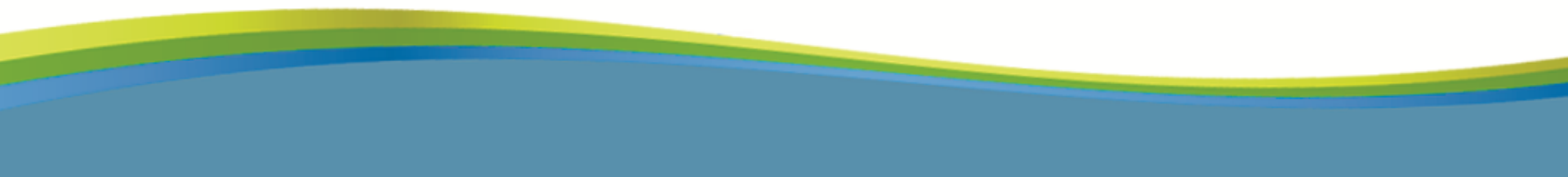


AUSTRALIAN TOTAL DIET STUDY (ATDS) AND STANDARD SETTING FOR FOOD ADDITIVES

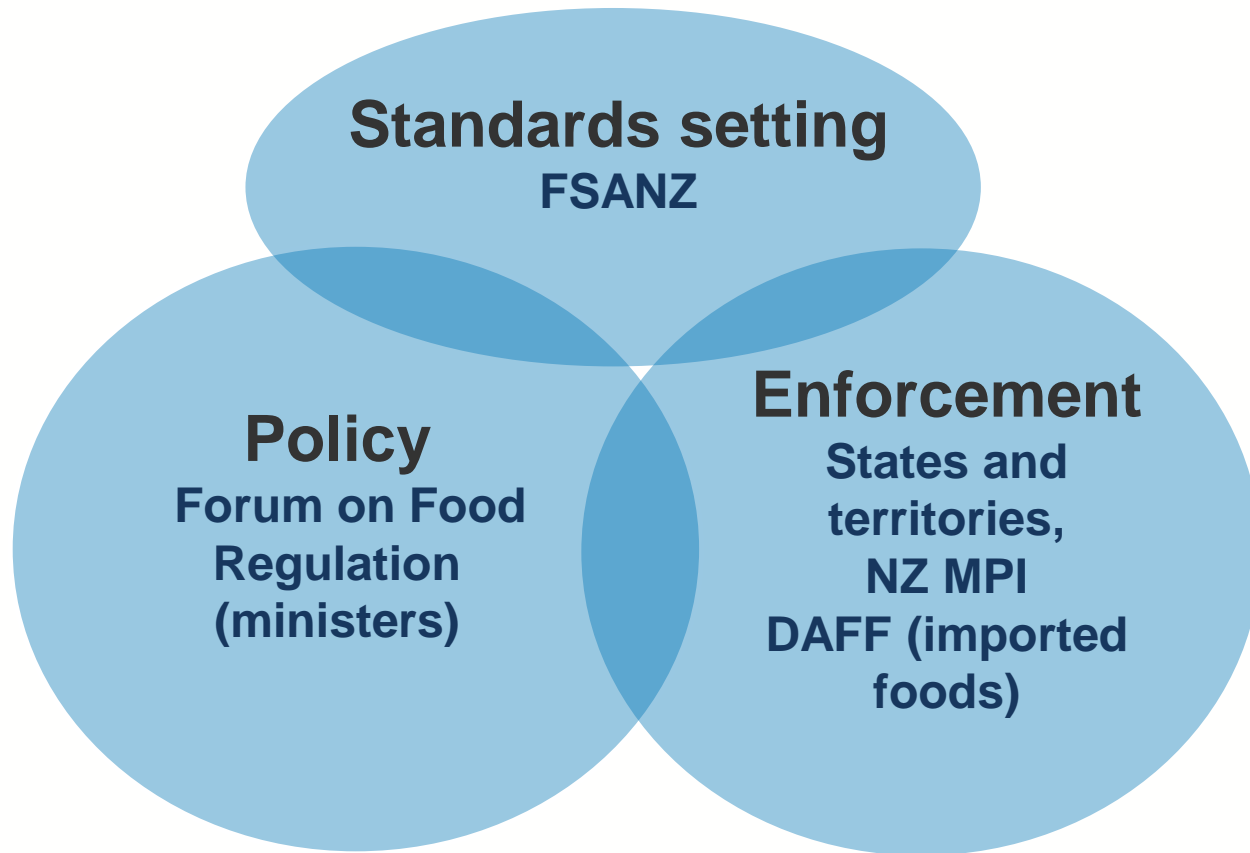
Dr Leanne Laajoki

Section Manager – Scientific Strategy,
International and Surveillance

ABOUT US

- **We are a bi-national statutory agency**
 - **Our main function is to develop and administer the Australia New Zealand Food Standards Code (the Code)**
 - **Not responsible for enforcement**
- 

FOOD REGULATORY FRAMEWORK



THE FOOD STANDARDS CODE

Chapter 1: General Food Standards



- Labelling requirements
- Substances added to foods
- Maximum residue limits
- GM foods

Chapter 2: Food Product Standards



- Compositional requirements for specific foods

Chapter 3: Food Safety Standards (AUS)



- Food safety requirements for food handlers
- Australia only

Chapter 4: Primary Production Standards (AUS)



- Standards for agricultural commodities
- Australia only

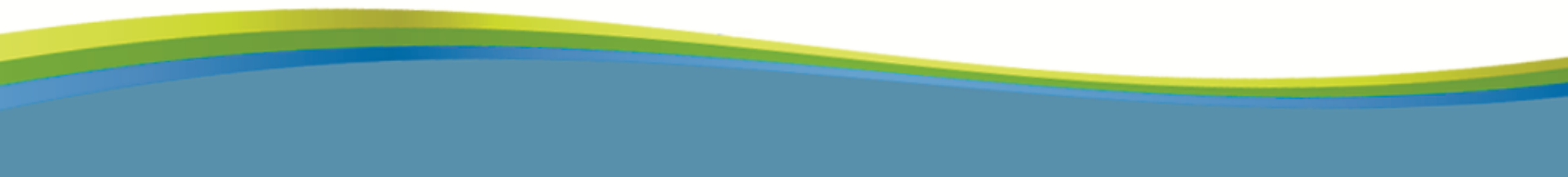
IN DEVELOPING MEASURES CONSIDERATION IS GIVEN TO:

Protection of public health and safety

Providing adequate information to consumers

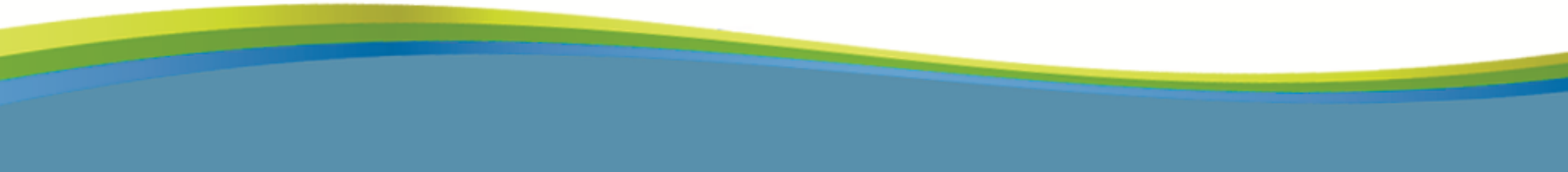
Preventing misleading and deceptive conduct

FUNCTIONS RELEVANT TO THE AUSTRALIAN TOTAL DIET STUDY AND OTHER SURVEY WORK

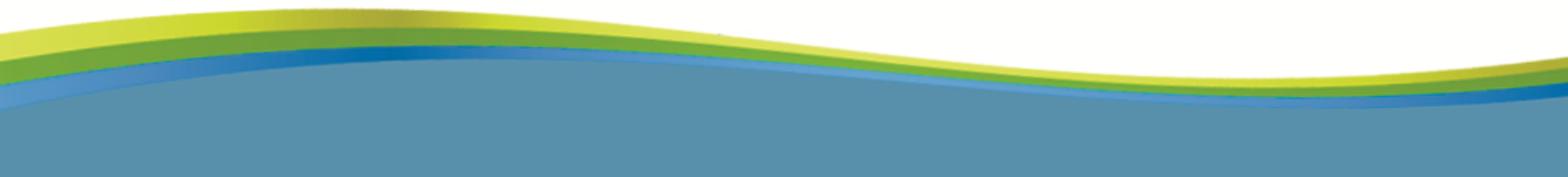
- (g) in consultation with the States and Territories, to co-ordinate the monitoring, surveillance and enforcement of activities relating to food available in Australia; and
 - (h) in consultation with the States and Territories, or on its own initiative, to conduct research and surveys in relation to any of the matters that may be included in a standard;
- 

PURPOSE OF THE STUDY

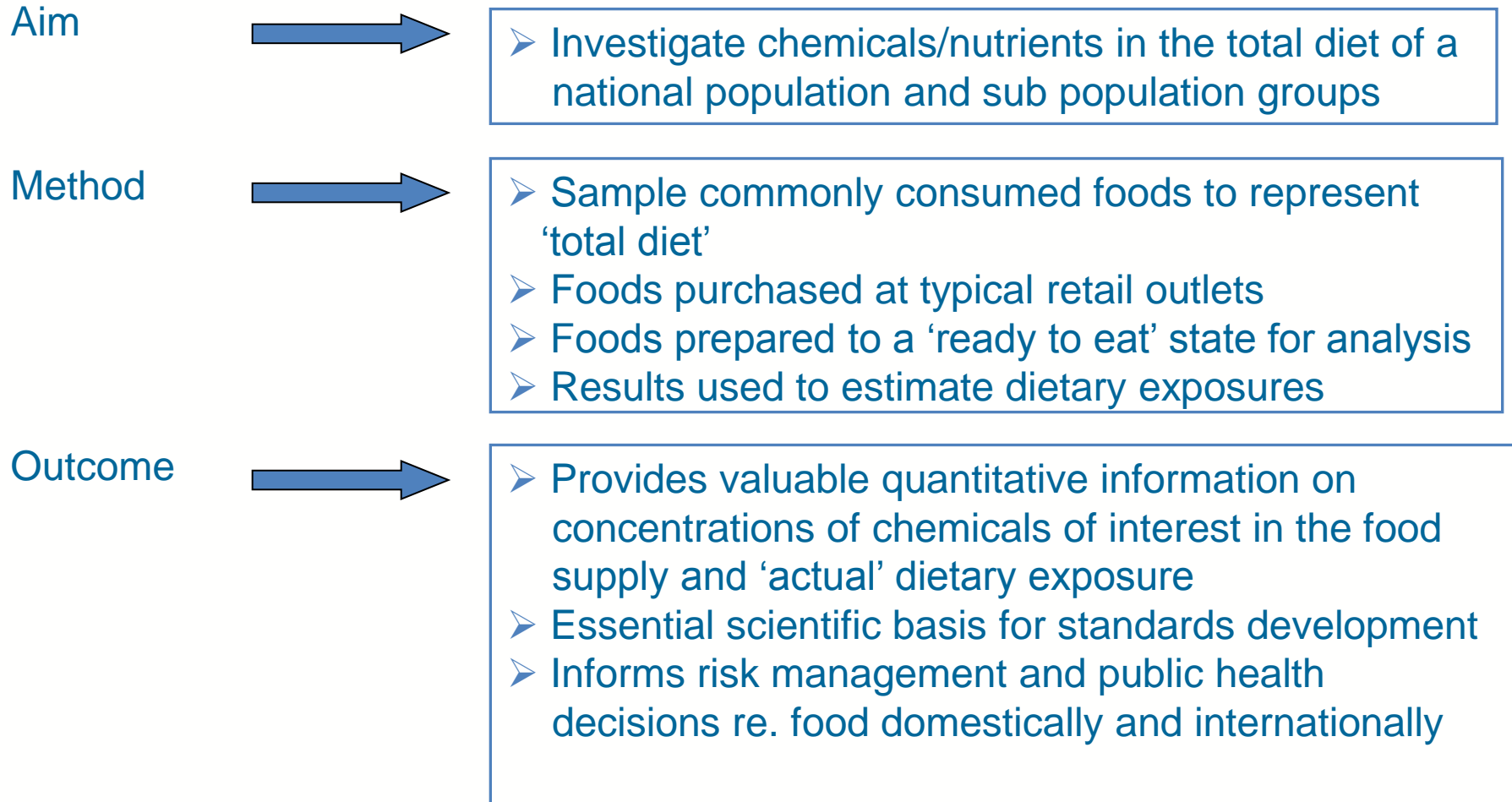
- **To estimate the dietary exposure (intake in the case of nutrients) of the Australian population to a range of chemicals that may be found in the food supply and determine whether there are any public health and safety concerns.**



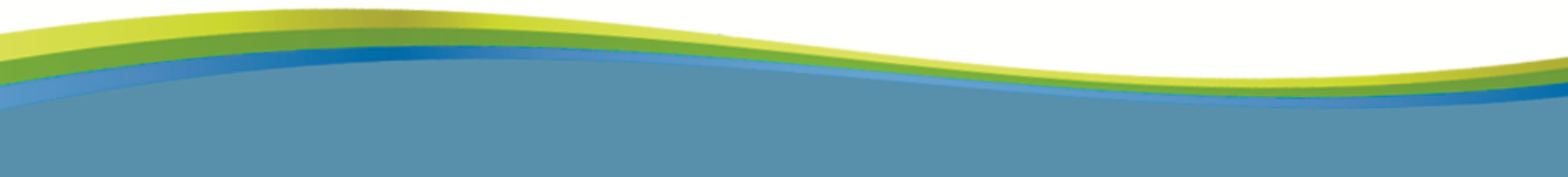
WHY IS IT UNIQUE?

- **There are other surveys conducted in Australia on levels of chemicals in the food supply (e.g. National Residue Survey)**
 - **In the ATDS, food is prepared to a 'ready to eat' state prior to analysis (e.g. vegetables may be peeled or chicken grilled)**
 - **Analytical results for foods 'as consumed' are used to estimate the dietary exposure of the Australian population to the substances analysed**
- 

THE ATDS



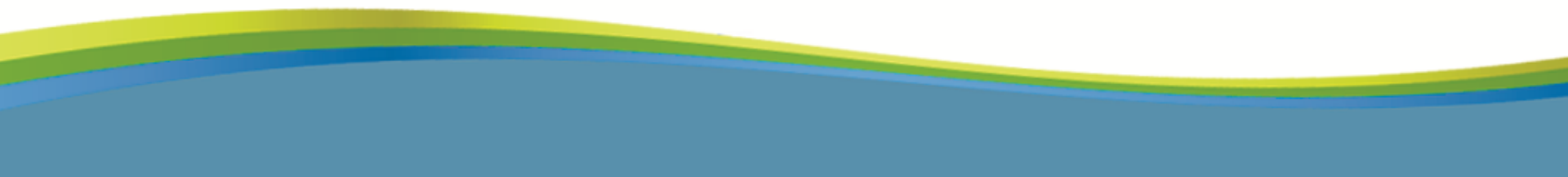
HISTORY OF THE STUDY

- **The first study was conducted by the National Health and Medical Research Council (NHMRC) in 1970**
 - **NHMRC conducted a further 15 studies before responsibility passed to FSANZ (formerly the National Food Authority and the Australia New Zealand Food Authority)**
 - **Previously referred to as the Australian Market Basket Survey**
- 

HISTORY OF THE STUDY

- **23 ATDS reports now published**
 - **24th study nearing finalisation**
 - **25th study – sampling and analysis phase**
- <http://www.foodstandards.gov.au/science/monitoring/pages/austriantotaldiets1914.asp>**
- **Given Australia's extensive experience in conducting TDSs, FSANZ staff contributed 10 chapters to the recently published Total Diet Study publication**

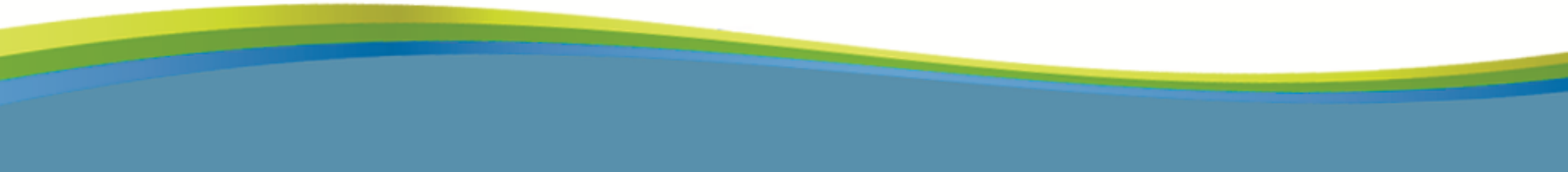
CHANGING FOCUS OF THE STUDY

- **Up to the 20th ATDS, focus was to estimate dietary exposure to agricultural and veterinary chemical residues and contaminants**
 - **In general, the results from these studies consistently showed that the dietary exposures to ag/vet chemicals and contaminants were low, below the health-based guidance value (HBGV)**
 - **It was agreed that other substances be included such as food additives and nutrients.**
- 

ATDS	Sampled	Published	Number of Foods	Analytes
19 th	1998	2001	69	Agricultural chemical residue screen Contaminants: antimony, total arsenic, cadmium, copper, lead mercury, selenium, tin, zinc, aflatoxins, polychlorinated biphenyls.
20 th	2000/2001	2003	65	Agricultural chemical residue screen Contaminants: antimony, arsenic, cadmium, copper, lead, mercury, selenium, tin, zinc. Natural toxicants: aflatoxins & ochratoxin A* Inhibitory substances: penicillin G, streptomycin, oxytetracycline*.
21 st	2003	2005	60	<u>Additives</u> : sulphites, nitrates, nitrites, benzoates, sorbates.
22 nd	2004	2008	96	<u>Essential trace elements</u> : iodine, chromium, molybdenum, selenium and copper <u>Additional survey activity on ATDS samples</u> : e.g., polybrominated diphenyl ethers (PBDE) and polycyclic aromatic hydrocarbons (PAH)*.
23 rd	2008	2011	93	<u>Agricultural chemical residue screen</u> Metals & other elements Natural toxicants
24 th	2011/12			Aluminium, acrylamide, perchlorate, bisphenol A, epoxidised soy bean oil, phthalates, printing inks, perflourinated compounds

SELECTION OF ANALYTES

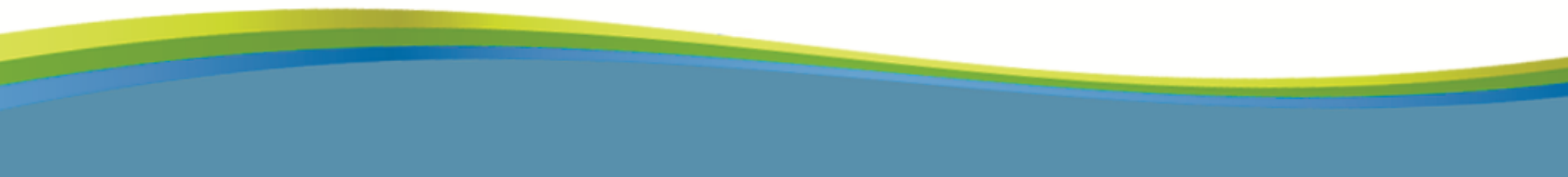
- **Internal consideration of: emerging issues; standards development matters; data gaps in evidence base**
- **Consultation with: State and Territory food regulatory agencies; other domestic regulatory agencies; international food regulatory agencies; industry and public health stakeholders**



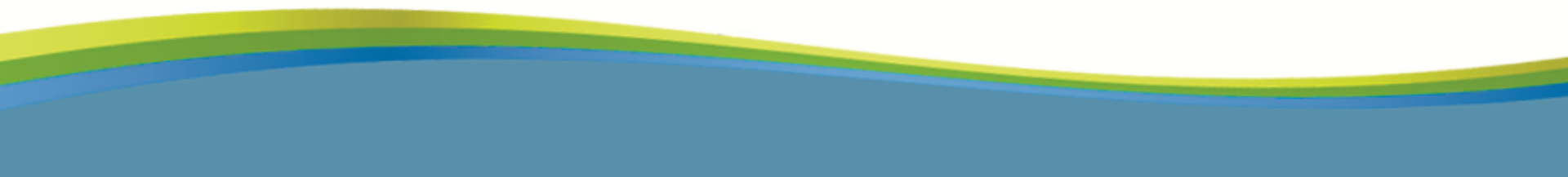
METHODOLOGY - SAMPLING

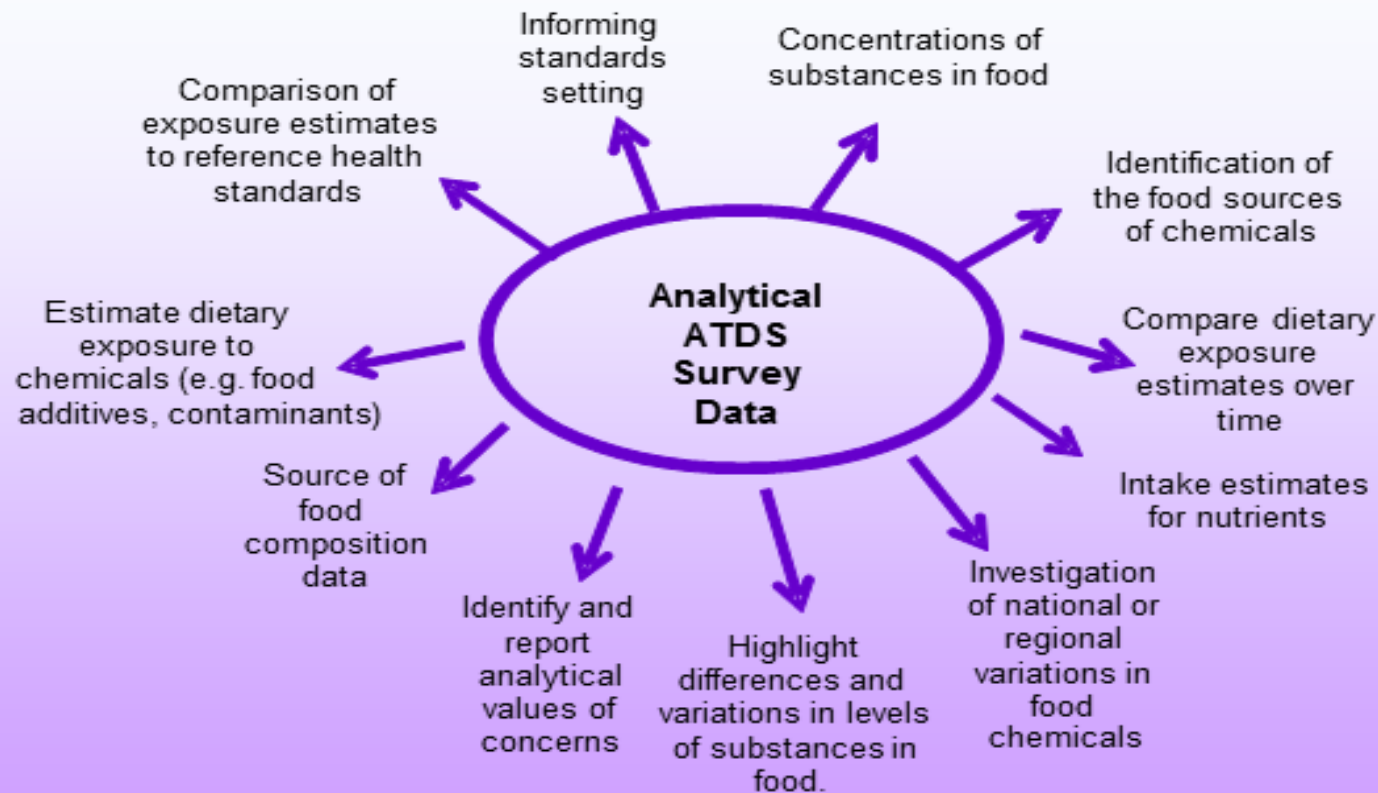
- **ATDS included on a 'Coordinated Food Survey Plan', designed to prioritize and coordinate survey activities that are being conducted by Australian State and Territory government food regulatory agencies.**
 - **Officers in each Australian State and Territory collect food samples according to an agreed sampling plan.**
 - **Ensures nationally representative data covering national and regional foods.**
 - **2 sampling phases – generally summer / winter**
- 

METHODOLOGY - ANALYSIS

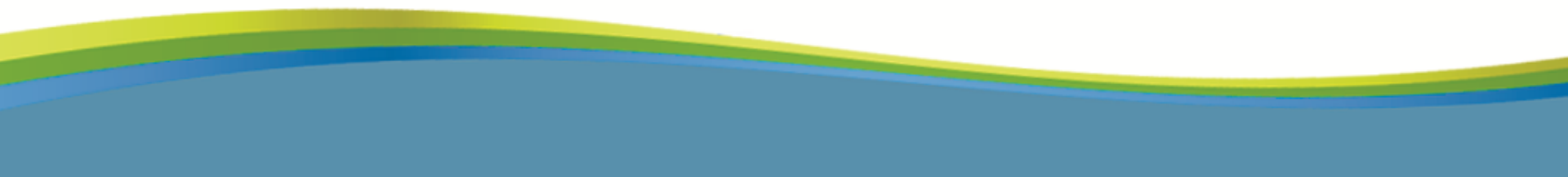
- **Sample analysis conducted by a commercial laboratory selected by an open tender process**
 - **Laboratory prepares and analyses samples in accordance with a 'procedures manual', methodologies stipulated in the contract and requirements for data provision (including QA/QC)**
- 

METHODOLOGY – ANALYSIS OF FINDINGS AND REPORTING

- **Data checking and validation**
 - **Provision of data for dietary exposure assessment, including consideration of food mapping**
 - **Hazard characterisation – generally JECFA HBGVs used**
 - **Risk characterisation**
 - **Consideration of risk management Report preparation**
 - **Peer review**
- 



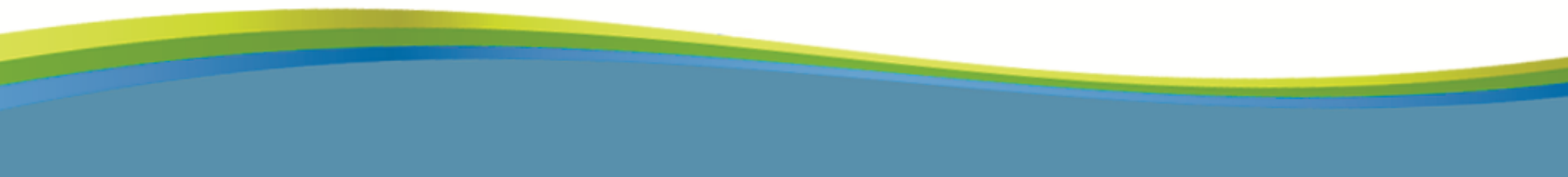
OUR ROLE AS A COLLABORATING CENTRE FOR FOOD CONTAMINATION MONITORING

- **Agreed activity to submit survey data (including ATDS) to GEMS/Food**
 - **Automated conversion of our ATDS generated data to GEMS format**
 - **Now submitted 350,000 results**
- 

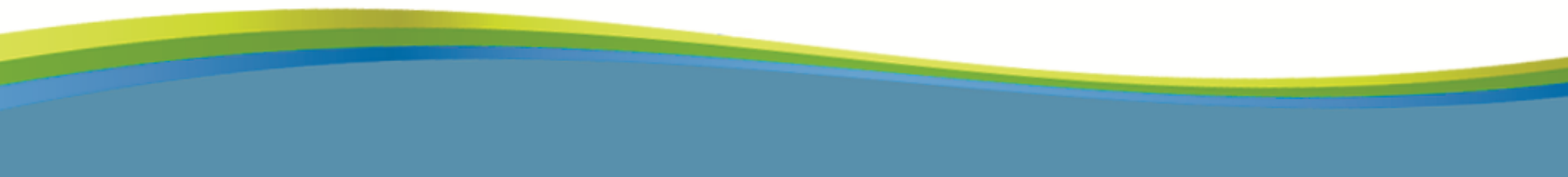
FOOD ADDITIVES IN ATDS

Study	Additive	Outcome
21 st	Sulphites	Exceedance of ADI, Proposal prepared, further survey work
	Benzoates	Exceedance of ADI, Proposal prepared, refined DEA
	Sorbates	No concern for public health and safety, no further work
	Nitrates / Nitrite	Highest contribution to nitrate dietary exposure green leafy vegetables, no further work
23 rd / 24 th	Aluminium	Small exceedance of ADI for young children at 90 th percentile. Consultation with industry.

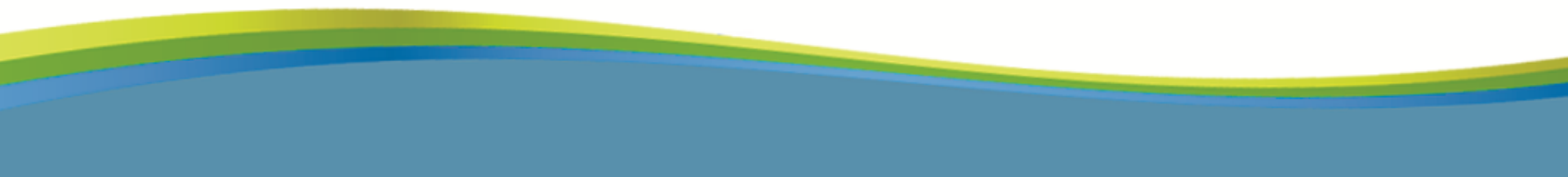
SULPHITES

- **Mean estimated exposure to sulphites was 80% or less of the ADI for all population groups assessed**
 - **95th percentile dietary exposure exceeded the ADI for sulphites for nine of the 10 population groups assessed. The greatest exceedance was for children 2-5 years.**
 - **Further work (Proposal P298)**
- 

SULPHITES

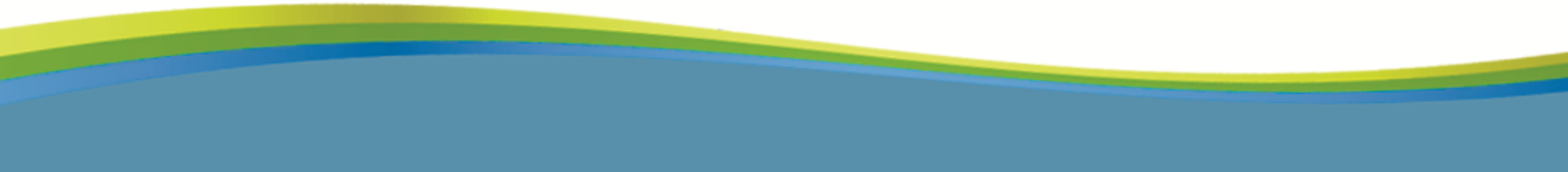
- **Since 21st study, FSANZ took a decision to use 90th percentile estimates for high consumers based on an external peer review of dietary exposure assessment practices and procedures**
 - **Further refinement to dietary exposure estimates including further analytical surveys on two major contributors (dried apricots and sausages)**
 - **Exceedance of ADI for young children at the 90th percentile remains, work is ongoing**
- 

BENZOATES

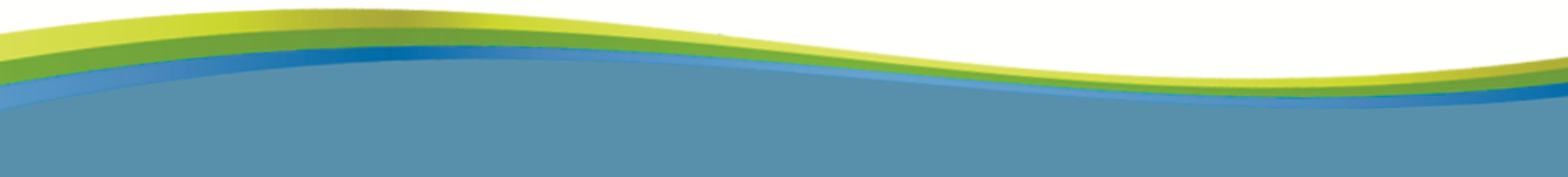
- **Mean estimated dietary exposure was less than 50% of the ADI for all population groups assessed**
 - **95th percentile estimated dietary exposure to benzoates exceeded the ADI for children 2-5 years**
 - **Further work (Proposal P298)**
- 

BENZOATES

- **Use of 90th percentile as representative of high consumers and further refinement of dietary exposure estimates resulted in there no longer being an exceedance of ADI**
- **No further work**



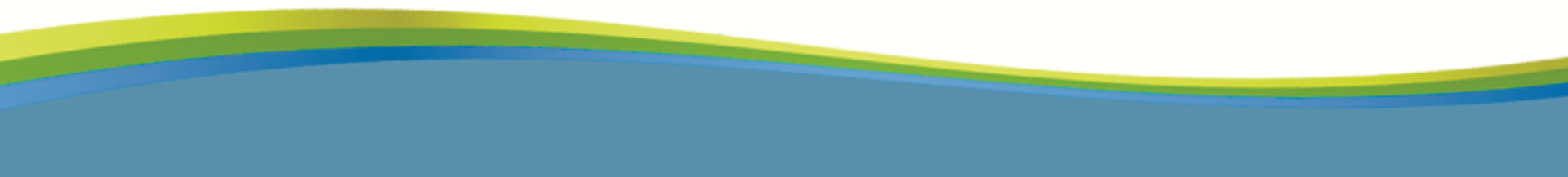
ALUMINIUM

- **In 23rd study, mean and 90th percentile estimated dietary exposures were below the JECFA PTWI of 2 mg/kg bw across all population groups**
 - **Results of 24th study to be published shortly**
 - **Consultation with industry has commenced in order to seek information on use levels of aluminium-containing food additives in a range of different foods**
- 

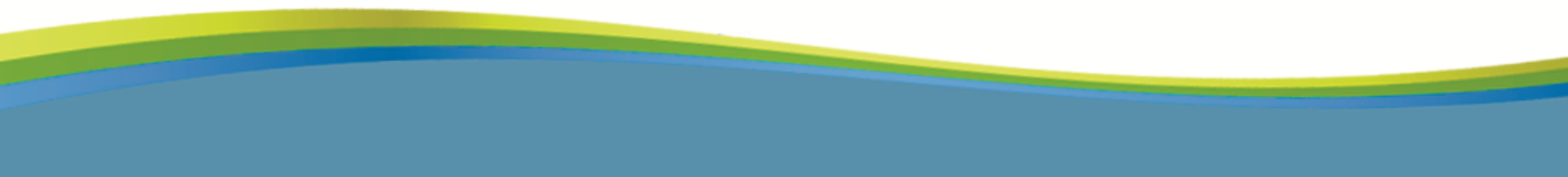
OTHER SURVEYS INVESTIGATING FOOD ADDITIVES

Survey	Analytes	Outcome
Survey of added colours in Australian foods	Allura red, amaranth, azorubine, brilliant black, brilliant blue, brown HT, erythrosine, fast green FCF, green S, indigotine, ponceau 4R, quinoline yellow, sunset yellow, tartrazine, annatto, cochineal/carmine	Estimated dietary exposure under ADI for all population groups at mean and 90 th percentile exposure. No further work.
Intense sweetener survey	Cyclamate, saccharin, aspartame, acesulfame K, sucralose, alitame	Exceedance of ADI for 25-29 year olds at 95 th percentile for cyclamates only. Proposal prepared.

INTENSE SWEETENER SURVEY

- **Baseline survey in 1994**
 - **Further survey in 2004 (methodology below)**
 - **Telephone survey to determine consumption patterns and levels (screener survey)**
 - **Diary survey of potential high consumers (selected from screener survey)**
 - **Supplementary diary survey of people with diabetes or impaired glucose tolerance**
 - **Manufacturer use data was used for concentration data to use with consumption data to estimate dietary exposure**
- 

INTENSE SWEETENER SURVEY CONT

- **Some high consumers of foods containing cyclamate had estimated dietary exposures exceeding the ADI (e.g. 95th dietary exposure for 25-29 year old Australians was estimated to be 150% of the ADI)**
 - **Outcome – maximum permitted level for cyclamates in Standard 1.3.1 – Food Additives, of the Code, for water-based flavoured drinks was reduced from 600 mg/kg to 350 mg/kg**
- 

THANK YOU

**All FSANZ survey work can be found on the
'Monitoring and Surveillance' page of the
FSANZ website,**

<http://www.foodstandards.gov.au/science/monitoring/Pages/default.aspx>