We asked Mexico to help us clarify its position. In response, Mexico indicated that it agreed with the United States' argument that "yellowfin tuna is produced elsewhere in the world and that US canneries do not operate at full capacity".[242] However, Mexico argues that the share of canned yellowfin currently being imported into the United States from countries other than Mexico is 1.2% of the overall consumption of tuna products in the United States. Moreover, Mexico argues that this share would not be affected by the withdrawal of the Tuna Measure because the import of such products into the US market is not limited by the Tuna Measure. Mexico further contends that the non-Mexican yellowfin currently being imported into the US market sells at a price higher than that at which Mexico would supply its canned yellowfin after the withdrawal of the Tuna Measure.[243] According to Mexico, these two factors (current small supply and high price) mean that, if anything, the supply of canned yellowfin from other sources "would be even smaller with the removal of the tuna measure[]" than it is currently.[244] Thus, in Mexico's view, "the inclusion of the global supply of canned yellowfin tuna into the model would have a marginal negative impact on the level of nullification or impairment".[245] Mexico argues that, for modelling purposes, the supply of non-Mexican canned yellowfin can be excluded in calculating the level of nullification or impairment caused to Mexico by the Tuna Measure.[246]

5.90. Based on these clarifications, we understand Mexico's argument to be that although there *is* currently some limited supply of canned yellowfin from US canneries and third countries, and although such supply would or at least may remain in the market after the withdrawal of the Tuna Measure, Mexico's model need not account for it because the volume of that supply is small, and will become even smaller following the withdrawal of the Tuna Measure. In the light of this, Mexico considers it appropriate, for modelling purposes, to treat Mexico as the sole supplier of canned yellowfin in the US market, as this assists in simplifying the calculation of the alleged level of nullification or impairment. Accordingly, we understand Mexico's argument to be that although in the counterfactual situation Mexico would not be the *sole* supplier of yellowfin in the US market following the withdrawal of the Tuna Measure, but rather the *dominant* supplier, for modelling purposes Mexico considers it acceptable to ignore other suppliers and treat Mexico as though it would be the sole supplier.

5.91. Given Mexico's argument, the issue that the third assumption raises is whether it is reasonable to assume that Mexico would be the dominant supplier of canned yellowfin to the United States following the withdrawal of the Tuna Measure. If we find that it would, we will then discuss whether it is also appropriate, in Mexico's model, to disregard other sources of canned yellowfin (US canneries and imports from third countries), treating Mexico as the sole supplier of canned yellowfin in the US market.

5.92. Mexico's assumption that it would be the dominant supplier of canned yellowfin to the US market after the withdrawal of the Tuna Measure is based on three arguments: (a) the Mexican canning industry would be competitive in the US canned yellowfin market *vis-à-vis* US canneries and other foreign canned yellowfin suppliers; (b) no other potential large supplier is affected by the Tuna Measure, and unaffected suppliers would not be incentivized to sell canned yellowfin to the United States after the withdrawal of the Tuna Measure; and (c) Mexico could and would

[241] Exhibit MEX-02, p. 30.
[242] Mexico's response to Arbitrator question No. 18.
[243] Mexico's response to Arbitrator question No. 123.
[244] Mexico's response to Arbitrator question No. 123.
[245] Mexico's response to Arbitrator question No. 123.
[246] Mexico's response to Arbitrator question No. 123.

import canned yellowfin from other countries in the region to meet its own domestic demand. We will assess each of these arguments in turn.

5.1.3.3.1 The Mexican canning industry would be competitive in the US canned yellowfin market *vis-à-vis* US canneries and other countries exporting canned yellowfin to the United States

5.93. Mexico argues that it has an important cost advantage in the canned yellowfin market over other countries. According to Mexico, the factors underpinning this cost advantage include (a) the installed processing capacity in Mexico; (b) the vertical integration of the Mexican canned tuna industry; (c) Mexico's strategic location near the fishing zones and as a neighbour to the United States; (d) the inexpensive labour cost in Mexico; and (e) duty-free access to the US market by virtue of being a signatory to NAFTA.[247]

5.94. Mexico also asserts that although it is competitive in the canned yellowfin markets of developed countries such as the European Union and the United States, tariff rate quotas limit exports to the European Union[248], while the Tuna Measure restricts exports to the United States.[249] In respect of the EU market, Mexico elaborates further by pointing out that its exports of canned yellowfin to the EU market are subject to several constraints, including (a) a tariff rate quota comprising an over-quota tariff of 24% and an in-quota tariff of 6.8% for a volume in 2014 of between 8500 and 9000 tonnes; (b) higher transportation costs than some of Mexico's main competitors; (c) the existence of a large, established supply of yellowfin from the fleets of Spain, Italy, Portugal, and France; (d) unlimited duty-free treatment accorded by the European Union to certain other countries; and (e) subsidies provided by the European Union and its member States to the EU fleets. Mexico further explains that its exports to South American markets are limited because of the large, established supply of tuna in those markets, in particular, from the Ecuadorian fleet.[250] Thus, in Mexico's view, any current limitations of its supply of canned yellowfin to foreign markets do not indicate any inherent lack of competitiveness.

5.95. In response to Mexico, the United States argues that Mexico's assertion about the competitiveness of its canned yellowfin industry is contradicted by the evidence on the record.[251] The United States contends that Ecuador has almost all of the advantages that Mexico asserts give it a cost advantage, but has greater capacity than Mexico to take advantage of economies of scale. In this regard, the United States refers, in particular, to the fact that Ecuador has installed processing capacity, a semi-vertically integrated canning industry, is located near the relevant fishing zones, and has a relatively inexpensive, productive labour force.[252]

5.96. The United States further submits that Thailand has many of the advantages that Mexico claims, and in particular that Thailand benefits from close proximity to the Western and Central Pacific Ocean (WCPO). The United States contends that fish is the most significant component in the cost of canned tuna and Thailand's dominance in the canning industry makes it a global leader in canning-grade frozen skipjack and yellowfin.[253] According to the United States, Thailand is also better placed than any industry in the world to take advantage of economies of scale in processing and canning due to the high concentration of processing facilities around Bangkok.[254] The United States also argues that Thailand has a low-cost, highly productive labour force, which is about 7% more productive, per metric ton of production, than Ecuador's.[255] The United States contends that other WCPO countries, such as the Philippines and China, also benefit from many of the advantages enjoyed by Thailand, including installed processing capacity, strategic location near fishing zones, and a low-cost, high productivity workforce.[256]

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[247] Mexico's written submission, para. 175.
[248] Mexico's response to Arbitrator question No. 85.
[249] Mexico's response to Arbitrator question No. 149.
[250] Mexico's response to Arbitrator question No. 85.
[251] United States' response to Arbitrator question No. 66 (referring to Mexico's written submission, paras. 129, 148).
[252] United States' response to Arbitrator question No. 66 (referring to Exhibits MEX-21 and USA-07).
[253] United States' response to Arbitrator question No. 66 (referring to Exhibits USA-07 and MEX-02).
[254] United States' response to Arbitrator question No. 66 (referring to Exhibits USA-114).
[255] United States' response to Arbitrator question No. 66 (referring to Exhibits USA-114).
[256] United States' response to Arbitrator question No. 66.

5.97. The United States also notes that Mexico exports very little canned tuna to the European and South American markets. According to the United States, these small export volumes suggest deficiencies in Mexico's competitiveness in those markets.[257] For the United States, Mexico's failure to compete in the European Union is particularly notable given the European consumer preference for yellowfin and the fact that there is no EU-wide measure equivalent to the US Tuna Measure.[258] The United States recognizes that, owing to its NAFTA membership, Mexican tuna products have a tariff advantage *vis-à-vis* most other imported canned tuna products in the US market. However, the United States contends that this tariff advantage has a limited impact on Mexico's overall competitiveness in the US market for canned yellowfin.[259] The United States argues that Mexico has provided no evidence suggesting that duty-free access under NAFTA counterbalances the significant competitive advantages of the existing major suppliers to the US market.[260]

5.98. Additionally, the United States asserts that Mexico's exports of canned yellowfin to the EU market also benefit from preferential tariff treatment, compared to many other major canned tuna producing countries, including Thailand, China, Indonesia, Vietnam, and Senegal. The United States does not dispute the existence of the tariff rate quota in the EU market, but argues that Mexico has never come close to fulfilling its tariff rate quota in prepared tuna (i.e. canned tuna and tuna loins) exports.[261] According to the United States, the fact that Mexico is unable to compete with those other exporting countries in the EU market despite its tariff advantage, which the United States says is larger than its NAFTA tariff advantage in the US market, proves that Mexico is not a competitive supplier of canned yellowfin. The United States infers from this that Mexico would not be the only supplier of canned yellowfin to the US market in the event of the withdrawal of the Tuna Measure, as Mexico's model assumes.[262]

5.99. The issue we need to consider is whether Mexico would be sufficiently competitive *vis-à-vis* other suppliers of canned yellowfin in the US market, in a way that would support the argument that Mexico would in the short-term become the dominant supplier of canned yellowfin in the US market following the withdrawal of the Tuna Measure.

5.100. We begin our analysis of this issue by considering whether Mexican canned yellowfin would be competitive *vis-à-vis* US canned yellowfin. In this connection, we note that, as far as the Mexican industry's competitiveness *vis-à-vis* the US canneries is concerned, both parties agree that US vessels would not return to the ETP in order to set on dolphins. Further, since US canneries are not vertically integrated and currently produce the majority of their tuna product from tuna caught by non-US vessels, as acknowledged by the United States[263], they would have to purchase yellowfin from other fleets fishing in the WCPO and elsewhere that catch substantial quantities of yellowfin. Given the distance of those regions from the United States, it is plausible that such purchases would command higher prices compared to the Mexican producers' prices, which, in turn, would increase the production costs of US canneries. This, in our view, means that the Mexican canning industry would enjoy a competitive advantage *vis-à-vis* the US canneries.

5.101. We now turn to Mexico's argument regarding its industry's competitiveness *vis-à-vis* the suppliers from third countries. To assess the merits of Mexico's argument about the competitiveness of the Mexican canning industry in the US market, we would ideally need information on the costs of production of Mexican producers relative to their competitors from third countries. Such information, however, is not on the record. In our view, Mexico's argument that its canning industry is vertically integrated and, therefore, faces lower production costs is not by itself sufficient to support Mexico's claim. Other suppliers, such as Ecuador, are in fact also vertically integrated.[264]

5.102. However, as regards market access conditions to the US market, Mexico's close geographical proximity to the United States and the fact that it has duty-free access to the US

[257] United States' response to Arbitrator question No. 55.
[258] United States' response to Arbitrator question Nos. 55 and 149; opening statement at the meeting of the Arbitrator, para. 34.
[259] United States' response to Arbitrator question No. 142.
[260] United States' response to Arbitrator question No. 66.
[261] United States' comment on Mexico's response to Arbitrator question No. 85.
[262] United States' comment on Mexico's response to Arbitrator question No. 85.
[263] United States' response to Arbitrator question No. 66.
[264] See, for instance, Exhibit USA-07, p. 29.

market as a NAFTA member[265] in our view provide Mexico with a crucial dual advantage relative to its competitors. In this context, we do not consider that the United States' argument that "the fact that Mexico is unable to compete with [Indonesia, Vietnam, Senegal and China] in the EU market, despite a tariff advantage that is *larger* than its NAFTA tariff advantage in the U.S. market" provides a basis to ignore Mexico's tariff preference in the US market and its proximity to the United States.[266] In other words, Mexico enjoys an advantage in the US market that it does not enjoy in the EU market, especially regarding geographical proximity.

5.103. As for the United States' argument regarding the inability of Mexico's canning industry to compete in markets such as the European Union or South American countries[267], we accept that it may in principle be appropriate for the Arbitrator to make such horizontal comparisons in ascertaining Mexico's competitiveness in the US market. In our view, however, the circumstances in those markets, which Mexico refers to and we note in paragraph 5.94 above, distinguish such markets from the US market, and counsel against drawing conclusions from the situation observed in those other markets. Therefore, we do not consider it appropriate to attach weight to Mexico's allegedly limited competitiveness in such other markets.

5.104. On the basis of the above, our view is that Mexico does have a competitive advantage in the US market *vis-à-vis* other foreign canned yellowfin producers.

5.105. In sum, we find plausible the argument that the Mexican industry would be competitive *vis-à-vis* the US canneries after the withdrawal of the Tuna Measure mainly because the Mexican industry is vertically integrated whereas the US canneries buy yellowfin from WCPO and other distant countries at considerable transport costs. Additionally, given Mexico's important advantage stemming from its geographical proximity to the United States and the tariff preference resulting from its NAFTA membership, we also find plausible the argument that the Mexican industry would be competitive *vis-à-vis* other suppliers of canned yellowfin. For these reasons, we find plausible Mexico's argument that it will, in the short-term, be competitive *vis-à-vis* other suppliers of canned yellowfin in the US market after the withdrawal of the Tuna Measure.

5.1.3.3.2 No other potential large supplying country is affected by the Tuna Measure, and unaffected supplying countries would not be incentivized to sell canned yellowfin after the withdrawal of the Tuna Measure

5.106. Mexico argues that there are no potential important suppliers of canned yellowfin to the United States other than Mexico that are affected by the Tuna Measure, and that only exports of canned tuna from Mexico would increase in a significant way after the withdrawal of the Measure. Mexico contends that the market forces that have so far prevented exports of greater quantities of canned yellowfin from other countries would not be affected by the withdrawal of the Measure. In Mexico's view, the same market forces would also continue to operate in such a way as to stop US canneries from increasing their production of canned yellowfin after the withdrawal of the Tuna Measure.[268]

5.107. While Mexico recognizes that canned yellowfin tuna could be produced by the United States if the US fleet were to move back into the ETP to catch yellowfin in response to the withdrawal of the Tuna Measure, Mexico argues that this would not be feasible in the short-run because US vessels are not equipped to catch yellowfin by setting on dolphins in the ETP. Even if it were feasible for US boats to move back into the ETP, fishing in the ETP would not be profitable.[269]

5.108. Mexico acknowledges that yellowfin is produced elsewhere in the world and that US canneries are not operating at full capacity, but contends that this is not relevant to the Arbitrator's analysis. For Mexico, the relevant question is whether the Tuna Measure currently prevents these countries from exporting canned yellowfin to the United States and thus whether

[265] The United States' MFN duty rate is 35% for tuna products in oil, and 6% for those in water. Exhibit MEX-05. We note that the United States agrees that NAFTA membership provides a tariff advantage. See United States' response to Arbitrator's Question No. 142.
[266] United States' comment on Mexico's response to Arbitrator question No. 85.
[267] United States' response to Arbitrator question No. 55.
[268] Mexico's written submission, para. 174.
[269] Mexico's written submission, para. 176.

the withdrawal of the Measure would increase their exports to the United States.[270] Mexico argues that suppliers of canned yellowfin located in South East Asia are not currently impacted by the Tuna Measure because the Measure affects only the countries that harvest tuna by setting on dolphins in the ETP.[271] Additionally, Mexico recognizes that there are a few Central and South American countries that harvest tuna in the ETP, but argues that those countries would not be able to compete with Mexico's producers of canned yellowfin because they have small production capacities, are located further from the United States, and their exports are subject to US import tariffs. Mexico also underlines the fact that the United States maintains embargoes on imports of yellowfin products from Belize, Bolivia, Colombia, Honduras, Nicaragua, Panama, Vanuatu, Venezuela, and Peru, as these countries have chosen not to seek an "affirmative finding" from the US Department of Commerce that they are in compliance with the AIDCP requirements. This, in Mexico's view, shows that any export response by other countries to the withdrawal of the Tuna Measure would be minor.[272]

5.109. The United States submits that countries that fish and process tuna in the WCPO region could supply canned yellowfin to the US market. The United States explains that the WCPO is the most important source of yellowfin in the world, including yellowfin produced for canning, and that the United States imports substantial amounts of canned tuna from all of the WCPO producers, including Thailand, Vietnam, the Philippines, and Indonesia, which together accounted for 79% of all canned tuna imported into the United States between 2010 and 2015.[273] The United States submits that it already imports canned yellowfin from these and other tuna producing countries.[274] The fact that the United States does not import more canned yellowfin is, therefore, due to a lack not of supply but of demand. Finally, regarding Mexico's arguments concerning the US fleet, the United States agrees with Mexico that it is reasonable to consider that US vessels would not return to the ETP in order to set on dolphins. However, the United States contends that the reason for this is not because US canneries "are not set up" to process ETP yellowfin, but rather because such canneries would not purchase tuna products produced from tuna caught by setting on dolphins because US consumers do not want such product.[275]

5.110. In assessing Mexico's argument about the possible export response by other countries to the withdrawal of the Tuna Measure, the Arbitrator finds it important to note that, in small quantities[276], canned yellowfin is already sold in the US market.[277] We recall that the share of yellowfin in the total consumption of tuna products in the US market is 1.2%. In examining whether countries other than Mexico would also export canned yellowfin to the United States following the withdrawal of the Tuna Measure, we find it useful to separate those countries into two groups: (a) countries that already supply canned yellowfin to the US market, and (b) countries that do not currently supply canned yellowfin to the US market.

5.111. Regarding the countries whose products are already sold in the US market, Mexico argues that the market forces that currently limit the amount of their exports to the United States would remain the same following the withdrawal of the Tuna Measure.[278] This aspect of Mexico's argument would be reasonable if the current price of canned yellowfin in the US market were higher than or equal to the price generated by Mexico's model. That is, if the price generated by Mexico's model is higher than the prevailing price in the US market, the producers of other countries would tend to increase their exports to the United States. For Mexico to become the dominant supplier in the US market, it is necessary that the price of canned yellowfin decrease with Mexico's entry into the US market following the withdrawal of the Tuna Measure.

[270] Mexico's response to Arbitrator question No. 18.
[271] Mexico's response to Arbitrator question No. 18; opening statement at the meeting of the Arbitrator,.
[272] Mexico's response to Arbitrator question No. 18 (referring to NOAA Fisheries, Tuna/Dolphin Embargo Status Update, Exhibit MEX-72).
[273] United States' response to Arbitrator question No. 66 (referring to Exhibit USA-36).
[274] United States' response to Arbitrator question No. 66 (referring to Exhibits MEX-15, USA-10 (BCI) and USA-90).
[275] United States' response to Arbitrator question No. 66.
[276] Mexico's response to Arbitrator question No. 150; United States' comments on Mexico's response to Arbitrator question No. 150.
[277] Exhibits MEX-15, USA-10 (BCI), USA-36, USA-93 and USA-96; United States' response to Arbitrator question No. 157.
[278] Mexico's written submission, para. 174.

5.112. We note that the parties have not submitted information on the 2014 prices of canned yellowfin. Only some indirect evidence has been provided using 2015 export prices to the European Union.[279] Not only do we not have clear information on the price of wholesale yellowfin in the United States in 2014, it is also not clear to us how the quality of the canned yellowfin that Mexico's model assumes will be sold to the United States compares to the quality of the canned yellowfin currently sold in the US market. We observe, however, that, as noted above, it can reasonably be expected that Mexico would increase its exports of canned yellowfin to the United States following the withdrawal of the Tuna Measure. Such an increase in the supply of canned yellowfin would most likely decrease the price of this product in the US market. In such a situation, producers from other countries would not have any incentive to increase their exports to the United States. If anything, such a development would potentially decrease the exports from such countries. We therefore find this aspect of Mexico's assumption to be reasonable.

5.113. Regarding the effect of the withdrawal of the Tuna Measure on canned yellowfin suppliers whose products are not currently sold in the US market, we note that Mexico itself recognizes that countries that harvest tuna in the ETP would be affected by the withdrawal of the Measure.[280] Countries that can reasonably be expected to be affected by the withdrawal of the Tuna Measure are those that harvest yellowfin in the ETP by setting on dolphins and that, consequently, are not eligible for the dolphin-safe label in the US market. This group includes 11 countries: Belize, Bolivia, Colombia, Ecuador, El Salvador, Guatemala, Nicaragua, Panama, Peru, Vanuatu, and Venezuela. Of these 11 countries, seven, i.e. Colombia, Ecuador, Guatemala, Mexico, Nicaragua, Panama, and Venezuela[281], were granted dolphin mortality limits (DMLs)[282] during the period 2012-2014, and eight had requested DMLs for the period 2015-2017.[283] While we are mindful of Mexico's argument that the United States maintains an embargo on imports of yellowfin tuna products from some of these countries, we note that Mexico itself recognizes that Ecuador and Guatemala harvest yellowfin by setting on dolphins, with no embargo being imposed by the United States on yellowfin from these countries. Therefore, the withdrawal of the Tuna Measure would likely encourage Ecuador and Guatemala, at least, to seek to expand their exports of canned yellowfin to the United States. However, the capacity of these two countries to export to the United States yellowfin caught by setting on dolphins and eligible to receive the AIDCP dolphin-safe label is limited. Each of these countries had only one vessel with a DML in 2014.[284] Further, neither of these countries benefit from preferential access to the US market. Therefore, we do not consider that they could in the short-term significantly increase their exports of canned yellowfin to the United States after the withdrawal of the Tuna Measure.

5.114. On this basis, we find plausible Mexico's argument that unaffected supplying countries would not be incentivized to sell canned yellowfin – and that affected suppliers would not contribute significantly to an increase in supply of canned yellowfin – to the US market after the withdrawal of the Tuna Measure.

5.1.3.3.3 Mexico would import canned yellowfin from other countries in the region to meet its own domestic demand

5.115. Mexico's model assumes that nearly all of Mexico's production of canned yellowfin will be exported to the United States and that Mexico will import the equivalent of 20,000 metric tonnes of canned yellowfin from other ETP countries in order to meet its domestic demand for canned yellowfin.[285] The United States disagrees with Mexico's argument, and maintains that the only ETP country that could provide this much yellowfin to Mexico is Ecuador, and it is not clear why

[279] United States' response to Arbitrator question No. 138; oral statement at the meeting with the Arbitrator, paras. 31-33.

[280] Mexico's response to Arbitrator question No. 18 (referring to NOAA Fisheries, Tuna/Dolphin Embargo Status Update, Exhibit MEX-72). See also fn. 44, Mexico's written submission: "other countries are affected by the tuna measure. But as discussed by Mexico before, it is not expected that they will be able to export canned yellowfin tuna on the U.S. market once the measure is removed".

[281] Exhibit USA-200.

[282] We understand that in order to be eligible to receive the AIDCP dolphin-safe label, the vessel that harvests the tuna must have a DML. Thus, only tuna caught by those types of vessels could eventually compete with Mexican canned yellowfin in the US market.

[283] Colombia, Ecuador, Guatemala, Mexico, Nicaragua, Panama, the United States and Venezuela. Exhibit USA-160.

[284] Mexico's response to Arbitrator question No. 80.

[285] Exhibit MEX-02, pp. 28-29.

Ecuador would prefer selling its yellowfin to Mexico rather than canning and exporting it to the United States itself.[286] The United States also argues that Mexico could not make such purchases without causing an increase in yellowfin prices.[287]

5.116. In our view, Mexico would not necessarily need to purchase all of its imported yellowfin from a single ETP country, i.e. Ecuador. Indeed, Table 10 in Exhibit MEX-02 shows that the combined capacity of other ETP countries is greater than Ecuador's. We do not, however, need to deal with this argument because we reject Mexico's argument for reasons explained below.

5.117. We do not find Mexico's argument persuasive. To justify this assumption, Mexico would need to show either that one or more ETP countries would catch 20,000 metric tonnes in addition to the quantity currently harvested, or that one or more ETP countries would be willing to sell 20,000 metric tonnes of their yellowfin to Mexico rather than destine it for internal consumption or sell it to other countries.

5.118. In the first scenario, it is not clear whether catching the corresponding additional quantity of yellowfin tuna in the ETP would be allowed under other international rules, such as the IATTC, which regulates catches of tuna species in the ETP, monitors and takes corrective action if they rise above sustainable levels.[288]

5.119. In the second scenario, we do not understand how the market price could remain the same if certain suppliers decided to sell their product to Mexican canneries and not to the canneries in those countries to which they normally export. In this regard, we find it important to note that 20,000 metric tonnes represents a significant amount, given that the total equivalent quantity of canned yellowfin harvested in the ETP region from which Mexico intends to source its imports of yellowfin[289] was 55,388 metric tonnes in the year 2014.[290] In percentage terms, 20,000 metric tonnes amounts to 36% of total production from the mentioned ETP region. In our view, if Mexico were to purchase as significant a share as this, it would cause an increase in Mexico's import prices. Depending on the magnitude of such a price increase, Mexican producers might choose to sell part or all of their canned yellowfin in the Mexican market rather than exporting to the US market. Mexico submits that the United States has not demonstrated why Mexico's assumption about the availability of 20,000 metric tonnes of yellowfin from the South American countries is invalid.[291] In our view, however, it is for Mexico to demonstrate the validity of its own assumption before we would expect the United States to refute that assertion. Mexico has not done so.

5.120. Based on these considerations, we do not find plausible Mexico's argument that it could import the equivalent of 20,000 metric tonnes of canned yellowfin from other ETP countries in order to meet its domestic demand for canned yellowfin.

5.1.3.3.4 Conclusion

5.121. As we have explained, the third assumption underlying Mexico's model is based on three arguments, namely, (a) that the Mexican producers would be competitive *vis-à-vis* the US canneries and producers from other countries, (b) that no country other than Mexico would be significantly incentivized to export canned yellowfin to the United States after the withdrawal of the Tuna Measure, and (c) that Mexico would buy the equivalent of 20,000 metric tonnes of canned yellowfin from other ETP countries to meet the domestic demand for canned yellowfin in Mexico.

5.122. We find the first argument to be plausible mainly because of Mexico's geographical proximity to the US market and the tariff-free treatment that it enjoys as a NAFTA member. We have also agreed with the argument that the withdrawal of the Measure would not lead to a significant increase in the volume of exports to the United States of canned yellowfin from countries other than Mexico. In this regard, we have noted that the situation of countries that already export canned yellowfin to the United States would not change after the withdrawal of the

[286] United States' written submission, para. 118.
[287] United States' comments on Mexico's response to Arbitrator question No. 80.
[288] United States' written submission, para. 117, referring to Exhibits USA-43 and USA-52.
[289] See Exhibit MEX-02, table 10.
[290] Exhibit MEX-02, table 10.
[291] Mexico's comments on the United States' response to Arbitrator question No. 141.

Tuna Measure. As for the two ETP countries that might be affected by the withdrawal of the Tuna Measure, namely, Ecuador and Guatemala, we have noted that because their capacity is limited, they would not be in a position to significantly increase their exports to the United States in the short-term. However, we do not find plausible the third argument underlying this assumption, namely, that Mexico could import the equivalent of 20,000 metric tonnes of canned yellowfin from other ETP countries to meet its domestic demand for canned yellowfin. Mexico has not demonstrated to us that in the short-term there could be excess supply in the ETP which would allow Mexico to purchase the equivalent of 20,000 metric tonnes of canned yellowfin, without increasing the catch level in that region, or the price of fresh and frozen yellowfin in a way that would undermine Mexico's competitiveness *vis-à-vis* other countries that could supply the US market.

5.123. In the light of these findings, we conclude, overall, that Mexico's third assumption, which implies that it would be the dominant supplier of canned yellowfin in the US market following the withdrawal of the Tuna Measure, is a reasonable one. We consider that the fact that Mexico would be competitive *vis-à-vis* US canneries and suppliers from third countries, coupled with the fact that the third-country suppliers would not be incentivized to significantly increase their exports of canned yellowfin to the United States following the withdrawal of the Tuna Measure, supports this conclusion, even if we do not find plausible Mexico's argument about purchasing the equivalent of 20,000 metric tonnes of canned yellowfin. In our view, Mexico would still be the dominant supplier of canned yellowfin in the US market in the short-term even if it were not able to import the equivalent of 20,000 metric tonnes of canned yellowfin from the other ETP countries.

5.124. Having found that it is reasonable to assume that Mexico would be the dominant supplier of canned yellowfin to the United States after the withdrawal of the Tuna Measure, the next question is whether it is also appropriate that Mexico, for modelling purposes, disregards the supply of canned yellowfin from other sources and in its model treats Mexico as the sole supplier of that product to the United States, in order to facilitate the actual calculation of the level of nullification or impairment. For reasons explained in Section 6.2.2 below, we find this approach to be appropriate in calculating the level of nullification or impairment.

5.1.3.4 Conclusion on Mexico's proposed model

5.125. In the preceding paragraphs, we have described and critically analysed Mexico's proposed model. We have found that many but not all of the assumptions on which the model is based are reasonable. Therefore, we consider that it could, in principle, be appropriate for us to base our calculation on Mexico's model, provided that we respecified those assumptions that we have found to be unreasonable.

5.126. Before we could do so, however, we must examine the alternative model proposed by the United States, to determine whether it constitutes a reasonable or superior alternative to the model proposed by Mexico.

5.2 United States' proposed model for determining the level of nullification or impairment

5.2.1 Description of the model

5.127. The United States uses a model which examines Mexico's historical share in the US tuna products market prior to the adoption of the Dolphin Protection Consumer Information Act (DPCIA) and compares actual US imports from Mexico of tuna products with the 2013 Tuna Measure in place to the level of imports that would occur if the Measure were withdrawn. The United States contends that this approach is consistent with that taken by past arbitrators as well as with the evidence on the record.[292] According to the model presented by the United States, the level of nullification or impairment suffered by Mexico in the present case is between USD 8.5 and USD 21.9 million.[293]

[292] United States' written submission, para. 125.
[293] United States' written submission, para. 137.

5.128. The United States' model can be described as a five-step methodology geared towards calculating the hypothetical US imports of Mexican tuna products in the counterfactual scenario[294]:

a. The United States identifies Mexico's share in US imports of tuna products prior to the adoption of the DPCIA;

b. it applies those percentages to current US imports of tuna products;

c. it multiplies the projected import volumes by the average price of imported tuna products, excluding Mexican tuna products;

d. it discounts the results from the previous step in order to account for the alleged current US consumer preference for tuna products produced from fishing methods other than setting on dolphins over tuna products produced from setting on dolphins; and

e. it subtracts the value of Mexico's actual imports from the figure calculated in the previous step.

5.129. Regarding the first step, the United States explains that it identified exports of tuna products from Mexico to the United States in the period 1987-1989 and calculated Mexico's export share by volume, which amounted to 3.9%, with a historical high of 5.8% in 1987.[295] The United States considers 3.9% to be a reasonable estimate of what Mexico's annual share of US imports of tuna products would be in the absence of the Tuna Measure, and 5.8% to represent the highest possible share of potential imports that could be affected by the Tuna Measure. The United States explains that its approach uses Mexico's share in US imports of the covered products during the relevant historical period rather than absolute quantities of imports[296], and that although using Mexico's historical share of all tuna imports, rather than just tuna products, may overestimate the level of nullification or impairment, the resulting estimate is likely very close to Mexico's historical share in the US imports of tuna products.[297]

5.130. Regarding the second step, the United States explains that it applies the percentages obtained in the first step to current US imports of tuna products based on average annual imports of tuna products for 2013-2015.[298] The United States argues that during this three-year period, it imported on average 251,011 metric tonnes of tuna products, and that assigning Mexican tuna products a 3.9% share of imports at this level suggests that US imports of Mexican tuna products would be approximately 9,789 metric tonnes per year, and that at 5.8%, US imports of Mexican tuna products would be 14,559 metric tonnes a year.[299]

5.131. In the third step, the United States multiplies the projected quantity of Mexico's exports of tuna products by the average import price of tuna products from the world, excluding Mexico, for the period 2013-2015[300], resulting in an annual value of US imports of Mexican tuna products of USD 51.8 million, based on a 3.9% share in overall US imports of tuna products, and USD 77.1 million, based on a 5.8% share in those imports. The United States explains that excluding imports from Mexico from the calculation of the average price of tuna products has the virtue of accounting for any price difference between Mexican tuna products and other tuna products due to the ineligibility of the Mexican product for the dolphin-safe label.[301]

5.132. In the fourth step, the United States discounts the figures obtained thus far to reflect its contention that producers and retailers would continue to differentiate tuna products produced from fishing methods other than setting on dolphins from tuna products produced from tuna

[294] United States' written submission, paras. 124-137; Exhibit USA-81.
[295] United States' written submission, para. 130. We note that the United States contends that using an average is preferred in cases like this as it smooths year-to-year anomalies and gives a more accurate picture of Mexico's market share during the relevant period.
[296] United States' written submission, para. 128.
[297] United States' written submission, para. 129.
[298] United States' written submission, para. 131 (referring to Exhibits USA-62 and USA-81).
[299] United States' written submission, para. 131.
[300] United States' written submission, para. 132.
[301] United States' written submission, para. 132.

caught by setting on dolphins.[302] The United States argues that these preferences are revealed in the commitments that many companies serving the US market have made to the EII not to produce, hold, or sell tuna products produced from setting on dolphins and that, as these commitments do not depend on the content of US law, they would not likely change even if the Tuna Measure were withdrawn.[303] According to the United States, retailers that account for [[xxx]]% of total consumption of tuna products in the US market have such policies. The United States introduces this discount in its model by multiplying the estimated value of imports of Mexican tuna products, the figure resulting from the third step, by 0.53 to reflect the market share available to tuna products produced from setting on dolphins.[304] This leads to a result of USD 27.45 million based on a 3.9% share in overall US imports of tuna products, and USD 40.8 million, based on a 5.8% share in those imports.

5.133. In the fifth step, the United States subtracts the value of current US imports of Mexican tuna products from the value of imports from Mexico that would have occurred in the counterfactual situation. Using the average actual value of US imports of Mexican tuna products for 2013-2015 produces a result, which, the United States argues, constitutes its estimate of the level of nullification or impairment, of USD 8.5 million, based on a 3.9% share in overall US imports of tuna products, and an upward bound of USD 21.9 million, based on a 5.8% share in those imports.[305]

5.2.2 Mexico's arguments on the United States' model

5.134. Mexico argues that the market-based approach proposed by the United States is flawed and underestimates losses suffered by Mexico because of the Tuna Measure.[306] For Mexico, the historical figures used in the United States' model are not indicative of the levels of imports in the case of the withdrawal of the Tuna Measure because these import volumes occurred more than 25 years ago, at a time when market conditions were very different from those observed in 2014.[307] Mexico considers that the historical market share approach suggested by the United States leads to a flawed counterfactual because market conditions prevailing at the time of adoption of the Tuna Measure in 1990 were not the same as the conditions in 2014.[308]

5.135. Mexico presents several reasons why the market conditions have changed between the period 1987-1989 and 2014. First, Mexico argues that the United States maintained a trade embargo on imports of Mexican tuna from 1980-1986 and that when the United States lifted the embargo, it pressured Mexico to agree to "voluntarily" restrain exports to the United States.[309] Second, Mexico contends that the 1987-1989 period does not correspond to what would be observed following the withdrawal of the Tuna Measure in 2014 because Mexican firms now have much better access to the US market due to Mexico's membership in NAFTA. In particular, Mexico notes that while the applicable duty rate in the 1987-1989 period was 35% for tuna products in oil and 12.5% for tuna products not in oil, as a NAFTA member, Mexico can now export canned tuna to the United States free of customs duties.[310] Third, Mexico submits that the US market was essentially emptied of canned yellowfin in 2014, while during 1987-1989 the market for canned yellowfin was occupied by US domestic production.[311] Mexico underlines that competition in the canned yellowfin market was "stiff"[312] in the 1987-1989 period and that prior to the enactment of the Tuna Measure in 1990, US canneries processed large quantities of yellowfin from domestic and imported sources. Mexico argues that in this period, canned yellowfin tuna produced by US companies competed with Mexican canned tuna in the US market, and limited the presence of Mexican canned tuna in the US market. However, Mexico submits that the US fleet has since moved out of the ETP, and that the US canning industry has changed so significantly that it is no longer capable of processing large quantities of yellowfin from the ETP.[313] In Mexico's view, it

[302] United States' written submission, para. 134.
[303] United States' written submission, para. 135.
[304] United States' written submission, para. 136.
[305] United States' written submission, para. 133.
[306] Mexico's written submission, para. 177.
[307] Mexico's written submission, para. 178
[308] Mexico's written submission, paras. 177 and 178.
[309] Mexico's written submission, para. 179.
[310] Mexico's written submission, para. 180 (referring to Exhibit MEX-68).
[311] Mexico's response to Arbitrator question No. 112.
[312] Mexico's written submission, para. 181.
[313] Mexico's written submission, para. 181.

follows from these reasons that the market segment in which Mexico specializes is currently not occupied, and that it can therefore be expected that Mexico's market share after the withdrawal of the Tuna Measure will be much larger than what it was in the 1987-1989 period.[314]

5.136. Mexico also contends that the United States' model does not control for the shifts that have been made in Mexico's production from raw and frozen tuna to canned tuna products. Mexico notes in particular that the fact that Mexico exported a certain quantity of raw yellowfin to the United States in the period 1987-1989 does not mean that Mexico would export the same quantity of canned yellowfin to the United States in 2014, because it has since modernized its boats and canning facilities. Mexico submits that the shift in production has implications on production costs that are not taken into account in the United States' model and argues that the Mexican canned tuna industry is now vertically integrated, making it even more cost-efficient. For these reasons, Mexico contends that it would export much higher quantities of canned yellowfin to the United States than its exports of raw yellowfin in 1987-1989.[315]

5.2.3 Arbitrator's analysis

5.137. As we did before with Mexico's model, we will, in this Section, identify and assess the main assumptions underlying the United States' model. The United States' model rests on two main assumptions: (a) that US imports of tuna products from Mexico in the period 1987-1989 provide a reasonable basis to estimate the quantity of US imports of tuna products from Mexico in 2014, and (b) that even if the Tuna Measure were withdrawn, some of the retailers in the US market would still not carry Mexican canned yellowfin due to the fact that they have made commitments not to produce, hold, or sell tuna products produced from setting on dolphins. We will assess each of these assumptions in turn.

5.2.3.1 US imports of tuna products from Mexico in the period 1987-1989 provide a reasonable basis to estimate the quantity of US imports of tuna products from Mexico in 2014

5.138. To recall, in the first step of its methodology, the United States uses the value of US imports of tuna products from Mexico in the 1987-1989 period and calculates Mexico's share, by volume, in overall US imports of such products.[316] The United States considers the resulting figures to be a reasonable estimate of what Mexico's annual share of US imports of tuna products would be in the absence of the Tuna Measure.[317] In contrast, as we mentioned in Section 5.2.2 above, Mexico contends that the approach taken by the United States is not instructive of the levels of imports in the scenario where the Tuna Measure is withdrawn, because these import volumes were observed more than 25 years ago, at a time when market conditions were very different from those observed in 2014.[318] The gist of Mexico's argument is that because a proper counterfactual keeps everything but the measure of interest constant, and because market conditions when the tuna measure was enacted in 1990 were not the same as in 2014, the United States' approach is flawed.[319]

5.139. The issue before us with respect to the first assumption is whether the market conditions in the period 1987-1989 were sufficiently similar to the conditions in 2014 such that the volume of exports of tuna products from Mexico to the United States in 1987-1989 represents "a reasonable estimate"[320] for what the volume of Mexico's exports of canned yellowfin to the United States in 2014 would have been in the event of withdrawal of the Tuna Measure.[321]

5.140. In response to Mexico's arguments regarding the United States' methodology, the United States argues that neither the fact that there were voluntary export restraints during the period mentioned by Mexico, nor the fact that Mexico is now a signatory to NAFTA, renders the United States' methodology inappropriate for calculating of the level of nullification or impairment caused

[314] Mexico's response to Arbitrator question No. 112.
[315] Mexico's response to Arbitrator question No. 112.
[316] United States' written submission, para. 130.
[317] United States' written submission, para. 130.
[318] Mexico's written submission, para. 178.
[319] Mexico's written submission, paras. 177 and 178.
[320] United States' written submission, para. 130.
[321] United States' written submission, para. 130.

to Mexico.[322] Regarding the first point, the United States contends that while the United States and Mexico agreed to certain voluntary export restraints on Mexico's total exports of tuna and tuna products to the United States, Mexico's actual exports of such products to the United States were below the agreed level in each of the three years during which the restraints were in place.[323] Regarding the second point, the United States argues that data on Mexico's pre- and post-NAFTA exports of other seafood products to the United States, as well as data on other countries' exports of canned tuna to the United States, demonstrate that Mexico's share in the overall US imports of tuna products would not be significantly different in 2014 from its share in the 1987-1989 period simply because NAFTA came into effect.[324] The United States also contends that the structure of the US market has been remarkably consistent over the past 25 years, and that changes in the Mexican tuna industry (away from exporting loins towards exporting canned products) do not suggest that Mexico's overall share in the United States' tuna product imports would be affected. Rather, in the United States' view, Mexican producers would simply export a higher value product, since the overall capacity of Mexico's tuna industry is essentially unchanged from the late 1980s.[325]

5.141. The United States further submits that its model controls for certain other factors mentioned by Mexico, namely, the location and capacity of US canneries and the capacity of Mexican canneries, by using Mexico's market share of all tuna products as the baseline.[326] The United States argues that Mexico has not explained the "many other reasons" allegedly showing that the 1987-1989 period was different from 2014,[327] despite the fact that US tuna products imports have been remarkably consistent over the past 25 years.

5.142. We note that there is a difference of approximately 25 years between the period 1987-1989 and the year 2014, which is the year for which we determine the level of nullification or impairment in these proceedings. We consider this gap to be too substantial to justify the United States' reliance on this historical comparison. We do not find reasonable the assumption that the state of the world in the period 1987-1989 was sufficiently similar to 2014 to justify such a comparison. We are not saying that for a comparison to be reasonable the time periods compared must in all cases be very close. However, where the periods compared are as distant as they are in the US model, we would expect a persuasive explanation why such a comparison is reasonable, despite the very substantial gap. On balance, we are not persuaded by the explanations provided by the United States. For example, the United States argues that trends in imports of other seafood products from Mexico and of canned tuna from other countries "suggest that the fact that 1987-1989 pre-date NAFTA does not render the US counterfactual inappropriate"[328]. In our view, however, this argument does not suffice to justify such a comparison. For this argument to amount to a *prima facie* showing, we would have expected the United States to demonstrate, for instance, that these other US seafood products markets behaved similarly to the US tuna products market before the Tuna Measure, and that they have been facing similar types of market changes since. In our view, given the substantial gap between these two periods, significant changes would have occurred in the market, including, but not limited to, those referred to by Mexico, for instance the fact that the Mexican tuna industry is now vertically integrated and that Mexico is a signatory of the NAFTA. We are not convinced that all such changes have been described and adequately controlled for in the US model.

5.143. We therefore do not find it reasonable to base our calculation of the level of nullification or impairment on a comparison between Mexico's shares in overall US imports of tuna products in the 1987-1989 period and 2014.

[322] United States' response to Arbitrator question No. 56.
[323] United States' response to Arbitrator question No. 56 (referring to Exhibits USA-111 and USA-142).
[324] United States' response to Arbitrator question No. 56.
[325] United States' response to Arbitrator question No. 155.
[326] United States' oral statement at the meeting with the Arbitrator, para. 65.
[327] United States' oral statement at the meeting with the Arbitrator, para. 65 (referring to Mexico's written submission, para. 182).
[328] United States' response to Arbitrator question No. 56.

5.2.3.2 Some of the retailers in the US market would still not carry Mexican canned yellowfin due to the fact that they have made commitments not to produce, hold, or sell tuna products produced from setting on dolphins

5.144. The second assumption underpinning the US model is that even if the Tuna Measure were withdrawn, some of the retailers in the US market would still not carry Mexican canned yellowfin because they have made commitments not to produce, hold, or sell tuna products produced from setting on dolphins.

5.145. We have examined this argument presented by the United States in assessing Mexico's methodology in Section 5.1.3.2.2 above, and concluded that it was reasonable to assume that US retailers representing 26.9%[329] of all tuna product sales in the US market would not carry Mexican canned yellowfin even if the Tuna Measure were withdrawn. For the same reasons, we find it reasonable to assume that some retailers would not carry Mexican canned yellowfin even after the Tuna Measure has been removed.

5.2.3.3 Conclusion on the United States' proposed model

5.146. For the foregoing reasons, we decline to use the US model in our assessment of the nullification or impairment in these proceedings. We will, however, incorporate elements of the United States' assumption that some of the retailers in the US market would still not carry Mexican canned yellowfin because of their commitments, in our calculation of the level of nullification or impairment.

5.3 Overall conclusion

5.147. In the preceding paragraphs, the Arbitrator has addressed the models that Mexico and the United States have submitted, as well as the assumptions underpinning them. In this process, we have described both models and highlighted the main concerns we have.

5.148. To recall, Mexico presents a calibrated partial equilibrium model of the US and Mexican canned tuna markets.[330] It consists of a set of equations purporting to describe the US and Mexican tuna markets by defining (a) the demand for canned tuna in the United States and Mexico, respectively, (b) the supply of canned tuna in the United States and Mexico, respectively, and (c) the market equilibrium conditions in the US and Mexican markets for canned tuna.[331] We note that Mexico's model is underpinned by three main assumptions, namely, that (a) the Tuna Measure has restricted the supply of canned yellowfin from Mexico into the United States; (b) that US consumers have a preference for canned yellowfin and US retailers would sell Mexican canned yellowfin after the withdrawal of the Tuna Measure; and (c) that Mexican producers would supply all of the increased consumption of canned yellowfin in the US market following the withdrawal of the Tuna Measure. We found that, on the whole, these assumptions are reasonable, although we are not convinced by some of Mexico's intermediate arguments, in particular its arguments that (a) all US retailers would be willing to sell canned yellowfin imported from Mexico and (b) Mexico would export all of its canned yellowfin to the United States and import yellowfin from other producing countries to produce canned yellowfin for its domestic consumption.

5.149. With respect to the United States' model, we recall that that model is based on Mexico's historical share in the US tuna products market prior to the adoption of the Tuna Measure. It compares actual US imports from Mexico of tuna products with the Tuna Measure in place with the level of imports that would occur if the Measure were withdrawn. We have explained above that the United States' model would not be a reasonable basis for our calculation of the level of nullification or impairment caused by the 2013 Tuna Measure because it bases Mexico's share in the US tuna market on historical data that goes too far back into the past.

5.150. Thus, for the reasons given above, we conclude that both of the models proposed by the parties have shortcomings. Accordingly, in our view, neither model, at least as initially presented

[329] As explained in para. 5.84, 26.9% reflects the total share of consumption covered by retailers' statements ([[xxx]]% minus Walmart's market share [[xxx]]%).
[330] Mexico's methodology paper, para. 27.
[331] Mexico's methodology paper, paras. 20-40; Exhibit MEX-02, pp. 4-27.

by the parties, provides an appropriate basis for our calculation of the level of nullification or impairment caused by the 2013 Tuna Measure.

5.151. Assessing the two models in comparative terms, we recall that the fundamental difference between Mexico's and the United States' arguments is that Mexico is of the view that the Tuna Measure restricted the supply of canned yellowfin from Mexico to the United States, whereas the United States maintains that the decline in supply has been due to weak demand for canned yellowfin in the US market. As we have explained, we think that the evidence on the record tends on the whole to support Mexico's assertion that the Tuna Measure has restricted the supply of yellowfin tuna to the US market. We also agree with Mexico that the evidence demonstrates the existence of demand in the US market for canned yellowfin, and establishes that Mexico would be a competitive supplier of canned yellowfin. Accordingly, it would in our view be possible to base our calculation on a modified version of Mexico's model, that is, a version of Mexico's model that replaces those assumptions we have not found to be reasonable with other assumptions that we think better reflect the counterfactual on which we base our assessment.

5.152. We recall that, in assessing the level of nullification or impairment caused by the 2013 Tuna Measure, we are not bound to base our calculation on either Mexico's or the United States' model. We could, in principle, attempt to develop an alternative model that would more accurately represent our understanding of the relevant counterfactual.

5.153. The most plausible alternative approach would be the so-called "price wedge method", whereby one would first determine the tariff equivalent of the US dolphin-safe label, and then model the effect of its removal on the equilibrium price and quantity of Mexican canned tuna products sold in the United States.[332] However, as both parties acknowledge, the data on the record does not allow the Arbitrator to apply the price wedge approach, because the data does not allow for a comparison between the price of labelled and unlabelled tuna products.[333]

5.154. As we are unable to develop an alternative model, and because we find the theory underlying Mexico's model more convincing than the theory underlying the United States' model, we will base our calculation on a respecified version of Mexico's model.

5.155. In practical terms, this means that we will use a partial equilibrium model to calculate the level of nullification or impairment. Partial equilibrium models are used to calculate the equilibrium price and quantity in a certain market. Market demand and supply curves are constructed on the basis of consumer preferences and income, production technology, input costs, and conditions of competition, among other factors.[334] The equilibrium price and quantity of the goods at issue in the specific market are found by equating supply and demand.[335]

5.156. As the United States also recognizes, "partial equilibrium models are often used to show the impact of a policy change, which is modelled as an exogenous change in supply or demand, as appropriate".[336] In the case at hand, the parties have proposed to calculate the level of nullification or impairment as the export loss, i.e. the difference between the counterfactual level of exports of canned tuna (in the case of the withdrawal of the 2013 Tuna Measure) and the actual level of exports, with both levels being determined for the year 2014. A partial equilibrium model can therefore be used to analyse the impact of the withdrawal of the Tuna Measure – which, in economic terms, can be conceived of as an exogenous shift in supply – on Mexico's exports of canned tuna to the United States. Indeed, as discussed above, the Arbitrator considers reasonable Mexico's assumption that the Tuna Measure has restricted Mexico's supply of canned yellowfin to the US market and therefore finds it reasonable to model the counterfactual as a shift to the right of the supply curve of canned yellowfin from Mexico to the United States, reflecting the expected increase in supply under the counterfactual.

5.157. In conclusion, it is the Arbitrator's view that, if appropriately implemented, the partial equilibrium modelling approach proposed by Mexico is a reasonable methodology to estimate the

[332] United States' written submission, paras. 84 and 86.
[333] United States' written submission, paras. 81-87; response to Arbitrator question No. 62; Mexico's written submission, para. 172.
[334] Exhibit USA-55, p. 3.
[335] Exhibit USA-55, p. 8.
[336] United States' written submission, para. 83.

export losses caused by the Tuna Measure. Accordingly, in the following Section we will calculate the level of nullification or impairment on the basis of a respecified partial equilibrium model.

6 THE ARBITRATOR'S OWN DETERMINATION OF THE LEVEL OF NULLIFICATION OR IMPAIRMENT

6.1. The Arbitrator now turns to its own assessment of the level of nullification or impairment caused by the 2013 Tuna Measure. In particular, we will begin by examining the demand and supply function of canned tuna products in Mexico and in the United States and the parametrization of the model. Subsequently, we will discuss our calculation of the level of nullification or impairment and discuss the reasonableness of the result in the light of the issues raised by the parties during the proceedings.

6.1 Demand for canned tuna

6.2. The Arbitrator begins by examining the demand and supply function of canned tuna products in Mexico and in the United States. We note first that a preliminary decision to take when defining the demand function in a market is how to model consumer preferences among different varieties of goods. To simplify the model and allow for its numerical simulations, different varieties of a good (in this case, different varieties of canned tuna) may need to be treated as a composite good.

6.1.1 Modelling consumers' choices across different varieties of canned tuna

6.3. As we have explained above in our description of Mexico's model, Mexico constructs the demand for canned tuna in the United States assuming that consumers take their decisions as to how much yellowfin to consume at a given price of yellowfin, taking into consideration the price of generic tuna (an aggregate of all other types of tuna) and their preferences for yellowfin.

6.4. We specify the demand for canned tuna in both the United States and Mexico based on Mexico's quality differentiation model.[337] Consumers choose between two products, canned yellowfin and canned generic tuna. We define the former as canned tuna that includes 100% yellowfin, in chunk or any other form. We define the latter as canned tuna that either does not include yellowfin or includes yellowfin mixed with other tuna, such as skipjack, in which case the canned tuna product is not made of 100% yellowfin.[338]

6.5. The United States argues that Mexico's use of the choice (or hedonic) model to model consumer demand for the product is incorrect, and that the standard way to model consumer demand for a product that is already on the market would be the almost ideal demand system (AIDS) model.[339] Even though the AIDS model is used extensively in the economic literature as a way to test and calibrate demand (and indeed, Mexico refers to several studies using the AIDS model to estimate elasticity for canned tuna), we consider it more appropriate to model demand for canned tuna with the choice model in these proceedings, for several reasons. First, as recognised in the literature, in its simple static form, the AIDS model does not provide a fully satisfactory explanation of consumers' behaviour.[340] Second, as Mexico argues, the AIDS model "is an empirical model of demand … typically used to estimate elasticities of demand (own-price, cross-price and income)".[341] However, the AIDS model "cannot provide information about consumers' valuation of different tuna species".[342] It is therefore not clear to us how the AIDS model could be used in the context of our model, taking into account the data on the record. Accordingly, in our view, the appropriate model is the hedonic model, which is used in Mexico's methodology paper.

[337] Exhibit MEX-02, pp. 11-33.
[338] We note that Mexico argues that the type of tuna that Mexico would export to the United States under the counterfactual is canned tuna that includes 100% yellowfin (see Mexico's response to Arbitrator question No. 83, para. 57).
[339] United States' written submission, footnote 165 (referring to Exhibit USA-8).
[340] A. Deaton and J. Muellbauer (1980), "An Almost Ideal Demand System," *American Economic Review* 70(3): 312–326.
[341] Mexico's response to Arbitrator question No. 34.
[342] Mexico's response to Arbitrator question No. 34.

6.1.2 Aggregation across tuna species

6.6. The United States further argues that it is wrong to aggregate light meat tuna, such as skipjack, and albacore, in the same composite good. We recall in this regard that, in Mexico's model, there are two types of canned tuna products: yellowfin and generic. This distinction is based on assumed quality differences between higher quality yellowfin and lower quality generic tuna, broadly defined to include skipjack, albacore and tongol.[343]

6.7. In the view of the United States, Mexico errs in aggregating demand for albacore and light tuna.[344] The United States asserts that "Mexico could have justified its aggregation of skipjack and albacore in one (or both) of two ways, either with Hicks' Composite Commodity Theorem, as Mexico has tried to do, or with the Leontief-Sono separability assumption. However, neither of these holds in this instance".[345] In the United States' view, the US tuna product market is made up of a variety of products – not only "yellowfin" and "generic" as Mexico assumes.[346] The market has a low-end portion, composed of "light tuna" – a mixture of skipjack, yellowfin, tongol, and/or big-eye tuna – and a high-end portion, dominated by "white tuna" (i.e. albacore).[347] According to the United States, albacore is more similar to canned premium yellowfin than to generic light tuna.[348] Consequently, albacore and generic light tuna do not fall into the category of products that – according to the Leontief-Sono separability condition – can properly be aggregated into a composite commodity *vis-à-vis* yellowfin. According to the United States, this is because the marginal rate of substitution between skipjack and albacore is not independent of yellowfin.[349]

6.8. With regard to the requirements of the Hicks' composite commodity theorem, the parties agree that the aggregation of tuna species such as skipjack and albacore in a single composite good is valid if the conditions stated in the theorem hold, i.e. if the prices of the group of aggregated goods change proportionally.[350] The parties disagree, however, on whether the Hicks' composite commodity theorem is satisfied in this case.

6.9. Mexico argues that the theorem is indeed satisfied in this case. In Mexico's view, the demand for canned generic tuna and the demand for canned albacore tuna respond in the same way (i.e. shifting to the left) to the decline in the price of canned yellowfin. According to Mexico, this is true even though the two types of product are of different qualities.[351] Mexico further refers to the results of an academic study showing that both skipjack and albacore are substitute goods for yellowfin (both have positive cross price elasticities with respect to yellowfin).[352]

6.10. By contrast, the United States argues that the conditions of the theorem are not met. This is because there is evidence from the above-mentioned academic study of statistically significant substitution elasticities between albacore and skipjack, and because "the price of canned albacore and all other canned tuna imports (a reliable proxy for skipjack) do not always move in the same direction, let alone proportionally, to the price of all canned tuna imports".[353]

6.11. We understand that there may be reasons for a more detailed disaggregation of the model for the calculation of the level of nullification or impairment. However, a model with individual demand for canned skipjack and canned albacore would be significantly more complex and less transparent than a model with non-yellowfin products aggregated into a single composite commodity.[354] Furthermore, while the parties acknowledge that albacore and yellowfin are both premium products, the evidence on the record indicates that US consumers have also been paying a premium for canned yellowfin as compared to canned albacore, and not only as compared to

[343] Exhibit MEX-02, p. 11.
[344] United States' response to Arbitrator question No. 64.
[345] United States' comments on Mexico's response to Arbitrator question No. 86.
[346] United States' written submission, para. 102.
[347] United States' written submission, para. 102.
[348] United States' response to Arbitrator question No. 64.
[349] United States' response to Arbitrator question No. 64; comments on Mexico's response to Arbitrator question No. 86, para. 53.
[350] Mexico's response to Arbitrator question No. 86; United States' comments on Mexico's response to Arbitrator question No. 86.
[351] Mexico's response to Arbitrator question No. 38 (referring to Exhibit USA-8).
[352] Mexico's response to Arbitrator question No. 86.
[353] United States' comments on Mexico's response to Arbitrator question No. 86.
[354] Mexico's response to Arbitrator question No. 38.

skipjack.[355] We further note that the price data in Exhibit US-214 actually show a significant co-movement of the prices of albacore and skipjack in the period 1989-2015 (although admittedly not in every single year). In the light of this evidence on the record, and accounting for the potential repercussions of working with a more complex and less transparent model, we consider it reasonable to simplify the modelling of the US canned tuna market by assuming that it is made up of two product types: generic tuna and yellowfin.

6.12. Having determined that we can model the demand for canned tuna in both the United States and Mexico as a consumer decision between two products, canned yellowfin and canned generic tuna, we now proceed to specify the demand equations. As further detailed in equations 1, 2, 3 and 4 in Appendix 1 to this Decision, the demand for each canned tuna product (yellowfin or generic) in each country[356] depends on the price of the product[357]; preferences for yellowfin versus generic tuna[358]; and two parameters, the demand intensity and the elasticity of demand.[359] In the United States, the demand for each canned tuna product (yellowfin or generic) also depends on a third parameter, namely the share of US retailers that would sell Mexican canned yellowfin. We now proceed to discuss all the determinants of the demand for canned tuna in the two countries, starting with the distribution of preferences.

6.1.3 Distribution of preferences and its functional form

6.13. Consumer preferences for yellowfin versus generic tuna depend on how much a consumer prefers yellowfin to generic tuna, relative to how much higher is the price of yellowfin than the price of generic tuna.[360] All consumers with a "willingness to pay" for yellowfin below the price premium for yellowfin (p, defined as p_y - p_g) will only purchase generic tuna. All consumers with a "willingness to pay" for yellowfin above the price premium p will only purchase yellowfin. The share of consumers purchasing generic tuna, $H(\cdot)$, and the share of consumers purchasing yellowfin, $1 - H(\cdot)$, will therefore depend on the price premium p, that is $H(\cdot) = H(p)$.

6.14. Mexico assumes, both for US and Mexican consumers, a logistic distributional form for the function $H(p)$.[361] Accordingly, the function $H(p)$ is equal to $\left(\frac{1}{1+e^{\frac{\mu-p}{s}}}\right)$, where $e(\cdot)$ is the exponential function. With this specification, $H(p)$ is increasing in the price premium p (i.e., the larger the price premium, the larger the share of consumers that will purchase generic tuna). Furthermore, it depends on two parameters: the mean and median willingness to pay (henceforth, "mean willingness to pay") for canned yellowfin over canned generic tuna among consumers (μ), and a scale parameter (s), which determines the dispersion of the distribution (the larger s, the more dispersed the distribution).

6.15. We accept the assumption that the function $H(p)$ can be parameterized with a logistic functional form, both in the case of US consumers and in the case of Mexican consumers, for the following three reasons. First, the United States argues that a logistic function does not describe the US distribution of willingness to pay for tuna, because many US consumers show a high sensitivity to price. This is shown, according to the United States, by the fact that nearly half of all US sales of canned tuna are at discounted (sale) prices.[362] Mexico counters this argument by contending that there is nothing in the logistic distribution that impedes the demand for canned yellowfin being sensitive to its price.[363] We agree with Mexico on this point. Second, the United States contends that an exponential distribution for US consumers' willingness to pay should be adopted.[364] However, the United States does not offer a compelling argument for using an

[355] Mexico's response to Arbitrator question No. 79.
[356] Respectively, Q_{yus} for the demand for yellowfin in the United States in equation 1; Q_{gus} for the demand for generic in the United States in equation 2; Q_{ymx} for the demand for yellowfin in Mexico in equation 3; and Q_{gmx} for the demand for generic in Mexico in equation 4.
[357] Respectively, p_{yus} for the price of yellowfin in the United States; p_{gus} for the price of generic in the United States; p_{ymx} for the price of yellowfin in Mexico; and p_{gmx} for the price of generic in Mexico.
[358] Respectively, the functions $H(\cdot)_{us}$ for the United States and $H(\cdot)_{mx}$ for Mexico.
[359] The demand intensities are denoted A_{us} and A_{mx} for the United States and Mexico, respectively. The demand elasticity is the parameter η.
[360] Exhibit MEX-02, pp. 11-13.
[361] Exhibit MEX-02, p. 14 (referring to equation 8 therein).
[362] United States' written submission, para. 105.
[363] Mexico's response to Arbitrator question No. 37.
[364] United States' response to Arbitrator question No. 71.

exponential distribution to model US consumers' preferences.[365] Third, the parties agree that by manipulating the logistic functional form, the willingness to pay can easily be parameterized based on actual consumption shares *H(p)* and *1 - H(p)* observed in the United States and in Mexico in 2014. We will follow the procedure suggested by the parties when assigning parameter values to μ for the United States and Mexico.

6.16. The scale parameter of the logistic distribution and the mean willingness to pay are parameters (not variables to be solved for) of the model. We therefore need to assign values to them (that is, "parameterize" them).

6.1.3.1 Parameterization of the scale parameter of the logistic distribution

6.17. Mexico proposes to use $s = 1$, arguing that this is common in the empirical literature for logistic regression models.[366] Mexico provides sensitivity analysis showing that the higher the scale parameter *s*, the larger the export loss.[367] The United States disagrees, arguing that Mexico has presented no evidence to explain the basis for parameterizing $s = 1$ and asserts that a scale parameter equal to 1 concentrates the majority of consumers close to the centre of preference.[368] We are not persuaded that the latter is a problem, and we note that the United States does not suggest a different *s*. We therefore accept the parameterization $s = 1$, both in the United States and in Mexico.

6.1.3.2 Parameterization of the mean willingness to pay

6.18. To parameterize the mean willingness to pay μ, Mexico initially assumed a value of USD 2/kg, both for the United States and for Mexico. Mexico submitted that there is no reason to believe that preferences for canned tuna should differ across the two countries.[369] We disagree with this contention because, as the United States contends, "Mexican and U.S. consumer preferences differ both in general terms and in specific preferences for food products".[370] In what follows, we proceed to parameterize the mean "willingness to pay" for the United States and Mexico based on the observed yellowfin shares in the overall consumption of canned tuna in 2014.

6.1.3.2.1 Willingness to pay in the United States

6.19. To justify the assumed value of USD 2/kg for the mean willingness to pay, Mexico initially argued that it was following a conservative approach, assuming that the mean willingness to pay for canned yellowfin was much lower than an econometrically-estimated premium.[371] The United States asserts that the USD 2/kg value assigned by Mexico to the mean willingness to pay for canned yellowfin over generic tuna products is a mere assumption and divorced from the reality of the US market.[372] Despite this disagreement, the parties agree that canned yellowfin only represented a share of 1.2% of the US canned tuna market in 2014.[373] Thus, at our substantive meeting with the parties, the United States proposed a method to parameterize the mean willingness to pay with simple algebraic manipulations of the logistic functional form for the function *H(p)*, based on yellowfin's 1.2% share in overall canned tuna product consumption in 2014 and an econometrically-estimated price premium.[374]

6.20. We accept the methodology proposed by the United States to parameterize the mean willingness to pay in the United States. Since parameterization is meant to reflect the *status quo*,

[365] Mexico's response to Arbitrator question No. 102.
[366] Mexico's response to Arbitrator question No. 92.
[367] Exhibit MEX-02, p. 46 (referring to Figure 5 therein).
[368] United States' comments on Mexico's response to Arbitrator question No. 92, para. 70; written submission, para. 90.
[369] Mexico's written submission, para. 160.
[370] United States' written submission, para. 100.
[371] Exhibit MEX-02, p. 20.
[372] United States' written submission, para. 104.
[373] Mexico's response to Arbitrator question No. 150; United States' comments on Mexico's response to Arbitrator question No. 150.
[374] The United States' methodology in this respect is to solve equation (8) in Exhibit MEX-02 (p. 14) for the variable μ, yielding $\mu = s \cdot \ln\left[\frac{1-H(p)}{H(p)}\right] + p$, where *p* is the econometrically-estimated price premium; *H(p)* = 0.988 (since the share of canned yellowfin in the United States, *1 – H(p)*, is 0.012); and *s* is assumed to be equal to 1. See Exhibit USA-150.

that is, the current conditions, we consider it reasonable to use all available information – and in particular, the share of canned yellowfin in total US tuna product consumption – when assigning parameter values. Mexico accepts the approach[375], and we are therefore proceeding in a manner that is consistent with the parties' views on this issue.

6.21. Since, as explained above, μ is chosen as the solution to the equation $\mu = s \cdot \ln\left[\frac{1-H(p)}{H(p)}\right] + p$, the determination of the price premium p is crucial to the determination of μ. To determine the value of p, Mexico proposes a hedonic regression model, in which the dependent variable is the price of canned tuna in the United States, expressed in USD per kilogram, and the explanatory variables are its attributes (size, form, type of container, flavour, pack and salt content).[376] Mexico relies on scanner data for canned tuna by Universal Product Code and presented in Exhibit MEX-15 (the Nielsen data). These data come in two sets, a 12-week period and a 52-week period dataset. Both datasets contain a breakdown of total sales, number of units sold, and average price per US region (East North Central, East South Central, Middle Atlantic, Mountain, New England, Pacific, South Atlantic, West North Central and West South Central).

6.22. Mexico estimates the premium for canned yellowfin sold in the United States using the coefficient on the dummy variable "yellowfin", i.e., a variable equal to 1 if the canned tuna is yellowfin, and zero if it is not. This variable captures all attributes of canned yellowfin (other than size, form, type of container, brand, region etc.) that differ from generic tuna but that are not controlled for in the regression model.[377]

6.23. We note that the parties disagree on four issues regarding the econometric estimation of the price premium. First, Mexico deletes observations where the quantity sold is zero.[378] Second, Mexico proposes two alternative econometric specifications for each of the two datasets: ordinary least squares (OLS) and weighted least squares (WLS). The WLS method uses the number of units sold as weights in the regression, such that the more the units of a product sold, the more the product's weight in the regression model.[379] Third, Mexico estimates an additional premium for yellowfin because it is offered in more desirable forms than generic tuna.[380] Fourth, the United States submits that it is necessary to adjust the econometrically estimated premium for a mark-up from import to retail.[381]

6.24. Regarding the first issue, namely the deletion of observations where the quantity sold is zero, the United States notes that the need to remove over 60% of observations due to lack of sales demonstrates that the dataset is not representative of the entire market.[382] Mexico disagrees, arguing that "several of these [canned tuna] products were not sold at the time when the data were collected and may not have been sold for years. The quantities for these products appear as zero".[383] When a product is not sold, there is no recorded price, and it is impossible to include zero quantity observations in the regressions. Therefore, the deletion of zero quantity observations is, in Mexico's view, "the only way to proceed" and "a necessity rather than a matter of choice".[384] We find Mexico's position reasonable because there is no way to include missing data in a regression. We therefore follow Mexico's position in our assessment.

6.25. Concerning the second issue, namely the regression methodology, Mexico argues that the WLS regressions are to be preferred to the OLS regressions for two reasons: first, if the number of units sold is not used as weight, the high-priced generic tuna biases down the estimated premium for canned yellowfin; and second, the WLS regressions have a much better fit (higher R-squared) than the OLS regressions.[385] The United States argues that using the OLS regressions "is standard

[375] See Mexico's opening statement at the meeting of the Arbitrator, para. 45; Mexico's response to Arbitrator question No. 121.
[376] Exhibit MEX-02, pp. 16-17.
[377] Exhibit MEX-02, p. 19.
[378] Exhibit MEX-02, p. 18.
[379] Exhibit MEX-02, p. 18.
[380] See Exhibit MEX-02, pp. 18-19; Mexico's comments on the United States' response to Arbitrator question No. 141.
[381] United States' response to Arbitrator question No. 141.
[382] United States' written submission, para. 104.
[383] Mexico's response to Arbitrator question No. 49.
[384] Mexico's response to Arbitrator question Nos. 49 and 50.
[385] Exhibit MEX-02, p. 20.

unless there is reason to think that the data observations are measured with varying degrees of precision and/or data are heteroskedastic, and Mexico advances no such reason".[386] At our substantive meeting with the parties, the United States expressed the view that – if a weighted regression approach should be used at all – the weights in the WLS regression ought to be in terms of volumes (kilograms) rather than number of units sold.[387] Moreover, the United States argues that it is standard in economics to take the square root of a variable on which a regression is weighted.[388]

6.26. We asked Mexico whether the large differences in coefficient estimates between OLS and WLS obtained by Mexico could reflect model misspecification. Mexico replied that such differences do not reflect model misspecification, but that "[an OLS] regression that considers all products equally will yield very different results than a weighted regression when some products sell thousand times more than others".[389] Moreover, Mexico argues that "weighted regression should be used if a census parameter estimate is desired"[390], as is the case of the regression for the premium paid for canned yellowfin in Mexico's methodology. Since both parties eventually presented WLS regressions (although with different weighting variables), we will also use WLS regressions in our calculations.

6.27. With regard to the United States' contention that the square root of weights should be used in weighted regressions, Mexico argues that this is incorrect.[391] The United States asserts that, while Stata software automatically takes the square root of the weighted variable when performing a WLS regression, the software used by Mexico (R) does not automatically take the square root.[392] We note, however, that: (a) we could replicate with alternative software, namely Stata, all the regressions that Mexico estimated, without taking the square root of the weighting variable, with the R software; and (b) the results of our own WLS regressions are identical when estimated with the R software and when estimated with the Stata software, always using the variable itself, rather than its square root, as weights. We therefore reject the United States' argument that, while the Stata software automatically takes the square root of the weighted variable in a WLS regression, the R software does not. Accordingly, we estimate WLS regressions with the weighting variable itself, rather than its square root, as weights.

6.28. With regard to the United States' argument that the weights in the WLS regression ought to be in terms of volumes (kilograms) rather than number of units sold, Mexico also estimates WLS regressions using the total volume sold (measured in kilograms) as weight, as suggested by the United States.[393] Since both parties propose estimations with volume weights, we also use such weights.

6.29. Concerning the third issue, namely the additional "form" premium for yellowfin, Mexico calculates that US consumers have paid USD 1.18/kg more for yellowfin because it is offered in more desirable forms than generic tuna.[394] Mexico suggests that the estimated form premium should be added to the coefficient on the yellowfin dummy to get an estimated value of the price

[386] United States' response to Arbitrator question No. 71, footnote 289. In econometrics, the concept of heteroscedasticity (from Ancient Greek *hetero* "different" and *skedasis* "dispersion") refers to the presence of different variances across sub-groups of the error term of a regression.

[387] This is because, according to the United States, the purpose of the analysis is to study the price of tuna by weight, not by number of units sold, and the units vary substantially by size (can size, as well as packs of 4 or more). See United States' comments on Mexico's response to Arbitrator question No. 100.

[388] United States' comments on Mexico's response to Arbitrator question No. 100.

[389] Mexico's response to Arbitrator question No. 100.

[390] Mexico's response to Arbitrator question No. 100, citing A. C. Cameron and P. K. Trivedi (2009), *Microeconometrics Using Stata*, College Station (TX): Stata Press (Exhibit MEX-115). As explained in Exhibit MEX-115, p. 107, census parameter estimates give more weights to oversampled groups in the population.

[391] In Mexico's comments on the United States' response to Arbitrator question No. 131, Mexico explains that it is possible to produce WLS estimators by multiplying the dependent and the independent variables of a regression model by the square root of the regression weights. But regression packages in common statistical software programs (e.g., R or Stata) make this unnecessary. Weighting in these regression packages requires specifying the weights as the weighting variable itself, rather than as its square root.

[392] United States' comments on Mexico's response to Arbitrator question No. 100.

[393] Mexico's response to Arbitrator question No. 79.

[394] See Exhibit MEX-02, p. 19. The premium for the form is estimated, both for yellowfin and generic tuna, in comparison with the chunk form.

premium.[395] This is because "[t]he form in which tuna is canned reflects the characteristics of the tuna meat and it cannot always be chosen by canneries, as it depends on the species and the size of tuna caught".[396] The United States disagrees with this argument, noting that the form premium "has no place in the calculation of the level of nullification or impairment. Mexico exports only chunk products to the United States and is no longer even asserting that they would export a higher-quality product under the counterfactual".[397] In our view, a premium for the form should be added, for the following reasons.

6.30. First, there is evidence on the record indicating that yellowfin, especially large yellowfin, is better suited and more likely to be canned in the form of solid or fillet than generic tuna. This is confirmed by a report by the United Nations Food and Agriculture Organization (FAO) explaining that "[m]ost of the commercial [yellowfin] catch is used for canning and fish over 10 kg are considered prime raw material for this purpose"[398], as well as by the Tuna Species Guide from Atuna.com, which reports that "the large size of the yellowfin makes it well fit for solid packaging in cans".[399] Tuna fished in the ETP falls in this category of tuna because it is large.[400] In addition, Exhibit MEX-02 shows that the percentage of yellowfin canned in the form of fillet (20.5%) is much larger than the percentage of generic tuna in that form (2%).[401]

6.31. Furthermore, we believe that the counterfactual does not need to be restricted by the assumption that Mexico would continue to export to the United States tuna in the form it currently exports (chunk). The evidence on the record shows that Mexico produces and exports "Ventresca" (tuna belly, a gourmet cut of tuna in solid form) in olive oil.[402] Although Mexico does not currently export this product to the United States[403], we find it reasonable to assume that Mexico could potentially export canned tuna in fillet or solid form. The form premium is computed using the share of each form in the total volumes sold in the US market.

6.32. Concerning the fourth issue, namely whether the econometrically-estimated premium should be adjusted for a mark-up from import to retail, the United States argues that while the level of nullification or impairment should be based on the premium calculated using import prices (a proxy of the price paid to the exporter in Mexico), Mexico wrongly calculates the premium at retail prices.[404] In so doing, the United States argues, Mexico overestimates the premium for canned yellowfin at importation.[405] The United States asserts that "[i]n general, the mark-up from import to retail is based on the price of the product and is higher for gourmet products because these have fewer close substitutes and are purchased by consumers who have lower marginal utility of income".[406] In support of this argument, the United States cites Exhibit USA-174, which shows that in 2007 the retail mark-up for imported fish and seafood was 29%.

6.33. Mexico explains that its methodology applies at the wholesale level. Since only retail data are available, Mexico assumes that the wholesale to retail mark-up is the same for canned generic and for canned yellowfin tuna.[407] In Mexico's view, this is a reasonable assumption because the mark-up reflects costs and there is no reason to think that costs are different for canned yellowfin and generic tuna. According to Mexico, it costs the same to take canned yellowfin and canned generic tuna from wholesale to retail because these canned products are of similar sizes and weights.[408] Furthermore, Mexico argues that even "if there were a reason to make adjustments to

[395] See Mexico's response to Arbitrator question No. 121; Mexico's comments on the United States' response to Arbitrator question No. 141.
[396] Exhibit MEX-02, p. 18.
[397] United States' comments on Mexico's response to Arbitrator question No. 121.
[398] Exhibit USA-87, p. 9.
[399] Exhibit MEX-06, p. 6.
[400] The United States reports that "[I]n 2015, for example, the average weight of the yellowfin tuna caught in the WCPO, the ETP, and the Indian Ocean was 18.9 kg., 13.9 kg., and 45.8 kg per fish. Dolphin sets in the ETP also tend to produce large yellowfin (the average weight per fish was 21.4 kg in 2015)" [footnotes omitted] (United States' response to Arbitrator question No. 151).
[401] See Exhibit MEX-02, Table 6, p. 19.
[402] Mexico's response to Arbitrator question No. 78.
[403] United States' comments on Mexico's response to Arbitrator question No. 78.
[404] United States' response to Arbitrator question No. 141.
[405] United States' response to Arbitrator question No. 141.
[406] United States' response to Arbitrator question No. 141.
[407] Exhibit MEX-02, p. 16.
[408] See Exhibit MEX-02, p. 16; Mexico's comments on United States' response to Arbitrator question No. 141.

the model because of an unaccounted-for mark-up, the material in Exhibit USA-174 does not offer the information necessary to perform such a correction"[409], because it is unclear how data in Exhibit USA-174 have been calculated, and the original source (of which Exhibit USA-174 is an excerpt) is not publicly available.

6.34. We agree with the United States that the canned tuna prices on which the calculation of the level of nullification or impairment should be based are the prices paid to the exporter in Mexico[410], and that the value added on services rendered in the United States should be excluded from the relevant price in the calculations. In this regard, we note that Mexico's model is indeed calibrated at wholesale prices and that Mexico uses retail prices only to estimate the price premium. We understand that the key issue is whether the wholesale to retail mark-up differs between yellowfin and generic tuna. We agree with Mexico that, insofar as the mark-up reflects transportation costs, it is reasonable to assume that they mainly depend on volume and weight and are unlikely to depend on the value of the specific can of tuna. We also understand that other factors can affect the mark-up, which can depend on price, for example, when markets are not perfectly competitive. However, the evidence on the record does not allow us to assess whether these circumstances exist in this case. On this basis, we consider reasonable Mexico's assumption that the mark-up is approximately the same for canned yellowfin and generic tuna. We therefore reject the United States' contention that the econometrically estimated premium should be adjusted for a mark-up from wholesale to retail.

6.35. The only remaining issue to discuss is whether to rely on the 12-week or the 52-week dataset in our calculations. The parties have not discussed this specific issue. Both datasets have unique observations by Universal Product Code and region. The difference between the two is the timespan for the average of all variables across Universal Postal Codes and regions. The 12-week dataset uses an average over the 12 weeks ending on 24 October 2015; the 52-week dataset uses an average over the 52 weeks ending on 24 October 2015. We prefer the estimations based on the 52-week dataset, for three reasons: first, the longer timespan used to average variables implies that the resulting averages are less sensitive to the economic cycle; second, the 52-week dataset covers two months of 2014 – the first calendar year following the expiry of the RPT and the year for which we have chosen to calculate the level of nullification or impairment – while the 12-week dataset only covers the year 2015; and third, the number of observations N is approximately 10% larger in the 52-week dataset (N_{52} = 3379) than in the 12-week dataset (N_{12} = 3009).

6.36. To summarize, we find it appropriate in the circumstances of this dispute to estimate econometrically the price premium using WLS, with weights given by the total volume sold (measured in kilograms), in the 52-week dataset, assuming the same mark-up from wholesale to retail for yellowfin and generic tuna. Our estimated coefficient for the yellowfin dummy, which represents the price premium of yellowfin relative to all other tuna, after controlling for a full set of dummy variables for form, brand, container, flavour, pack, salt and region, is equal to 3.76 (standard error equal to 0.51). Then, we add the form premium, also calculated using the 52-week dataset and WLS with volumes as weights, of 0.85. Therefore, the total premium of yellowfin plus the form is 4.61.

6.37. It follows that, for the United States, using our econometrically estimated price premium (p) of 4.61, a value of 1 - $H(p)$ of 1.2% and a value of s equal to 1 in the equation $\mu = s \cdot \ln\left[\frac{1-H(p)}{H(p)}\right] + p$, we parameterize the mean willingness to pay in the United States, μ_{us}, to be equal to 0.199.

[409] Mexico's comments on United States' response to Arbitrator question No. 141.

[410] We note that this is consistent with the approach taken by previous arbitrators to focus on "trade forgone", i.e. lost exports: "In this sense, our task of estimating nullification and impairment is very different from that of a panel examining the WTO conformity of certain measures. Once a panel has found a WTO inconsistency, it can presume – pursuant to Article 3.8 of the DSU – that the inconsistency has caused nullification and impairment. On that ground the panel can give redress to the winning party under Article XXIII of GATT 1994 or corresponding provisions in other WTO agreements. What normally counts for a panel are competitive opportunities and breaches of WTO rules, not actual trade flows. A panel does not normally need to further assess the nullification and impairment caused; it can presume its existence. We, in contrast, have to go one step further. We can take it for granted here that the hormone ban is WTO inconsistent. What we have to do is to estimate the nullification and impairment caused by it (and presumed to exist pursuant to Article 3.8 of the DSU). To do so in the present case, we have to focus on trade flows. We must estimate trade foregone due to the ban's continuing existence beyond 13 May 1999." Decision by the Arbitrator, *EC – Hormones (Canada) (Article 22.6 – EC),* para. 41. See also Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)* para. 5.24.

6.1.3.2.2 Willingness to pay in Mexico

6.38. To parameterize the mean willingness to pay in Mexico, μ_{mx}, we follow the same procedure as the one used above for μ_{us}, considering that the parties agree on this procedure and on the calibration result.[411]

6.39. Mexico estimates a price premium for canned yellowfin in 2014 in Mexico equal to USD 1.10/kg.[412] Mexico further estimates the following consumption shares in Mexico: *H(p)* (share of generic tuna consumption in Mexico) equal to 29,585/87,929 (33.65%) and *1 - H(p)* (share of yellowfin consumption in Mexico) equal to 58,344/87,929 (66.35%). Using these values in the formula proposed by the United States for the calculation of the mean willingness to pay, which we have already used for the United States, yields $\mu = s \cdot \ln\left[\frac{1-H(p)}{H(p)}\right] + p = \ln\left(\frac{58344}{29585}\right) + 1.1 = 1.78$. Therefore, in keeping with both parties' views, we calibrate μ_{mx} = 1.78.

6.1.4 Parameterization of the demand intensity

6.40. Mexico calibrates the US aggregate demand intensity parameter A_{us} assuming that, in the *status quo*, the consumption of canned yellowfin in the United States is low enough to be considered *de minimis*. Under this assumption, the share of the United States' consumption of canned generic tuna, *H(p)*, is equal to 1, and the demand equation for canned generic tuna in the United States can be written as $Q_{dgus} = A_{us} p_{gus}^{\eta}$. Solving this equation for A_{us}, using the average observed price of imported canned tuna of USD 5/kg in 2014, a value of total US consumption of canned tuna of 330,264 metric tonnes and a price elasticity η = -1, the aggregate demand intensity parameter A_{us} computed by Mexico is 1,651,320,000.[413]

6.41. In order to take into consideration the small share of yellowfin consumption in the United States, we slightly modify these calculations and assume *H(p)* to be equal to 0.988 in the equation $Q_g = A_{us} H(p) p_g^{\eta}$. Using the same values for p_g (equal to 5) and for η (equal to -1) as the ones used by Mexico, we obtain a (slightly higher) calibrated value for A_{us}, equal to 1,671,376,518.

6.42. To calibrate the aggregate demand intensity parameter A_{mx}, for Mexico, we cannot use the same approach used to calibrate A_{us}. This is because a product can be sold as yellowfin in Mexico if the pack contains at least 40% yellowfin. The resulting mixing of tuna species in canned tuna makes it impossible to isolate prices for yellowfin and generic tuna in Mexico.[414] In this connection, we rely on the methodology used by Mexico, noting that this methodology is not contested by the United States. We therefore assume that A_{mx} equals 443,162,161.[415]

6.1.5 Parameterization of the elasticity of demand

6.43. Mexico uses an elasticity of demand η equal to -1 in the equation $q_j = a p_j^{\eta}$ for both the US and Mexican markets and for both canned yellowfin and generic tuna. Mexico argues that this

[411] Mexico's response to Arbitrator question No. 121.
[412] Exhibit MEX-02, p. 27.
[413] See Exhibit MEX-02 (referring to equation (12), p. 16).
[414] See Exhibit MEX-02, p. 26.
[415] Mexico calibrates A_{mx} solving a system of three equations: the demand equations for yellowfin and generic tuna in Mexico, respectively $Q_{dymx} = A_{mx}\left(1 - H(p)\right)_{mx} p_{ymx}^{\eta}$ and $Q_{dgmx} = A_{mx} H(p)_{mx} p_{gmx}^{\eta}$, and an equation that models the average price of canned tuna in Mexico as a weighted average of the price of yellowfin and generic tuna, with weights given by consumption shares: $\bar{p}_{mx} = \left(1 - H(p)\right)_{mx} p_{ymx} + H(p)_{mx} p_{gmx}$. We note that to solve the system of three equations described above, it is necessary to transform the observed average retail price of USD 5.58 per kg into a wholesale price. Using data for 2014 from Exhibit MEX-20, Mexico estimates the mark-up between wholesale and retail prices as the coefficient on a dummy variable taking value one if the marketing level is wholesale, and zero if the marketing level is retail, in an OLS regression controlling for brand dummies, product dummies, region dummies and month dummies (Exhibit MEX-02, p. 27). Since the coefficient on the "wholesale" dummy is estimated at -0.54, Mexico subtracts this value from the observed average retail price of USD 5.58 per kg, obtaining an estimated wholesale price $\bar{p}_{mx}$= USD 5.04 per kg. Using this value, along with with Q_y = 58,344 metric tonnes, Q_g = 29,585 metric tonnes, a resulting consumption share for canned yellowfin (*1 - H(p)*) of 66.35%, and a resulting consumption share for canned generic (*H(p)*) of 33.65% in the system of three equations, yields a solution for A_{mx} equal to 443,162,161 (Exhibit MEX-02, pp. 26-27).

value is in the upper range of elasticities reported in the literature.[416] The United States contends that both yellowfin and skipjack have particularly elastic demand.[417] However, Mexico has shown mathematically that the assumption of unitary price elasticity for the individual demand for canned tuna is not incompatible with higher values (in absolute values) of the price elasticities of aggregate demand for generic tuna and canned yellowfin.[418] We therefore accept this argument by Mexico and use the parameterization η = -1.

6.1.6 Accounting for some US retailers not commercializing Mexican canned yellowfin

6.44. Having established that there is evidence on the record suggesting that a subset of US retailers, representing a fraction $1-\alpha$ = 1 - 73.1% = 26.9% of consumption of canned tuna products in the United States, would not purchase Mexican canned yellowfin harvested by setting on dolphins, we proceed to modify the US market shares for canned yellowfin and for canned generic tuna.

6.45. Both the United States and Mexico propose a method we could use to adjust the demand for canned yellowfin if a segment of retailers is not willing to sell tuna caught by setting on dolphins. The United States removes a share 1- α of tuna consumption from the US yellowfin intensity of demand parameter and adds it to the consumption of generic tuna.[419] Mexico modifies the market shares of canned yellowfin and generic tuna consumption as $\alpha\left(1-H(\cdot)\right)$ and $1-\alpha\left(1-H(\cdot)\right)$, respectively, in the demand equations for canned yellowfin and for canned generic tuna.[420]

6.46. The United States submits that Mexico's methodology in this respect produces estimates of the level of nullification or impairment that are not materially different from those produced applying the United States' approach.[421] On this basis, we accept the modification suggested by Mexico in our determination of the level of nullification or impairment.

6.2 Supply of canned tuna

6.2.1 The counterfactual

6.47. As discussed above, we consider that withdrawal of the Tuna Measure is the appropriate counterfactual for the calculation of the level of nullification or impairment in these proceedings. We also consider reasonable Mexico's assumption that the Tuna Measure has restricted Mexico's supply of canned yellowfin to the US market. Therefore, we model the counterfactual as a shift to the right of the supply curve of yellowfin to the United States.

6.48. In the following paragraphs, we describe how we model and parametrize the supply of canned yellowfin and generic tuna in the United States and in Mexico[422], and how we reflect the shift of the supply of tuna products in the definition of the counterfactual.

6.2.2 Export supply of canned yellowfin

6.49. Following Mexico's modelling approach, we model the counterfactual as a shift of Mexico's supply of canned yellowfin. Although, as noted above, the Tuna Measure constitutes a restriction on imports, rather than an import ban, given the small share that canned yellowfin had in the US tuna product market in 2014 and that only a small portion of that small share was supplied by Mexico, for simplicity, we specify the model as if Mexico did not export canned yellowfin to the United States in 2014. Specifically, we note that in 2014 canned yellowfin represented only 1.2%

[416] Exhibit MEX-02, p. 15.
[417] United States' written submission.
[418] Mexico's written submission, para. 143.
[419] United States' response to Arbitrator question No. 141.
[420] That is, the aggregate demand for canned yellowfin in the United States becomes $Q_y = A\left[\alpha\left(1-H(\cdot)\right)\right]p_y^{\eta}$, and the aggregate demand for canned generic tuna in the United States becomes $Q_g = A\left[1-\alpha\left(1-H(\cdot)\right)\right]p_g^{\eta}$. See Mexico's responses to Arbitrator question No. 146.
[421] United States' comments on Mexico's response to Arbitrator question No. 146.
[422] We denote by Q_{ymx} Mexican production of canned yellowfin; Q_{ymx_exp} Mexican exports of canned yellowfin; Q_{ymx_imp} Mexican imports of canned yellowfin; Q_{gmx} Mexican production of canned generic; Q_{gus} US production of canned generic; and Q_{gus_imp} US imports of canned generic. See equations 5, 6, 7, 9, 11 and 12 in Appendix 1 to this Decision.

of the United States' consumption of tuna products. Of this share, only a small percentage was accounted for by Mexican exports. It therefore seems to us to be a reasonable approximation of reality to specify the model as if no canned Mexican yellowfin was imported into the US market in 2014.

6.50. Following the withdrawal of the Tuna Measure, Mexico would be able to supply canned yellowfin tuna to the US market. Under the counterfactual, Mexico would be supplying canned yellowfin at a lower price than that currently prevailing in the US market given its competitive advantage. Therefore, Mexico would be the dominant supplier of canned yellowfin to the United States.[423] Countries other than Mexico currently supply canned yellowfin to the US market in small quantities, and would likely continue to do so. Further, as we noted in paragraph 5.113 above, Ecuador and Guatemala would also seek to expand their exports of canned yellowfin to the United States after the withdrawal of the Tuna Measure. Indeed, we understand that consumers like having access to a range of canned tuna products, and that one or more varieties of canned yellowfin, including gourmet products in olive oil, could therefore maintain a certain share of the US market even in the presence of a more competitive supplier of canned yellowfin. However, empirical models built to simulate the impact of a policy change need to strike a balance between tractability and transparency on the one hand and reasonableness of the assumptions on the other. In order to build a model where suppliers of canned yellowfin other than Mexico retain a small share of the US market following the removal of the Tuna Measure, Mexico's model would need to be substantially restructured[424] and much more information (such as information on marginal costs across countries and substitution possibilities across products) would be required.[425]

6.51. In our view, in the specific circumstances of this case, given that the production capacity of ETP countries that would be directly affected by the withdrawal of the Tuna Measure is small, and that we are assessing the short-run effect of such withdrawal, it is reasonable to approximate market conditions by assuming that there would be no additional supply of canned yellowfin into the US market by other ETP countries following the removal of the Tuna Measure. As far as existing suppliers of canned yellowfin are concerned, we are of the view that, given that they currently only represent a small share (1.2%) of the US market for canned tuna, modelling their exports would further complicate the model without significantly affecting the calculations of the level of nullification and impairment. We acknowledge that, as we have explained above, under the counterfactual Mexico would not fully displace exports of existing suppliers that benefit from long-term relationships with retailers and renowned brands. However, we choose not to model the presence of such existing suppliers in the market because they only have a small share of the market and therefore inclusion of their export volume would not, in our view, meaningfully affect the outcome of our calculations. Furthermore, as we have already explained, so long as Mexico is a cheaper source of canned yellowfin, we believe that it is unlikely that existing exporters would react to the withdrawal of the Tuna Measure by exporting at a lower price to match the price at which Mexico would export to the United States. Therefore, in what follows, we will only model the supply of canned yellowfin into the US market from Mexico.

6.52. Having decided to model the counterfactual as a shift of Mexico's supply of canned yellowfin into the US market, we move to the next step of our analysis, namely, the determination of the shape of Mexico's supply curve. Depending on the value of the export supply elasticity, the supply curve may be flat, positively sloped or vertical. Like Mexico, we consider it reasonable to assume that the export supply of canned yellowfin to the United States is infinitely elastic (flat) until a threshold quantity, beyond which the supply of canned yellowfin becomes perfectly inelastic (vertical). However, unlike Mexico, we set this threshold equal to Mexico's production in 2014. We explain the rationale for our approach in the following paragraphs.

6.2.2.1 Export supply elasticity for yellowfin

6.53. The United States contests Mexico's assumption of an infinitely elastic supply curve, and argues that this assumption is "unsupported and incorrect".[426] Unlike the United States, we do not understand Mexico's assumption to imply that Mexico could produce an infinite amount of canned

[423] See Section 5.1.3.3 above.
[424] United States' response to Arbitrator question No. 131.
[425] United States' response to Arbitrator question No. 131.
[426] United States' written submission, para. 116.

yellowfin without incurring any additional marginal costs.[427] Rather, the way it is presented, Mexico's assumption holds true only up to a threshold: the current level of canned tuna production.[428]

6.54. We also disagree with the United States' claim that "Mexico presents no evidence justifying the decision to model Mexico's supply of canned yellowfin as perfectly elastic until a point and then perfectly inelastic".[429] In fact, Mexico justifies its modelling assumption on the basis of the small share that yellowfin has in the overall tuna products consumption in the United States.[430] In Mexico's general formulation, the elasticity of supply of canned yellowfin to the United States will be equal to the ratio between the elasticity of the world supply of canned yellowfin and the US share in the world production of canned yellowfin.[431] Although the record contains no data on world production of canned yellowfin, and therefore it is not possible to calculate the US share in that production, this share is likely to be small. In fact, US consumption of canned yellowfin represents only 2.7% of Mexico's production.[432] It would therefore be logical to consider that, if all world supply of canned yellowfin were taken into consideration, the United States would represent an even lower share of that consumption.

6.55. Moreover, we disagree with the United States' argument that in modelling the supply of canned yellowfin as very elastic, Mexico "appears to acknowledge that there is not, in fact, a restriction on the supply of canned yellowfin to the U.S. market, and, therefore, no reason why the demand observed in the market currently does not reflect actual U.S. consumer demand".[433] In our view, the assumption that Mexico's supply of canned yellowfin to the US market is perfectly elastic does not necessarily contradict the assumption that the supply of canned yellowfin into the US market is currently restricted. As Mexico acknowledges[434], it is correct that the United States is fully integrated into the global canned yellowfin market, and most likely it is also correct that the United States imports from countries whose fleets are the top harvesters of yellowfin in the WCPO. However, the evidence on the record shows that the price at which canned yellowfin is currently supplied into the US market is higher than that of other types of tuna.[435] Therefore, it is possible that, although potentially infinitely elastic, the current supply of dolphin safe canned yellowfin is set at a high price, thus yielding low levels of consumption.

6.56. Furthermore, as noted above in connection with our description of Mexico's model, we are of the view that Mexico's duty-free access to the United States under NAFTA rules as well as Mexico's proximity to the United States and the consequent lower transportation costs provide Mexico with a significant advantage in the US market for canned tuna products. It is therefore reasonable to expect that if the Tuna Measure were to be withdrawn and Mexico were to export canned yellowfin to the US market, canned yellowfin would be available in the US market at a cheaper price than the actual 2014 prices.

6.57. Finally, we find plausible Mexico's characterization of the counterfactual export supply to the United States whereby once the threshold quantity, Q_{ymx} (which corresponds to Mexico's production capacity of canned yellowfin in 2014)[436], has been reached, the supply curve becomes vertical, i.e. perfectly inelastic. This is consistent with our decision in the context of these proceedings to focus our analysis on the short-run effects of the withdrawal of the Tuna Measure.

6.2.2.2 Mexican production capacity of canned yellowfin

6.58. As calculated by Mexico, we set the value of Q_{ymx} equal to the Mexican production capacity in 2014, i.e. 65,342 metric tonnes. This value has been computed as carcass weight net of exports

[427] United States' written submission, para. 116.
[428] Mexico's written submission, para. 141.
[429] United States' comments on Mexico's response to Arbitrator question No. 115.
[430] Mexico's response to Arbitrator question No. 115.
[431] Mexico's response to Arbitrator question No. 115.
[432] Mexico's response to Arbitrator question No. 115.
[433] United States' comments on Mexico's response to Arbitrator question No. 115.
[434] Mexico's response to Arbitrator question No. 123.
[435] Mexico's response to Arbitrator question No. 119; Mexico's response to Arbitrator question No. 153; Exhibit USA-10 (BCI).
[436] Exhibit MEX-02, p. 22.

plus the imports for production, using 2014 data.[437] We consider this to be a plausible approach, and note that the United States does not contest it.

6.59. We set Mexican imports (Q_{ymx_imp}) from other ETP countries equal to zero. This is despite Mexico's assumption that it would be able to import an additional quantity equivalent to 20,000 metric tonnes of canned yellowfin from other ETP countries and process it in Mexican canneries, for domestic consumption.[438] Mexico claims that it would be able to expand its production capacity without incurring increased marginal costs. Mexico has explained that this is because Mexican canneries operated in 2014 with a single day shift.[439] According to Mexico, the increase in production would take place at constant marginal costs because it "would come from an increase in production time in existing facilities".[440] Mexico claims that "as shown in Table 10 of [Exhibit] MEX-02, the catch of yellowfin tuna from other ETP countries is plentiful enough to provide a quantity equivalent to 20,000 metric tonnes of canned yellowfin tuna to Mexico".[441] Table 10 in Exhibit MEX-02 shows that in 2014 total yellowfin catch of selected ETP countries was around 55,300 metric tonnes (equivalent quantities canned). According to this data, ETP countries would export 36% of their catch to Mexico. However, in our view, and as we have explained above, Mexico has not convinced us that this assumption (that it would import an additional quantity equivalent to 20,000 metric tonnes of canned yellowfin from other ETP countries and process it in Mexican canneries, for domestic consumption) is reasonable.

6.60. First, Mexico has not shown how much yellowfin each of these ETP countries consumes and would be able to export. There is no evidence on the record indicating that other ETP countries can and would increase their supply of yellowfin to Mexico by an amount equivalent to 20,000 metric tonnes of canned tuna. In contrast, the United States has submitted evidence showing that the catch of tuna in the ETP is limited under international rules, and that current levels of tuna catch cannot be increased by any significant amount. The catch of tuna species in the ETP is regulated by the IATTC, which monitors catches and takes corrective action if they rise above sustainable levels. The latest IATTC report suggested that "yellowfin tuna was in an overfished state".[442] Therefore, we find it reasonable to assume that the IATTC would take action if the catch of yellowfin in the ETP were to increase substantially. Indeed, the IATTC Resolution C-13-01 declared a yearly 62-day closure period for the large purse seine fishery in the ETP for 2014-2016.[443] Furthermore, we note that "at the 2016 meeting of the IATTC, the Commission adopted interim harvest control rules for yellowfin tuna that would trigger measures to reduce catch".[444] We therefore find persuasive the United States' contention that there is a limited quantity of yellowfin available in other ETP countries.[445]

6.61. Second, even if an excess supply of yellowfin existed in the other ETP countries, it is not clear to us why other countries in the region, such as Ecuador, which can currently export yellowfin to the United States using the dolphin-safe label, would not already import such excess supply in order to process it, consume it domestically and/or increase exports of dolphin-safe tuna to the United States.

6.62. Finally, we are of the view that setting Mexican imports from other ETP countries equal to zero is consistent with the setup of the model. As discussed above, it is a simplified model where the impact of the withdrawal of the Tuna Measure on ETP countries that may potentially be affected by the Measure (e.g. Guatemala and Ecuador) is not taken into account because their potential additional export supply of yellowfin is limited by their own production capacity in 2014. In particular, we recall that in 2014, Ecuador and Guatemala each had only one vessel with a DML[446] that caught tuna by setting on dolphins. This argument is used also by Mexico to support its assumption that other ETP countries that may potentially be affected by the Tuna Measure can

[437] Calculations using the data from Table 8 on p. 24 of Exhibit MEX-02 yield: (144,650-16,870+2,560)*0.525-3,091=65,342 metric tonnes. Mexico approximates this amount to 65,500 metric tonnes. We do not follow this approach as there is no need for such approximation.
[438] Exhibit MEX-02, p. 22 and Exhibit MEX-02, Table 11, p.32.
[439] Exhibit MEX-02, p. 22, 29; Mexico's written submission, para. 142.
[440] Exhibit MEX-02, p. 22.
[441] Mexico's response to Arbitrator question No. 45.
[442] United States' written submission, para. 117 (referring to Exhibit USA-43).
[443] United States' written submission, para. 117 and footnote 231 (referring to Exhibit USA-77).
[444] United States' written submission, para. 117.
[445] United States' comments on Mexico's response to Arbitrator question No. 115.
[446] Exhibit USA-200. See para. 5.113.

only marginally change the export volumes.[447] In our view, however, if Mexico's argument about importing the equivalent of 20,000 metric tonnes of canned yellowfin for domestic consumption were accepted, it would be necessary to extend the same assumption to other ETP countries. For example, we would also need to allow that Ecuador could import more for domestic consumption. Therefore, we agree with the United States that removing these additional 20,000 metric tonnes equivalent of canned yellowfin from the model "would partly account for the fact that other countries, including Ecuador, could produce canned yellowfin".[448]

6.2.3 Export supply of generic tuna

6.63. As foreseen in Mexico's model, we assume that canned generic tuna is produced domestically in the United States and Mexico, and that any excess demand is fulfilled by imports from the rest of the world. Mexico's model sets the United States' domestic production of canned generic tuna (Q_{gus}) equal to 177,351 metric tonnes.[449] This value is uncontested by United States. We set the Mexican production of canned generic tuna (Q_{gmx}) equal to 23,000 metric tonnes. This value has been computed by Mexico as carcass weight net of exports plus the import for production[450] and is uncontested by the United States.

6.64. The world export supply of canned generic tuna to the United States is defined in Mexico's model as:

$$Q_{gw\_exp} = \left(\frac{p_{gw}}{\beta}\right)^{\varepsilon}$$

where Q_{gw_exp} = Q_{gus_imp} = Q_{dgus} - Q_{gus} is US excess demand for canned generic tuna; β is a measure of the intensity of supply; p_{gw} is the price of generic tuna; and ε is the elasticity of export supply.[451] We now discuss how ε and p_{gw} are parametrized.[452]

6.2.3.1 Elasticity of export supply of canned generic tuna

6.65. The shape of the world supply curve of canned generic tuna depends on the value assigned to the ε parameter. The correct parametrization of ε is an issue between the parties because the export supply elasticity that a country faces depends on the country's size in the global market. Thus, if the United States were a "small country"[453] in the world tuna market, its consumption choices would not affect the world price of canned tuna. Hence, ε would be large and the United States would face a perfectly elastic (flat) world supply curve. In contrast, if the United States were a large country relative to the world tuna market, it would affect the world price of canned tuna. In this case, the ε parameter would take a finite value. The world supply curve would be imperfectly elastic and positively sloped.

6.66. Thus, the first issue we must resolve is whether the United States' tuna market is small or large relative to the world market for canned tuna. The evidence on the record is contradictory on this point. Mexico asserts that "[t]he United States production and consumption of tuna are small shares of the global tuna market" because its production and consumption of tuna account, respectively, for almost 6.72% and 7.83% of the world tuna harvest.[454] Arguing that these shares

[447] Mexico's response to Arbitrator question No. 18.
[448] United States' response to Arbitrator question No. 131.
[449] Exhibit MEX-02, Tables 1 and 2, p. 5. The value is obtained from Exhibit MEX-03.
[450] Exhibit MEX-02, Table 8, p. 24. 23,000 = (17,771-7,090+29,467)*0,525+1,860. The approximation does not affect the estimated level of nullification or impairment.
[451] See Mexico's written submission, para. 163. Mexico expresses the equation as $Q_{gwexp} = Bp_{gw}^{\varepsilon}$. We use $\beta \equiv B^{-\frac{1}{\varepsilon}}$ for consistency with the notation in Exhibit MEX 100-f and in Appendix 3 to our Decision.
[452] Q_{gwexp} and β are endogenous variables.
[453] In the economic terminology, a country is "small" when it is assumed not to affect the world price.
[454] Exhibit MEX-02, p. 7. 6.72% is computed as the ratio of the total US supply of fresh and frozen tuna for canning in 2014 (258,258 metric tonnes) and the world harvest of tuna (4.3 million metric tonnes). Conversely, 7.83% is the ratio of the total US consumption of canned tuna in 2014 (330,264 metric tonnes) and the world harvest of tuna (4.3 million metric tonnes).

are small, Mexico initially modelled the world supply for canned generic tuna to the United States as very elastic.[455] In particular, Mexico set the parameter ε equal to 100000000000.[456]

6.67. Conversely, the United States asserts that it is "by far the single biggest consumer of canned tuna, representing 19 percent of world consumption".[457] Given this share, the United States claims that it "is the single greatest influence on the global market for canned tuna"[458] and that it would not face a perfectly elastic world supply curve. However, the United States does not provide an indication of what would be the correct figure for the export supply elasticity. In response to the United States' assertion that the United States does not face infinite export supply elasticity in the market for canned generic tuna, Mexico proposes alternative results based on two different calibrations of the export supply elasticity, with the export supply elasticity equal to 1 or 10, respectively.[459]

6.68. In order to select a value for ε, we have proceeded as follows. First, we calculated the size of each country's market in the world tuna market in terms of their trade shares.[460] We extracted data on imports of canned tuna from the UN Comtrade database using WITS. We used the 2012 HS classification and took into account HS codes 160414, i.e. "Fish preparations; tunas, skipjack and Atlantic bonito (sarda spp.), prepared or preserved, whole or in pieces (but not minced)", and 160419, i.e. "Fish preparations; fish prepared or preserved, whole or in pieces (but not minced), n.e.c. in heading no. 1604".[461] On the basis of these two HS codes, we find that Mexico's imports account for only 0.32% of global imports of canned tuna, while the United States accounts for 12.65% of those imports. These percentages are equal to 0.34% and 15.29% for Mexico and the United States, respectively, using the HS code 160414 only, as done by the United States.[462] These results suggest that while Mexico is likely to behave like a "small country" in the global tuna market, the United States is likely to be a "large country" in the global tuna market, facing finite export supply elasticity.

6.69. Second, in the absence of a specific value for the elasticity of supply produced by the parties, we have looked at the existing economic literature for guidance. A peer reviewed study published in an international journal[463] provides estimates for the export supply elasticity for the product category of "preserved and prepared fish" (HS heading 1604 – a wider category than tuna products) across several countries, ranging between 0 and 10 with an average equal to 2.2. In particular, the estimate for the export supply elasticity faced by the United States is equal to 2.61. Guided by this evidence, we find it reasonable to use a value of $\varepsilon = 2.61$ in our model. This number also falls within the range of parameter values used by Mexico for the world supply of generic tuna to the United States in its simulations (namely, 1 and 10).[464] We note, in addition, that we have tested the sensitivity of our simulation results to alternative values of the export supply elasticity, including the assumption of a perfectly elastic supply. The results are only marginally affected. We are therefore confident that our estimate of the level of nullification or impairment is robust to alternative assumptions on the supply elasticity of generic tuna.

6.2.3.2 World price of canned generic tuna

6.70. Data for the calibration of the world price of generic tuna, p_{gw}, comes from Table 3 in Exhibit MEX-02. The parameter p_{gw} is computed as the ratio between total import value and import

[455] Exhibit MEX-02, Figure 1, p. 9.
[456] Exhibit MEX 100-f, line 89.
[457] United States' written submission, para. 15. Exhibit USA-07 shows that the United States consumes 600,000 metric tonnes of canned tuna compared to the 3,137,500 metric tonnes consumed globally. According to Exhibit USA-8, p. 5, "[t]he US is the world's largest consumer of canned tuna (as a country, the European Union is higher as a block)."
[458] United States' written submission, para. 15.
[459] Mexico's written submission, paras. 166 (when assuming $\varepsilon = 1$) and 164 (when assuming $\varepsilon = 10$). See also Mexico's response to Arbitrator question No. 46, para. 83 and Tables 4 and 5 therein.
[460] S.M. Suranovic (2010), *International Trade Theory and Policy*, Chapter 90-3 (retrieved from http://internationalecon.com/Trade/Tch90/T90-3.php) suggests that the share of country imports or exports in the world market should be used to determine the relative size of a country.
[461] These two HS codes are referred to in Table 9 of Exhibit MEX-02, p.25.
[462] United States' response to Arbitrator question No. 67, Table entitled "U.S. Imports of Canned Tuna in 2015".
[463] C. Broda, N. Limao and D.E. Weinstein (2008), "Optimal Tariffs and Market Power: the Evidence," *American Economic Review* 98(5): 2032-2065.
[464] Mexico's written submission, paras. 164-166.

quantity. As such, it is the average unit value across all listed countries. The specific value of parameter p_{gw} is equal to 4.30 USD/kg. This value is not contested by the United States.

6.3 Other parameters of the model: Duty rates, transport costs and charges

6.71. All other parameters of the model are set as in Mexico's model, because the data provided by Mexico are uncontested.

6.72. We set the duty rate for the United States' imports of canned tuna (d_{us}) at 12.5%. This figure, uncontested by the United States, is computed as the ratio between the duty value (USD 83,778) and the total value of imports (USD 667,178) in 2014.[465] We set the duty rate for Mexico's imports of canned tuna (d_{mx}) at 20%.[466] We set the transport costs between the United States and Mexico (t) at USD 0.05/kg.[467] These are computed as the ratio of the costs of insurance and freight (USD 305) and the import quantities (5657 metric tonnes).[468] Finally, we compute the charges for the United States' imports (t_{us}) as the average charge for all imports of canned tuna, i.e. USD 0.16/kg.[469] Mexico asserts that "[g]iven the proximity of the U.S. and Mexican markets and that these countries both import skipjack from South-East Asia, the same import charge is applied to U.S. and Mexican imports".[470] Therefore, we also set the charges for Mexico's imports, t_{mx}, at USD 0.16/kg. Table 1 below summarizes all parameter values in our model.

Table 1: Exogenous variables and parameters

Variable	Value
US production of canned generic tuna, Q_{gus} (metric tonnes)	177,350
US consumption of canned tuna, $cons_{us}$ (metric tonnes)	330,264
Share of canned generic tuna consumption in the United States, H_{us} (%)	98.8
Average price of canned tuna in the United States, p_{us} (USD/kg)	5
Mexican production of canned yellowfin tuna, Q_{ymx} (metric tonnes)	65,342
Mexican production of canned generic tuna, Q_{gmx} (metric tonnes)	23,000
Mexican consumption of canned yellowfin tuna, $cons_{mxy}$ (metric tonnes)	58,344
Mexican consumption of canned generic tuna, $cons_{mxg}$ (metric tonnes)	29,585
Share of canned generic tuna consumption in Mexico, H_{mx} (%)	33.65*
Average price for canned tuna in Mexico, p_{mx} (USD/kg)	5.04
Mexican imports of canned yellowfin tuna, Q_{ymx_imp} (metric tonnes)	0
Transportation costs between Mexico and the United States, t (USD/kg)	0.05
World price of generic tuna, p_{gw} (USD/kg)	4.30
Duty rate for Mexican imports of tuna, d_{mx} (%)	20
Duty rate for US imports of tuna, d_{us} (%)	12.5
Charge for Mexican imports of tuna, t_{mx} (USD/kg)	0.16
Charge for US imports of tuna, t_{us} (USD/kg)	0.16
Share of US retailers willing to sell Mexican canned yellowfin tuna, α (%)	73.1
Shape parameter of the logistic distribution, s	1
Price elasticity of demand for canned tuna, η	-1
Price elasticity of export supply of canned generic tuna, ε	2.61
US demand intensity parameter, A_{us} (USD million)	1,671.37
Mexican demand intensity parameter, A_{mx} (USD million)	443.162
Mean willingness to pay for canned yellowfin tuna in the United States, μ_{us}	0.199
Mean willingness to pay for canned yellowfin tuna in Mexico, μ_{mx}	1.78

* $H_{mx} = cons_{mxg}/(cons_{mxg} + cons_{mxy}) = 29{,}585/(29{,}585+58{,}344)$

[465] Exhibit MEX-02, Table 11, p. 32. The value is obtained from Exhibit MEX-04.
[466] Exhibit MEX-02, Table 11, p. 32. The value is obtained from Exhibit MEX-24.
[467] Exhibit MEX-02, p. 7 and Table 11, p. 32.
[468] Exhibit MEX-02, p. 7 and Table 3, p. 6.
[469] Exhibit MEX-02, Table 11, p. 32. The value is obtained from Exhibit MEX-04. See also Mexico's response to Arbitrator question No. 90.
[470] Exhibit MEX-02, p. 31.

6.4 Calculation of the level of nullification or impairment

6.73. The results of the endogenous variables in the model are summarized in Table 2.[471]

Table 2: Results

	United States	Mexico
Consumption of yellowfin (metric tonnes)	28,077	37,265
Consumption of generic (metric tonnes)	311,622	38,752
Price of yellowfin (USD/kg)	6.67	6.62
Price of generic (USD/kg)	4.76	5.07
Exports of yellowfin (metric tonnes)	0	28,077
Imports of yellowfin (metric tonnes)	28,077	0
Exports of generic (metric tonnes)	0	0
Imports of generic (metric tonnes)	134,272	15,752
Export value of canned tuna to the United States (million USD)	0	185.88

6.74. We consider it crucial that the counterfactual price of yellowfin in the United States is lower than the actual 2014 price. As noted above, we do not know the price level for canned yellowfin in the US market in 2014. However, the United States argues that the US import price of canned yellowfin exported from the European Union could provide a good proxy for the wholesale price of canned yellowfin. This is because at higher import prices several exporters of yellowfin to the European Union would divert their exports to the US market.[472]

6.75. In this connection, the United States argues that in 2015, the European Union imported nearly 77,000 metric tonnes of canned yellowfin at an average price of USD 5.31/kg.[473] After adjusting for duty rates and charges on US canned tuna imports estimated equal to USD 0.85/kg, this price would corresponds to USD 6.16/kg.[474] In response, Mexico notes that the price used by the United States pertains to 2015, while the counterfactual year is 2014. Mexico also notes that the value of the US dollar compared to the Euro increased by 20% from 2014 to 2015. Thus, Mexico contends that the value of USD 5.31/kg in 2015 is equivalent to USD 6.35/kg in 2014 (USD 5.31/kg*1.195). Furthermore, Mexico adjusts the value of total US tariffs and charges in 2015 (USD 0.85/kg) to 2014, obtaining USD 1.02/kg (USD 0.85/kg * 1.195). Adding this estimated value of tariffs and charges in 2014 to the estimated price of canned yellowfin in 2014 (USD 6.35/kg) yields a total export price to the United States, after adjustments for exchange rate movements and US tariffs and charges, of USD 7.37/kg in 2014.[475]

6.76. As shown in Table 2 above, we estimate a counterfactual price of canned yellowfin in the United States of USD 6.67/kg. We note that this is clearly below the price estimated in Mexico's model (USD 7.84/kg[476]) and the counterfactual 2014 import price adjusted as proposed by Mexico (USD 7.37/kg), and only slightly above the reference price submitted by the United States for 2015 (USD 6.16/kg). We note, however, that the evidence on the record shows a fall in the EU import prices of frozen yellowfin for processing – which, as argued by the United States, are "consistent with the global cannery-grade yellowfin price"[477] – between 2014 and 2015.[478] Therefore, in all likelihood, the price of canned yellowfin that prevailed in the US market was higher in 2014 than in 2015. From this, we can conclude with reasonable confidence that we solve

[471] Appendix 1 presents the theoretical model we used for the simulation. Appendix 2 provides the Stata do file used for econometric estimations of the price premium. Appendix 3 provides the R codes for solving the model.
[472] United States' opening statement at the meeting of the Arbitrator, para. 32.
[473] United States' opening statement at the meeting of the Arbitrator, para. 31.
[474] As argued by Mexico, Exhibit USA-144 is not detailed, but it seems from its last page that the total of US tariff and charges was USD 0.85/kg in 2015 (see Mexico's response to Arbitrator question No. 124).
[475] Mexico's response to Arbitrator question No. 124.
[476] See Exhibit MEX-02, Table 12, p. 33.
[477] United States' response to Arbitrator question No. 153.
[478] See Exhibit USA-199, showing that the EU import prices of frozen yellowfin for processing decreased from USD 2.85/kg to USD 2.10/kg (a 26.3% decrease) between 2014 and 2015.

for a price decrease. This is consistent with the modelled increase in the supply of canned yellowfin to the United States.

6.77. As regards the level of nullification or impairment resulting from our model and its endogenous variables, we recall that the level of nullification or impairment in these proceedings is the difference between the value of total canned tuna exports estimated under the counterfactual and the value of Mexico's actual exports of canned tuna to the United States, with both levels being calculated for the year 2014. Under the counterfactual, we estimate the value for total exports in 2014 of canned tuna from Mexico to the United States (all of it being canned yellowfin) to be equal to USD 185.88 million. The value of Mexican canned tuna actually exported to the United States in 2014 was USD 22.65 million. Taking the difference between the total value of exports of canned tuna from Mexico to the United States under the counterfactual and the total value of actual exports in 2014, we find that Mexico's estimated trade loss in 2014 amounted to USD 163.23 million.

7 CONCLUSION AND AWARD

7.1. For the reasons set out above, the Arbitrator determines that the level of nullification or impairment of benefits accruing to Mexico as a result of the 2013 Tuna Measure is USD 163.23 million per annum. Therefore, in accordance with Article 22.4 of the DSU, Mexico may request authorization from the DSB to suspend concessions or other obligations as indicated in document WT/DS381/29 at a level not exceeding USD 163.23 million per annum.

ECONOMIC APPENDEXES

APPENDIX 1. Equations of the Arbitrator's model

Equation 1: US demand for canned yellowfin tuna

$$Q_{dyus} = A_{us}\alpha\left(1 - H(p)\right)_{us}p_{yus}^{\eta} = A_{us}\alpha\left(\frac{e^{\frac{\mu-(p_{yus}-p_{gus})}{s}}}{1+e^{\frac{\mu-(p_{yus}-p_{gus})}{s}}}\right)p_{yus}^{\eta}$$

Equation 2: US demand for canned generic tuna

$$Q_{dgus} = A_{us}\left[1 - \alpha\left(1 - H(p)\right)_{us}\right]p_{gus}^{\eta} = A_{us}\left[1 - \alpha\left(\frac{e^{\frac{\mu-(p_{yus}-p_{gus})}{s}}}{1+e^{\frac{\mu-(p_{yus}-p_{gus})}{s}}}\right)\right]p_{gus}^{\eta}$$

Equation 3: Mexican demand for canned yellowfin tuna

$$Q_{dymx} = A_{mx}\left(1 - H(p)\right)_{mx}p_{ymx}^{\eta} = A_{mx}\left(\frac{e^{\frac{\mu-(p_{ymx}-p_{gmx})}{s}}}{1+e^{\frac{\mu-(p_{ymx}-p_{gmx})}{s}}}\right)p_{ymx}^{\eta}$$

Equation 4: Mexican demand for canned generic tuna

$$Q_{dgmx} = A_{mx}\left(H(p)\right)_{mx}p_{gmx}^{\eta} = A_{mx}\left(\frac{1}{1+e^{\frac{\mu-(p_{ymx}-p_{gmx})}{s}}}\right)p_{gmx}^{\eta}$$

Equation 5: Mexican export supply of canned yellowfin tuna

$$Q_{ymx\_exp} = Q_{dyus} = Q_{ymx} + Q_{ymx\_imp} - Q_{dymx}$$

Equation 6: US import demand of canned generic tuna

$$Q_{gus\_imp} = Q_{gus} - Q_{dgus}$$

Equation 7: World price of canned generic tuna

$$p_{gw} = \frac{\beta}{Q_{gus\_imp}^{1/\varepsilon}}$$

Equation 8: US price of canned generic tuna

$$p_{gus} = (1 + d_{us})p_{gw} + t_{us}$$

Equation 9: Mexican price of canned generic tuna

$$p_{gmx} = \begin{cases} (1 + d_{us})p_{gw} + t_{mx} \text{ if } Q_{gmx\_exp} = 0 \\ p_{gus} - t \text{ if } Q_{gmx\_exp} > 0 \end{cases}$$

Equation 10: US price of canned yellowfin tuna (arbitrage condition)

$$p_{yus} = p_{ymx} + t$$

Equation 11: Mexican exports of generic tuna to United States

$$Q_{gmx\_exp} = max\{0, Q_{dgmx} - Q_{gmx}\}$$

Equation 12: Mexican imports of generic tuna from other countries

$$Q_{gmx\_imp} = max\{0, Q_{gmx} - Q_{dgmx}\}$$

APPENDIX 2. Stata do file for econometric estimation of price premium

```
clear all
cap log close
set more off, perm

global WD "USE YOUR OWN DIRECTORY "  /*    Working directory    */
cd "$WD"


*******************************************************************************
**
*     Preliminary dataset construction
                    *
{

quietly         {

foreach k in 12 52    {

insheet using Nielsen_`k'_week.csv, clear

/*         These   CSV   datasets   are   created   in   lines   168-169   of   R   file
"Arbitrator_construction_12week_52week_Nielsen_csv_datasets". This is
           mutuated from lines 1-169 of Exhibit "MEX-100-b - US Nielsen data.R"
*/

foreach var of varlist    brand_ form_ container_ flavor_ pack_ salt_ region_  {

      unique `var'
      vallist `var', sort
      tab `var', g(`var'_cat)


                                  }

                                  *     `var'


save Arbitrator_`k'weeks_temp, replace


                             }
                             *     `k'

                 }
                 *     quietly ends here

}
*******************************************************************************
**


*******************************************************************************
**
*     Arbitrator's determination if premium for the form NOT considered
           *
{

local controls


      foreach m in 12 52                                {

            use Arbitrator_`m'weeks_temp, replace
```

```
                foreach k in volume n_units          {

                     reg  price_`m' *cat*      yellowfin  `controls'      [aweight =
`k'_`m']
                     scalar beta_yf_`m'_`k' = _b[yellowfin]
                     scalar mu_`m'_`k' = _b[yellowfin] + ln((1/(1-.012))-1)*1
                     scalar list beta_yf_`m'_`k' mu_`m'_`k'

                                                          }
                                                          *     `k'

                                                          }
                                                          *     `m'


*********************************************************
*     Calculation of mu_US                                          *
{

scalar               NO_mu_52_volume                 = (mu_52_volume)
scalar list     NO_mu_52_volume

scalar               NO_mu_52_avg_volume_units = (mu_52_volume + mu_52_n_units)/2
scalar list     NO_mu_52_avg_volume_units

scalar               NO_mu_avg_12_52_n_units    = (mu_12_n_units + mu_52_n_units)/2
scalar list     NO_mu_avg_12_52_n_units

scalar               NO_mu_avg_12_52_volume          =         (mu_12_volume        +
mu_52_volume)/2
scalar list     NO_mu_avg_12_52_volume

scalar               NO_mu_avg_overall               = (mu_12_volume + mu_52_volume
+ mu_12_n_units + mu_52_n_units)/4
scalar list     NO_mu_avg_overall

}
*********************************************************

}
*******************************************************************************
**


*******************************************************************************
**
*     Arbitrator's determination if premium for the form IS considered
          *
{

*********************************************************
*     Preliminary construction                                      *
{

                foreach m in 12 52
                                {

                foreach k in volume n_units
                                {

                foreach x in form    /*brand container flavor pack salt region */
          {


                     preserve
```

```
                    use Arbitrator_`m'weeks_temp, replace

                    bysort yellowfin: egen total_`k'_`m'_temp = total(`k'_`m')
                    bysort   yellowfin   form_:   egen   total_`k'_`m'_form_temp   =
total(`k'_`m')
                    g share_`k'_`m' = total_`k'_`m'_form_temp / total_`k'_`m'_temp
                    keep yellowfin form_ share*
                    duplicates drop
                    reshape wide share_`k'_`m', i( form_) j(yellowfin)
                    ren share_`k'_`m'0 sh_`k'_other
                    ren share_`k'_`m'1 sh_`k'_yfin

               foreach j of varlist sh*       {

                    replace `j' = 0 if missing(`j')

                                                    }
                                                    *     `j'

                    save temp_`m'_form_`k'_shares, replace

                    restore


                                    }

                                    *     `x'


                                    }

                                    *     `k'


                                    }

                                    *     `m'

     ************************************************************************
     *     Calculation of "form premium" (12-week dataset, volume weight)      *
     {

     use Arbitrator_12weeks_temp, replace

     ***************************************************************
     *     Shares from "temp_12_form_volume_shares.dta" dataset      *
     {

     g other_share_Iform2      =    0.0016170
     g other_share_Iform3      =    0.0005138
     g other_share_Iform4      =    0.0003206
     g other_share_Iform5      =    0.0032770
     g other_share_Iform6      =    0.2617792
     g other_share_Iform7      =    0.0000251

     g yfin_share_Iform2            =    0.1838225
     g yfin_share_Iform3            =    0.0000000
     g yfin_share_Iform4            =    0.0033019
     g yfin_share_Iform5            =    0.0000000
     g yfin_share_Iform6            =    0.2088498
     g yfin_share_Iform7            =    0.0000000

     }
     ***************************************************************
```

```
     local controls

     drop *__*
     ren pack_size size_pack
     tostring region, replace

     renvars, subs(container ctn)

               foreach x in form              {

                    encode `x', g(encoded_`x')
                    tab `x' encoded_`x'

                                                  }
                                                  *     `x'

     xi:  reg  price_12  i.brand  i.form  i.ctn  i.flavor  i.pack  i.salt  i.region
yellowfin  `controls' [aweight = volume_12]
     est store Arbitrator

     forvalues k = 2(1)7       {

          g beta_Iform`k' = _b[_Iform__`k']

                                       }
                                       *     `k'

     g form_premium_12 =  beta_Iform2*(yfin_share_Iform2 - other_share_Iform2) +
///
                                       beta_Iform3*(yfin_share_Iform3                -
other_share_Iform3)  + ///
                                       beta_Iform4*(yfin_share_Iform4                -
other_share_Iform4)  + ///
                                       beta_Iform5*(yfin_share_Iform5                -
other_share_Iform5)  + ///
                                       beta_Iform6*(yfin_share_Iform6                -
other_share_Iform6)  + ///
                                       beta_Iform7*(yfin_share_Iform7                -
other_share_Iform7)
     sum form_premium_12

     scalar define form_premium_12_volume = r(mean)
     scalar list form_premium_12_volume

     }
     ************************************************************************


     ************************************************************************
     *     Calculation of "form premium" (52-week dataset, volume weight)      *
     {

     use Arbitrator_52weeks_temp, replace

     ****************************************************************
     *     Shares from "temp_52_form_volume_shares.dta" dataset      *
     {

     g other_share_Iform2      =     0.0015417
     g other_share_Iform3      =     0.0003065
     g other_share_Iform4      =     0.0003542
     g other_share_Iform5      =     0.0027262
     g other_share_Iform6      =     0.2634644
     g other_share_Iform7      =     0.0000080

     g yfin_share_Iform2            =     0.1823488
```

```
     g yfin_share_Iform3             =    0.0000000
     g yfin_share_Iform4             =    0.0034064
     g yfin_share_Iform5             =    0.0000000
     g yfin_share_Iform6             =    0.1990382
     g yfin_share_Iform7             =    0.0000000

     }
     ****************************************************************

     local controls

     drop *__*
     ren pack_size size_pack
     tostring region, replace

     renvars, subs(container ctn)

               foreach x in form              {

                    encode `x', g(encoded_`x')
                    tab `x' encoded_`x'

                                                   }
                                                   *     `x'

     xi:  reg  price_52  i.brand  i.form  i.ctn  i.flavor  i.pack  i.salt  i.region
yellowfin  `controls' [aweight = volume_52]
     est store Arbitrator

     forvalues k = 2(1)7       {

          g beta_Iform`k' = _b[_Iform__`k']

                                   }
                                   *     `k'

     g form_premium_52 =  beta_Iform2*(yfin_share_Iform2 - other_share_Iform2) +
///
                                   beta_Iform3*(yfin_share_Iform3                -
other_share_Iform3)  + ///
                                   beta_Iform4*(yfin_share_Iform4                -
other_share_Iform4)  + ///
                                   beta_Iform5*(yfin_share_Iform5                -
other_share_Iform5)  + ///
                                   beta_Iform6*(yfin_share_Iform6                -
other_share_Iform6)  + ///
                                   beta_Iform7*(yfin_share_Iform7                -
other_share_Iform7)
     sum form_premium_52

     scalar define form_premium_52_volume = r(mean)
     scalar list form_premium_52_volume

     }
     ****************************************************************************


     ****************************************************************************
     *     Calculation of "form premium" (12-week dataset, n_units weight)
     *
     {

     use Arbitrator_12weeks_temp, replace

     ************************************************************
     *     Shares from "temp_12_form_n_units_shares.dta" dataset          *
     {
```

```
     g other_share_Iform2      =    0.00215040
     g other_share_Iform3      =    0.00019197
     g other_share_Iform4      =    0.00041838
     g other_share_Iform5      =    0.00813812
     g other_share_Iform6      =    0.22235054
     g other_share_Iform7      =    0.00003278

     g yfin_share_Iform2            =    0.20729758
     g yfin_share_Iform3            =    0.00000000
     g yfin_share_Iform4            =    0.00568317
     g yfin_share_Iform5            =    0.00000000
     g yfin_share_Iform6            =    0.21372929
     g yfin_share_Iform7            =    0.00000000

     }
     ****************************************************************

     local controls

     drop *__*
     ren pack_size size_pack
     tostring region, replace

     renvars, subs(container ctn)

               foreach x in form              {

                    encode `x', g(encoded_`x')
                    tab `x' encoded_`x'

                                                   }
                                                   *     `x'

     xi:  reg  price_12  i.brand  i.form  i.ctn  i.flavor  i.pack  i.salt  i.region
yellowfin  `controls' [aweight = n_units_12]
     est store Arbitrator

     forvalues k = 2(1)7       {

          g beta_Iform`k' = _b[_Iform__`k']

                                   }
                                   *     `k'

     g form_premium_12 =  beta_Iform2*(yfin_share_Iform2 - other_share_Iform2) +
///
                                   beta_Iform3*(yfin_share_Iform3                -
other_share_Iform3)  + ///
                                   beta_Iform4*(yfin_share_Iform4                -
other_share_Iform4)  + ///
                                   beta_Iform5*(yfin_share_Iform5                -
other_share_Iform5)  + ///
                                   beta_Iform6*(yfin_share_Iform6                -
other_share_Iform6)  + ///
                                   beta_Iform7*(yfin_share_Iform7                -
other_share_Iform7)
     sum form_premium_12

     scalar define form_premium_12_n_units = r(mean)
     scalar list form_premium_12_n_units

     }
     ****************************************************************************


     ****************************************************************************
```

```
*     Calculation of "form premium" (52-week dataset, n_units weight)
*
{

use Arbitrator_52weeks_temp, replace

*****************************************************************
*     Shares from "temp_52_form_n_units_shares.dta" dataset          *
{

g other_share_Iform2      =     0.00198908
g other_share_Iform3      =     0.00012039
g other_share_Iform4      =     0.00045978
g other_share_Iform5      =     0.00672650
g other_share_Iform6      =     0.22540790
g other_share_Iform7      =     0.00001032

g yfin_share_Iform2            =     0.20455195
g yfin_share_Iform3            =     0.00000000
g yfin_share_Iform4            =     0.00582262
g yfin_share_Iform5            =     0.00000000
g yfin_share_Iform6            =     0.20176426
g yfin_share_Iform7            =     0.00000000

}
*********************************************************************

local controls

drop *__*
ren pack_size size_pack
tostring region, replace

renvars, subs(container ctn)

           foreach x in form              {

                encode `x', g(encoded_`x')
                tab `x' encoded_`x'

                                                }
                                                *     `x'

xi:  reg  price_52  i.brand  i.form  i.ctn  i.flavor  i.pack  i.salt  i.region
yellowfin  `controls' [aweight = n_units_52]
est store Arbitrator

forvalues k = 2(1)7       {

     g beta_Iform`k' = _b[_Iform__`k']

                                  }
                                  *     `k'

g form_premium_52 =  beta_Iform2*(yfin_share_Iform2 - other_share_Iform2) +
///
                                  beta_Iform3*(yfin_share_Iform3                -
other_share_Iform3)  + ///
                                  beta_Iform4*(yfin_share_Iform4                -
other_share_Iform4)  + ///
                                  beta_Iform5*(yfin_share_Iform5                -
other_share_Iform5)  + ///
                                  beta_Iform6*(yfin_share_Iform6                -
other_share_Iform6)  + ///
                                  beta_Iform7*(yfin_share_Iform7                -
other_share_Iform7)
sum form_premium_52
```

```
      scalar define form_premium_52_n_units = r(mean)
      scalar list form_premium_52_n_units

      }
      ***************************************************************************


      ***************************************************************************
      *     Calculation of average form premia
            *
      {


      scalar          form_premium_52_avg_volume_units     =  (form_premium_52_volume
+ form_premium_52_n_units)/2
      scalar list     form_premium_52_avg_volume_units

      scalar          form_premium_avg_12_52_volume        =  (form_premium_12_volume
+ form_premium_52_volume)/2
      scalar list     form_premium_avg_12_52_volume

      scalar          form_premium_avg_overall             =  (form_premium_12_volume
+ form_premium_52_volume + form_premium_12_n_units + form_premium_52_n_units)/4
      scalar list     form_premium_avg_overall


      }
      ***************************************************************************


}
*********************************************************


*********************************************************
*     Calculation of mu_US                                    *
{

scalar                YES_mu_52_volume                     =      (mu_52_volume      +
form_premium_52_volume)
scalar list     YES_mu_52_volume

scalar                YES_mu_52_avg_volume_units      =  NO_mu_52_avg_volume_units  +
form_premium_52_avg_volume_units
scalar list     YES_mu_52_avg_volume_units

scalar                YES_mu_avg_12_52_volume         =    NO_mu_avg_12_52_volume    +
form_premium_avg_12_52_volume
scalar list     YES_mu_avg_12_52_volume

scalar                YES_mu_avg_overall                   =    NO_mu_avg_overall    +
form_premium_avg_overall
scalar list     YES_mu_avg_overall

}
*********************************************************

}
*******************************************************************************
**


*******************************************************************************
**
*     Erase temp files
                        *
```

```
{

foreach k in *temp*.dta                                          {

      local myfiles: dir . files "*`k'*", respectcase
      foreach file of local myfiles {
                capture rm "`file'"
                }
                *
                                                                        }
                                                                        *     `k'

}
*******************************************************************************
**
```

APPENDIX 3. R files for solving the model

Model functions

```
################################################
### Return the correct distribution function ###
################################################

pdist_US <- function(premium, mu, s){

  if(dist_US == "logistic"){return(plogis(premium, location = mu, scale = s))}

}

pdist_MX <- function(premium, mu, s){

  if(dist_MX == "logistic"){return(plogis(premium, location = mu, scale = s))}

}


#####################################
### Function for interior solution ###
#####################################

func_interior <- function(theta){

  ##############################
  ### Equations of the model ###
  ##############################

  #World price of generic tuna (world supply - from Mexico's submission)
  pgw_func <- function(qgusimp){
      as.numeric(theta["beta_us"]*qgusimp^(1/theta["epsilon"]))
  }

  #US price of yellowfin - arbitrage between US and Mexico
  py_func <- function(pymx){as.numeric(pymx + theta["t"])}

  #US price of generic tuna
  pgus_func  <-  function(qgusimp){as.numeric(pgw_func(qgusimp)*(1+theta["dus"])  +
theta["tus"])}

  #MX price of generic tuna
  pgmx_func  <-  function(qgusimp){as.numeric(pgw_func(qgusimp)*(1+theta["dmx"])  +
theta["tmx"])  }

  #US demand for yellowfin
  qdyus_func <- function(pymx, qgusimp){
    as.numeric(theta["Aus"]*a_share*(1-pdist_US(py_func(pymx) - pgus_func(qgusimp),
theta["mu_us"], theta["s_us"]))*py_func(pymx)^theta["eta"])
  }

  #US demand for generic tuna
  qdgus_func <- function(pymx, qgusimp){
    as.numeric(theta["Aus"]*(1-a_share*(1-pdist_US(py_func(pymx)                    -
pgus_func(qgusimp),                                          theta["mu_us"],
theta["s_us"])))*pgus_func(qgusimp)^theta["eta"])
  }

  #MX demand for yellowfin
  qdymx_func <- function(pymx, qgusimp){
    as.numeric(theta["Amx"]*(1-pdist_MX(pymx  -  pgmx_func(qgusimp),  theta["mu_mx"],
theta["s_mx"]))*pymx^theta["eta"])
  }
```

```
  #MX demand for generic tuna
  qdgmx_func <- function(pymx, qgusimp){
    as.numeric(theta["Amx"]*pdist_MX(pymx  -  pgmx_func(qgusimp),  theta["mu_mx"],
theta["s_mx"])*pgmx_func(qgusimp)^theta["eta"])
  }

  ############################
  ### Equations to solve ###
  ############################

  #Quantity of generic tuna in U.S. (from Mexico's submission)
  qg_sol_func <- function(pymx, qgusimp){
    as.numeric(qgusimp + theta["Qgus"] - qdgus_func(pymx, qgusimp))
  }

  #Quantity of yellowfin tuna
  qy_sol_func <- function(pymx, qgusimp){
    as.numeric(theta["Qymx"]  -  qdymx_func(pymx,  qgusimp)  -  qdyus_func(pymx,
qgusimp))
  }

  #Objective function
  obj_func <- function(x){
    pymx <- x[1]
    qgusimp <- x[2]
    y <- numeric(2)
    #Objective function
    y[1] <- qg_sol_func(pymx, qgusimp)
    y[2] <- qy_sol_func(pymx, qgusimp)
    #Return vector of functions
    y
  }

  #Square function to solve - for corner solution on qgusimp = 0
  obj_func_2 <- function(pymx){
    as.numeric((qy_sol_func(pymx, 0))^2)
  }

  #################
  ### Solutions ###
  #################

  sol <- nleqslv(c(7, 80000000), obj_func, control = list(cndtol = 1e-16))
  print(sol$message)

  pymx_sol <- as.numeric(sol$x[1])
  qgusimp_sol <- as.numeric(sol$x[2])

  #Return solutions for all variables in a vector
  vec_sol <- c(Qdymx = qdymx_func(pymx_sol, qgusimp_sol),
               Qdgmx = qdgmx_func(pymx_sol, qgusimp_sol),
               Qdyus = qdyus_func(pymx_sol, qgusimp_sol),
               Qdgus = qdgus_func(pymx_sol, qgusimp_sol),
               Qymx_exp   =   max(0,   theta["Qymx"]   -   qdymx_func(pymx_sol,
qgusimp_sol)),
               Qymx_imp   =   max(0,   qdymx_func(pymx_sol,   qgusimp_sol)   -
theta["Qymx"]),
               Qgmx_exp   =   max(0,   theta["Qgmx"]   -   qdgmx_func(pymx_sol,
qgusimp_sol)),
               Qgmx_imp   =   max(0,   qdgmx_func(pymx_sol,   qgusimp_sol)   -
theta["Qgmx"]),
               Qgus_imp  =  max(0,  qdgus_func(pymx_sol,  qgusimp_sol)  -  max(0,
theta["Qgmx"] - qdgmx_func(pymx_sol, qgusimp_sol)) - theta["Qgus"]),
               pymx = pymx_sol,
               pgmx = pgmx_func(qgusimp_sol),
               pyus = py_func(pymx_sol),
```

```
                pgus = pgus_func(qgusimp_sol))

  return(vec_sol)

}

#####################################
### Function for corner solution  ###
#####################################

func_corner <- function(theta){

  #(Re)calculate Mexico's domestic production - corner solution on exports of
yellowfin tuna
  qymx_dom <- theta["Qymx"] - ymx_imp

  ##############################
  ### Equations of the model ###
  ##############################

  #World price of generic tuna (world supply - from Mexico's submission)
  pgw_func <- function(qgusimp){
    as.numeric(theta["beta_us"]*qgusimp^(1/theta["epsilon"]))
  }

  #US price of generic tuna
  pgus_func  <-  function(qgusimp){as.numeric(pgw_func(qgusimp)*(1+theta["dus"])  +
theta["tus"])}

  #MX price of generic tuna
  pgmx_func  <-  function(qgusimp){as.numeric(pgw_func(qgusimp)*(1+theta["dmx"])  +
theta["tmx"])}

  #US demand for yellowfin
  qdyus_func <- function(pyus, qgusimp){
    as.numeric(theta["Aus"]*a_share*(1-pdist_US(pyus      -      pgus_func(qgusimp),
theta["mu_us"], theta["s_us"]))*pyus^theta["eta"])
  }

  #US demand for generic tuna
  qdgus_func <- function(pyus, qgusimp){
    as.numeric(theta["Aus"]*(1-a_share*(1-pdist_US(pyus    -    pgus_func(qgusimp),
theta["mu_us"], theta["s_us"])))*pgus_func(qgusimp)^theta["eta"])
  }

  #MX demand for yellowfin
  qdymx_func <- function(pymx, qgusimp){
    as.numeric(theta["Amx"]*(1-pdist_MX(pymx  -  pgmx_func(qgusimp),  theta["mu_mx"],
theta["s_mx"]))*pymx^theta["eta"])
  }

  #MX demand for generic tuna
  qdgmx_func <- function(pymx, qgusimp){
    as.numeric(theta["Amx"]*pdist_MX(pymx   -   pgmx_func(qgusimp),   theta["mu_mx"],
theta["s_mx"])*pgmx_func(qgusimp)^theta["eta"])
  }

  ############################
  ### Equations to solve ###
  ############################

  #Quantity of generic tuna in U.S. (from Mexico's submission)
  qg_sol_func <- function(pyus, qgusimp){
    as.numeric(qgusimp + theta["Qgus"] - qdgus_func(pyus, qgusimp))
  }

  #Quantity of yellowfin tuna
```

```
  qy_sol_func <- function(pyus, qgusimp){
    as.numeric(qymx_dom - qdyus_func(pyus, qgusimp))
  }

  #Objective functions
  obj_func <- function(x){
    pyus <- x[1]
    qgusimp <- x[2]
    y <- numeric(2)
    #Objective function
    y[1] <- qg_sol_func(pyus, qgusimp)
    y[2] <- qy_sol_func(pyus, qgusimp)
    #Return vector of functions
    y
  }

  #Mexican consumption of yellowfin tuna equals its imports
  obj_func_mx <- function(pymx, qgusimp){
    #Objective function
    y <- qdymx_func(pymx, qgusimp) - ymx_imp
    #Return vector of functions
    y^2
  }

  #Square function to solve - for corner solution on qgusimp = 0
  obj_func_2 <- function(pymx){
    as.numeric((qy_sol_func(pymx, 0))^2)
  }

  ##################
  ### Solutions ###
  ##################

  sol <- nleqslv(c(pyus = 7, qgusimp = 80000000), obj_func, control = list(cndtol =
1e-16))
  print(sol$message)

  pyus_sol <- as.numeric(sol$x[1])
  qgusimp_sol <- as.numeric(sol$x[2])

  #Solve for Mexican price of yellowfin
  pymx_sol  <-  optimize(obj_func_mx,  c(2,10),  qgusimp  =  qgusimp_sol,  tol  =
.Machine$double.eps^2)$minimum

  #Return solutions for all variables in a vector
  vec_sol <- c(Qdymx = ymx_imp,
               Qdgmx = qdgmx_func(pymx_sol, qgusimp_sol),
               Qdyus = as.numeric(qymx_dom),
               Qdgus = qdgus_func(pyus_sol, qgusimp_sol),
               Qymx_exp = max(0, qymx_dom),
               Qymx_imp = max(0, ymx_imp),
               Qgmx_exp    =    max(0,    theta["Qgmx"]    -    qdgmx_func(pymx_sol,
qgusimp_sol)),
               Qgmx_imp    =    max(0,    qdgmx_func(pymx_sol,    qgusimp_sol)    -
theta["Qgmx"]),
               Qgus_imp = max(0, qgusimp_sol),
               pymx = pymx_sol,
               pgmx = pgmx_func(qgusimp_sol),
               pyus = pyus_sol,
               pgus = pgus_func(qgusimp_sol))

  return(vec_sol)

}

#############################################################
### Function to select solution depending on corner solution ###
```

```
################################################################

sol_func <- function(gamma){
  ifelse(func_interior(gamma)["Qymx_exp"]                <=                65500000,
return(func_interior(gamma)), return(func_corner(gamma)))

}

################################
### Function to solve model ###
################################

model_solution <- function(x, lambda, vec_US, vec_MX){

  ##########################################
  ### Calibration of US demand and supply ###
  ##########################################

  #Demand intensity parameter
  Aus <- as.numeric(vec_US["cons_US"]/(Hus*(vec_US["p_US"]^x["eta"])))

  #Supply intensity parameter
  beta_us              <-              as.numeric(lambda["pgw"]/(vec_US["cons_US"]-
vec_US["Qgus"])^(1/x["epsilon"]))

  ################################################################
  ### Calibrate Mexican demand                                  ###
  ################################################################

  MX_func <- function(py){
    py <- py[1]
    #
    pg <- function(py){
      (vec_mx["p_mx"] - (1-vec_mx["Hmx"])*py)/vec_mx["Hmx"]
    }

    y1  <-  vec_mx["cons_MXy"]/vec_mx["cons_MXg"]  -  ((1-pdist_MX(py  -  pg(py),
x["mu_mx"],        x["s_mx"]))/pdist_MX(py        -        pg(py),        x["mu_mx"],
x["s_mx"]))*(py/pg(py))^x["eta"]

    return(y1^2)
  }

  pymx <- optim(c(5.4), MX_func, method = "Brent", lower = 4.00, upper = 8, control
= list(abstol = .Machine$double.eps))$par
  #pymx

  #Find value for pg
  pgmx <- (vec_mx["p_mx"] - (1-vec_mx["Hmx"])*pymx)/vec_mx["Hmx"]

  #Find value for A
  Amx  <-  as.numeric(vec_mx["cons_MXy"]/((1-pdist_MX(pymx  -  pgmx,  x["mu_mx"],
x["s_mx"]))*pymx^x["eta"]))
  #Amx

  ####################
  ### Solve model ###
  ####################

  sol <- sol_func(c(x, lambda, Aus = Aus, Amx = Amx, beta_us = beta_us, Qgus =
as.numeric(vec_US["Qgus"])))

  #Return vector of solutions and parameters of calibration
  return(c(sol, Aus_cal = Aus, Amx_cal = Amx, beta_us = beta_us, pymx_cal = pymx,
pgmx_cal = pgmx))

}
```

Model solutions

```
#Clear memory of all objects
rm(list = ls())

#Load library for numerical optimizer
library(nleqslv)
library(stringr)

###################################
### Set the working directory ###
###################################

setwd("USE YOUR OWN DIRECTORY") #use "/" rather than "\"

#########################################################################
### Load the R file with model equations and numerical solutions ###
#########################################################################

source("Arbitrator Final - Model functions.R")

################################
### Parameter for US demand ###
################################

vec_US <- c(Qgus= 177350000,
            cons_US = 330264000,
            p_US = 5)

#####################################
### Parameter for Mexican demand ###
#####################################

vec_mx <- c(cons_MXy = 58344000,
            cons_MXg = 29585000,
            p_mx = 5.04,
            Hmx = 29585000/(29585000+58344000))

########################
### Model parameters ###
########################

ymx_imp <- 0

vec_cal <- c(Qymx = 65342000 + ymx_imp,
             Qgmx = 23000000,
             t = 0.05,
             pgw = 4.30,
             dmx = 0.20,
             dus = 0.125,
             tmx = 0.16,
             tus = 0.16)

##############################
### Choice of distribution ###
##############################

dist_US <- "logistic"

dist_MX <- "logistic"


#####################################
### Adjustment for lack of access ###
#####################################
```

```
a_share <- .731   #26.9% of US retailers will not sell Mexican yellowfin
Hus <- .988         #Since we parameterize Aus with observed consumption share of
1.2% for yellowfin"


############################################################
### Vector of parameters for demand and supply equations ###
############################################################

s_logis <- 1

vec_par <- c(eta = -1,
             epsilon = 2.610382,
             mu_us = .19906683,
             mu_mx = 1.779089,
             s_us = s_logis,
             s_mx = s_logis)


####################
### Solve model ###
####################

sol <- model_solution(vec_par, vec_cal, vec_US, vec_mx)

#Make table of results
results <- data.frame(array(NA,c(8,2)))
colnames(results) <- c("US", "Mexico")
rownames(results) <- c("Cons_y", "Cons_g", "Price_y", "Price_g", "Exp_y", "Imp_y",
"Exp_g", "Imp_g")

results["Cons_y", "US"] <- sol["Qdyus"]
results["Cons_g", "US"] <- sol["Qdgus"]
results["Price_y", "US"] <- sol["pyus"]
results["Price_g", "US"] <- sol["pgus"]
results["Exp_y", "US"] <- 0
results["Imp_y", "US"] <- sol["Qdyus"]
results["Exp_g", "US"] <- 0
results["Imp_g", "US"] <- sol["Qgus_imp"]
results["Aus", "US"] <- sol["Aus_cal"]

results["Cons_y", "Mexico"] <- sol["Qdymx"]
results["Cons_g", "Mexico"] <- sol["Qdgmx"]
results["Price_y", "Mexico"] <- sol["pymx"]
results["Price_g", "Mexico"] <- sol["pgmx"]
results["Exp_y", "Mexico"] <-sol["Qymx_exp"]
results["Imp_y", "Mexico"] <- ymx_imp
results["Exp_g", "Mexico"] <- 0
results["Imp_g", "Mexico"] <- sol["Qgmx_imp"]
results["Amx", "Mexico"] <- sol["Amx_cal"]


#########################
### Table of results ###
#########################

results

library(xlsx)
write.xlsx(results, file = "Arbitrator Final - Model results.xlsx")

################################
### Calculate export losses ###
################################
```

```
exp_value      <-      as.numeric(sol["Qymx_exp"]*(sol["pyus"]-vec_cal["t"])      +
sol["Qgmx_exp"]*sol["pgmx"])
exp_value/1000000
exp_value - 22650000 -> nullification


#####################################################################
### Arbitrator's determination of nullification or impairment ###
#####################################################################

nullification/1000000
```